

Kofax SafeCom G4 Server

Administrator's Guide

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The KOFAX logo is displayed in a bold, blue, sans-serif font. The letters are thick and closely spaced, with a slight shadow effect behind the text.

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Preface

This guide provides an overview and instructions for the Kofax SafeCom G4 Server.

Training

Kofax offers both classroom and computer-based training to help you make the most of your Kofax SafeCom solution. Visit the Kofax website at www.kofax.com for details about the available training options and schedules.

Getting help with Kofax products

The [Kofax Knowledge Base](#) repository contains articles that are updated on a regular basis to keep you informed about Kofax products. We encourage you to use the Knowledge Base to obtain answers to your product questions.

To access the Kofax Knowledge Base, go to the Kofax [website](#) and select **Support** on the home page.

Note The Kofax Knowledge Base is optimized for use with Google Chrome, Mozilla Firefox or Microsoft Edge.

The Kofax Knowledge Base provides:

- Powerful search capabilities to help you quickly locate the information you need.
Type your search terms or phrase into the **Search** box, and then click the search icon.
- Product information, configuration details and documentation, including release news.
Scroll through the Kofax Knowledge Base home page to locate a product family. Then click a product family name to view a list of related articles. Please note that some product families require a valid Kofax Portal login to view related articles.
- Access to the Kofax Customer Portal (for eligible customers).
Click the **Customer Support** link at the top of the page, and then click **Log in to the Customer Portal**.
- Access to the Kofax Partner Portal (for eligible partners).
Click the **Partner Support** link at the top of the page, and then click **Log in to the Partner Portal**.
- Access to Kofax support commitments, lifecycle policies, electronic fulfillment details, and self-service tools.
Scroll to the **General Support** section, click **Support Details**, and then select the appropriate tab.

Introduction

SafeCom Smart Printing

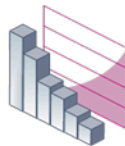
SafeCom Smart Printing solutions are intelligent solutions designed to help companies and organizations gain control over their printing costs and document security. SafeCom is a modular system that can be enhanced with add-on modules to build customer specific and scalable solutions.



Cost Control

Reduce cost by 40%

- ✓ Central administration
- ✓ Consolidate print infrastructure



Efficiency

Supports the way you work

- ✓ Print anytime, anywhere
- ✓ Free up IT resources



Security

Protect your output

- ✓ Confidential printing
- ✓ Avoid unauthorized use

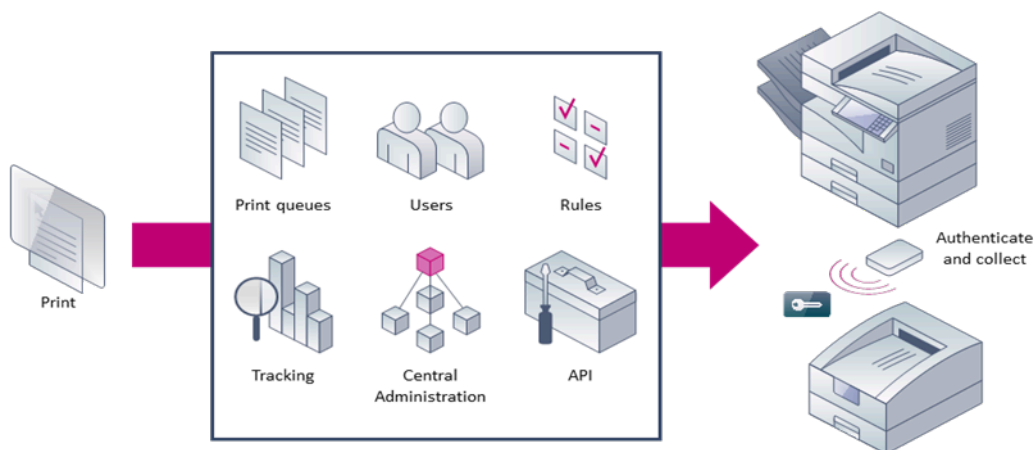


Environment

Solutions for a better world

- ✓ Reduce waste
- ✓ Sustainable print environment

Components overview



Database component

Database. A SafeCom server depends on the availability of its database. In most cases the provided database can be used. See [Server requirements](#) for details.

SafeCom components

SafeCom Go offers user authentication at the device and integrates with the touch-screen control panel on selected multifunction printers (MFPs) from Canon, Fuji Xerox, HP, Konica Minolta, Kyocera, Lexmark, Océ, Ricoh, Samsung, Sharp and Xerox. Authentication by card is possible by connecting a **SafeCom ID Device** (card reader).

- **SafeCom P:Go** offers user authentication at single function printers and is typically used to print all documents at login.
- **SafeCom Controller/SafeCom Color Front-end** (combined touch-screen and card reader) is the printer manufacturer independent and external solution that is used to support devices not supported by SafeCom Go/SafeCom P:Go.
- **SafeCom ID Controller** allows user authentication by ID card on select MFPs and printers that are SafeCom-enabled via the SafeCom Device Server and do not support direct connection of a SafeCom USB ID device card reader.
- **SafeCom Device Server** is a web server based component that is used to offer SafeCom Go functionality on selected devices from Fuji Xerox, HP, Konica Minolta, Océ, Sharp, Xerox and other vendors. It uses SOAP and XML to communicate with the device. No SafeCom software is installed on the device.
- **SafeCom G4** is the server software that comes with a database for storing user and tracking information. Users are added to the database the first time they print, but they can also be imported

from for example Active Directory. It can also work with an external Microsoft SQL Server, see [Server requirements](#) for details.

- **SafeCom Administrator** is the application that is used to configure and administrate the SafeCom solution, including remotely updating SafeCom software on devices.
- **SafeCom Reports** is used to generate reports based on tracking data collected for printer, copied and deleted documents. Use it to report cost and environmental savings.
- **SafeCom Web Interface** offers users self service through a web browser. Users can delete or retain documents etc. Runs on Microsoft Internet Information Server (IIS).
- **SafeCom Port Configurator** is used to conveniently convert direct TCP/IP printers on print server to Push printers and thus allow tracking of documents sent directly to devices. The printers can be reverted back to TCP/IP printers if required.
- **SafeCom Push Port** is the port monitor that tracks directly printed documents.
- **SafeCom Pull Port** is a port monitor that tracks and stores the user's documents. Documents are stored on the SafeCom server. With **SafeCom Print Client** documents can optionally be stored on the hard disk drive of the user's computer or a print server.
- **SafeCom Print Client** allows documents to be stored on the hard disk drive of the computer that it is installed onto.
- **SafeCom PopUp** displays the popup dialogs on the user's screen that allow the user to interact with SafeCom.
 - **SafeCom Move** SafeCom Move is a simple way for the user to manage pending print jobs or files scanned via SafeCom Smart Scan. From SafeCom Move the user can access scanned files, delete them, or download them to any location specified by the user.
 - **SafeCom Smart Scan** represents an easy way to handle scan-to-folder functionality that bypasses both Microsoft Outlook and complex password issues.
 - **Smart Printer Add-on and Driver** increases versatility across mixed printer vendor parks as it ensures that users can use only one print queue, run even complex jobs on all printers and not encounter problems with driver incompatibilities. The Smart Printer Add-on and Driver create and store print data on the SafeCom Server or the Print Client in Microsoft XPS format (XML Paper Specification format) until it knows which printer will be used. When the user logs onto an MFP, the system identifies the device type and only then runs the job through the correct vendor-specific printer driver.

SafeCom Pay components

These components are relevant only for solutions where users have to pay for print and copy service.

- **SafeCom Administrator** the application that is used to add (deposit) or subtract (withdraw) credits (money) from the user's account.
- **SafeCom ePay** allow users to transfer money from their bank account to their SafeCom account via the Internet.

SafeCom APIs

In addition to being a modular solution, the SafeCom Smart Printing solution also features a number of optional Application Programming Interfaces (APIs).

- **SafeCom Administrator API** is an XML-based tool that makes it possible to manipulate multiple users, automate tasks, and integrate your SafeCom Smart Printing solution with other systems.
- **SafeCom Batch Print API** is an XML-based tool used to integrate the SafeCom solution with other systems, such as document archiving systems.

SafeCom Service and other services

SafeCom Service The SafeCom Service (scSafeComService.exe) launches the required SafeCom processes (scBroadcastServer.exe, scJobServer.exe, scMoneyServer.exe and scTrackingServer.exe). On Windows 64-bit the files are named *64.exe. By default, the service runs under a local system account, and the databases are accessed via a “safecom” user with SQL authentication. You can set up a dedicated service account, which requires the “Logon as a service” rights, and can access the SQL database with Windows authentication. The installer prompts for selecting the authentication method.

- **SafeCom Device Server** The SafeCom Device Server (scDeviceServer.exe) launches the SafeCom Device Server.
- **SQL Agent** The Microsoft SQL Server Agent handles the replication from the SQL primary server to the SafeCom secondary servers.
- **MSSQL** The Microsoft SQL Server runs the database.
- **Print Spooler** The Microsoft Print Spooler (spoolsv.exe) loads files to memory for later printing.
- **SafeCom XpsPrint Service** Part of the Smart Printer Add-on. Handles XPS (Smart Printer Driver) job printing for SafeCom.

Pull Printing explained

From the user's point of view:

1. Print your documents from Windows.
2. Go to any SafeCom-enabled printer.
3. Log in by means of card and/or code.
4. Select the documents you wish to print and pick them up from the printer's output bin.

From the administrator's point of view:

1. SafeCom solutions only require software to be installed on a Windows Server 2016/2012/2012 R2, or Windows 8; there is no need to install software on users' computers; it is sufficient to add or modify a shared printer on the server.

From the system's point of view:

1. The Windows print queue is using the port monitor **SafeCom Pull Port** to analyze the document to determine owner and job characteristics.
2. The **SafeCom Pull Port** transfers the formatted document and the resulting data to the SafeCom server.
3. When the user logs in at the printer documents are released for printing. Documents that do not match the printer can be filtered from the list of documents in advance ([Printer driver and document fidelity considerations](#)).

Terms and definitions

The relevance of some of the listed terms depends on the availability of SafeCom add-on modules (license key code controlled).

Billing code – A code users can select for any job that is tracked by the SafeCom solution. See **SafeCom Client Billing**.

Charging scheme – In the charging scheme you define the cost of the different paper sizes, use of color and duplex (double-sided print). A device can be associated with two charging schemes: 1) **Primary charging scheme**, which is used to charge users and invoice departments, and 2) **Secondary charging scheme**, which is used to reflect the true costs. Requires SafeCom Tracking or SafeCom Pay.

Delegate print – Delegate Print is relevant for an organization that needs the advantages of SafeCom Pull Print and users who need the flexibility to entrust their print tasks to someone else. With SafeCom Delegate Print users authorize other SafeCom users to print or collect print jobs on their behalf and Delegate Print.

Domain – A group of computers that are part of a network and share a common directory database.

Driver name – In Windows the driver name appears as **Model** on the **General** tab of the **Printer properties** dialog. The name is used to determine document fidelity ([Printer driver and document fidelity considerations](#)).

Dual charging scheme – See **Charging scheme**.

Encryption (option) – By means of encryption the SafeCom solution can prevent anyone from reading the documents, should they be intercepted on their way to the printer ([Printing encrypted documents](#)). Requires SafeCom Encryption.

Group – Either a group of SafeCom servers (**Server group**) or a group of users. A user can be a member of one or more groups. Existing user grouping can be imported from Windows and used in connection with SafeCom Rule Based Printing. See also: **SafeCom Rule Based Printing**

Group print – Documents can be printed to all members of a group. With the Print once option the document is deleted from all members once one member has collected it.

Home server – The SafeCom server where the list of the user's print jobs is maintained. See also: **Multiserver Support**.

LDAP – Lightweight Directory Access Protocol.

License key code – The code provided by your SafeCom solution supplier.

Primary server – If the server group includes multiple SafeCom servers, then one is appointed the role of being the primary server. All system and user data are synchronized and distributed from the SafeCom primary server. See also: **Multiserver Support**.

MFP – Multifunction Printer; a device that can print, scan, and copy.

Multiserver Support – Enables two or more SafeCom servers to work together. Users can roam between locations to collect their documents at any SafeCom-enabled printer and at any location regardless to which SafeCom server the document was printed ([Are SafeCom solutions scalable?](#)). See also: **Home server** and **Primary server**.

MSCS – Microsoft Cluster Service.

Organizational unit (Org. unit) – is an attribute that describes to which part of the organizational tree users, devices and servers belong ([Organizational units](#)).

PIN code – PIN (Personal Identification Number) is a personal code consisting of four (4) alphanumeric characters. To increase security users are requested to log in by means of both the personal card (or ID code) and the PIN code. The default PIN code is '1234'.

Port Configurator – See: **SafeCom Port Configurator**.

Port monitor – Port monitor is a component in the Windows print process that is responsible for the communication to the physical printer. When you do a Server installation or Client installation you also install two special port monitors: **SafeCom Pull Port** and **SafeCom Push Port**.

PUK code – PUK (Personal Unblocking Key) is an 8-digit code that associates users with their card (or ID code).

Pull Print – The process where users log in at the printer before the submitted documents are printed. See also: **SafeCom Pull Printer**.

Push Print – The process where submitted documents are sent directly to the printer. See also: **SafeCom Push Printer**.

RBP – Rule Based Printing.

Rule Based Printing – See: **SafeCom Rule Based Printing**.

SafeCom Administrator – The application you use to configure and administrate a SafeCom solution.

SafeCom Administrator API – (option)An XML-based tool that makes it possible to manipulate multiple users, automate tasks and integrate the SafeCom solution with other systems. Available in the form of an executable and a dynamic link library (DLL). Refer to *SafeCom G4 Administrator API Reference Manual*.

SafeCom Batch Print API – (option)An XML-based tool used to integrate the SafeCom solution with other systems, such as document archiving systems. Refer to *SafeCom G4 Batch Print API Reference Manual*.

SafeCom Broadcast Server – A server process that enables the various SafeCom applications to find and connect to the relevant servers.

SafeCom Client – A computer on which a local SafeCom printer is installed.

SafeCom Client Billing – (option) Allows users to select billing codes with any print, copy and possibly also fax, scan and e-mail jobs performed on MFPs. With billing codes it is possible to get a very detailed breakdown of printer and MFP usage and possibly recover these expenses by invoicing clients. Requires SafeCom Tracking.

SafeCom Controller – Hardware that connects directly to the Ethernet network and provides network access for the SafeCom ID Device.

SafeCom Devices – The SafeCom Controller, SafeCom Go and other devices that support the SafeCom protocol. Communicates with the SafeCom Job Server.

SafeCom ePay – (option) Allows users to transfer money from their bank account to their SafeCom account via the Internet.

SafeCom Front-end – Hardware that is used to authenticate users at the printer. It is a card reader with touch-screen ([SafeCom ID Devices](#)).

SafeCom Go – SafeCom device software that integrates with the touch-screen control panel of MFPs to offer authentication, access control and Pull Print ([Printers](#)).

SafeCom ID Device – Hardware that is used to authenticate users at the printer ([SafeCom ID Devices](#)).

SafeCom Job Server – A server process that stores user data, device data and print job references in the SafeCom Job database. Configuration data is also stored for the whole SafeCom solution.

SafeCom Mobile Print – Allows users to print via e-mail or to upload a print job to a web page, from a mobile device, a tablet, or computer.

SafeCom Money Server – A server process that controls access to the SafeCom Money database that stores transactions made on the users' accounts. Requires SafeCom Pay.

SafeCom Port Configurator – A wizard-based tool for converting existing TCP/IP¹ printers to SafeCom Push printers and revert SafeCom Push printers back to their original TCP/IP settings.

SafeCom Pull Printer (Uses SafeCom Pull Port) – A printer defined in Windows that parses the printed document and transfers the printed document and tracked data to the SafeCom server. Subsequently the user can log in at any SafeCom-enabled printer to collect the document.

SafeCom Push Printer (Uses SafeCom Pull Port) – (Uses SafeCom Push Port) A printer defined in Windows that parses the printed document, transfers the tracked data to the SafeCom server, and forwards the printed document either directly to the physical printer or to another Windows print queue. Requires SafeCom Tracking or SafeCom Pay.

SafeCom Print Client – SafeCom Print Client allows documents to be stored on the hard disk drive of the computer that it is installed onto.

SafeCom Reports – (option) SafeCom Reports enables viewing of main tracking statistics, user statistics, device statistics, client billing statistics and job list. SafeCom Reports includes a number of predefined and parameterized reports. Requires SafeCom Tracking.

¹ A TCP/IP printer is a Windows print queue that uses the Standard TCP/IP port monitor.

SafeCom Rule Based Printing (RBP) – (option) Allows print cost savings by offering management a method for enforcing policies for printing. Rules can be applied to groups of users. Existing user grouping can be imported from Windows. Requires SafeCom Tracking.

SafeCom Server The computer where the SafeCom Server software is installed.

SafeCom Tracking Server – A server process that controls access to the SafeCom Tracking database that stores information about who printed what on which printer and at what time. The tracking record includes information about paper size, number of pages and possible use of color and duplex (double-sided print). Requires SafeCom Tracking or SafeCom Pay.

SafeCom Web Interface – With SafeCom Web Interface users can use a standard web browser to see a list of their documents on the SafeCom server. In SafeCom Pay environments users can see their current balance and transactions made on their SafeCom account. Refer to *SafeCom G4 Web Interface Administrator's Manual*.

Server group name – A unique name used by SafeCom components to reference a group of one or more SafeCom servers. Maximum is 19 characters.

SQL Server Management Studio (SSMS) – SQL Server Management Studio (SSMS) is a tool used for handling SQL components.

Virtual server – Microsoft Cluster Service (MSCS) enables the creation of virtual servers. Unlike a physical server, a virtual server is not associated with a specific computer, and can failover from one node to another. SafeCom configurations must reference the virtual server rather than the physical servers. Requires SafeCom Cluster Server license.

System requirements

Consider the hardware and operating systems on your server and clients before installing SafeCom G4.

Server requirements

- Windows Server 2016 or 2012 R2. For demo purposes, it can also run on Windows 10, 8, and 7.
- Virtualization software, such as VMware and Microsoft Virtual Server, is supported as long as it supports the Operating System.
- 16 GB RAM or more.
- 20 GB or more disk space to allow for database growth and print job storage (depends on utilization).
- TCP/IP protocol installed and configured.
- The Ethernet Card Reader Service requires Microsoft .Net Framework 4.6.
- SafeCom license key code.
- Capability for SHA-2 code signing.

Database

- Microsoft SQL Express 2014 SP1 is distributed with the software and requires Microsoft .Net Framework 3.5 SP1 and Windows Installer 4.5. Please visit microsoft.com to download and install these prior to the installation of SafeCom G4.

- In a SafeCom multiserver installation ([Multiserver installation](#)) the SQL primary server must run Microsoft SQL Server 2014 or 2016. It must be licensed and installed (including replication option). Microsoft SQL is quite memory intensive and basically the more memory the better. 16 GB RAM is a good start.

Important When using a standalone SQL Server 2016, ensure that you have the Management Tools – Basic component of the SSMS 2014 installed on the same machine as the SafeCom server before you start installing SafeCom. If SSMS is not installed, replication may not work properly.

Important When using SQL Server 2014, ensure that you have the Management Tools – Basic component of the SSMS installed on the same machine as the SafeCom server. If the SSMS is not installed prior to SafeCom, it requires a restarting of the SafeCom service. If SSMS is not installed, replication may not work properly. The SSMS version must match the version of the external SQL server to be used.

- Decide on the authentication type before installation, as you will be prompted to choose by the installer. If you select Windows authentication, the account is required already during the installation and must have the “Logon as service” rights. The service account credentials also need to be provided, if necessary.

Note

- When using Windows Server 2012 R2 (either as a G4 server or for the Print Client), ensure that the following Windows updates are installed in this order: KB2939087; KB2975061; KB2919355, KB2999226.
- For SHA-2 signing on Windows 7, ensure that the relevant code signing support is installed. For more information, see [here](#).
- These requirements are general rules for the configuration of the SafeCom servers (CPU, RAM, and disk space). The load on the system is very difficult to predict since it depends on many things, including, number, size and type of documents to be printed, printer driver, number and types of printers, number of users, and so on. Refer to [Are SafeCom solutions scalable?](#) for information on scalability.
- The Smart Printer Driver supports both 32-bit and 64-bit versions of the operating system.
- Ensure that the computer names in the SafeCom environment are shorter than 16 characters, to avoid connection issues due to NetBIOS limitations.
- Ensure that ICMP traffic is allowed between SafeCom components (SafeCom G4 server, Device Servers, Print Client, devices using various SafeCom Go implementations).
- Do not install your SafeCom Device Server on a computer that already has a Print Client installed.

Cluster

- The SafeCom server and the SafeCom printers on Windows Server 2016, 2012 R2 are cluster-aware (requires a SafeCom Cluster Server license). If one server in the failover cluster goes down another takes over. This increases availability of the SafeCom server installation significantly. Refer to [microsoft.com](#) for additional information on the resulting hardware and software requirements.

Client requirements

- Windows 10.

- Clients running Citrix and Windows Terminal Service (WTS).
- 1 GHz CPU and 2 GB RAM or greater (recommended 4 GB RAM if 64-bit).
- 1 GB free disk space (or more depending on the amount of printing).
- TCP/IP protocol installed and configured.

Printing via LPD/LPR from Apple Mac, UNIX, Novell and Host systems (mainframe) is possible to a shared SafeCom Pull Printer, but may require additional software.

Note

- For Windows 10 workstations, update 1511 is required.
- When using Windows 8 or Windows Server 2012 R2, ensure that the following Windows updates are installed in this order: KB2939087; KB2975061; KB2919355, KB2999226.
- For SHA-2 signing on Windows 7, ensure that the relevant code signing support is installed. For more information, see [here](#).
- Ensure that the computer names in the SafeCom environment are shorter than 16 characters, to avoid connection issues due to NetBIOS limitations.
- Push printing does not work if SafeCom Print Client version G4 520*07 is used with SafeCom G4 Server version 520*11. To resolve the problem, upgrade to SafeCom Print Client 520*08 or newer.

Printers

Printers and MFPs with a network connection² can be Pull Print enabled with the SafeCom Go, SafeCom P:Go, or SafeCom Controller.

SafeCom Go integrates with the touch-screen control panel of the MFPs and offers user authentication by code and/or card. **SafeCom P:Go** is the internal solution for printers and typically offers user authentication by card. Supported printer vendors:

- Canon
- Fuji Xerox
- HP
- Konica Minolta
- Kyocera
- Lexmark
- Océ
- Ricoh
- Samsung
- Sharp
- Xerox

SafeCom Controller offers user authentication and Pull Printing independent of printer manufacturer. Users log in either through the attached SafeCom Color Front-end or stand-alone SafeCom ID Device.

² Printer must support printing via TCP port 9100.

If pages are to be counted SafeCom Tracking is required and the print job must be processed by a driver that support PCL5, PCL5c, PCL5e, PCL6, PCL XL or PostScript level 2 or 3.

Network ports

The network must allow communication via certain network ports, including TCP ports 7500 and 7700, and UDP port 5742. If there is a Device Web Server in use, then port 8444 should be open too.

[TCP and UDP port numbers used by SafeCom](#) has a complete list and description of the TCP and UDP port numbers used by the SafeCom solution.

SafeCom ID Devices

Pull printing requires the user to log in at the printer. SafeCom offers a wide and ever expanding range of ID devices (methods), including card readers with touch-screen and stand-alone card readers. ID devices require unique ID Device Licenses. SafeCom ID devices come with ID device licenses, whereas ID device licenses for third-party ID devices must be purchased separately.

SafeCom Controller supported SafeCom ID Devices

Authentication Method	Card Reader USB p/n	Card Reader Serial p/n	Color Front- end Serial p/n
Windows authentication / ID code			672040
SafeCom AWID Reader	696020	696010	696040
SafeCom Barcode Reader	694020	694010	
SafeCom Casi-Rusco Reader	652420	652010	652040
SafeCom Cotag Reader	678020		67804x
SafeCom Deister Reader			65504x
SafeCom EM Reader [E] SafeCom EM Reader [R]	674120 674420	674110	674140
SafeCom Felica Reader	697420	697310	697440
SafeCom HID Prox Reader [E] SafeCom HID Prox Reader [R]	673120 673420	673110	673140
SafeCom HID Prox Reader 37 bit (custom)	671120	671110	671140
SafeCom iCLASS Reader [E] SafeCom iCLASS Reader [R]	654120 654420	654110	654140
SafeCom Indala Reader 26bit	670420	670010	670040
SafeCom Indala Reader 29bit	651020	651010	651040
SafeCom IoProx	658420	658010	658040
SafeCom Legic Reader [E] SafeCom Legic Reader [R]	679120 679420	679110	679140
SafeCom Magnetic Card Reader (Tr 1)			959040

SafeCom Magnetic Card Reader (Tr 2)			691040
SafeCom Magnetic Card Reader (Tr 3)			657040
SafeCom Magnetic Card Reader DD (Tr 1)	692010		
SafeCom Magnetic Card Reader DD (Tr 2)	691020		
SafeCom Magnetic Card Reader DD (Tr 3)	692020		
SafeCom Mifare Reader [E] SafeCom Mifare Reader [R]	970120 970420	970110	970140
SafeCom Nedap Reader	653020	978990	653040
SafeCom NexWatch Reader	698420	698010	698040

Table 1: SafeCom Controller supported SafeCom ID Devices shows the supported authentication methods. The ID device is either fitted or supplied with a 1.8 - 2.0 m cable. Additional information about the ID devices is available in chapter [SafeCom ID Devices](#) **SafeCom ID Devices**.

If your method of authentication is not in the table, then please contact Kofax Sales to hear about support. Please contact your SafeCom representative if you want to have your cards verified for reading.

Available documentation

SafeCom Smart Printing

- *SafeCom Smart Printing Administrator's Quick Guide* – How to install a SafeCom Smart Printing solution.
- *SafeCom Smart Printer Driver Tech Note* – Technical details on how to configure the Smart Printer Driver manually.

SafeCom G4

- *SafeCom G4 Administrator's Guide (this guide)* – A comprehensive guide that the administrator should consult to make a successful SafeCom solution. Includes information about SafeCom Tracking, SafeCom Rule Based Printing, SafeCom Client Billing and SafeCom Pay.
- *SafeCom G4 Cluster Administrator's Guide* – How to install on a cluster.
- *SafeCom G4 Client Billing User's Guide* – How to perform typical user tasks in relation to client billing.
- *SafeCom G4 Delegate Print User's Guide* – How to perform typical user tasks in relation to delegate printing.

SafeCom G4 Web Interface

- *SafeCom G4 Web Interface Administrator's Manual* – How to install and customize the Web Interface and SafeCom ePay.
- *SafeCom G4 Web Interface User's Guide* – How to use the Web Interface.

SafeCom Reports

- *SafeCom Reports Administrator's Guide* – How to install and use SafeCom Reports.

SafeCom Controller

- *SafeCom Controller Administrator's Guide* – Guide on how to install, configure, and use SafeCom Controller and SafeCom Color Front-end.
- *SafeCom Controller User's Guide* – User's Guide on how to use SafeCom Controller and SafeCom Color Front-end.

SafeCom Go Canon

- *SafeCom Go Canon Administrator's Guide* – Guide on how to install, configure and use SafeCom Go Canon.
- *SafeCom Go Canon User's Guide* – User's Guide on how to use SafeCom Go Canon.

SafeCom Go HP

- *SafeCom Go HP Administrator's Guide* – Guide on how to install, configure and use SafeCom Go HP.
- *SafeCom Go HP Hardware Quick Guide* – Quick Guide on how to install the SafeCom Go HP hardware.
- *SafeCom Go HP User's Guide* – User's Guide on how to use SafeCom Go HP.

SafeCom Go Fuji Xerox

- *SafeCom Go Fuji Xerox Administrator's Guide* – Guide on how to install, configure, and use SafeCom Go Fuji Xerox.
- *SafeCom Go Fuji Xerox User's Guide* – User's Guide on how to use SafeCom Go Fuji Xerox.

SafeCom Go Konica Minolta

- *SafeCom Go Konica Minolta Administrator's Guide* – Guide on how to install, configure and use SafeCom Go Konica Minolta.
- *SafeCom Go Konica Minolta User's Guide* – User's Guide on how to use SafeCom Go Konica Minolta.

SafeCom Go Kyocera

- *SafeCom Go Kyocera Administrator's Guide* – Guide on how to install, configure and use SafeCom Go Kyocera.
- *SafeCom Go Kyocera User's Guide* – User's Guide on how to use SafeCom Go Kyocera.

SafeCom Go Lexmark

- *SafeCom Go Lexmark Administrator's Guide* – Guide on how to install, configure and use SafeCom Go Lexmark.
- *SafeCom Go Lexmark User's Guide* – User's Guide on how to use SafeCom Go Lexmark.

SafeCom Go Océ

- *SafeCom Go Océ Administrator's Guide* – Guide on how to install, configure, and use SafeCom Go Océ.
- *SafeCom Go Océ User's Guide* – User's Guide on how to use SafeCom Go Océ.

SafeCom Go Ricoh

- *SafeCom Go Ricoh Administrator's Guide* – Guide on how to install, configure and use SafeCom Go Ricoh.
- *SafeCom Go Ricoh User's Guide* – User's Guide on how to use SafeCom Go Ricoh.

SafeCom Go Samsung

- *SafeCom Go Samsung Administrator's Guide* – Guide on how to install, configure and use SafeCom Go Samsung.
- *SafeCom Go Samsung User's Guide* – User's Guide on how to use SafeCom Go Samsung.

SafeCom Go Sharp

- *SafeCom Go Sharp Administrator's Guide* – Guide on how to install, configure and use SafeCom Go Sharp.
- *SafeCom Go Sharp User's Guide* – User's Guide on how to use SafeCom Go Sharp.

SafeCom Go Xerox

- *SafeCom Go Xerox Administrator's Guide* – Guide on how to install, configure and use SafeCom Go Xerox.
- *SafeCom Go Xerox User's Guide* – User's Guide on how to use SafeCom Go Xerox.

Other guides

- *SafeCom Save-O-Meter Administrator's Guide* – This guide describes how to install and configure the Save-O-Meter and Save-O-Meter widget.
- *SafeCom Mobile Print Administrator's Guide* – This guide describes install and configure SafeCom Mobile Print as well as how users interface with it.
- *SafeCom G4 Administrator API Reference Guide* – Describes how to use the Administrator API to add, delete and modify users and how to export tracking data.
- *SafeCom G4 Batch Print API Reference Guide* – Describes how to integrate SafeCom with other systems, such as document archiving systems.
- *SafeCom G4 Administrator DLL Programmer's Guide* – Describes the SafeCom Administrator DLL, a C programmer's interface that can be used to automate SafeCom administration tasks and integrate SafeCom with existing systems.

About this guide

This guide applies to SafeCom G4 Server version 10.530.0, Device Web Server version 5.10.0.1000, SafeCom Print Client version 10.530.0, SafeCom Device Server 9.12.0, SafeCom Controller version S80 508.780*68, SafeCom Controller 3 Port version S80 312.750*67, SafeCom Controller 1 Port version S80 304.750*67, SafeCom Go Canon version 20.25.0.28, SafeCom Go HP version 50.32.0.106, SafeCom Go Kyocera S96 020.060*02, SafeCom Go Lexmark S93 nnn.030*21, SafeCom Go Ricoh S87 nnn.030*07 and SafeCom Go Samsung 10.24.0.42.

This guide is organized as follows:

- Chapter [Introduction](#) lists the supplied SafeCom documentation, introduces SafeCom relevant terms, system requirements, and describes how this manual is organized.
- Chapter [Frequently asked questions](#) contains answers to some of the questions frequently asked by administrators.
- Chapter [Planning your SafeCom solution](#) helps and guides the administrator to a successful SafeCom solution that reduces print costs, is easy to administrate and yields high user satisfaction.
- Chapter [Installation](#) covers installation scenarios, including advanced and multiserver installation.

- Chapter [SafeCom Administrator](#) describes the menus and dialogs of the administrative application, SafeCom Administrator.
- Chapter [Manage servers](#) describes how to manage server groups and servers, in particular groups with multiple servers.
- Chapter [Manage users](#) links the SafeCom options discussed during the planning phase in [Planning your SafeCom solution](#) with easy-to-follow step-by-step procedures.
- Chapter [Manage devices](#) describes how to manage devices from within SafeCom Administrator.
- Chapter [SafeCom Tracking](#) describes how tracking is done, how to plan and configure the tracking solution, define costs via charging schemes and how to work with the tracking data.
- Chapter [SafeCom Rule Based Printing \(RBP\)](#) describes how to plan and configure rule based printing.
- Chapter [SafeCom Client Billing](#) describes how to plan and configure your billing solution, including how to import and work with billing codes.
- Chapter [SafeCom Pay](#) describe how to plan and configure your pay solution, choose accounting policy, ensure users pay and use deposit and withdraw credits from users' accounts.
- Chapter [SafeCom Device Utility](#) describes how to use SafeCom Device Utility to load device software and configure devices.
- Chapter [Format of tracking data](#) describes the format of the exported tracking data.
- Chapter [SafeCom ID Devices](#) contains brief description of the stand-alone card readers and their status signals.
- Chapter [Troubleshooting](#) contains hints for troubleshooting.
- Chapter [Error codes](#) lists the error codes that you may encounter when using the SafeCom solution.
- Chapter [Administrator's installation notes](#) contains forms that can be used to record information about the SafeCom solution.
- Chapter [scPortUtility operations and exit codes](#) contains in-depth information for the scPortUtility command line tool.

Chapter 2

Frequently asked questions

There are no stupid questions, only stupid answers. Asking questions and finding answers is a popular way to acquire new knowledge. In the following subsections you will find answers to some of the questions frequently asked by administrators.

What are the benefits of Pull Printing?

- Use cost-effective workgroup devices as personal devices - without jeopardizing document security. This means fewer devices to service, since all the smaller personal devices can be taken out of service. With fewer devices office space is freed up and floor plans can be designed more freely and user friendly.
- Documents follow users to their choice of device. If one device goes out of order users can just collect their document at another SafeCom-enabled device.
- Avoid situations where uncollected documents clutter the device's output bin. Get rid of the frustration of finding that someone else took your document or that you cannot find it in the pile of uncollected documents that are scattered around the device. The wastebasket (or paper recycle bin) will no longer contain uncollected documents and you can abolish the use of banner pages to separate documents.
- Depending on your printing environment users may need access to just one shared SafeCom Pull Printer on a server in order to be able to print on any SafeCom-enabled device ([Printer driver and document fidelity considerations](#)). This gives way to a much less complex printing environment and very little or no print queue setup on the users' computers.
- When the users are logged in at the device they have full control and time to load stationeries, transparencies, labels or other media that may require manual feed.
- Users who print many small documents do not need to rush to the device every time they print. They can collect their documents when it suites them.
- The time spent at the device waiting for the documents to print is limited because workgroup devices can output 40 or more pages per minute. Workgroup devices will typically support double-sided print (duplex), printing multiple pages on the same page (N-up printing) and booklet printing. With booklet printing an 8-page document will print on 2 sheets of paper (paper use is reduced with 75%).

In addition to these benefits you should consider the additional benefits you can gain by installing any SafeCom add-on modules: SafeCom Tracking ([SafeCom Tracking](#)), SafeCom Rule Based Printing ([SafeCom Rule Based Printing \(RBP\)](#)), SafeCom Client Billing ([SafeCom Client Billing](#)), and SafeCom Pay ([SafeCom Pay](#)).

What devices are supported?

The SafeCom Go integrates with the touch-screen control panel of Multifunction Printers (MFPs) from **Canon, Fuji Xerox, HP, Konica Minolta, Kyocera, Lexmark, Océ, Ricoh, Samsung, Sharp and Xerox.**

For other networked devices the external SafeCom Controller hardware can be connected and used and printing is via TCP port 9100 or similar. You do not need additional network outlets since the SafeCom Controller has a built-in extra port (RJ-45 Ports, 10/100 BASE-TX). The IP address can be assigned via DHCP (dynamic or fixed) or manually.

The flexibility of the external SafeCom hardware enables you to change printer vendor and continue to use your SafeCom hardware with the new devices. The SafeCom Controller is Flash upgradeable and features a web interface for easy maintenance and configuration.

Is Copy Control supported?

Yes, on selected Multifunction Printers (MFPs) the SafeCom solution can control access to the copy function. The user has to log in before copying is allowed.

Note Such control may restrict access to several MFP functions, depending on the specific configuration.

Is it possible to charge for print costs?

Yes, with SafeCom Tracking you can monitor print and copy usage and use the recorded data for subsequent departmental invoicing. Tracking applies to:

- Documents printed directly to the device (Push Print)³
- Documents requiring user login at the device (Pull Print)
- Copies made after user login at the MFP (Copy Control)

With SafeCom Pay ([SafeCom Pay](#)), an add-on to SafeCom Tracking ([SafeCom Tracking](#)), users can be required to pay upfront for printing and copying. With SafeCom ePay users can revalue their account.

Is it necessary to install software on the users' computers?

No, it is normally not necessary to install software on the users' computers. However, there are a few exceptions where it is necessary to install a local SafeCom Pull Printer on users' computers ([Local SafeCom Pull Printer](#)).

³ Tracking of Push Print does not require SafeCom device software or hardware.

How are users authenticated?

Users can log in by card or ID code. Refer to [User authentication by card or ID code](#). A complete list of supported ID devices can be found in [SafeCom ID Devices](#). There are basically two types of ID devices to choose from:

- **Card Reader** All the user's documents are printed as the user's personal card is used.
- **Card Reader and touch-screen** Document security can be enhanced by requesting the user to enter a personal PIN code when using their card. Or the user can enter an ID code instead of using a card. Once logged in the user can print all documents with a single touch or browse through the list of documents to print, delete, retain, or request multiple copies of individual documents.

How are users managed?

Users can be created in advance, either manually or through a user import wizard ([Import users](#)), or they can be created the first time they print.

How are users with the same name handled?

Users with the same name from multiple domains can be added to the SafeCom solution. User logon does not have to be unique across domains. A user John Smith (JS) within domain A is different from the user John Smith (JS) within domain B, and different from John Smith (JS) with no domain info.

How many users, printers, and documents can a server handle?

The bottleneck is the number of concurrent documents (print jobs) to and from the SafeCom server. The performance of a SafeCom server is comparable to that of a Windows print server. This means that a SafeCom server is capable of supporting approximately as many devices as you would normally install on an equivalent Windows print server.

Can access to devices be restricted?

Yes, it is possible to control users' access to devices (printers and MFPs) based on the organizational relationship between the user and device ([Organizational units](#)) or with Rule Based Printing ([Introduction](#)).

Note Access to specific functions can also be restricted on the same basis.

Are SafeCom solutions scalable?

Yes, with a SafeCom Enterprise Server license it is possible to use multiple servers to scale the SafeCom solution to match the demanding requirements of large installations with thousands of users and hundreds of devices.

Scalability is achieved by adding the required number of SafeCom servers. Users can roam between locations to collect their documents at any SafeCom-enabled device and at any location regardless of to which SafeCom server the document was printed.

Large companies and organizations that use multiple Windows print servers to handle printing today are likely to need SafeCom Enterprise Server license.

How does a solution with multiple servers work?

A SafeCom multiserver solution consists of one SafeCom primary server and one or more SafeCom secondary servers.

The SafeCom primary server uses the replication capabilities of its Microsoft SQL Server to ensure that all SafeCom secondary servers' databases are up-to-date at all times. The SafeCom secondary servers can use the provided Microsoft SQL Server free and are not required to run a licensed Microsoft SQL Server.

A user's home server denotes the SafeCom server. Because data about users and devices is known on all servers, only the users and devices belonging to a particular secondary server (home server) will be affected if that server goes down.

Enterprise customers where printing is mission-critical often use Microsoft Cluster Service ([Cluster installation](#)) to further ensure the availability of the SafeCom servers. SafeCom print queues can be installed on any of the SafeCom servers, but most enterprise customers choose to install print queues on the SafeCom secondary servers only and keep the primary server free from print processing tasks so it only needs to replicate data (and collect tracking data from the secondary servers).

It is possible to distribute the print processing task to ordinary Windows print servers by doing a SafeCom client installation ([Client installation](#)) on these. However, this can increase the network load, as Pull Print jobs will have to go onto the network an extra time (to get transferred from the Windows print server to the user's home server, if the **Store Doc on First Server** option is disabled). This may slow performance if the resulting print jobs tend to be big in terms of file size. One cannot assume that the print job will be small in file size, just because the original document is small. We have seen examples where a 1Mb (2-page) PDF file grew to +500Mb. This is very printer driver dependent.

Can documents be printed securely?

Yes, with a SafeCom Encryption documents can be encrypted on the network; from the moment the user clicks print on the computer and until the document is collected at the device. This prevents anyone from reading the documents, should they be intercepted on the network. Documents are always encrypted when they stored for later printing ([Printing encrypted documents](#)).

Basic document security is achieved by requesting users to log in by means of both a personal ID card (or ID code), and a PIN code when they collect their documents at the device.

What happens to uncollected documents?

Documents remain on the SafeCom server until the user logs in at the device to collect the documents. Documents that are not collected by users are automatically deleted after a configurable time.

Is it always possible to print?

Like with any other computer system it cannot be guaranteed that printing will always be possible. The SafeCom solution is depending on the stability of your network, devices and computers, especially the hard disks. However, in some aspects a SafeCom Pull Print solution will give you a more redundant printing solution, because if a device fails users can just collect their documents at another device.

In general you should apply the same measures that are taken to ensure that Windows print servers and Windows domain controllers are up and running at all times. Typical technologies that can be applied to reduce the risk of failure:

- Hard disks use RAID or similar technology.
- Microsoft Cluster Service ([Cluster installation](#)).
- Network connections are duplicated.
- Backup of databases, so you can re-create the SafeCom solution in case of computer crash ([Backup and restore](#)).

Can print usage be tracked without hardware?

Yes, with the Push Print tracking concept in SafeCom Tracking users can print directly to the device and still have their print usage tracked. It is not necessary to install dedicated SafeCom hardware. The device can be networked or locally attached to a Windows computer via a parallel, USB or SCSI port.

Can a Pull Printer be used for Push tracking?

Yes, a SafeCom-enabled device can also be used to track documents that are sent directly. In other words, users are offered the choice of Push or Pull Printing, while maintaining total print cost management. To prevent documents from being mixed, incoming Push Printed documents are put on hold as long as someone is logged in at the printer or MFP.

What happens if the SafeCom solution stops working?

In case of any problems the SafeCom solution has three methods to communicate this to the outside:

- **On the user's computer** A message appears on the user's computer screen when trying to print via the SafeCom solution. The message can read: "*Unable to connect to SafeCom server. Document is not printed. Please contact your administrator!*" Refer to [User's computer: Please contact your administrator!](#) to see additional messages.
- **At the device** An OUT OF ORDER screen is displayed on the SafeCom-enabled device while the problem persists ([Device web interface: Displayed incorrectly or settings not saved](#)).
- **E-mail to administrator** The administrator can receive service and error (event log) messages via e-mail ([E-mail](#)).

What is the administrative overhead?

Under the right circumstances your SafeCom solution is capable of creating users automatically the first time they print via the SafeCom solution. The system can send a welcoming e-mail with instructions to new users the first time they print. This method reduces the administrative overhead to a minimum ([Create users at first print](#)).

In Chapter [Planning your SafeCom solution](#) you learn how your SafeCom solution can become one that reduces print costs, is easy to administrate and yields high user satisfaction. Chapter [Planning your SafeCom solution](#) features a checklist for planning your SafeCom solution ([Checklist – to help you on the way](#)), a section on roll out considerations ([Roll out considerations](#)) and input to the administrative procedures you need to have in place ([Clearly define responsibilities and procedures](#)).

In Chapter [Troubleshooting](#) is a comprehensive. You can even configure the SafeCom solution to e-mail you service and error (event log) messages.

What about integration with other systems?

In addition to being a modular solution, the SafeCom solution also features a number of Application Programming Interfaces (APIs). The SafeCom Administrator API allows you to automate tasks and integrate the SafeCom solution with other systems. It is an XML-based tool available as an executable and DLL. The SafeCom Batch Print API can be used for integration with document archiving systems.

SafeCom a/s is always ready to discuss customized development, if this is required to optimize your print and copy solution.

Does it pay to apply a SafeCom solution?

It is a common (and costly) mistake to compare the price of a SafeCom solution with the purchase price of today's devices. The purchase price of the device constitutes only a small fraction compared to the lifetime costs of consumables (paper, toner, and moving parts).

Calculations should be based on the amount of money saved due to reduced print costs and administrative and organizational benefits. The investment in a SafeCom solution will typically be returned within the first year.

Chapter 3

Planning your SafeCom solution

Introduction

We want your SafeCom solution to be one that reduces print costs, is easy to administrate and yields high user satisfaction. To accomplish this you need to understand your options before you plan your SafeCom solution.

Checklist – to help you on the way

Use the checklist below to plan/design the SafeCom Smart Printing solution.

Checklist for SafeCom Smart Printing solution

Topic	Notes
Responsibility	
Name of person:	
Functionality	
<input type="checkbox"/> Pull Print <input type="checkbox"/> Tracking <input type="checkbox"/> RBP <input type="checkbox"/> Client Billing	
<input type="checkbox"/> Pay <input type="checkbox"/> ePay	
Users	
Number of users:	
User authentication	
<input type="checkbox"/> Card, and type of card: <input type="checkbox"/> Import cards (conversion)	
<input type="checkbox"/> ID code	
<input type="checkbox"/> PIN code	
User creation	
Import users from <input type="checkbox"/> Active Directory (AD)	
<input type="checkbox"/> File	
<input type="checkbox"/> Other	

Topic	Notes
<input type="checkbox"/> Create users at first print	
<input type="checkbox"/> Create users manually	
Server(s)	
Enterprise server <input type="checkbox"/> Multiserver Support <input type="checkbox"/> Job Data Logon	
<input type="checkbox"/> Cluster Support	
SQL server	
<input type="checkbox"/> SQL authentication <input type="checkbox"/> Windows authentication	
<input type="checkbox"/> Grant permission to the service account	
<input type="checkbox"/> Reports	
<input type="checkbox"/> Web Interface	
<input type="checkbox"/> Mobile Print	
Computer name / address:	
Hardware (CPU, RAM, Disk):	
Clients	
<input type="checkbox"/> SafeCom Print Client	
Devices	
SafeCom Go	
<input type="checkbox"/> Canon <input type="checkbox"/> HP <input type="checkbox"/> Kyocera <input type="checkbox"/> Lexmark <input type="checkbox"/> Ricoh <input type="checkbox"/> Samsung	
SafeCom Go/Device Server	
<input type="checkbox"/> Fuji Xerox <input type="checkbox"/> HP <input type="checkbox"/> Konica Minolta <input type="checkbox"/> Océ <input type="checkbox"/> Sharp <input type="checkbox"/> Xerox	
SafeCom Go/Controller	
<input type="checkbox"/> Sharp <input type="checkbox"/> Xerox	
SafeCom Controller	
<input type="checkbox"/> SafeCom Color Front-end	
<input type="checkbox"/> SafeCom ID Device	
Additional topics	

User authentication by card or ID code

Pull printing requires users to log in at the device. Authentication by card is a convenient method and the obvious choice when cards are used for existing purposes, such as building access.

There are also solutions where users authenticate themselves by entering an ID code instead of using a card. The ID code is case sensitive and can be the user's phone number, employee number, student number, social security number⁴ or another number that is unique for the user and easy to remember.

Authentication by ID code is possible with the SafeCom Go products that integrate with the device's control panel or the external SafeCom Controller in combination with the SafeCom Color Front-end. Furthermore you can enhance security by requesting users to enter a personal 4-digit PIN code.

If stand-alone card readers are used for authentication, card registration is manual, see [Let administrator register cards to users](#), or via import, see [Import user data from other systems](#).

User creation and management

Users can be added, modified, and deleted through **SafeCom Administrator**. Creating and managing users are described in the following sections.

User-related data is sorted according to the following categories.

- **Personal data** Personal data includes the user's full name (John Smith), user logon (JS), domain and e-mail (JS@safecom.eu). This data can normally be imported. The user logon is a mandatory maximum of twenty (20) characters and must be unique within a domain. User logon is normally the same as the user's Windows logon.
- **Authentication data** Authentication data includes the card number and an optional 4-digit PIN code. If cards are already used for existing purposes, such as building access, then it may be possible to import data from an existing database. The card number is mandatory, case sensitive, maximum thirty-nine (39) characters and must be unique.
- **Settings data** Settings data is specific to the SafeCom solution, so it is not possible to extract and import this kind of data from other systems. However, to make administration easier, define a default user and let new users inherit settings data from the default user ([Default user](#)).

Import user data from other systems

To make administration easier, data can be imported from other systems including those solutions with a large number of users.

SafeCom Administrator includes a user import wizard that can import personal data via Windows Active Directory (AD) and Novell eDirectory (NDS eDirectory v.8.7.3 or later). It is also possible to import both personal and authentication data via XML and CSV ([Import users](#)).

SafeCom Administrator API (option) is an XML-based tool that makes it possible to manipulate multiple users, automate tasks and integrate your SafeCom solution with other systems.

Create users at first print

The SafeCom solution is capable of creating users automatically the first time they print via the SafeCom solution. This method keeps administrative overhead to a minimum.

⁴ The legislation in some countries does not allow the use of social security numbers.

How it works:

1. The user clicks **Print** in Windows and selects a SafeCom Pull Printer.
2. The document is transferred to the SafeCom server. The server extracts the user logon and finds that the user is unknown and/or a card (or ID code) needs to be registered with the user.
3. If the user is unknown the server creates the user based on the default user properties. Next it sends an e-mail to the user, explaining how to collect the document. See the e-mail template example in section [Customize and translate e-mail messages](#).

Prerequisites:

- The user logon (JS) and the e-mail domain (safecom.eu) can be combined to create a valid user e-mail address (JS@safecom.eu).
- The user must enter the e-mailed 8-digit PUK code to register their card or ID code.

For step-by-step instructions see [Create users at first print](#).

Let users register their card themselves

If your SafeCom solution allows users to enter a PUK code at the device, users can register their cards themselves.

How it works:

1. Start **SafeCom Administrator** and then locate or add the user.
2. Provide the user with the 8-digit PUK code or let the system e-mail the PUK code to the user ([E-mail](#)).
3. The user goes to the device and uses the card. The SafeCom solution finds that the card is not yet registered to a user. The user is asked to enter the PUK code once (and a personal PIN code twice).
Note: *Be aware that if you login using a PUK code for a registered card that already has a PIN code, and you enter a PIN code when prompted, the system will treat this as a PIN code change, thus rendering your old PIN code invalid. You can enter your existing PIN code if you want to keep using that.*
4. If the PUK code is wrong the registration fails and the user is asked to enter the PUK code again. The user can click **Exit** to terminate the process.
5. The card is registered with the user when the screen displays: **Operation succeeded. Please login again.**

Prerequisites:

- Users must be able to enter their PUK code at the device, for example by having at least one MFP with SafeCom Go or a printer equipped with a SafeCom Color Front-end.

Let users register an ID code themselves

If your SafeCom solution allows users to enter a PUK code at the device, users can register an ID code themselves. The ID code is case sensitive.

Note Normally the administrator handles the registration of user and ID code. See [Let administrator register ID code with users](#).

1. Start **SafeCom Administrator** and then locate or add the user.
2. Provide the user with the 8-digit PUK code or let the system e-mail the PUK code to the user ([E-mail](#)).
3. The user goes to the device to log in. The user enters a unique ID code. The SafeCom solution finds that -the ID code is not yet registered with a user. The user is asked to enter the PUK code once (and a personal PIN code twice).
4. If the PUK code is wrong the registration fails and the user is asked to enter the PUK code again. The user can terminate the process.
5. The ID code is registered with the user when the screen displays: **Operation succeeded. Please login again.**

Prerequisites:

- All devices must allow users to enter PUK codes and ID codes.

Let administrator register cards to users

1. Start **SafeCom Administrator** and then locate or add the user.
2. Open the **ID code** tab in the **User properties** dialog ([ID code](#)).
3. Click **Listen** and use the card with the connected card reader.
4. If no PIN code is entered the user is assigned the default PIN code '1234'.

Prerequisites:

- The computer must have a card reader installed ([Install a card reader on a computer](#)).
- Users must turn up in person to have their card read and a person with administrator rights must be present to operate the computer.
- Administrator must inform the user of their PIN code.

Let administrator register ID code with users

1. Start **SafeCom Administrator** and then locate, or add the user.
2. Open the **ID code** tab in the **User properties** dialog ([ID code](#)).
3. Enter the ID code (case sensitive).
4. If no PIN code is entered the user is assigned the default PIN code '1234'. The user may change the PIN code subsequently ([Allow users to change their PIN code](#)).

Prerequisites:

- Administrator must provide users with an ID code and PIN code.

Allow users to change their PIN code

If **Allow users to change PIN code** is checked on the **Users** tab in the **Server properties** dialog ([Users](#)), then users can change their PIN code using any of the below methods:

- Using the SafeCom G4 Web Interface.
- On devices equipped with SafeCom Color Front-end.

Determine user's home server

If SafeCom Multiserver Support is enabled the home server denotes the SafeCom server where the user's print jobs remain. If the server group consists of only one SafeCom server there is no need to specify home server, since it is identical to that one SafeCom server.

Note: *if the Store Doc on First Server option is enabled, the user's documents are stored on the first server the Pull Port print queue contacts.*

The user's home server can be specified in **SafeCom Administrator**. Refer to [Identification](#). If the user changes home server his documents will not be shown on the new home server, but the user is still able to collect his prints.

If no home server is specified the user's home server will become the one that is first contacted. First-time contact is when the user prints to a SafeCom device or logs in at a SafeCom device.

The home server for users that are created at first print ([Create users at first print](#)) is by default set to the SafeCom server which the SafeCom Pull or Push port connects to.

Overview of software installation

In most cases it is sufficient to install a SafeCom server and a shared SafeCom Pull Printer on the server.

If you have multiple Windows print servers with shared printers you can turn these printers into SafeCom Pull Printers by making them use the **SafeCom Pull Port**, a special port monitor ([Shared SafeCom Pull Printer](#)). You still need to install SafeCom hardware at the physical device to allow Pull Printing.

To administrate your SafeCom solution from other computers, simply install the **SafeCom Administrator** on those computers ([Install SafeCom Administrator](#)).

To release yourself of some of the administrative obligations you can assign administrator rights to appointed SafeCom users.

Server installation

You need to make a SafeCom Server installation on a server computer. Just download the SafeCom installer and select **Server** installation ([Server installation \(Advanced\)](#)). This will install all the required software, including the port monitor **SafeCom Pull Port** and the administrative application **SafeCom Administrator**. Refer to [Server requirements](#) for a description of the server requirements and SQL authentication.

The Server installation allows you to specify two destination folders; one for the program files and another for the print jobs. You may wish to locate the print jobs on a hard disk equipped with RAID or similar technology.

The default installation folder is:

C:\Program Files\ SafeCom\SafeComG4

The default folder for print jobs is:

C:\Program Files\ SafeCom\SafeComG4\Data

Multiserver installation

The SafeCom primary server must run Microsoft SQL Server. You need to make a SafeCom Server installation on each server as outlined in [Server installation](#). You use **SafeCom Administrator** to group the servers together. The steps involved are described in [Multiserver installation](#).

Disk space considerations

The amount of recommended disk space on the SafeCom server depends on a number of parameters: The number of users, number of documents, the size of these documents and the time they are stored before they are collected by the users at the devices.

Through the **SafeCom Administrator** you can specify how often uncollected documents should be deleted and if users should be notified by e-mail in advance about this ([Server](#)).

With today's low storage prices we recommend something like 100 Mb per user for printing purpose. The SafeCom software itself requires less than 25 Mb.

disk space = average number of jobs on the server per user × average size of jobs

Shared SafeCom Pull Printer

The easiest way to make SafeCom Pull Printing available to users is to make an existing shared Windows printer on the SafeCom server or on a Windows print server use the **SafeCom Pull Port**, a special port monitor that sees to the transfer of documents to the SafeCom server.

Prerequisites:

- A Client installation is performed to install the **SafeCom Pull Port** on the Windows print server ([Client installation](#)). The **SafeCom Pull Port** is installed on the SafeCom server as part of the Server installation.
- The **SafeCom Pull Port** should be set to **Use network logon**.

To avoid interfering with your users while you test your SafeCom solution, we recommend leaving shared printers as they are and just add a few new shared SafeCom Pull Printers, dedicated to testing SafeCom.

Local SafeCom Pull Printer

A local SafeCom Pull Printer ([Add a SafeCom Pull Printer on client computers](#)) must be installed on the user's computer in order to print encrypted ([Printing encrypted documents](#)). In all other cases it

is sufficient to use a shared SafeCom Pull Printer. However, **SafeCom PopUp** ([SafeCom PopUp – scPopUp.exe](#)) must be running on the user's computer in these cases:

- If users need to print from the computer without being logged into Windows as themselves ([SafeCom Print Authentication dialog](#)).
- If SafeCom Rule Based Printing ([SafeCom Rule Based Printing \(RBP\)](#)) is used to ask for print confirmation.
- If SafeCom Client Billing is used and the user has to select a billing code at print submission time ([SafeCom Client Billing](#)).

SafeCom printers can reference multiple servers

The **SafeCom Pull Port** ([Edit servers dialog](#)) and **SafeCom Push Port** ([Push print tracking](#)) can reference more than one SafeCom server.

This feature can be used to give additional resilience in a multiserver solution where SafeCom printers are installed on local clients or print servers.

If the first SafeCom server on the list is unavailable it will try the next one. After 60 seconds it will attempt to revert to the first SafeCom server.

Printer driver and document fidelity considerations

When printing, the SafeCom solution takes the output from the installed Windows printer driver and stores it in the SafeCom database until the user collects the document at the device.

The question is: What happens if the document is subsequently collected at a different device model? The worst case is that the document prints incorrectly or not at all. The best case is that the document prints correctly.

However, you may also experience something in between. For example if you request printing on both sides (duplex) in the printer driver, but this is not supported by the device. In this case you will probably get single sided (simplex) print.

Document fidelity is determined by comparing the name of the printer driver embedded in the print job with the list of driver names returned by the SafeCom device. If there is no match it is considered low fidelity and the document is labeled with a question mark [?]. Refer to [Devices](#) on how to configure document fidelity.

In our experience document fidelity is pretty high if you use a printer driver that generates PCL and subsequently collect the document at a printer that supports PCL. The same goes for PostScript.

If you use many different devices from different manufacturers then you may have to install multiple shared SafeCom Pull Printers, each one with their specific Windows printer driver.

High Speed Print considerations

By enabling **High Speed Print** on the SafeCom-enabled device, documents that are collected at the device are printed almost as fast as those that are printed directly. This is because print data is sent directly to the device from the SafeCom server (or SafeCom Print Client) via TCP port 9100. Without **High Speed Print** the SafeCom Device that requests the print data from the SafeCom Server (or SafeCom Print Client) via TCP port 7500.

Note Both TLS encryption (on the EWS configuration page of the device) and the **Encrypt documents** option ([Settings](#)) should be cleared for High Speed Print. If either option is checked and enabled, it overrides High Speed Print, and disallows the usage of TCP port 9100.

However, as the print data is received directly by the device, it is not always possible to hold off other users print jobs, while a user is logged in at the device. Users may risk that the output bin contains other users' documents.

This is obviously not an issue if management has decided to ban all direct printing and only allow Pull Print.

Documents that are submitted via a SafeCom Push Port within the same SafeCom group can be held off, but documents that are submitted via a Standard TCP/IP Port cannot be held off.

Note High Speed Print must be enabled for each device to use the Smart Printer Driver.

Device Server failover considerations

When planning Device Server failover groups ([Device Servers](#), [Grouping device servers](#)), consider the following factors:

- Number of devices on a given single node.
- Expected level of fault tolerance (that is, maximum number of failed nodes at any give time)

Be aware that in case a failover occurs, the devices of the failed node are distributed in the failover group equally, regardless of how many devices the other nodes have individually. You must consider and plan to avoid overloading your other nodes in case of a failover. Kofax recommends assigning no more than 200 devices for a dedicated Device Server, or no more than 100 devices to a shared Device Server/G4 installation.

The following table illustrates a few examples using dedicated Device Servers:

Total amount of devices	Expected level of fault tolerance	Amount of equired nodes	Amount of devices per node
200	1	2	Node 1: 100 Node 2: 100
600	1	4	Node 1: 100 Node 2: 100 Node 3: 100 Node 4: 100
600	2	5	Node 1: 120 Node 2: 120 Node 3: 120 Node 4: 120 Node 5: 120

Failover restriction of Device Server

Device Server failover from SafeCom Device Server version DS 90*10 requires SafeCom G4 Server 520*10 or newer to work.

Devices in failover state (that is, they have been distributed from their original home server due to a failover) cannot be modified, until they are reallocated to their original home server.

In case the home server becomes permanently unavailable, you have the option to delete and re-add the devices.

Note Be aware that if you power on the original Device Server whose devices you redistributed, the Device Server will automatically re-acquire all devices previously assigned to it, which may result in inconsistent states.

Known limitations of Device Server failover

For SafeCom Device Server version DS 90*10 with G4 520*10 using SafeCom Device Server failover, the following limitations apply:

- New nodes should not be added if there are unavailable node(s) in the group. This is prevented by the scAdministrator (520*10 or newer); older versions of scAdministrator do not prevent it.
- Nodes can be moved only one by one in scAdministrator.
- If all the nodes in a group stop at any given time simultaneously, restarting them results in the restarted nodes only managing their own devices.
- Nodes in **Pending...** state should be not moved.

Print from other systems

Even though the SafeCom solution is a Windows-based printing solution, it is possible to print from other systems. This is described in the following sections.

Print from Apple Mac

Printing from Mac OS X Server via LPR/LPD is possible. The printing system in Mac OS X is based on the Common UNIX Printing System (CUPS).

Printing from earlier versions of Apple Mac OS is possible using the cross-platform file and printer sharing solution DAVE from Thursby Software Systems, thursby.com.

Prerequisites:

- The Windows component **Print Services for UNIX** must be installed. The Windows server must be restarted after installation.

If the user logon on Windows differs from the one on the Mac, then the user logon on the Mac must be on the user's list of **aliases** ([Aliases](#)).

Note: If you have the PopUp compatibility mode ([SafeCom Pull Port](#), [Add a SafeCom Push Port](#)) enabled and start a print job that uses `scPopUp`, ensure that you are not logged in to a Windows and a Mac computer at the same time while using the same credentials.

Note: If you want to print from Apple Mac, ensure that you have a Microsoft v3 printer shared, as printing to v4 printers is not supported from Mac.

Print from UNIX

On UNIX it is possible to define an LPR/LPD printer that prints to the shared SafeCom Pull or Push Printer on the Windows server.

Prerequisites:

- The Windows component **Print Services for UNIX** must be installed. The Windows server must be restarted after installation.

If the user logon on Windows differs from the one on UNIX, then the user logon on UNIX must be on the user's list of **aliases** ([Aliases](#)).

Print from Novell

With Novell Netware 6 and NDPS (Novell Distributed Print Services) you can use Novell iPrint to print via LPR to the shared SafeCom Pull or Push Printer on the Windows server. Refer to novell.com for additional information.

Print from Host systems (mainframe)

From the Host system it is possible to define an LPR/LPD printer that prints to the shared SafeCom Pull or Push Printer on the Windows server.

Prerequisites:

- The Windows component **Print Services for UNIX** must be installed. The Windows server must be restarted after installation.

Roll out considerations

We want your SafeCom solution to be easy to administrate and yield high user satisfaction. The following sections describe how you can make your SafeCom solution a successful one.

Test solution prior to roll out

Before you roll out your SafeCom solution you should test it to make sure that everything works as expected.

We encourage you to involve a sampling of users during testing. Users are an invaluable source of information, and are likely to come up with suggestions as to how you should implement your SafeCom solution. Users can also help spread the word about the SafeCom solution in the organization.

Inform and prepare your users

A SafeCom solution affects the way users print. It is very important for an organization to use the channels available to them to inform users how their daily work is affected.

Even though the SafeCom solution is as easy to use as a cash dispenser, we urge you to schedule a couple of short user sessions at a SafeCom-enabled device. During these sessions, demonstrate the SafeCom solution, allow users to try it hands-on and answer any questions that users have.

You may wish to temporarily post an instruction sheet at SafeCom-enabled devices. These instructions should briefly introduce new users to how they should operate the SafeCom-enabled device.

Clearly define responsibilities and procedures

The overall responsibility for the SafeCom solution should be assigned to a single person. That way there will be no doubt as to who is responsible.

You need to decide who should have rights ([Rights](#)) as Technician and Administrator.

If your organization has a help desk you should ensure that help desk staff feel comfortable with the SafeCom solution and are capable of answering questions and resolving or escalating problems relating to the SafeCom solution. We encourage you to include your help desk contact information on the Instruction sheets you can post at your devices.

You can also include help desk contact information on the OUT OF ORDER screen, which the SafeCom Front-end displays when communication is lost to the SafeCom server. The SafeCom Front-end returns to normal operation by itself a couple of minutes after communication is restored.

The person responsible for the SafeCom solution should ensure that administrative procedures are in place for the following:

- Backup and restore ([Backup and restore](#)).
- When you need to add new users ([Add users manually](#)).
- When users lose their ID card ([User has lost ID card](#)).
- When users forgets their ID code ([User has forgotten ID code](#)).
- When users forget their PIN code ([User has forgotten PIN code](#)).

Preemptive support and diagnostic tools

The following subsections describe the support and diagnostic tools.

Event log and e-mail notification

The SafeCom server writes information to its **Event log** ([Event log](#)). You can access the **Event log** from the **Servers** menu in the **SafeCom Administrator**. Events older than one year are automatically deleted from the database.

Furthermore the administrator can receive service and error (event log) messages via e-mail ([E-mail](#)).

scping

Use the supplied command line utility **scping** to search for SafeCom servers.

Syntax:

scping [Group|Ip]-h:Host|-b:IpMask [-c]] [-x:Host:Port] [/?] **Note:** *On Windows 64-bit the program is named scping64.exe.*

Group Broadcast for server group.

Ip Ping server on specified IP address.

-h:Host Ping server on specified host.

-b:IpMask Broadcast for servers on specified subnet.

-c Try to connect server to confirm it's running.

-x:Host:Port Try to establish a connection to Host using Port.

Examples:

```
scping MyServerGroup
```

```
scping 10.0.0.10 -c
```

```
scping -h:MyServer -c
```

```
scping -b:10.255.255.255
```

```
scping -x:MyServer:7700
```

SafeCom Service and processes

The SafeCom Service:

- scSafeComService.exe

The SafeCom Service launches the following processes:

- scBroadcastServer.exe
- scJobServer.exe
- scMoneyServer.exe
- scTrackingServer.exe

Note On Windows 64-bit the files are named *64.exe.

TCP and UDP port numbers used by SafeCom

TCP	Usage	Protocol
50003	Used between SafeCom Device Server and Konica Minolta/Océ device	HTTPS
50002	Used between SafeCom Device Server and device	HTTPS
50001	Used between SafeCom Device Server and HP Future Smart device	HTTPS
9443	SafeCom Mobile Print - web print	HTTPS
9100	Used for sending print data to the device via TCP/IP (raw).	RAW
8444	Used for Device Web Server (DWS) operation only.	SafeCom
8080	Web browser	HTTP
7900	Used between the SafeCom Job Server(s) and the SafeCom Tracking Server. In a multiserver solution with offline tracking outbound port 7900 is used from the primary Job Server to the secondary Tracking server(s). With online tracking port 7900 is used from the secondary Job Server to the primary Tracking server. In case of a single server solution the communication does not go onto the network, but the port still need to be open.	SafeCom
7723	Used for TELNET connection to the SafeCom Job Server to control the SafeCom Trace Facility.	TELNET
7700	Used between the SafeCom Job Server and SafeCom applications and SafeCom devices (SafeCom Go and SafeCom Controller). Also used between the SafeCom primary and secondary servers.	SafeCom
7627	SOAP Interface on HP FutureSmart devices	HTTPS
7600	Used between the SafeCom devices and SafeCom Print Client version S82 070.410 and older. SafeCom Print Client version S82 070.420 and newer use port 7700.	SafeCom
7500	Used between the SafeCom Job Server and SafeCom devices.	SafeCom
7400	Used between the SafeCom Job Server(s) and the SafeCom Money Server. In a multiserver solution port 7400 is used from the secondary Job Server to the primary Money server. In case of a single server solution the communication does not go onto the network, but the port still need to be open.	SafeCom
7290	SafeCom Mobile Print - web print	HTTP
5742	Used between the SafeCom Administrator and SafeCom Go, SafeCom Device Server and SafeCom Controller.	SafeCom
5740	Used by the SafeCom Pull Port and SafeCom Push Port and SafeCom PopUp dialog (in compatibility mode for scPopup.exe, when communicating with older versions of the PopUp) for presenting dialogs on users' screen.	SafeCom
1433	Used by default for replication between Microsoft SQL servers. May be different on your server. Named instances use dynamic ports. Can be specified during advanced installation (Server installation (Advanced)).	SQL
995	SafeCom Mobile Print - e-mail print	POP3 SSL
993	SafeCom Mobile Print - e-mail print	IMAP SSL

TCP	Usage	Protocol
636 389	Port 389 is used for user import from Active Directory (AD) and port 636 is used if this needs to be secure via SSL/LDAPS.	LDAP LDAPS
465	SafeCom Mobile Print - e-mail print	SMTP SSL
443	Used to contact MFP during operation	HTTPS
143	SafeCom Mobile Print - e-mail print	IMAP
110	SafeCom Mobile Print - e-mail print	POP3
80	Used between the SafeCom Administrator and SafeCom devices' web interface.	HTTP
25	Used for sending e-mails from SafeCom Server, SafeCom Controller and device.	SMTP

UDP	Usage	Protocol
5742	Used by the SafeCom Job Server, SafeCom Go, SafeCom Device Server, SafeCom Controller and SafeCom applications to find each other via the SafeCom Broadcast Server.	SafeCom
5741	Used between the SafeCom Administrator and SafeCom Go, SafeCom Device Server and SafeCom Controller.	SafeCom
1434	Applications use this port to initially talk to the SQL server to determine which TCP port (default 1433) should be used.	SQL
161	Used between the SafeCom Administrator and SafeCom devices when adding devices or retrieving status. Used by Port Monitor if SNMP status is enabled.	SNMP

The following tables contain some typical SafeCom server and client installations and list what **inbound** and **outbound ports** should be open if a firewall, such as Windows Firewall ([Windows Firewall](#)), is installed on the computer.

SafeCom Server	TCP		UDP	
	In	Out	In	Out
SafeCom primary server with local database	7400 7500 7700	25 80 389 636 5740 5742 7700 7900 ⁵ 8080 9100	5742	5742
External SQL server		1433 ⁶		1434

⁵ With offline tracking outbound port 7900 if used to collect tracking data from the secondary servers. With online tracking inbound port 7900 on the primary server must be open.

⁶ SQL server may use another TCP port than 1433.

SafeCom primary server with external SQL server	1433 ⁷ 7400 7500 7700	25 80 389 636 5740 5742 7700 7900 ⁸ 8080 9100	1434 5742	5742
SafeCom secondary server with local database	7500 7700 7900 ⁹	80 5740 5742 7400 7700 8080 9100	5742	5742

SafeCom Device Server	TCP		UDP	
	In	Out	In	Out
SafeCom Device Server	5742 7800 8080 50002	80 443 7500 7627 7700 ¹⁰ 9100 50001 ¹¹ 50003 ¹²	5741	161 5742

SafeCom Client and other	TCP		UDP	
	In	Out	In	Out

⁷ SQL server may use another TCP port than 1433.

⁸ With offline tracking outbound port 7900 if used to collect tracking data from the secondary servers. With online tracking inbound port 7900 on the primary server must be open.

⁹ With offline tracking inbound port 7900 if used to collect tracking data from the secondary servers. With online tracking outbound port 7900 on the secondary must be open.

¹⁰ If the job is stored on a SafeCom Print Client version S82 070.410 or older, then port 7600 is also used.

¹¹ SafeCom Go HP Device Server

¹² SafeCom Go Konica Minolta, SafeCom Go Océ

SafeCom Print Client	7700 ¹³	7500 ¹⁴ 7700 9100	5742	5742
Client with local SafeCom printers (Pull and Push Ports)		5740 7500 ¹⁵ 7700 9100		161
Client with SafeCom PopUp	5740			
Client with SafeCom Administrator		80 5742 7500 7700 8080		161 5741
SafeCom Controller	80 5742	7500 7700 ¹⁶ 9100	161 5741	161 5742
SafeCom Web Interface	80 7700 8080	443		

SafeCom Mobile Print		TCP		UDP	
		In	Out	In	Out
SafeCom Mobile Print	Web print	7290 9443	7290 9443		
	Email print	110 143 993 995	25 465		

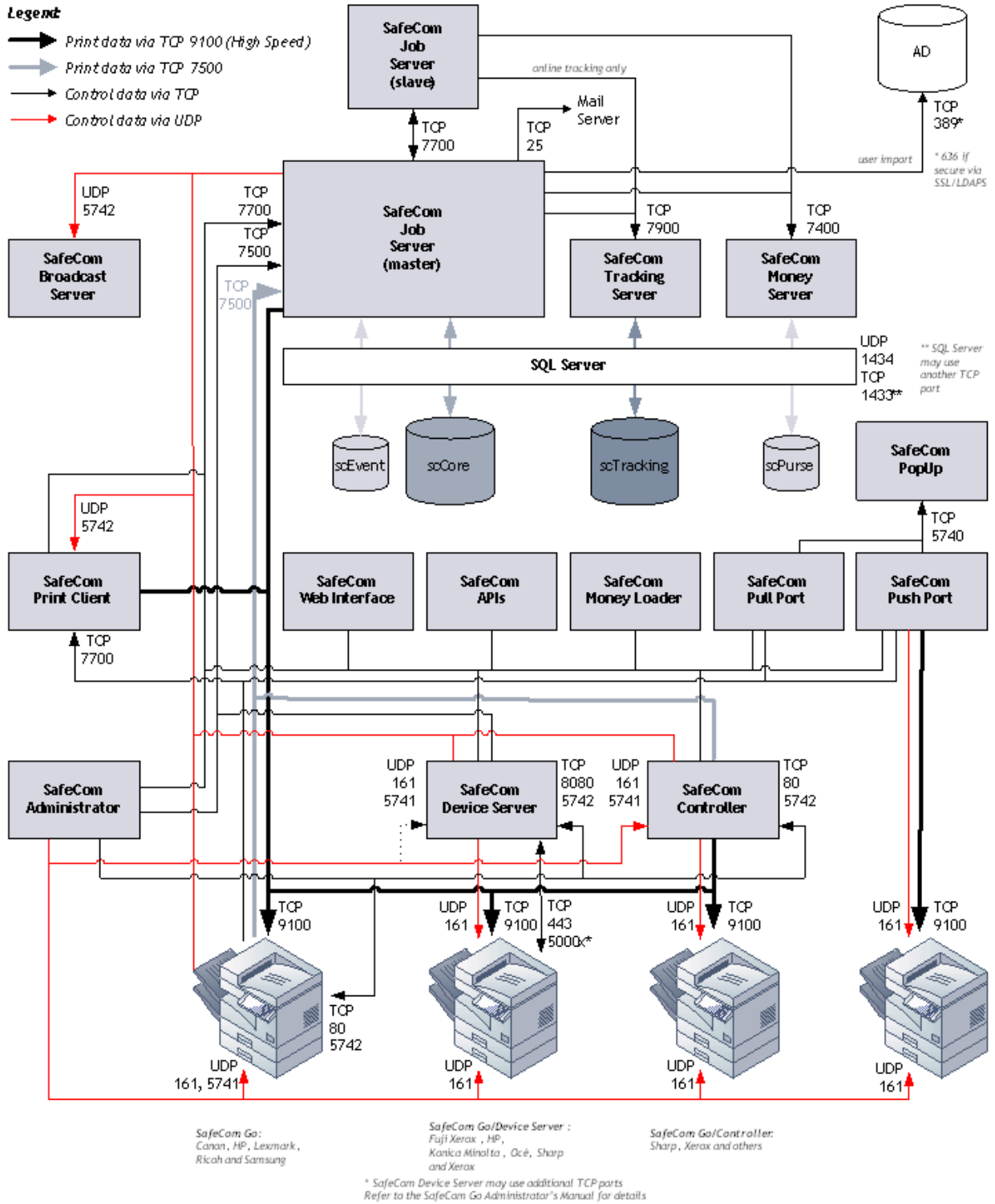
The figure shows the connections between the different SafeCom components and the TCP and UDP ports used for communication.

¹³ SafeCom Print Client version S82 070.420 use port 7700. Previous versions also use port 7600.

¹⁴ SafeCom Print Client by default use port 7500. However, if the SafeCom Print Client is running on a server it is recommend to configure Default Server Port=7700 (see section [scPrintClient.ini file](#)) as this means that the SafeCom Print Client will keep the connection open to the SafeCom Server instead of having to open and close the connection for each job.

¹⁵ SafeCom Pull Port by default use port 7700. However, if the SafeCom Pull Port is running on a client it is recommend to configure Server Port=7500 as this means that the SafeCom Pull Port open and close the connection for each document.

¹⁶ SafeCom Controller use port 7700 to collect documents from SafeCom Print Client version S82 070.420. Port 7600 is used to collect documents from previous versions of SafeCom Print Client. Port 7500 is used to collect documents from SafeCom servers.



If multiple servers are used each SafeCom secondary server will use TCP port 7900 to deliver tracking data to the SafeCom Tracking server on the SafeCom primary server, either continuously (online tracking) or scheduled (offline tracking). Refer to [Multiple servers: Online or offline tracking](#).

There is only one SafeCom Money Server and it resides on the SafeCom primary server. SafeCom secondary servers use TCP port 7400 to communicate with the SafeCom Money Server on the SafeCom primary server.

SafeCom SQL databases

The following databases are used:

- **SafeCom Job Database** Used by scJobServer.exe and scJobServer64.exe
- **SafeCom Event Log** Used by scEvent.dll
- **SafeCom Money Database** Used by scMoneyServer.exe and scMoneyServer64.exe
- **SafeCom Tracking Database** Used by scTrackingServer.exe and scTrackingServer64.exe. Also used for device logs.

Each SafeCom server in the server group has its own SafeCom Job Database and SafeCom Event Log. Events older than one year are automatically deleted from the database.

The SafeCom Tracking Database is only relevant if your solution includes the SafeCom Tracking or SafeCom Pay. The SafeCom Money Database is only relevant if your solution includes the SafeCom Pay.

A server group should only use one SafeCom Money Server. This is located on the SafeCom primary server by default.

SafeCom database update log

A number of scdbu*.log files are created in the SafeCom installation folder the first time the SafeCom Service is started after a new SafeCom server version has been installed. The files are created whether or not trace is enabled.

Windows registry settings

Use the Windows **regedit** program to view Windows registry settings. Settings for the SafeCom Server software are stored at:

- HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafeComG4

Settings for the SafeCom Port Monitors are stored at:

- HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Monitors\SafeCom Pull Port
- HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Monitors\SafeCom Push Port

Backup and restore

We recommend you have backup and restore processes in place for your SafeCom solution. With well-defined and tested processes it is possible to reduce downtime. With Microsoft Cluster Service (MSCS) the downtime can be reduced even further.

If a Service Level Agreement (SLA) exists it may specify the accepted downtime. The shorter the time period specified, the better prepared you have to be to restore the SafeCom solution and the more evident is the need for a clustered SafeCom solution.

When devising the backup and restore processes you should consider:

- Standby computer to replace a faulty one ([Standby computer equipment](#)).
- Backup and restore SafeCom Windows registry settings ([SafeCom Windows registry settings](#)).
- Backup and restore any customized SafeCom files ([Customized SafeCom files](#)).
- Backup and restore printer configurations ([Printer configurations](#)).
- Backup and restore SafeCom databases ([SafeCom database - backup and restore](#)).

Note The described processes do not include backup and restore of users' uncollected and retained documents.

Standby computer equipment

If you have a complete standby computer, you will be in a good position to immediately replacing the one you currently use one should it become faulty. If the standby computer is dedicated to the SafeCom solution you can reduce downtime even further by ensuring that it is pre-loaded with the right Windows Operating System and SafeCom software.

The SafeCom Server software must be the same version as on the computer it is to replace. This is particularly important in a multiserver solution where all the computers in the SafeCom group must be on the same SafeCom server version. See [Installation](#).

To secure a smooth transition to the new server, it should **inherit** the **Server address** and the **computer name** of the one it is replacing. That way all references from SafeCom-enabled devices and SafeCom ports to the SafeCom server will remain valid. You should either secure that your DHCP server will give the new server the same IP address or you should give it a static IP address.

You can further reduce downtime if the standby computer is already updated with the more static SafeCom Windows registry settings ([SafeCom Windows registry settings](#)), customized SafeCom files ([Customized SafeCom files](#)) and printer configurations ([Printer configurations](#)). That way you can reduce the restore process to restoring the backup of the SafeCom databases.

If the computer is a SafeCom secondary server it will automatically get its SafeCom databases restored, as the SafeCom primary server sees to this as part of the replication process. It is recommended to reinitialize the subscription ([Reinitialize the subscription](#)).

SafeCom Windows registry settings

It is particularly important that the location of print files as specified by the Windows registry setting **File Path** ([Change location of SafeCom print files](#)) is the same on both the standby computer and the current computer. Follow the steps below to backup and restore the SafeCom Windows registry.

To backup:

1. Open the **Registry Editor** and browse to: HKEY_LOCAL_MACHINE\SOFTWARE\ SafeCom \SafeComG4

2. On the **File** menu click **Export**.
3. Specify **File name** and click **Save**.

To restore:

1. Double-click the backup registry file and answer **Yes** when asked to update the Windows registry.

Customized SafeCom files

The files listed below are typically customized or translated.

- EmailWelcome.txt, EmailPUK.txt, EmailWarning.txt and EmailJobDelete.txt ([Customize and translate e-mail messages](#)).
- ExcludeJobNames.txt ([Shorten job names in document list](#)).
- JobNamePricing.txt ([JobNamePricing.txt](#))
- EmailBilling.txt ([Edit the template for billing reminder](#))
- EmailCode.txt ([Customize and translate e-mail messages](#))
- EmailDelegateAccept.txt, EmailDelegateReject.txt, EmailDelegateRequest.txt ([Customize and translate e-mail messages](#))
- IDCodeGenerating.txt ([Customize the format of ID codes](#))
- UnfinishedJob.txt ([E-mail template for an unfinished job](#))

Printer configurations

The **Microsoft Print Migrator 3.1**, available at microsoft.com/printserver, can back up and restore all print shares and user permissions.

The Print Migrator does not back up the actual SafeCom Pull Port and SafeCom Push Port monitors, only the ports' attributes. Prior to the restore operation, you must reinstall the original set of SafeCom port monitors to ensure complete functionality.

Print Migrator comes with a command line interface **printmig** that takes these switches: -? Help, -b Backup and -r Restore.

If the computer is clustered you must backup the cluster's virtual server. `printmig -b \\filesrv\backup \printers.cap \\clustergroupname` where `clustergroupname` is the **Network Name** of the virtual server that contains the Print Spooler resource. The **printmig** can be integrated into a job-scheduler, such as the **Scheduled Task** mechanism in Microsoft Windows. Please refer to online help in Windows.

SafeCom database - backup and restore

This section explains how to backup and restore the SafeCom databases. SafeCom can work with the below two versions of the SQL databases.

- **Microsoft SQL Server** Must be purchased and licensed from Microsoft. Backup can be performed by use of **Microsoft SQL Server Management Studio**, or an SQL client tool that comes with the Microsoft SQL Server. Alternatively you can use the Transact-SQL BACKUP DATABASE statement, and run the SQL command line utility, **osql.exe**. Make sure to configure it to backup the transaction log files as well to keep them from growing endlessly.

- Microsoft SQL Express 2014 SP1 This is distributed with SafeCom. No license is required from Microsoft. Database size is limited to 10 GB.

The SafeCom databases are created to use full recovery model in contrast to simple recovery model. This can lead to large transaction logs if no scheduled backup is put in place from the beginning.

Note We recommend you establish a nightly scheduled full backup with a maintenance plan that shrinks the transaction logs. In a multiserver solution a database backup should also be scheduled for the secondary server to keep the database transaction log files from growing. The backup itself is not really needed, as data is replicated from the SQL primary server. The provided [scBackup](#) program will also back up LDF files and prevent these from growing endlessly.

Go to microsoft.com for more information on the Microsoft SQL tools and utilities mentioned above. To back up the database, use the supplied SafeCom command line utility [scBackup](#).

All SafeCom print files are by default stored in the folder:

C:\Program Files\ SafeCom\SafeComG4\Data

Database files are by default stored in the folder:

C:\Program Files\ Microsoft SQL Server\MSSQL12.SAFECOMEXPRESS\ MSSQL\DATA

scBackup

As mentioned in [SafeCom database - backup and restore](#) you can use the supplied command line utility **scBackup** to backup the SafeCom databases. **scBackup** must be **Run as administrator**. The user running **scBackup** must be a local administrator on both the SafeCom server where the tool is located and the SQL server. The user running the tool must also have the relevant permissions to perform backup and restore on the SQL database. The program works only if the database is set to use full recovery model.

Syntax:

scBackup.exe -b | -r <path> **Note:** *On Windows 64-bit the file is named scBackup64.exe.*

Where **-b** specifies to backup data in the specified path and **-r** specifies to restore data from the path. The backup results in the files: sscore.bak, scevent.bak, scpurse.bak and sctracking.bak.

Note To restore successfully the SafeCom server version must not change from the time of backup to the restore is performed.

Example:

```
scBackup.exe -b C:\backup
```

During restore (-r) scBackup will attempt to stop the SafeCom Service and subsequently restart the SafeCom Service. This will not work in a MS Cluster environment or if other services depend on the SafeCom Service. In such cases the SafeCom Service must be manually stopped and started.

The **scBackup** can be integrated into a job-scheduler, such as the **Scheduled Task** mechanism in Microsoft Windows. Please refer to online help in Windows.

Note The scbackup might fail if the backup is made from a database that is newer than the database used to restore job. Instead, use an SQL Studio manager that is capable of handling both database versions for both the backup and the restore job.

SafeCom database - maintenance

This section explains how to maintain the SafeCom databases, that is preventing the size of the databases from growing endlessly. Backup and restore, including the process of minimizing transaction logs is covered in ([SafeCom database - backup and restore](#)). In tracking solutions, the tracking database (sctracking) will usually grow to a significant size, whereas the job database only grows slowly. The size of the job database depends on the number of users and devices. For each job tracked by SafeCom there is an equivalent record in the tracking database (**2KB / tracking record**).

When **Offline tracking** is enabled which by default it is, the tracking database on the SafeCom secondary server is automatically emptied every time the SafeCom primary server has collected the tracking data.

However, the tracking database on the **SQL primary** server is not emptied and will continue to grow. It is recommended to establish a procedure for exporting and deleting old tracking data to keep the database size within the defined limits.

Tracking data can be exported and deleted directly using SQL tools. Alternatively the SafeCom Administrator API's ExportTracking or DeleteTracking commands can be used.

This housekeeping process should handle the tables: scMoneyLoaderTracking, scSanityTracking, and scTracking.

In Pay solutions both the tracking database (sctracking) and the money database (scpurse) will continue to grow. Even though a money database exists on each server only the money database on the SQL primary server is used. This is because there must only be one single point to store and maintain users' credits. The housekeeping process should handle the table: scTransaction.

The SafeCom event database (scevent) automatically deletes events that are more than one year old.

SafeCom server trace facility

Use the SafeCom trace facility only if SafeCom Support instructs you to do so.

Enable trace

1. Stop the **SafeCom Service** ([How to start and stop the SafeCom Service](#)) and the **Print Spooler**.
2. On the SafeCom server create the folder c:\safecom_trace
3. Start the **SafeCom Service** and the **Print Spooler**.

Stopping the SafeCom Service and the Print Spooler and then deleting the folder c:\safecom_trace will disable the trace again. The trace files ([Trace files](#)) will by default occupy maximum 220Mb of disk space.

Trace can also be turned on/off without disrupting the SafeCom Service through a TELNET interface ([TELNET interface](#)). This interface can also be used to configure the trace facility, including the size and location of the trace files.

The SafeCom Service executes the supplied scStartup.cmd file in the installation folder just before starting. By editing the scStartup.cmd file it can be made to copy (and compress) the trace files before they are reset.

Trace files

Note Use the SafeCom Trace Facility only if SafeCom Support instructs you to do so.

Trace files are by default stored in the folder C:\safecom_trace

To change the default location of the trace files use the TELNET interface ([TELNET interface](#)) or modify these Windows registry settings:

HKEY_LOCAL_MACHINE\SOFTWARE\ SafeCom\SafeComG4\Trace

For 32-bit applications (for example, scAdministrator), the path is:

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\ SafeCom\SafeComG4\Trace

Value name	Value data
Enabled (REG_DWORD)	0 = Disabled 1 = Enabled
TracePath (REG_SZ)	Location for the trace files. Default is: C:\safecom_trace\ Note: if you change the location, ensure that the new path ends with a backslash (\). The location change requires a restart of the SafeCom service for the trace files to be copied to the new location. For keyManager.trc, a computer restart is required for the location change.
TraceSize (REG_DWORD)	Set the maximum size of a trace file in kilobytes. Default is 10485760 (10 MB).
TraceDest (REG_DWORD)	Specify the type of trace output. Default is 3 (Trace to file).

Note All four trace parameters must be specified.

Trace files also contain a number <number> as part of their filename. When a trace file reaches the maximum size (10 Mb), a new trace file starts, and the first trace file number is incremented by one. The trace folder contains two versions of a trace file, the most recent and the preceding. Older versions are automatically deleted.

Example:

C:\safecom_trace\SafeComService123.trc C:\safecom_trace\SafeComService124.trc

Note If any SafeCom service crashes, the SAFECOM_TRACE folder is created on C: and the .DMP files are created in that folder. This is the only scenario when the SAFECOM_TRACE folder is created automatically.

Contents of the trace folder can vary depending on the SafeCom installation. Below are the names of some of the typical SafeCom trace files.

The total number of trace files depends on the SafeCom installation as well as the workstation it's installed on.

Trace file names

- AdmClient<number>.trc
- AdmGui<number>.trc
- BroadcastServer<number>.trc
- DeviceControlService.txt
- DevMonServer<number>.trc
- JobServer<number>.trc
- keyManager<number>.trc
- MoneyServer<number>.trc
- PortConfigurator<number>.trc
- PullPM2kSrv<number>.trc
- PullPM2kUI<number>.trc
- PushPM2kUI<number>.trc
- SafeComService<number>.trc
- SafeComWeb<number>.trc
- SafeComWebconfig<number>.trc
- scCoInstall<number>.trc
- scDevMonServer<number>.trc
- scPopUp<number>.trc
- scPrintClient<number>.trc
- TrackingServer<number>.trc
- SafeCom.XpsPrint.Service.trc

Restarting the SafeCom Service clears the trace files (*.trc), except for the DeviceControlService.txt.

TELNET interface

Through the TELNET interface it is possible to enable, disable and configure the SafeCom server trace facility. Use of telnet can be disabled by changing the Windows Telnet Server's Registry setting: TelnetPort value to 0. Alternatively, create a DisableTelnet DWORD registry setting under HKEY_LOCAL_MACHINE \SOFTWARE\SafeCom\SafeComG4, set its value to 1, and restart the SafeCom service.

1. From the command prompt window, issue the **telnet** command. Enter:telnet <address> 7723

2. The SafeCom server prompts you for a username and a password of a SafeCom user with Administrator rights. The default username is **admin** and the password is **nimda**. Enter username: admin

3. Enter password:

```
nimda
```

Once you are logged in you will see the prompt:

```
sc.tel>
```

4. Enter any of the TELNET commands below such as **trace on** to enable trace or **trace off** to disable trace.

- **help** – online help.
- **logoff** – logoff from the TELNET session.
- **multiple info** – listing of open connections.
- **server info** – list status of servers ([Failover servers](#)).
- **server db info** – list database info.
- **server restart OK <servername>** - restarts the server.
- **trace info** – information about current trace setup.
- **trace off** – disable trace.
- **trace on** – enable trace.
- **trace path <path>** - specify a new location for the trace files.
- **trace size <n>** - set the maximum size (in kilobytes) of a trace file.
- **trace Store** – write the trace setup into Windows registry. **Note:** *You can type help to see additional TELNET commands, and help <command> to get help on a specific command.*

5. To close the TELNET session enter 'logoff'.

SafeCom device trace facility

To further assist the troubleshooting process it is also possible to obtain information from the SafeCom-enabled device.

- **SafeCom Controller** The SafeCom Controller contains a debug interface. Instructions on how to use enable and use this is forwarded on a per-case basis.
- **SafeCom Go** Please refer to the Troubleshooting chapter in the appropriate *SafeCom Go Administrator's Manual*. A complete list of manuals is available in section [Available documentation](#).

Chapter 4

Installation

Introduction

The installation of software and hardware is described in the *SafeCom Go Administrator's Manual* and *SafeCom Controller Administrator's Manual*. See section ([Available documentation](#)) for a complete list of these documents.

This chapter covers SafeCom installation, including multiserver ([Stop the SafeCom Service](#)) and cluster installation ([Cluster installation](#)).

Note: Use the forms in Chapter [Administrator's installation notes](#) to record your SafeCom solution information.

The install program

SafeCom has two installation options:

- **Basic server installation** Select this 5-step **Basic** ([Server installation \(Basic\)](#)) installation of the SafeCom Server Software and all required components to a default location.
- **Advanced installation** Select this to do a **Server** ([Server installation \(Advanced\)](#)) installation that use an existing SQL server or if there is a need to specify the location of SafeCom program files, SafeCom print files and database location. This option also allows **Client** ([Client installation](#)) and **Tools** ([Tools installation](#)) installation.

Server installation (Basic)

Important See [Server requirements](#) for software prerequisites and install these prior to the installation of SafeCom G4.

Note Installing the Microsoft Redistributable Package (x86) may take minutes, depending on your system. During this time, the installation process may appear to have hanged. Wait a few minutes to ensure that the installation proceeds normally.

1. Download safecom_g4_x64_xxxx.exe file from the link supplied to you. The installation must be **Run as administrator**. When the installation program is launched click **Next**.

2. Read and accept the end-user license agreement. Click **Next**.
3. Click **Basic server installation**. Click **Next**.
4. Select the SQL authentication:
 - SQL authentication with **safecom** user. The **safecom** SQL user is created with system administrator (sysadmin) rights when the SafeCom service is first started. The SafeCom service runs under the Local System account. Ensure that the **safecominstall** user is created, see the relevant sections, for example [Create intermediate SQL user: safecominstall](#).
 - Windows authentication with service account.
 - Create a service account prior to installing SafeCom, and grant it the “Log on as a service” right for all servers running SafeCom G4.
 - Do not create the **safecominstall** user in the SQL server.

Note In rare cases, the installer may display a message to remind you about creating a **safecominstall** user. Ignore this message.

- Add the selected Windows user with system administrator rights to the primary SQL server instance you plan to use with SafeCom. For more information, see [Add Windows service account to the SQL server](#). The SafeCom service runs under this account.
- Ensure that the selected service account has proper access rights to the private key of the certificate specified in the **TlsCert** registry entry, which is created by SafeCom itself (under HKLM\Software\SafeCom\SafeComG4). As several components of SafeCom (G4, PrintClient, Port) use this certificate/key pair, ensure that all accounts running the components have proper access rights. If you are using a service user account for Safecom G4, ensure it has administrator access.

Note Changing your SQL authentication when upgrading your existing installation is not supported. In such cases, remove your existing SafeCom installation ([Uninstall SafeCom software](#)) and perform a clean installation where you select your SQL authentication method.

5. Current settings are displayed. Click **Install** to accept and start the installation. Microsoft SQL Express 2014 SP1 is also installed. The **Print Spooler** is restarted at the end of this process.
6. Click **Finish** to launch **SafeCom Administrator** ([Introduction](#)).
7. If Windows Firewall is on, then open ports as specified ([Windows Firewall](#)).
8. Optionally, configure your encryption settings ([Configuring encryption](#)).

Server installation (Advanced)

Advanced installation is used when you need to specify a specific SQL server instance (for example, primary server SQL server in a Safecom multiserver environment) or if you want to specify folder locations for print jobs or folder location for Microsoft SQL Express instance. For prerequisites and details on multi-server installations, see [Multiserver installation](#).

1. Download the safecom_g4_x64_xxxx.exe file from the link supplied to you. Right-click the downloaded installation file and select **Properties**, then in the properties window click **Unblock**. Exit the properties window. The installation must be **Run as administrator**. When the installation program is launched click **Next**.

2. Read and accept the end-user license agreement. Click **Next**.
3. Click **Advanced installation**. Click **Next**.
4. Click **Server**. Click **Next**.
5. Select the SQL authentication:
 - SQL authentication with **safecom** user. The SafeCom SQL user is created with system administrator rights when the SafeCom service is first started. The SafeCom service runs under the Local System account. Ensure that the **safecominstall** user is created, see the relevant sections, for example [Create intermediate SQL user: safecominstall](#).
 - Windows authentication with service account.
 - Create a service account prior to installing SafeCom, and grant it the “Log on as a service” right for all servers running SafeCom G4.
 - Do not create the **safecominstall** user in the SQL server.

Note In rare cases, the installer may display a message to remind you about creating a **safecominstall** user. Ignore this message.

- Add the selected Windows user with system administrator rights to the primary SQL server instance you plan to use with SafeCom. The SafeCom service runs under this account.
- Ensure that the selected service account has proper access rights to the private key of the certificate specified in the **TlsCert** registry entry, which is created by SafeCom itself (under HKLM\Software\SafeCom\SafeComG4). As several components of SafeCom (G4, PrintClient, Port) use this certificate/key pair, ensure that all accounts running the components have proper access rights. If you are using a service user account for Safecom G4, ensure it has administrator access.

Note Changing your SQL authentication when upgrading your existing installation is not supported. In such cases, remove your existing SafeCom installation ([Uninstall SafeCom software](#)) and perform a clean installation where you select your SQL authentication method.

6. Select the location for the SafeCom program files. Click **Next**.
7. Select the location for print files. Click **Next**. Refer to [Store print files on an external file share](#) if you choose to use an external file share.

8. Select preferred SQL Server and click **Next**.
 - **Install** Microsoft SQL Express 2014 SP1, **default data location**
 - **Install** Microsoft SQL Express 2014 SP1, **specify data location** Select this to specify the location of the SQL database files.
 - **Use an existing SQL Server**. To use this option you must know the instance name prior to installation.

Important When using SQL Server 2014, ensure that you have the Management Tools – Basic component of the SSMS installed on the same machine as the SafeCom server. If the SSMS is not installed prior to SafeCom, it requires a restarting of the SafeCom service. If SSMS is not installed, replication may not work properly. The SSMS version must match the version of the external SQL server to be used.

Important When using a standalone SQL Server 2016, ensure that you have the Management Tools – Basic component of the SSMS 2014 installed on the same machine as the SafeCom server before you start installing SafeCom. If SSMS is not installed, replication may not work properly.

On the existing SQL server you need to create the intermediate SQL user: safecominstall ([Create intermediate SQL user: safecominstall](#)). On SQL 2008 Server enable the TCP/IP protocol ([Add Windows service account to the SQL server](#)). Enter the SQL server as: *computername\instancename* or just *computername* if there is no named instance of the SQL Server. The instance name is case sensitive. The instance names SAFECOMEXPRESS and SAFECOMMSDE are reserved for the SafeCom embedded SQL server and must not be used to name a SQL server instance.

9. Current settings are displayed. Click **Install** to accept and start the installation. The **Print Spooler** is restarted at the end of this process.
10. Click **Finish** to launch **SafeCom Administrator** ([Introduction](#)).
11. If Windows Firewall is on, then open the ports, inbound as well as outbound, as specified ([Windows Firewall](#)) and make the SQL Server use the fixed TCP port 1433 ([Windows Firewall – Make SQL use fixed port](#)). You can use the SafeCom provided firewall script to open the ports.

Tip If the SQL server is to use another fixed port than 1433 you can edit the SafeCom provided firewall script to include opening the desired port.

12. Optionally, configure your encryption settings ([Configuring encryption](#)).

Client installation

A Client installation is relevant if you intend to:

- Create a shared SafeCom Pull Printer ([Shared SafeCom Pull Printer](#)) or SafeCom Push Printer on a Windows print server.
- Create a local SafeCom Pull Printer ([Local SafeCom Pull Printer](#)) or SafeCom Push Printer on clients.

Follow these steps to make a Client installation.

1. Download the `safecom_g4_x64_xxxx.exe` file from the link supplied to you. The installation must be **Run as administrator**. When the installation program is launched click **Next**.
2. Read and accept the end-user license agreement. Click **Next**.
3. Click **Advanced installation**. Click **Next**.
4. Click **Client**. Click **Next**.
5. Select the location for the SafeCom program files. Click **Next**.
6. Current settings are displayed. Click **Install** to accept and start the installation. The **Print Spooler** is restarted at the end of this process.
7. Click **Finish**.

Tools installation

You only need to do a **Tools** installation if you want to administer your SafeCom solution from multiple computers. Follow these steps to make a **Tools** installation.

Note

- Before installing Tools, ensure that your Windows operating system is fully up-to-date.
- Upgrading an already-existing G4 Tools installation is not recommended due to the changes in G4 functionality. Uninstall the existing one, and install the new one.

Installing **SafeCom Administrator** will also install the files required to run **SafeCom Administrator API** (`AdmClient.exe`) and **SafeCom Batch Print API** (`scClient.exe`). Check **SafeCom Port Configurator** to install it.

1. Download the `safecom_g4_x64_xxxx.exe` file from the link supplied to you. The installation must be **Run as administrator**. When the installation program is launched click **Next**.

Note If you plan to perform a Tools installation on a 32-bit operating system, download and run the `SafeComG4_Tools_x86_xxxx.exe`. If you plan to perform a Tools installation on a 64-bit operating system, download and run the `SafeComG4_Tools_x86_xxxx.exe`.

2. Read and accept the end-user license agreement. Click **Next**.
3. Click **Advanced installation**. Click **Next**.
4. Click **Tools**. Click **Next**.
5. Check the tools you wish to add. Click **Next**.
6. Select the location for the SafeCom program files. Click **Next**.
7. Current settings are displayed. Click **Install** to accept and start the installation. If the installation includes **SafeCom Port Configurator** the **Print Spooler** is restarted at the end of this process.
8. Click **Finish**.

Users who are to use the **SafeCom Administrator** on the computer MUST have permission to the Windows registry:

```
HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafeComG4
```

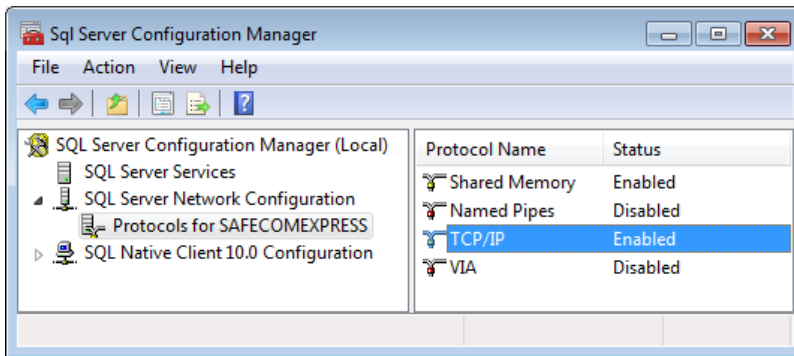
Windows Firewall – Make SQL use fixed port

In Windows 10, 8, 7, Windows Server 2012 R2 and 2016, the Windows Firewall is by default on and blocking remote connections. The following ports are used in connection with SQL communication:

- **UDP port 1434** The SQL Server Browser Service uses the UDP port.
- **TCP port 1433** Configure the SQL Server to use the fixed TCP port (see below).

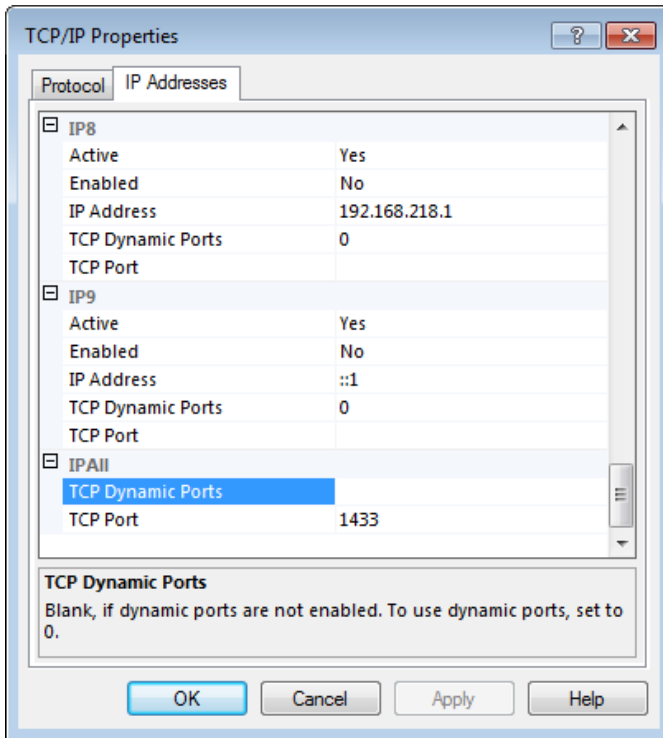
Follow the instruction below to make the SQL server used a fixed port.

1. Click **Start**, point to **All Programs, Microsoft SQL Server <version>, Configuration Tools** and **SQL Server Configuration Manager**.

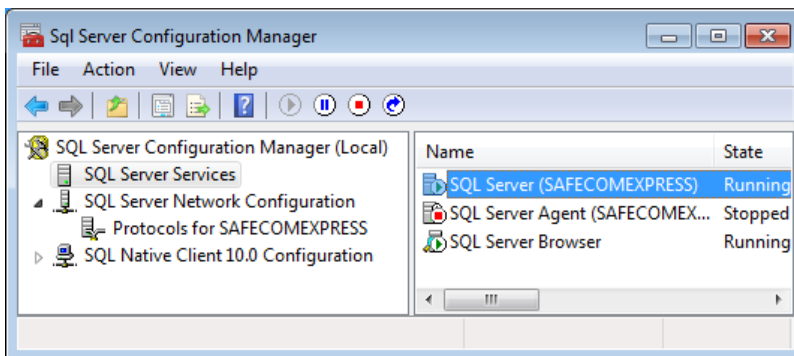


2. Double-click **TCP/IP** to open **TCP/IP properties** dialog.

3. On the **IP Addresses** tab scroll to the **IP All** section at the bottom.



4. Clear **TCP Dynamic Ports** and set **TCP Port** to 1433.
5. Click **OK**.
6. Click **SQL Server Services**.



7. Right-click **SQL Server (SAFECOMEXPRESS)** and click **Restart**.
8. Start the SafeCom Service.

After installation security checkup

Once the SafeCom G4 server has been installed and successfully tested it is recommended to go through this checklist:

- Change the default password (nimda) for the built-in user account ADMIN ([Change password](#)).
- Change the default password (hcet) for the built-in user account TECH. Check that the initial PUK code 12345678 is no longer present.
- Make sure that there is at least one user with Administrator rights ([Rights](#)).
- Check that SafeCom Controllers and SafeCom Go devices are password protected.
- Delete the intermediate SQL user: safecominstall ([Delete intermediate SQL user: safecominstall](#)).
- Put in place a scheduled backup of the database ([SafeCom database - backup and restore](#)).

Scripts to manually create the databases

Included in the distribution of SafeCom G4 is a number of *.scs script files that can be used to manually create the databases required by SafeCom.

Note Running these scripts clears the existing SafeCom databases.

The scripts are located in the SafeCom installation folder. The default installation folder is:

```
C:\Program Files\ SafeCom\SafeComG4
```

The scripts must be executed in the following order:

- sscore.scs
- sscoredef.scs
- ssevent.scs
- sseventdef.scs
- scpurse.scs
- scpursedef.scs
- sctracking.scs
- sctrackingdef.scs

If the distribution includes any of the files below these must be executed last.

- sscoreadapt.scs
- sseventadapt.scs
- scpurseadapt.scs
- sctrackingadapt.scs

To ensure that the database ownership is correct, run the following script:

- scChangeOwner.sql

SQL collation

The databases created by the SafeCom system use the collation: SQL_Latin1_General_CP1_CI_AS.

Use of other collations has not been tested and is not supported. Using another collation may perhaps reveal situations where case sensitivity could cause problems.

To use another SQL collation, do the following, before the databases are created:

1. On the SafeCom primary server make a backup of the files:
 - sscore.scs
 - scevent.scs
 - scpurse.scs
 - sctracking.scs
2. Edit each of the above *.scs files to reference the appropriate SQL collation. Look for the text string:

```
SQL_Latin1_General_CP1_CI_AS
```

Note The corresponding *def.scs should not be edited.

If the solution is a multiserver installation the modified *.scs files must also be used on the SafeCom secondary servers. This implies that the modified *.scs files must be copied to the SafeCom secondary server before the secondary creates its database.

Create intermediate SQL user: safecominstall


Note: This chapter uses screenshots and examples from SQL 2008.

The SafeCom Service will automatically create the SafeCom databases in the Microsoft SQL Server the next time the SafeCom Service is restarted. However, before this is done you need to temporarily create an SQL user named safecominstall.

The SQL user is created using the **Microsoft SQL Server Management Studio**. Refer to online Windows help for additional information on the Management Studio.

1. Click **Start**, point to **All Programs, Microsoft SQL Server <version>** and click **SQL Server Management Studio**.

Note The SQL Server Group must NOT be registered as LOCAL. The server name must be used instead, example SAFECOM4.

2. Expand to the **Logins** level depicted on the figure below. 

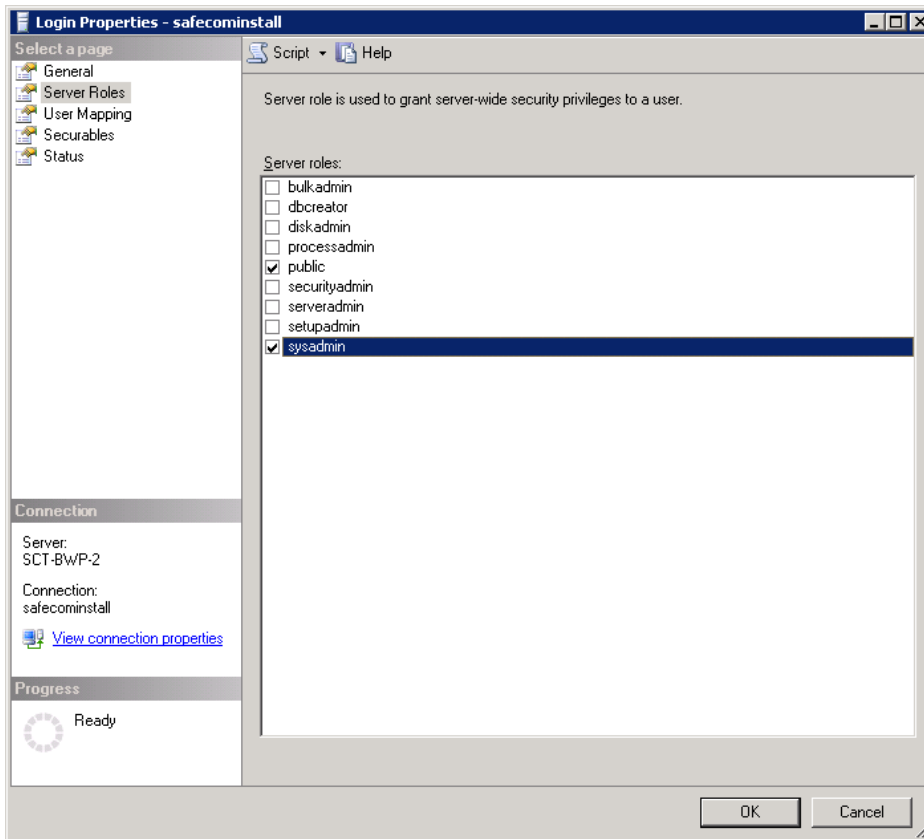
3. Right-click **Logins** and click **New Login...**

The screenshot shows the 'Login - New' dialog box with the following configuration:

- General** page selected in the left pane.
- Login name:** safecominstall
- Authentication:** SQL Server authentication
- Password:** [masked]
- Confirm password:** [masked]
- Specify old password
- Enforce password policy
- Enforce password expiration
- User must change password at next login
- Mapped to certificate
- Mapped to asymmetric key
- Map to Credential
- Mapped Credentials:** (Empty table)
- Default database:** master
- Default language:** <default>

4. On the **General** page set **Login name** to safecominstall. Check **SQL Server authentication** and set **Password** to safecom_2_DB. Clear **Enforce password policy**.

5. Click on the **Server Roles** page.



6. Give the SQL user the required rights by checking **sysadmin**. Click **OK**. Remember that the safecominstall SQL user is a temporary user and you can delete the user later on as described in [Delete intermediate SQL user: safecominstall](#).

Delete intermediate SQL user: safecominstall

1. Open the **SQL Server Management Studio**.
2. Browse to **Logins**.
3. Right-click the **safecominstall SQL user** and click **Delete**.

Do not modify SQL user: safecom

The first time the SafeCom Service is started the temporary safecominstall SQL user is used to create a permanent safecom SQL user. The safecom SQL user is used to log in to the database.

Note Do not modify the settings of the safecom SQL user as it may stop day-to-day operation and prevent successful future update of the SafeCom G4 Server software. Also do not enforce a password renewal policy to the SafeCom SQL user as it may cause the safecom SQL account to be locked and prevent the solution from working when this happens.

Add Windows service account to the SQL server

1. Start the **SQL Server Management Studio**.
2. Connect to the SQL server instance used by SafeCom.
3. Expand the **Security** entry.
4. Right-click **Logins** and select **New login...**
5. Browse to the Windows user you want to use.
6. Under **Server Roles**, check **sysadmin**.
7. Click **OK**.

Enable TCP/IP protocol on the SQL server

1. Click **Start**, point to **All Programs, Microsoft SQL Server <version>, Configuration Tools and SQL Server Configuration Manager**.
2. Browse to **SQL Server Network Configuration and Protocols for MSSQLSERVER**.
3. Right-click **TCP/IP** and select **Enable**.

Determine physical and virtual memory on the server

For good performance it is important to have sufficient physical RAM. Remember that SQL is a memory intensive application. 2 GB of physical memory is a good start, but more is better. To take advantage of 4 GB or more physical memory it is necessary enable PAE X86 (Physical Address Extension) on 32-bit Windows server. Refer to microsoft.com.

The amount of physical memory can be determined by looking at the **General** tab in the **System Properties** dialog.

How to determine CPU and RAM:

1. Open the **Control Panel** on the computer where the SafeCom server software is installed.
2. Click **Administrative Tools**. Click **Computer Management**.
3. Right-click **Computer Management (Local)** and click **Properties**. The **General** tab includes information about CPU (MHz), RAM (Mb) and will say **Physical Address Extension** if PAE is enabled.

If you see a little balloon in the bottom right corner of the screen announcing **Windows – Virtual Memory Minimum Too Low** Windows is increasing the virtual memory, but during this process, memory requests for some applications, such as the SafeCom server may be denied and these applications may potentially become unstable.

How to adjust the virtual memory:

1. Log in with administrator privileges on the server.
2. Open the **Control Panel** on the computer where the SafeCom server software is installed.
3. Click **Administrative Tools**. Click **Computer Management**.

4. Click on the **Advanced** tab.
5. In **Performance** click **Settings**.
6. In **Virtual memory** click **Change**.
7. In the **Drive** list, click the drive that contains the paging file you want to change.
8. Under **Paging file size for selected drive**, type a new paging file size in megabytes in the **Initial Size (Mb)** or **Maximum Size (Mb)** box, and then click **Set**. If you increase the sizes you are normally not required to restart the computer.

Note The initial size is normally equivalent to 1.5 times the amount of physical RAM on the system. If the **Task Manager** (see below) indicates that the Peak memory use is close to the maximum it is recommended to change the initial size to 1.5 times the current maximum and to increase the maximum to 2 or more times the current maximum. Example: Initial size is 2 GB and maximum is 4 GB. If Peak gets close to 4 GB then increase Initial size to 6 GB and maximum to 8 GB.

How to check peak memory usage:

1. Right-click an empty space on the **Taskbar** and click **Task Manager**.
2. Click on the **Performance** tab.
3. In **Commit Charge (K)** you can see the **Peak** memory usage. Peak memory usage on a SafeCom server is typically reached when there is high print activity and/or when user data is imported.

Store print files on an external file share

If the print files folder you specified in [Server installation \(Advanced\)](#) is on an external file share you must ensure that the SafeCom Service runs as an account that has read and write access to the external file share.

1. Open the **Control Panel** on the computer where the SafeCom server software is installed.
2. Click **Administrative Tools**. Click **Services**.
3. Right-click **SafeCom Service** and click **Properties**.
4. Click on the **Log on** tab.
5. Check **This account** and assign an account that has read and write access to the external file share.

Change location of SafeCom print files

Unless you specified an alternate location when you installed the SafeCom software, the SafeCom print files are by default stored in the folder:

```
C:\Program Files\SafeCom\SafeComG4\data
```

Follow the steps below to change the location of SafeCom print files.

1. Click **Start**, type **service.msc** into the Search box and press ENTER.
2. Right-click **SafeCom Service** and click **Stop**.
3. Right-click **Print Spooler** and click **Stop**.

4. Create the folder that should hold the print files from now on.
5. Copy the existing print files to the new folder.
6. Open the **Registry Editor** and browse to:
`HKEY_LOCAL_MACHINE\SOFTWARE\ SafeCom\SafeComG4`
7. Change **FilePath** to the new location.
8. Close the **Registry Editor**.
9. Start the **SafeCom Service** and the **Print Spooler**.

Configuring encryption

By default, the SafeCom components except the SafeCom Device Server use TLS encryption.

Note From S82 70.520*10 onwards, scPopUp does not work without TLS; switching TLS off disables the scPopUp as well.

1. Open the **Registry Editor** and browse to: `HKEY_LOCAL_MACHINE\SOFTWARE\ SafeCom\SafeComG4`
2. Edit (or create) the ChannelEncryption DWORD setting. The following settings are possible:
 - 1: Only Legacy enabled.
 - 2: Only TLS enabled.
 - 3: Both Legacy and TLS enabled (default).

To configure TLS 1.2 encryption between G4 Server and SQL Server, set **ChannelEncryption** to **2**, and perform the following two additional steps:

1. Install the Microsoft® OLE DB Driver 18 for SQL Server® (or above) from [Microsoft OLE DB Driver for SQL Server](#).
2. In the Registry, configure the following key for SafeCom to use the new connection string:
`[HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafeComG4\Database]`
`"Provider"=dword:00000001`

Using a custom certificate for TLS communication

To use custom certificates for TLS communication, follow the steps below.

1. On the SafeCom G4 Server machine, import your custom certificate to the local computer's **Computer** account > **Personal** certificate store.
 - a. On the server machine, press Windows key + R to open the **Run** dialog, then execute the **certlm.msc** command.
 - b. Under **Certificates (Local Computer)**, expand the **Personal** node, then click the **Certificates** folder.
 - c. Right click the background of the right pane, point to **All Tasks**, then click **Import...**
 - d. Follow the instructions of the wizard to import your certificate in the **Personal** certificate store.

2. Make sure the account running SafeCom has permissions to use the private keys of the imported certificate.
 - a. Right-click your certificate in the certificate store, point to **All Tasks**, and click **Manage Private Keys...**
 - b. On the **Security** tab, confirm that the account running SafeCom has **Full Control** permissions.
3. On the server, run the following PowerShell command to retrieve the certificate thumbprint: `Get-ChildItem -path cert:\LocalMachine\My`
4. Run the **regedit** command to open the Registry Editor, and browse to the following key: `Computer > HKEY_LOCAL_MACHINE > SOFTWARE > SafeCom > SafeComG4`
5. If it does not exist, create a REG_SZ value with the name **TlsCert**.
6. Paste the certificate thumbprint retrieved in step 3 to the **TlsCert** value.

Note The certificate thumbprint should only contain upper-case letters. In some cases, the thumbprint query may be case-sensitive, and lower-case letters may cause problems.

7. Restart the SafeCom service.

After completing the steps above, SafeCom G4 Server will use the specified certificate for TLS communication.

Update SafeCom software – single server

Important If you have a SafeCom G2 version S82 070.380*09 (32 bit) installation, you first need to upgrade to SafeCom G3 version S82 070.440*04 (32 bit) before upgrading to SafeCom G4.

The SafeCom license must be valid (not expired) in order to perform an update.

If you launch the install program to update the SafeCom G4 software or do a re-installation the install program will adapt to what is currently installed on the computer:

- **Server is already installed** The install program will offer you to update your existing SafeCom server installation.
- **Client is already installed** The install program will offer you to update your existing SafeCom client installation and offer you to add whatever tools you have not installed at previous occasions.
- **SafeCom Administrator is installed alone** The install program will offer you to update the **SafeCom Administrator**. This implies that if you want to subsequently install a client then you must first uninstall the **SafeCom Administrator** as described in [Uninstall SafeCom software](#) and then make a **Client** installation and then a **Tools** installation.

Note SafeCom solutions originally based on SafeCom G2 or G3 will, after the update, continue to use the original SafeCom installation folder (SafeCom G2 or SafeCom G3 instead of SafeCom G4) and it will also continue to use the SQL server. This implies that the update will not replace the SQL server already in use.

Follow these steps to update a single server:

1. Click **Start**, type **services.msc** into the Search box and press ENTER.
2. Stop the **SafeCom Service** and the **Print Spooler**, and any other services that depend on the **Print Spooler**.
3. Update the SafeCom server software.
4. Check **Yes, I want to restart my computer now**.¹⁷ Click **Finish**. This will restart the computer (and the **SafeCom Service** and **Print Spooler**).

The update procedure for multiserver installation is covered in [Using Group Management Service Account for services](#). The update procedure for a cluster installation is covered in *SafeCom G4 Cluster Administrator's Guide*.

For more details, refer to *SafeCom Tech Note Migration from SafeCom G2 to SafeCom G3*.

Uninstall SafeCom software

When you uninstall SafeCom G4 software on a computer you also delete the SafeCom Pull Printers, that is, the printers that use the **SafeCom Pull Port** or **SafeCom Push Port**.

1. Stop the **SafeCom Service** ([How to start and stop the SafeCom Service](#)) and the **Print Spooler** ([How to start and stop the Print Spooler](#)). If other services depend on the **Print Spooler** these must also be stopped.
2. If SafeCom PopUp (scPopUp.exe) is running, then stop it.
3. Open the **Control Panel**.
4. Click **Programs and Features** (or **Add or Remove Programs**).
5. Right-click **SafeCom G4** and click **Uninstall**.
6. Proceed to section ([Uninstall Microsoft SQL Express 2014 SP1](#)) to uninstall the SafeCom specific instance of the SQL server.
7. You will need to restart your computer after uninstalling Microsoft SQL Express 2014 SP1.

Uninstall Microsoft SQL Express 2014 SP1

1. Open the **Control Panel**.
2. Click **Programs and Features** (or **Add or Remove Programs**).
3. Right-click Microsoft SQL Server 2014 and click **Uninstall**.

¹⁷ It is recommended to restart the computer, but in most cases it is sufficient to restart the SafeCom Service and Print Spooler.

4. Uninstall the DATA folder that contains SafeCom SQL database files (sc*.mdf and sc*.ldf). These files need to be deleted manually.

The default location for the database files:

```
C:\Program Files\Microsoft SQL Server\MSSQL12.SAFECOMEXPRESS\MSSQL\DATA
```

If you chose a different location during installation ([Server installation \(Advanced\)](#)), find the files and delete them manually. If you reinstall SafeCom software, these files are suffixed with *.old before a new set of SafeCom SQL database files is installed.

5. Restart the computer.

SafeCom Print Client

Network bandwidth is often a barrier to the central administration of printers at remote sites. With SafeCom Print Client, you can minimize the need for network capacity locally since only control data travels over the corporate network. Pending documents are stored locally on the user's computer until the user authenticates and collects the print job at any network printer. Only login and tracking information is sent to the SafeCom server.

Note: *Tracking data is still sent to the SafeCom server.*

Print jobs are stored on the hard disk drive in:

```
C:\Program Files\SafeCom\
```

```
SafeComPrintClient\JobFiles\
```

On Windows 64-bit:

```
C:\Program Files (x86)\SafeCom\
```

```
SafeComPrintClient\JobFiles\
```

Note The location of print jobs is specified in the scPrintClient.ini file ([scPrintClient.ini file](#)).

The software can be installed on computers that conform to the specified system requirements ([Client requirements](#)).

Note On Windows 7 you must set **User Account Control**.

¹⁸ ([Add a local SafeCom Pull Printer on Windows 7](#)) to *Never notify during installation*.

Note The description of Print Client computers cannot exceed 100 characters. Only the first 100 characters of the computer description will be saved in the database.

¹⁸ The creation of the SafeCom Pull Port (scPull) requires User Account Control to be turned off.

Installation

1. Download the safecom_print_client_xxx.exe file from the link supplied to you. The installation must be **Run as administrator**.
2. Accept the **License agreement**.
3. **Select components**. Full installation is the default option. SafeCom Popup is an optional component. Print Client service is also optional; you can deploy only the SafeCom Pull and Push ports without the service. Installing the service without ports is not possible. The next screen of the installer depends on the selected components.
4. When **Full install** is selected:
 - a. **SafeCom Server**. The home server of the Print Client must be specified. The address can be specified as the hostname or the IP address. Use semicolon as a separator if multiple servers are entered.
 - b. **Location of the configuration file**. If you leave the SafeCom server address field empty, then the location of the configuration file - scPrintClient.ini - must be specified on the next screen. The configuration file can be located on a network share. The SafeCom server address is defined in this file. It is mandatory to specify the SafeCom server address either manually or via this configuration file.
5. When **Ports only install** is selected:
 - a. **Print engine**. The Print engine - a SafeCom server or a Print Client - must be specified. This server is used for transferring print jobs and tracking data captured by SafeCom ports.
6. Click **Install** to copy the files to the installation folder. Default installation folder is: C:\Program Files\SafeCom\SafeComPrintClient.
7. Click **Finish** to apply the following changes to the system:
 - New service named: **SafeCom Print Client**.
 - New port (**scPull**) that uses the **SafeCom Pull Port** ([Configure the SafeCom Pull Port](#)).

The **SafeCom PopUp** ([Add a SafeCom Push Port](#)) is also installed and started if selected in the installation wizard.

Note

- If a non-default JobStoragePath is used either during installation or later, the specified folder must exist, and the account running the SafeCom Print Client must have the necessary access rights to that folder.
- In a SafeCom multi-server solution, the SafeCom Print Client and the SafeCom Pull Port ([Configure the SafeCom Pull Port](#)) will failover to the first server in the failover server list.

Windows Firewall

If Windows Firewall is enabled, it may prevent the SafeCom solution from working. Disable the firewall or run the script below.

1. Browse to the SafeComPrintClient installation folder.
2. Right-click open_firewall_print_client.cmd. The command file must be **Run as administrator**. In the file you can see what TCP and UDP ports will be opened.

Print test page

1. Use one of these methods to make a printer use **SafeCom Print Client**:
 - Modify an existing local printer to use the new port. In the **Print properties** dialog click on the **Ports** tab and check the **scPull** port.
 - Add a new local printer and make it use the new port. Please refer to these sections for instructions: Windows 7 ([Add a local SafeCom Pull Printer on Windows 7](#)), Windows 10 / Windows 8 ([Add a local SafeCom Pull Printer on Windows 10 / Windows 8](#)).
2. Print a test page and collect it at one of the SafeCom-enabled devices.

Direct print if SafeCom server is offline

If the connection to the SafeCom server fails, it is still possible for a user to print with SafeCom Print Client installed.

SafeCom Print Client keeps a record of the devices that have been used for printing so if the connection to the SafeCom server is lost, SafeCom Print Client offers the user to print directly to one of the last used devices.

When a user submits a print job and the SafeCom server is offline, the **SafeCom Print Client** dialog opens, offering the user to send the print job directly to a printer on a list.



The user chooses a printer from the drop-down menu, clicks **OK**, and the print job is sent directly to the selected printer. Printers that are driven by SafeCom Device Server version S82 060.050 or earlier are excluded from the list.

Note Even when the connection to the SafeCom server is lost, the tracking data is still collected and then sent to the server once the connection is re-established.

Deployment to computers

The IT administrator can deploy the SafeCom Print Client software to computers silently by following these steps:

1. Create a folder and copy `safecom_print_client_xxx.exe` and `scPrintClient.ini` ([scPrintClient.ini file](#)) into the folder.
2. Edit the `DefaultServerAddress`=entry in the `scPrintClient.ini` to include the address (hostname or IP address) of the SafeCom server(s). `DefaultServerAddress=slave1;slave2`
Use semicolon (;) as separator. It might be relevant to reference a couple of SafeCom secondary servers, similar to what you might do for the purpose of failover ([Failover servers](#)). To control the location of print job files edit the `JobStoragePath` parameter.
3. Save the `scPrintClient.ini`.
4. To suppress dialogs invoke the `safecom_print_client_xxx.exe` file with the command line parameters ([Command line parameters](#)): `/VERYSILENT /NORESTART /SUPPRESSMSGBOXES`
To install in a specific folder use the `/DIR="x:\pathname"` command line parameter. A fully qualified *pathname* must be specified.
5. Optionally, the administrator could specify the components to be installed with the `/COMPONENTS` switch. The available component combinations are as follows:
 - `/COMPONENTS="Print Client Service,Ports,PopUp"`
 - `/COMPONENTS="Print Client Service,Ports"`
 - `/COMPONENTS="Ports,PopUp"`
 - `/COMPONENTS="Ports"`
 - `/COMPONENTS="PopUp"`

The INI file can be saved from an existing installation to a network location that can be read by all Print Client computers. Print Clients can be configured to read the INI file from this shared location both during and after installation.

During installation, use the `/CONFIGFILE` command line parameter to specify the location of the shared ini file. This will automatically create the required registry entry for the shared configuration file.

- `/CONFIGFILE="Full path and file name of the ini file"`

For an existing Print Client installation to use a shared INI file, the following registry value must be created manually, and the SafeCom Print Client service must be restarted. The value must contain the full path and file name of `scPrintClient.ini`.

Value name:

`ConfigFile` (String value)

Key name (on 64-bit operating systems):

`HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\SafeCom\scPrintClient`

Key name (on 32-bit operating systems):

HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\scPrintClient

Note The settings in a shared INI file are used by all configured Print Clients. Make sure that all settings are valid for all clients (for example, DefaultServerAddress and JobStoragePath settings are valid for all).

scPrintClient.ini file

The configuration file is loaded by the service at startup. The service resolves the location of the configuration file using methods in the following order:

1. Path specified in the registry as defined in the previous section.
2. [ProgramData folder]\SafeCom\PrintClient (default in case of the standard install procedure)
3. [Program installation folder].

Note If this file is present next to the Print Client installer, it is automatically copied to the Print Client installation directory, and the Print Client Service uses the information and settings presented in this file (especially the server information). If the server IP address is specified in scPrintClient.ini, the installer does not display the relevant dialog, and takes the information from the scPrintClient.ini itself.

[scPrintClient]

JobStoragePath=C:\Program Files\SafeCom\SafeComPrintClient\JobFiles\

ScReconnectRetryWaitMs=120000

DefaultServerAddress=xxx.yyy.zzz.nnn; aaa.bbb.ccc.ddd

DefaultServerPort=7500

DefaultServerPortPS=7700

JobServerConnTimeOutMS=30000

JobServerPingTimeOutMS=1000

OfflineTrackingTaskInterval=1200000

OfflineTrackingTaskIntervalRnd=1200000

CleanUpTaskInterval=72000

CleanUpTaskIntervalRnd=36000

- **JobStoragePath=C:\Program Files\SafeCom\SafeComPrintClient\JobFiles**: States the path where the print client saves the job files.

Note If a non-default JobStoragePath is used either during installation or later, the specified folder must exist, and the account running the SafeCom Print Client must have the necessary access rights to that folder.

- **ScReconnectRetryWaitMs=1200000**: States the time that must pass in between retries to connect to the SafeCom server.
- **DefaultServerAddress=xxx.yyy.zzz.nnn; aaa.bbb.ccc.ddd**: Semicolon separated list of server addresses to which the print client connects.
- **DefaultServerPort=7500**: Port used when computer is running in workstation mode (default is 7500).
- **DefaultServerPortPS=7700**: This is the port that the print client will use for connecting to the job server if the computer is running in PrintServer mode (default is 7700).
- **JobServerConnTimeOutMS=30000**: Time in milliseconds to wait in between tries to reconnect to a server if the current server is not responding. If no server responds to the print client, the print client will go into offline mode. The default is 30000. The print client will also respond in an offline manner if user's home server is offline.
- **JobServerPingTimeOutMS=1000**: timeout in milliseconds used when pinging servers.
- **OfflineTrackingTaskInterval=1200000**: time in milliseconds between performing offline tracking.
- **OfflineTrackingTaskIntervalRnd=1200000**: Value used to calculate random offset added to the OfflineTrackingTaskInterval parameter to prevent that all print clients perform offline tracking at the exact same time.
- **CleanUpTaskInterval=72000**: Time in milliseconds between performing cleanup (removing old jobs, and so on).
- **CleanUpTaskIntervalRnd=36000**: Value used to calculate random offset added to the CleanUpTaskInterval parameter to prevent that all print clients perform cleanup at the exact same time.

Note The servers listed in parameter **DefaultServerAddress** are not prioritized. The print client will only connect to the first server in the list at service restart.

Trace facility

Note Use the SafeCom trace facility only if SafeCom Support instructs you to do so.

1. On the computer create the folder c:\safecom_trace

The trace file scPrintClient<number>.trc contains a number as part of the filename. When a trace file reaches the maximum size (10 Mb) a new one is created and the number is incremented with one. The trace folder will hold the current and previous version of the trace file. Older files are automatically deleted.

Restarting the SafeCom Print Client Service will by default reset the trace files.

Command line parameters

Following command line parameters can be used to achieve the wanted behavior of the deployment

/SILENT, /VERYSILENT

Instructs Setup process to be silent or very silent. When Setup is silent the wizard and the background window are not displayed whilst the installation progress window is shown. When a setup is very silent the installation progress window is not displayed. Everything else is normal as for example error messages during installation are displayed and the start-up prompt is as well (if it has not been disabled by DisableStartupPrompt).

If a restart is necessary and Setup is silent, the application will display a "Reboot now?" message box.

If it's very silent it will reboot without asking.

/SUPPRESSMSGBOXES

Instructs Setup process to suppress all message boxes. This parameter can only be used when combined with '**SILENT**' and '**VERYSILENT**'.

The default response in situations where there's a choice is:

- **Yes** in a 'Keep newer file?' situation.
- **No** in a 'File exists, confirm overwrite.' situation.
- **Abort** in Abort/Retry situations.
- **Cancel** in Retry/Cancel situations.
- **Yes** (=continue) in a diskSpaceWarning / DirExists / DirDoesntExist / NoUninstallWarning / ExitSetupMessage / ConfirmUninstall situation.
- **Yes** (=restart) in a FinishedRestartMessage/UninstalledAndNeedsRestart situation.

5 message boxes are not suppressible:

- The About Setup message box.
- The Exit Setup? message box.
- The FileNotInDir2 message box displayed when Setup requires a new disk to be inserted and the disk was not found.
- Any (error) message box displayed before Setup (or Uninstall) could read the command line parameters.
- Any message box displayed by [Code] support function MsgBox.

/LOG

Causes Setup process to create a log file in the user's TEMP directory detailing file installation and [Run] actions taken during the installation process. This can be a helpful debugging aid. For example, if you suspect a file is not being replaced when you believe it should be (or vice versa), the log file will tell you if the file was really skipped, and why.

The log file is created with a unique name based on the current date. (It will not overwrite or append to existing files.)

The information contained in the log file is technical in nature and therefore not intended to be understandable by end-users. Nor is it designed to be machine-parseable; the format of the file is subject to change without notice.

/LOG="filename"

Same as /LOG, except it allows you to specify a fixed path/filename to use for the log file. If a file with the specified name already exists it will be overwritten. If the file cannot be created, Setup will abort with an error message.

/NOCANCEL

Prevents the user from cancelling during the installation process, by disabling the Cancel button and ignoring clicks on the close button. Useful along with '/SILENT' or '/VERYSILENT'.

/LOADINF="filename"

Instructs Setup process to load the settings from the specified file after having checked the command line. This file can be prepared using the '/SAVEINF=' command as explained below. Don't forget to use quotes if the filename contains spaces.

/SAVEINF="filename"

Instructs Setup process to save installation settings to the specified file.

Don't forget to use quotes if the filename contains spaces.

/DIR="x:\dirname"

Overrides the default directory name displayed on the Select Destination Location wizard page. A fully qualified pathname must be specified.

/SERVER="IP_ADDRESS"

Allows you to specify the G4 server address during silent installation.

Note If you have an scPrintClient.ini file next to the Print Client installer, and the ini file specifies a server IP address, the settings in scPrintClient.ini overwrite the /SERVER parameter.

Uninstallation

You can uninstall the Print Client in either of the following ways:

- Go to **Programs and Features**, select the Print Client application, then click **Remove**.
- Alternatively, locate and run the uninst000.exe in your Print Client installation directory.

You can use the following command line parameters when running the uninstallation:

/KEEPSETTINGS=YES|NO

Keeps or discards your Print Client settings.

Note If you uninstall the Print Client via **Programs and Features**, you have the option to keep your settings via selecting the relevant UI option when prompted.

/SILENT, /VERYSILENT

See above for more details ([Command line parameters](#)).

/SUPPRESSMSGBOXES

See above for more details ([Command line parameters](#)).

/LOG

See above for more details ([Command line parameters](#)).

/NORESTART

Upgrade from Express to Microsoft SQL Server

You can use the supplied **scBackup** ([scBackup](#)) to backup the Microsoft SQL Express 2014 SP1 database and use it to restore the backup once you have changed to Microsoft SQL Server as described below:

1. Create intermediate SQL user: safecominstall ([Create intermediate SQL user: safecominstall](#)).
2. Stop the SafeCom Service ([Stop the SafeCom Service](#)).
3. Change Windows Registry to reference SQL Server ([Change Windows Registry to reference SQL Server](#)).
4. Change the dependencies on the SafeCom Service ([Change the dependencies on the SafeCom Service](#)).
5. Delete intermediate SQL user: safecominstall ([Delete intermediate SQL user: safecominstall](#)).

Note For this to take effect you MUST restart the computer.

Once you have performed the above successfully you may uninstall the Microsoft SQL Express 2014 SP1 database as described in [Uninstall Microsoft SQL Express 2014 SP1](#).

Stop the SafeCom Service

1. Click **Start**, type **services.msc** into the Search box and press ENTER.
2. Right-click the **SafeCom Service** and click **Stop**.

Change Windows Registry to reference SQL Server

1. Open the **Registry Editor** and browse to:

HKEY_LOCAL_MACHINE\SOFTWARE\ SafeCom\SafeComG4\Database

2. For each these registry settings:

- DBServerNameCore
- DBServerNameEvent
- DBServerNamePurse
- DBServerNameTracking

3. Change the value from:

`computername\SAFECOMEXPRESS`

to one of the below two. It is not possible to specify the IP address instead of the *computername*.

- *computername*You only need to specify the *computername* if there is no named instance of the SQL Server. There is no named instance of the SQL Server if **Services** only lists MSSQLSERVER.
- *computername\instancename*You need to specify both *computername* and *instancename* if there is a named instance of the SQL Server. The instance name can be seen in **Services**. The named service will appear in **Services** as MSSQL\$*instancename*. The instance name is case sensitive.

4. Click **OK** to save the settings.

5. Repeat step 3-4 for the remaining registry settings.

6. Exit the **Registry Editor**.

Change the dependencies on the SafeCom Service

1. Open the **Registry Editor** and browse to: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SafeCom Service
2. Double-click **DependOnService** and replace MSSQL\$SAFECOMEXPRESS with the instance name of the SQL Server (MSSQL\$*instancename*). Use MSSQLSERVER if there is no named instance. See also step 3 in [Change Windows Registry to reference SQL Server](#). The instance name is case sensitive. If the SQL Server is installed on another computer you should right-click **DependOnService** and click **Delete**.

Note For this to take effect you must restart the computer.

Multiserver installation

Prerequisites:

- A SafeCom license key code that includes SafeCom Enterprise Server. The license key code is based on the computer name ([Determine the Computer Name](#)) of the SafeCom primary server.
- See [Server requirements](#) for server versions required for the SQL primary server. It must be licensed and installed (including replication option). Microsoft SQL is quite memory intensive and basically the more memory the better. 16 GB RAM is a good start.
- The SQL primary server must be defined as an SQL distributor and publisher.
- The SQL primary server must be configured to use **Authentication** method **SQL Server and Windows**.

- The SQL primary server must have the following three services running otherwise the one-way replication from the primary to the secondary does not work:
 - **SQL service** Best practice is to use a standard domain user, for example, SqlRun
 - **SQL Browser**
 - **SQL Agent** Best practice is to use a standard domain user, for example, SqlRun - the same as for the SQL service.
- The SQL primary server, SafeCom primary server and SafeCom secondary servers must be part of the same domain or workgroup.
- The SQL primary server must know the SafeCom secondary servers by DNS and vice versa.
- The SafeCom primary server must know the SQL primary server by DNS.
- The SafeCom primary server must know its SafeCom secondary servers by hostname or IP address and vice versa.
- The firewall for both the primary server and the secondary servers must either be turned off, or a static SQL port must be set.

If you set a static port: (refer to section [Windows Firewall – Make SQL use fixed port](#))

 - Make sure to open the static port in the firewall.
 - Open the port 1434.
 - Make sure the SQL Browser service is running.
- The primary and secondary servers must be installed with the same SafeCom server version.
- Depending on how you plan to run the SQL service for the given instance, do the following:
 - If you are using the built-in SQL Agent of your SQL server instance, ensure that it has **Write/Modify** access to C:\Program Files\Microsoft SQL Server\MSSQL.<instance name>\MSSQL\Data.
 - If you are using a Windows service account to run the SQL Agent of your SQL server instance, ensure that it has **Write/Modify** access to C:\Program Files\Microsoft SQL Server\MSSQL.<instance name>\MSSQL\Data.
- In case of using Windows authentication for the SQL server, ensure that the following criteria are met:
 - The selected user has local administrator rights on all SafeCom servers.
 - The selected user has “Log on as a service” right on all SafeCom servers.
 - Ensure that the selected user is added as a system administrator to the SQL server instance. For more information, see [Add Windows service account to the SQL server](#).
- Ensure that all SafeCom service users have full access rights to the SQL data folder when using Windows authentication to connect to the SQL server.

Note When you add a SafeCom server to a SafeCom primary server's group the SafeCom secondary server loses its existing data, including: devices, users, and print jobs.

Note Refer to [Upgrade from Express to Microsoft SQL Server](#) if you are upgrading from a running SafeCom Server with Microsoft SQL Express 2014 SP1 to Microsoft SQL Server.

Overview

1. Do a SafeCom Server installation on each secondary server ([Server installation \(Advanced\)](#)).

2. Do a SafeCom Server installation on the primary server. Select **Advanced installation** and **Use an existing SQL Server** ([Server installation \(Advanced\)](#)).
3. Use **SafeCom Administrator** to install the license key code on the primary server ([Install the SafeCom license key code](#)).
4. Set the startup type of SQL Server Agent service to **Automatic** on the primary SQL server ([Set SQL Server Agent to automatic startup](#)).
5. Add the secondary servers to the primary server's group ([Add the other servers to the primary server's group](#)).
6. Delete intermediate SQL user: safecominstall ([Delete intermediate SQL user: safecominstall](#)).
7. Check that replication is working ([Check that the replication is working](#)).
8. Enable **Offline tracking** ([Multiple servers: Online or offline tracking](#)) if tracking is used.
9. Schedule a database backup for the secondary server to keep the database transaction log files from growing. The backup itself is not really needed, as data is replicated from the SQL primary server ([SafeCom database - backup and restore](#)).

The Microsoft SQL Server is installed in the folder:

```
C:\Program Files\ Microsoft SQL Server\MSSQL
```

Set SQL Server Agent to automatic startup

The SQL Server Agent (*instancename*) on the SQL server must be set to **Automatic** startup in **Services**.

Add the other servers to the primary server's group

Use **SafeCom Administrator** to add the secondary servers to the primary server's group. The server you add must be running. Refer to [Create a multiserver group](#).

Check that the replication is working

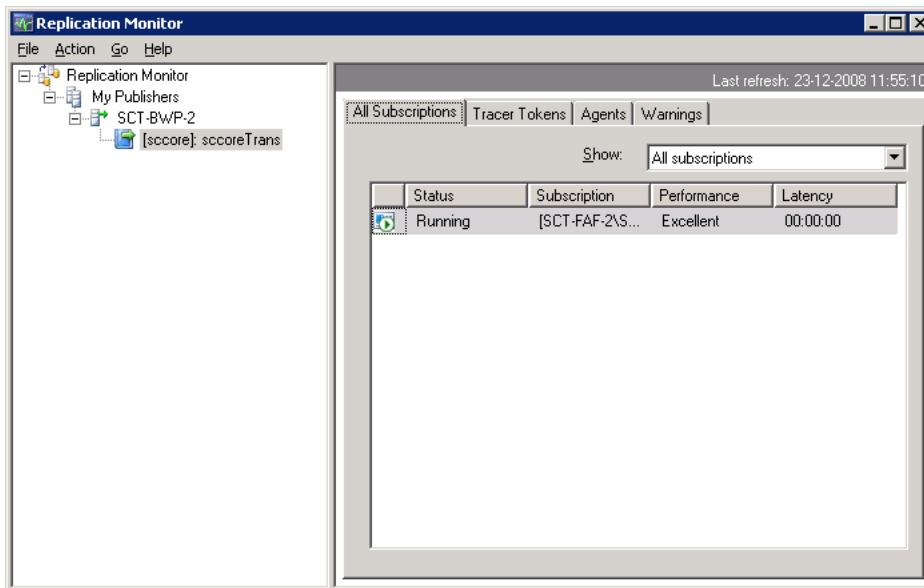
You can also check the replication status in SafeCom Administrator. The server icon in the **Server groups** pane will feature a yellow warning triangle if the replication status is **Retrying** or **Failed**. More detailed status is listed in the **Replication** column in the **Servers** list. The status can be: **Started, Succeeded, In progress, Idle, Retrying** and **Failed**.

On SQL Server:

1. Open **SQL Server Management Studio**.
2. Verify that the **SQL Server Agent** is running. Right-click **SQL Server Agent** and click **Properties** and verify that **Service state** is **Running**.

3. Monitor the replication. Browse to **Replication** and **Local Publications** and right-click **[score]:scoreTrans** and click **Launch Replication Monitor**.

The Replication Monitor:



4. If the replication is working status symbols should be colored green only and not red.
5. To check any latency click on the **Tracer Tokens** tab and click **Insert Tracer**.
6. Click on the **Agents** tab and check that agents are running.

Important SQL replication must be working at all times and not set to expire. It is highly recommended to use the SQL server alerting capabilities to notify you when/if the replication stops. For preventive steps, see [Prevent the subscription from expiring](#).

The following tables must be selected for replication:

- scAliases
- scBillingCodes
- scBillingComb
- scBillingConfig
- scBillingFavorites
- scBillingUserInfo
- scBOPCInfo
- scBranchInfo
- scCardInfo
- scClientConfig
- scDelegates
- scDeviceInfo
- scDeviceServerInfo

- scDomainInfo
- scGroupInfo
- scGroupMembers
- scGroupRbpRule
- scMainSettings
- scMasterServerVersion
- scPriceScheme
- scRbpAction
- scRbpCondition
- scRbpRuleInfo
- scScheduleInfo
- scServerInfo
- scServerSettings
- scTreeView
- scUserInfo

Note Make sure to check the right ones.

Repair replication

If a replication fails or is interrupted, it can be repaired from SafeCom Administrator.

Note

- Use Microsoft SQL Management Studio to back up your replication configuration, using the **Generate Script** button.
- This feature can only be used if *Setup replication was checked when the secondary server was added* ([Add server](#)).

1. Right-click the secondary server and select **Repair replication**.
2. Click **OK** to confirm and the replication repair begins; the secondary server's subscription is deleted and created again.
3. When the message *"The replication was repaired with success!"* appears, the replication repair is completed successfully.
4. Click **OK**.

What happens if servers or network connections are down?

To answer this question we will first explain the concept behind the SafeCom multiserver solution.

The SafeCom primary server uses SQL replication to propagate the entire configuration to the SafeCom secondary servers. Initially it does a snapshot replication and subsequently it only replicates the changes (transactional replication).

This way all the SafeCom servers have the configuration, including the network details of each other. This allows the servers to communicate directly, rather than having to rely on the SafeCom primary server. You can say the SafeCom servers become autonomous.

The replication from the SQL server to the SafeCom secondary servers is one-way. Changes to the configuration are possible only when the SafeCom primary server and SQL primary server are running. This is secured by the system as users with special rights always have the SafeCom primary server as their home server.

- If the primary server is down it is not possible to make any configuration changes (Administrators cannot log in to SafeCom Administrator).
- If a SafeCom server is down users who have this SafeCom server as their home server cannot log in. However, push printers configured to allow printing at all times can still be used on the servers running. SafeCom servers still running will continue to serve the users who have those servers as their home server. Additional resilience can be achieved by specifying a prioritized list of failover servers ([Failover servers](#)) that users should be moved to in the event that their home server becomes unavailable.
- If the network is partially down, it is still possible to print and roam between the servers as long as they can still reach each other (they are not affected by the part of the network that is down). If the network is completely down nothing is possible until the network is up again.

Reinitialize the subscription

If a SafeCom secondary server has been restored you may wish to reinitialize the replication from the SQL server to the SafeCom secondary server.

1. Click **Start**, point to **All Programs, Microsoft SQL Server <version>** and click **SQL Server Management Studio**.
2. Log in to the SQL server and browse to **Replication, Local Publications** and **[score]:scoreTrans**.
3. Right-click the subscription of the SafeCom secondary server and select **Reinitialize All Subscriptions**.
4. Check **Generate the new snapshot now**. Click **Mark For Reinitialization**.

Section [Check that the replication is working](#) describes how to check that the replication is working.

Prevent the subscription from expiring

The replication from the SQL server to the secondary server may get dropped if the subscription is not synchronized within 72 hours.

1. Click **Start**, point to **All Programs, Microsoft SQL Server <version>** and click **SQL Server Management Studio**.
2. Log in to the SQL server and browse to **Replication, Local Publication**.
3. Right-click **[score]:scoreTrans** and select **Properties**.
4. On the **General** page check **Subscription never expire, but they can be deactivated until they are reinitialized**. Click **OK**.

Using Group Management Service Account for services

Follow these steps to migrate a SafeCom multiserver installation from using SQL authentication to using Windows authentication for its database connections.

Note Group Managed Service Account in use will be referred to as GMSA.

1. Primary SQL server:

- Add full control for the GMSA account to: `C:\Program Files\Microsoft SQL Server\MSSQL12.SAFECOMEXPRESS\MSSQL\DATA` and all subfolders.
- Assign **sysadmin** role for the GMSA user within the SQL server instance.

2. SafeCom Primary server and all SafeCom Secondary servers:

- Add the GMSA account to the local Administrators group.
- Grant the GMSA account the “**Log on as a service**” right.
- Stop the SafeCom service.
- In Services, under the SafeCom service’s properties add the GMSA account on the **Log on** tab in the “**<username>\$**” format (without quotes). Do not specify a password.
- Open the Registry Editor and browse to: `HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafecomG4\Database`
- Change the value from 0 to 1 for each of the following registry settings:
DBUseWindowsAuthenticationCore DBUseWindowsAuthenticationEvent
DBUseWindowsAuthenticationPurse DBUseWindowsAuthenticationTracking

3. SafeCom Secondary servers:

- Assign sysadmin role for the GMSA account in the local SQL instance.
- Start **SQL Server Configuration Manager**, and specify the GMSA account for **SQL Server Browser** and for **SQL Server (SAFECOMEXPRESS)** on the **Log On** pane.

Note Microsoft recommends using this tool to change the user for the service instead of the Services built-in control panel.

1. SafeCom Primary server and all SafeCom Secondary servers:

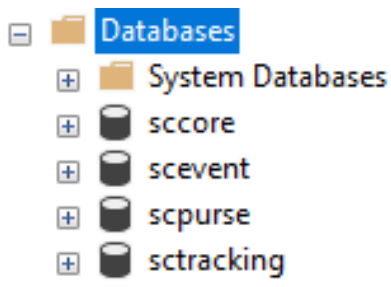
- Start the SafeCom service on all **SafeCom Secondary** servers.
- Start the SafeCom service on the **SafeCom Primary** server.
- Start **SafeCom Administrator** and check that the connection works fine.
- Confirm that replication is working properly by adding some users to one of the SafeCom secondary servers. If the user properties are displayed correctly, then the replication works properly.

Tips on migration of databases and SafeCom server instances

To upgrade the primary SQL server in-place, follow current Microsoft recommendations.

To migrate the current primary SQL server to another instance of an upgraded SQL server, the following items need to be handled:

- All four SafeCom databases, **score**, **scevent**, **scpurse** and **sctracking** must be migrated to the new instance.



- SQL security settings (for example, logins) related to SafeCom must be migrated or re-created at the new instance,
- Replication against secondary servers must be re-created at the new instance.

It is recommended to have the SafeCom secondary servers use their own bundled SQL Express instances. Be aware that Microsoft only supports replication between SQL servers that are no further than two versions apart, so older SafeCom secondary servers may need to be upgraded to use Microsoft SQL Express instances.

Upgrade of the SQL Server Express version is not in scope for the SafeCom installer, so SQL Server Express instances on SafeCom secondary servers should either be upgraded manually, or the version of SafeCom G4 running on the SafeCom secondary servers should be removed, including the bundled SQL Server Express version, and should be replaced by a new installation of SafeCom G4 520*10.

Repairing replication on SafeCom secondary servers

In case replication needs to be repaired on any of the SafeCom secondary servers, follow the process below to perform a Repair replication operation from SafeCom Administrator.

1. On the **SafeCom Secondary** server where replication needs to be repaired, open the Registry Editor and browse to: HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafecomG4\Database
2. Change the value of DBUseWindowsAuthenticationCore from 1 to 0.
3. Start **SafeCom Administrator**.
4. Right-click on the affected **SafeCom Secondary** server and click **Repair replication**.
5. Wait until the repair process is completed.
6. On the **SafeCom Secondary** server where replication needs to be repaired, open the Registry Editor and browse to: HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafecomG4\Database
7. Change the value of DBUseWindowsAuthenticationCore from 0 to 1.

Note We recommend minimizing the time window during which the DBUseWindowsAuthenticationCore setting is set to 0. After the repair replication process is completed, reset the registry setting immediately.

Update multiserver installation

Note If you want to perform an upgrade scenario outside the process documented in this manual, contact your Kofax sales representative for a Professional Services engagement.

Pre-requisites

- The SafeCom license must be valid (not expired) in order to perform an update.
- If you are updating from SafeCom G2 version S82 070.360 or S82 070.370 you must install `scLicenseManager.dll` version 8.38.1.1 on all secondary servers prior to the update.
- If you have a SafeCom G2 version S82 070.380*09 (32 bit) installation, you first need to upgrade to SafeCom G3 version S82 070.440*04 (32 bit) before upgrading to SafeCom G4.

Note SafeCom solutions originally based on SafeCom G2 or G3 will, after the update, continue to use the original SafeCom installation folder (SafeCom G2 or SafeCom G3 instead of SafeCom G4) and it will also continue to use the SQL server. This implies that the update will not replace the SQL server already in use.

Update SafeCom software

All the SafeCom secondary servers must be updated before the SafeCom primary server. The installation will not function properly before all servers are updated to the same version.

Note It is best practice to use change management during the update process. The update process should occur outside normal working hours as it requires a restart of the computers after the update.

The Microsoft SQL Server will continue to replicate the SafeCom databases to the secondary servers during the update. Every 10 seconds each secondary server will check if the primary server is on the correct version. Once they are on the same version the secondary servers will start automatically.

The update process on each server is as follows:

1. Stop the **SafeCom Service** ([How to start and stop the SafeCom Service](#)) and the **Print Spooler** ([How to start and stop the Print Spooler](#)). If other services depend on the **Print Spooler** these must be stopped also.
2. Update with the SafeCom server software.
3. Check **Yes, I want to restart my computer now**

Note It is recommended to restart the computer, but in most cases it is sufficient to restart the SafeCom Service and Print Spooler.

.Click **Finish**. This will restart the computer (and the **SafeCom Service** and **Print Spooler**).

Note How to update a SafeCom cluster installation is covered in the *SafeCom G4 Cluster Administrator's Guide*.

The update should be completed outside normal working hours, as printing will be unavailable during the update process. You may want to use the table below to help you through the update process.

No	Secondary server address	1. Stop services	2. Update software	3. Start services	Version
1					
2					
3					
4					
...					
No	Primary server address	1. Stop services	2. Update software	3. Start services	Version
M					

After the update has been completed you should check that the replication from the primary server is still working. (Refer to [Check that the replication is working](#))

You may also want to view the scdbu*.log files that were created during the update process. (Refer to [SafeCom database update log](#))

Cluster installation

Cluster installation is covered in the *SafeCom G4 Cluster Administrator's Manual*.

Install the SafeCom license key code

All SafeCom licenses require the installation of a license key code that is linked to the server via the computer name ([Determine the Computer Name](#)). On a cluster server the license is based on the cluster name ([Cluster installation](#)).

Note If your SafeCom solution is a multiserver solution the license is based on the name of the SafeCom primary server and only needs to be installed on the SafeCom primary server. The license applies to all servers within the group.

The supplier of your SafeCom solution will provide you with your license key code.

1. On the server, click **Start**, point to **All Programs, SafeCom G4**, right-click **SafeCom Administrator** and select **Run as administrator**.
2. Log in to the server by double-clicking its Group name listed to the left.
3. Enter **User logon** (default is ADMIN) and **Password** (default is nimda).
4. On the **Servers** menu, click **License** to open the **License** dialog ([License](#)).

5. Enter the license key code and click **Apply**. Click **Close**. The license key code takes immediate effect and there is no need to restart the server.

Determine the Computer Name

1. Open the **Control Panel**, and click **System**.
2. Click the **Computer Name** tab and note the **Full computer name**. Only the first part of the computer name (up to the first dot '.') is used. The first part of the license key code corresponds to the computer name, with letters in uppercase and the removal of all dashes. Spaces and underscores remain.

Computer name	Sample license keys
prn-srv1.acme	PRNSRV1-2923rS-254zMhqGTH-5B62ZZ
Prn_Srv F16	PRN_SRV F16-29233Xa-2s4A2ZCfDG-5BkJdy

Determine the Cluster Name

On a cluster server the license is based on the cluster name instead of the computer name.

Windows Server 2016/2012/2012 R2:

1. Open **Failover Cluster Management**.
2. Browse to the cluster and select **Properties**.
3. **Name** contains the cluster name.

Understanding the license key code

A new license key code is only accepted if the current configuration does not conflict with the new license key code. The **Event log** contains information about possible license issues ([Event log](#)).

A new license key code overrides the old license key code. This means that the new license key code should embed the features allowed by the previous license key plus the new ones. It is therefore necessary to supply the existing license key code to get a new license key code.

- **Maintenance license** If SafeCom maintenance is bought (for a period of 1, 2, 3, 4 or 5 years) the license key includes the maintenance expiry date. Update is only possible to a version that has a version date that is earlier than the expiry date of the maintenance license. If no SafeCom maintenance is bought update is possible for a period of 90 days after the license is issued.
- **Trial license** A standard trial license expires 30 days after it is issued and allows testing of all functionality. It allows 3 servers, 5 SafeCom Go, 5 SafeCom Go High-end and 5 SafeCom Controllers. Customized trial licenses are available upon request.
- **Embedded license** The embedded license expires 30 days after installation. It allows 1 server, 1 SafeCom Go, 1 SafeCom Go High-end, 1 SafeCom Controller, 10 Tracking devices and all device features. This allows loading the software and getting started while waiting for a trial license or the purchased permanent license.

Device license and user settings dependencies

The dependencies between device licenses and user settings are covered in the following for Encryption, Tracking, Pay, Rule Based Printing and Client Billing.

- **Encryption** The prerequisites for printing encrypted documents is listed in section [Printing encrypted documents](#). [Table 3: Device license and user encryption settings](#) describes the relation between device licenses and user encryption settings.

Device license and user encryption settings

Device \ User	No encryption of user's documents	Encryption of user's documents
No encryption by device	No encryption	No encryption
Encryption by device	No encryption	Encrypt and ignore High Speed Print if enabled.

- **Tracking (SafeCom Tracking) and Pay (SafeCom Pay)** Tracking data is recorded if the device has a SafeCom Tracking license and the user is set to cost control Tracking or Pay. If the user is set to No cost control tracking data is not recorded. A Pay user (cost control is Pay) can log in to a device with a SafeCom Pay license and to a device with a Tracking license provided Allow Pay user is checked on the device. When Allow Pay user is checked the Pay user is not charged. [Table 4 Device license and user cost control settings](#)

Device \ User	No cost user	Tracking User	Pay User
No cost device	No tracking	No tracking	No tracking and reject login unless Allow Pay user is checked
Tracking device	No tracking	Tracking	Tracking and reject login unless Allow Pay user is checked
Pay device	No tracking	Tracking	Pay

- **Rule Based Printing (SafeCom Rule Based Printing (RBP))** Tracking and Pay users are subjected to Rule Based Printing on devices with a SafeCom Rule Based Printing license.
- **Client Billing (SafeCom Client Billing)** A Billing user (set to Bill clients for costs) can select billing codes with jobs that are tracked on devices with a SafeCom Client Billing license. If the Billing user uses a device with no SafeCom Client Billing license the job is tracked without the possibility to select a billing code.

Device license and user billing settings

Device \ User	No bill clients for cost	Bill clients for cost
No billing device	No billing	No billing
Billing device	No billing	Billing

User rights required when adding printers

The policy of some corporations may prohibit grant of Windows administrator rights to the user who needs to add SafeCom printers and configure the **SafeCom Pull Port** and **SafeCom Push Port**.

In most cases there are no policy restrictions and the user who adds SafeCom printers has Windows administrator rights on the computer in question and therefore there is no need to make any changes.

In cases with policy restrictions AND if the adding of printers is done remotely by typing \\server in **Explorer** then special steps must be followed. If the printers are added using Remote Desktop these steps are not required.

Special steps: The user in question must be a member a group with sufficient rights, permissions must be granted and the **Print Spooler** must be restarted. Additional configuration changes are required if the SafeCom server is clustered.

One way to go about this would be to add the user to the **Domain Print Operators** group and then add the **Domain Print Operators** group to the local **Power Users** group on the print servers. This way you do not need to add the individual users to the local Power Users group on the print servers.

The steps are covered in the following:

If the SafeCom server is clustered complete these steps:

- User must be a member of the local **Power Users** group on both nodes.
- The SafeCom Port Monitors are installed on the computer and the version of these is across the solution.

On node 1 and 2 grant permissions in **Local Security**:

1. Open the **Control Panel**.
2. Click **Administrative Tools** and **Local Security Policy**.
3. Browse to **Local Policies, User Rights Assignment** and double-click **Load and unload device drivers**.
4. Click **Add User or Group** and add the local **Power Users** group.
5. Repeat step 1-4 on the other node.

On node 1 grant permission in cluster:

Windows Server 2016/2012/2012 R2:

1. Open **Failover Cluster Management**.
2. Right-click **[Cluster]** and click **Properties**.
3. On the **Cluster permissions** tab add the local **Power Users** group and grant **Full Control**.

On node 1 grant permission in **Registry**:

1. Open the **Registry Editor** and browse to: HKEY_LOCAL_MACHINE\SYSTEM\Cluster\Resources
2. Right-click **Resources** and click **Permissions**.

3. Add the local **Power Users** group and grant **Full Control**.

Restart the **Print Spooler**:

1. To take effect on the changes, open **Cluster Administrator** to restart **Print Spooler**. Locate **Print Spooler** service, right-click and choose **Take Offline**, wait for status changed to Offline. Then right-click **Print Spooler** again and choose **Bring Online** to start service.

Add a SafeCom Pull Printer on Windows 8 and 2016 / 2012 / 2012 R2

This section describes how to add a shared SafeCom Pull Printer on Windows 8, 2016, 2012 and 2012 R2.

1. In Windows **Modern** interface, activate the **Charms** bar and press the **Search** button.
2. Under the **Apps** appearing, select **Control Panel** in the **Windows System** section.
3. In the **Control Panel** window click **Hardware and sound**.
4. In the **Devices and printers** section, click **Advanced Printer Setup**.
5. In the **Add printer** window click **The printer that I am looking for is not on the list**.
6. Select **Add a local printer or a network printer with manual settings** and click **Next**.
Please ensure that **User Account Control (UAC)** settings is turned off, otherwise you will not be able to add the printer as there is not sufficient rights to add the SafeCom Pull Port.

Note If you have already created a printer that uses the SafeCom Pull Port, you should use this port instead of creating a new one (as described in step 4, 5 and 6).

7. Choose **Create a new port** and select **SafeCom Pull Port** from the drop-down list. Click **Next**.
8. Enter a unique name of your choice for the port in **Port Name**. Click **OK**.
9. The **Configure Pull Port** dialog ([Configure the SafeCom Pull Port](#)) allows you to enter the hostname or IP address of the **SafeCom Server**. Select **Use network logon** as method of **User authentication**.
10. Click **OK**. The **Authorize port configuration** dialog appears. Enter **User logon** and **Password** of a user that has SafeCom Administrator or Technician rights. Click **OK**.
11. Click **Have Disk** to install the files from the printer manufacturer's installation disk (or downloaded the files from the manufacturer's web site). Click **Next**.
12. Enter a **Printer name** and choose whether or not this printer should be your default Windows printer. Click **Next**.
13. Select **Share this printer** and enter **Share name**. Click **Next**.

14. Click **Print a test page** to verify the system. Click **OK** when prompted to confirm that the test page printed correctly. Click **Finish**.

Note In **SafeCom Administrator** the Test page appears as a pending print job under the user you are logged in as (Administrator).

Check the **Printer properties**:

1. Right-click the printer and click **Printer properties**.
2. On the **Device Settings** tab check settings, such as paper size in the trays and installable options.
3. On the **Advanced** tab check **Start printing after last page is spooled**. This is required in order for the tracking and billing information to be correct. Also it allows for faster spooling.
4. Click **OK**.

For high load systems you can minimize the wait for documents to be processed and transferred to the SafeCom server by checking **Enable printer pooling** ([Enable printer pooling](#)) on the **Ports** tab and add multiple identically configured **SafeCom Pull Ports**. In our experience 1-4 ports is sufficient and no more than 12 ports should be added.

Add a SafeCom Pull Printer on client computers

As discussed in [Local SafeCom Pull Printer](#) you may wish to add a local SafeCom Pull Printer on a client computer. To do this you need to do two things on the client computer:

- Install SafeCom client on the computer ([Install SafeCom client](#)).
- Add a local SafeCom Pull Printer on Windows 7 ([Add a local SafeCom Pull Printer on Windows 7](#)), Windows 10 / Windows 8 ([Add a local SafeCom Pull Printer on Windows 10 / Windows 8](#)).

Install SafeCom client

In order to add a local SafeCom Pull Printer you need to install the **SafeCom Pull Port** on the client computer. You only need to do this once on the computer.

1. Download the safecom_g4_x64_xxxx.exe file from the link supplied to you. The installation must be **Run as administrator**. When the installation program is launched click **Next**.
2. Click **Advanced installation**. Click **Next**.
3. Click **Client** and follow the instructions on the screen ([Client installation](#)).

The **SafeCom Pull Port** is now installed on the client computer. Next you need to either modify an existing local printer or add a new local printer. When you do this you should make sure that:

- The printer is not shared.
- The printer uses the **SafeCom Pull Port**, which sees to the transfer of documents to the SafeCom server from the SafeCom Pull Printer.
- The **SafeCom Pull Port** is configured correctly ([Configure the SafeCom Pull Port](#)).

Add a local SafeCom Pull Printer on Windows 7

The **User Account Control(UAC)** settings must be turned off, otherwise the adding of the printer will fail as there is not sufficient rights to add the SafeCom Pull Port.

Turn off User Account Control:

1. Open the **Control Panel**.
2. Click **User Accounts**.
3. Click **Change User Account Control settings**.
4. Select **Never notify**. Click **OK**.
5. Restart the computer.

Add the printer:

1. Click **Start** and **Devices and Printers**.
2. Click **Add a printer**.
3. Click **Add a local printer**.
4. Choose **Create a new port** and select **SafeCom Pull Port** from the drop-down list. Click **Next**.

Note If you have installed **SafeCom Print Client (Installation)**, you can choose **Use an existing port** and select **scPull** from the list. Click **Next and continue to step 8**.

5. Enter a unique name of your choice for the port in **Port Name**. Click **OK**.
6. The **Configure Pull Port** dialog ([Configure the SafeCom Pull Port](#)) prompts you to enter the hostname or IP address of the **SafeCom Server** and choose the method of **User authentication**. Refer to step 5 in [Configure the SafeCom Pull Port](#). Click **OK**.
7. The **Authorize port configuration** dialog appears. Enter **User logon** and **Password** of a user that has SafeCom Administrator or Technician rights. Click **OK**.
8. Select the manufacturer and printer model. Click **Next**.
9. Select whether or not you want to keep the existing driver or use the new one. Click **Next**.
10. Enter a **Printer Name**. Click **Next**.

Note If the **Installing printer...** dialog is hanging for more than half a minute it is because **User Account Control** was not turned off.

11. Select **Do not share this printer**. Click **Next**.
12. Clear **Set as default printer** if this printer should be your default Windows printer. Click **Print a test page** to print a test page to verify the system. You are prompted to confirm that the test page was printed correctly, but the test page is only printed when you log in at the device. For now, click **Close**, and then **Finish**.

If the SafeCom Pull Port has been configured to show the **SafeCom Print Authentication** dialog ([Configure the SafeCom Pull Port](#)) or if SafeCom Rule Based Printing is used to ask for print confirmation, then scPopUp.exe must be setup to start in each session, either by making a shortcut in the Windows **Startup** folder or by starting it in a logon script.

Add a local SafeCom Pull Printer on Windows 10 / Windows 8

1. Click **Start, Control Panel, Devices and Printers**.
2. On the **File** menu point to **Run as administrator**, and click **Add a printer**. Select the **The printer that I want isn't listed** option.
3. Click **Add a local printer or network printer with manual settings**.
4. Choose **Create a new port** and select **SafeCom Pull Port** from the drop-down list. Click **Next**.

Note

- If **Run as administrator** was not chosen in step 2 Windows will report **Specified port cannot be added. Access is denied**.
- If you have installed **SafeCom Print Client** ([Installation](#)), you can choose **Use an existing port** and select **scPull** from the list. Click **Next** and continue to step 8.

5. Enter a unique name of your choice for the port in **Port Name**. Click **OK**.
6. The **Configure Pull Port** dialog ([Configure the SafeCom Pull Port](#)) prompts you to enter the hostname or IP address of the **SafeCom Server** and choose the method of **User authentication**. Refer to step 5 in [Configure the SafeCom Pull Port](#).
7. Click **OK**. The **Authorize port configuration** dialog appears. Enter **User logon** and **Password** of a user that has SafeCom Administrator or Technician rights. Click **OK**.
8. Click **OK** and select the manufacturer and printer model. Click **Next**.
9. State whether or not you want to keep the existing driver or use the new one. Click **Next**.
10. Enter a **Printer Name** and choose whether or not this printer should be your default Windows printer. Click **Next**.
11. Select **Do not share this printer**. Click **Next**.
12. Click **Print a test page** to print a test page to verify the system. You are prompted to confirm that the test page was printed correctly, but the test page is only printed when you log in at the device. For now, click **Close**, and then **Finish**.

SafeCom Pull Port

The **SafeCom Pull Port** is a special port monitor that transfers documents to the SafeCom server from the SafeCom Pull Printer. The **SafeCom Pull Port** is installed when you perform a Server installation, Client installation ([Add a SafeCom Pull Printer on client computers](#)) and when installing **SafeCom Print Client** ([SafeCom Print Client](#)).

Note If you have multiple devices you want to use with the **Hide job names** feature, ensure that all devices are properly set to take advantage of the additional value provided by the feature.

If connecting to a shared printer, ensure that the user attempting to connect does have the relevant access rights and credentials for accessing the shared printer, and that the appropriate network logon port settings are employed when connecting to the shared printer.

In workgroup environments, ensure that users who want to access the shared printer has an account on the server the printer is connected to, and that account uses the exact same credentials as his workstation, and that the printer has been connected using that account.

Enable printer pooling

You can enable Windows printer pooling to minimize the wait for documents to be processed and transferred to the SafeCom server if users are dissatisfied with the time it takes before the **SafeCom Print Authentication** dialog appears.

1. Click **Start**, point to **Settings** and click **Printers**.
2. Right-click the SafeCom Pull Printer and click **Properties**.
3. Click the **Ports** tab.
4. Check **Enable printer pooling**.
5. Click **Add Port...** to create multiple instances of the **SafeCom Pull Port**. In our experience you should not use more than 12 ports per queue.

Note If you are using the **Hide document name** feature, ensure that all ports attached to the same print queue have the same hide document name setting.

Configure the SafeCom Pull Port

The **SafeCom Pull Port** is configured when you add a SafeCom Pull Printer.

To configure the **SafeCom Pull Port** after you have added the SafeCom Pull Printer, go through the following steps:

1. Click **Start** and then click **Devices and Printers**.
2. Right-click the SafeCom Pull Printer and click **Printer Properties**.

3. Click the **Ports** tab. Select the **SafeCom Pull Port** and click **Configure Port...**

Note The Default Print Engine setting of the registry is used as the default server; if the registry setting does not exist, localhost is offered as the default.

4. Click **Edit servers...** to add, remove, change or test the connection to the SafeCom server ([Edit servers dialog](#)).
5. Select the method of **User authentication**:
- **Use network logon:** Select to use your Windows logon as your SafeCom user logon when printing.
 - **Use specified logon:** Select and enter the SafeCom user logon of the user who is to receive all future prints sent to the print queues that uses this Pull Port. This can be combined with **Group print** ([Group print](#)) by specifying the name of the group instead of the name of a user.
 - **Show authentication dialog at every print:** Select if the user should be prompted every time they print. SafeCom PopUp must be running on the user's computers to show dialog that prompts

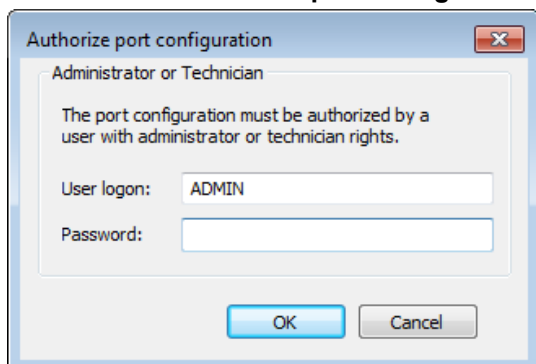
for the login ([SafeCom Print Authentication dialog](#)). Up to 10 minutes may elapse before the choice takes effect. The time is configured by the Windows registry setting CacheExpireSuccess.

Note The **User logon** field is limited to 20 characters; if you plan to log in using Windows credentials including domain, you must select **Windows authentication** in the SafeCom PopUp.

- **Show authentication dialog on first print only:** Select if the user should only be prompted the first time they print. SafeCom PopUp must be running on the user's computer to show dialog that prompts for the login ([SafeCom Print Authentication dialog](#)). Up to 10 minutes may elapse before the choice take effect. The time is configured by the Windows registry setting CacheExpireSuccess.

Note The **User logon** field is limited to 20 characters; if you plan to log in using Windows credentials including domain, you must select **Windows authentication** in the SafeCom PopUp.

- **Use job data logon:** Select to extract the logon from the job data ([Configure Use job data logon](#)).
 - **Default domain:** Use the dropdown menu to select the default domain.
 - **V4 printer driver support:** Select if you want to use Microsoft v4 printer drivers via this port. The option is backwards compatible, thus your Microsoft v3 drivers will continue working on this port.
 - **Warning messages if PopUp is not running:** Select this checkbox to display a warning message when a user attempts to use Delegate Print or Billing Codes when printing while the SafeCom PopUp is not running. This function is only available for printers using Microsoft v3 drivers.
 - **PopUp compatibility mode:** Select this option if you want to enable legacy encryption usage on this port.
 - **Hide document name:** Select this option to enable hiding document names in the print queue. This allows for a more secure printing, as it eliminates the chance of unauthorized people seeing the original document names as these will appear encrypted. Note that if printer pooling is enabled, all printers of the same print queue must have the same value for this setting. The document will appear with its original name at the device.
 - **Override driver name:** Select and enter the driver name. The specified driver name overrides the driver name supplied by the printer driver
6. Click **OK**. The **Authorize port configuration** dialog appears.



Authorize port configuration

Administrator or Technician

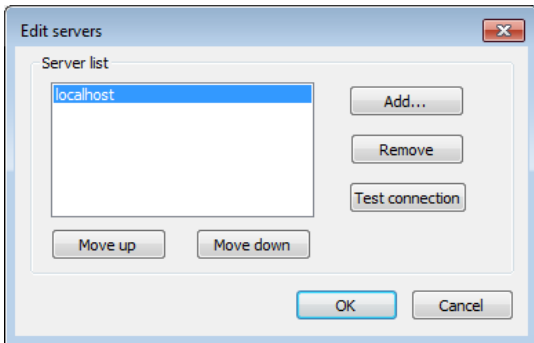
The port configuration must be authorized by a user with administrator or technician rights.

User logon: ADMIN

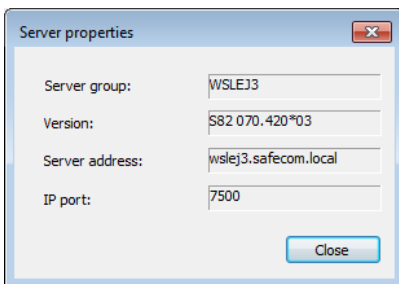
Password:

OK Cancel

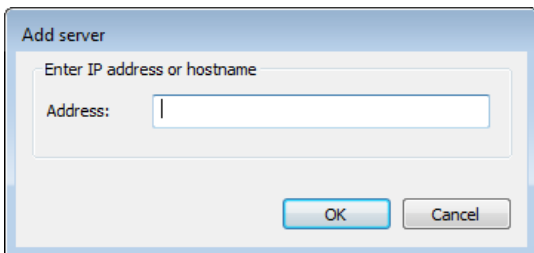
Edit servers dialog



In the **Edit servers** dialog click **Test connection** to test the communication with the SafeCom server. Click **Close**.



It is not possible to edit an entry on the server list. Instead select the server and click **Remove**. Then click **Add...**



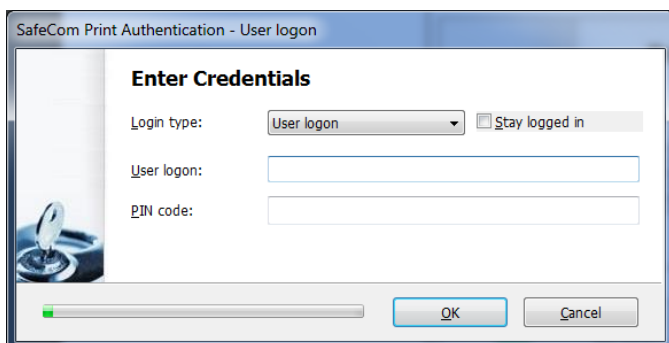
In the **Add server** dialog enter the SafeCom server address (IP address or hostname). Click **OK**.

SafeCom Print Authentication dialog

If the **SafeCom Pull Port** is configured to **Show authentication dialog at every print** the following dialog will appear every time you print.

Check **Stay logged in** to make the dialog appear with the last used ID the next time you print. Restarting the computer or the Print Spooler will clear the checkbox.

Note If any **Show authentication dialog** options are enabled and the printer is shared then SafeCom PopUp ([SafeCom PopUp – scPopUp.exe](#)) must be running on the users' computer.



Customizing SafeCom PopUp dialogs

Modifying the UI strings of SafeCom PopUp requires modifying the scPopUp.ini file. The language can be selected on the Settings window of SafeCom PopUp, or set via the /U command line parameter ([Setup SafeCom PopUp](#)).

An example of scPopUp.ini can be found in the \template subdirectory of your SafeCom G4 installation directory.

The **General information** section must always be present in your scPopUp.ini, in the same format as in the template.

Configure Use job data logon

The SafeCom Pull Port ([Configure the SafeCom Pull Port](#)) can be configured to **Use job data logon** instead of the network logon.

Note

- This requires a SafeCom Enterprise Server (Multiserver license.)
- This function is not compatible with using Microsoft v4 printer drivers.

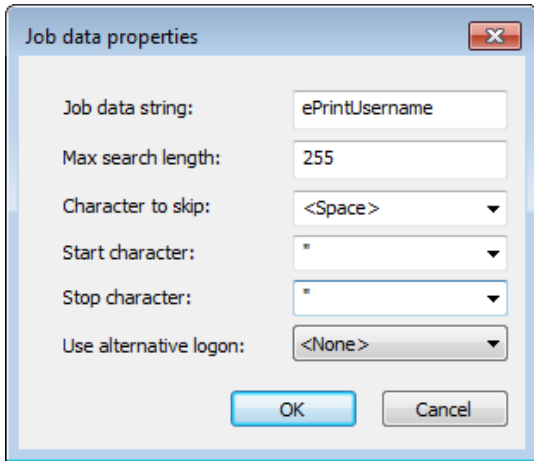
When printing from SAP and similar applications the print job is normally associated with a generic user logon rather than the logon of the real user. This is quite unfortunate in a Pull Print scenario, as it will cause all jobs to be stored under the name of this generic user.

However, for SAP it is possible to configure it such that the logon of the real user can be embedded in the job data stream as a PJI command. Please refer to the documentation that came with your application (SAP).

With the user authentication option **Use job data logon** the SafeCom Pull Port can be configured to extract the logon from the job data.

1. Open the **Configure Pull Port** dialog ([Configure the SafeCom Pull Port](#)).

2. Select **Use job data logon**.
3. Click **Configure...** to open the **Job data properties** dialog.



Job data string is the string that precedes the logon. The logon (maximum characters) is extracted as the string that is between the **Job data string** (with the potential succession of any skip characters and a start character) and the **Stop character**.

Max search length is the number of bytes to search into the job data stream. Typically the job data string is within the first 1000 bytes.

Characters to skip can be **<None>**, **<Tab>**, **<Space>** or any entered printable character and defines that any occurrence of this character should be skipped after the **Job data string** and before the **Start character**.

Start character can be **<None>**, **<Tab>**, **<Space>** or any entered printable character and defines the character in front of the logon.

Stop character can be **<None>**, **<Tab>**, **<Space>** or any entered printable character and defines the character after the logon. A carriage return or new line will always terminate the logon string.

Use alternative logon can be **<None>** or **Network logon** and defines the fallback logon to use in case the logon cannot be extracted from the job data.

Here are some examples:

Extract from file	Date="2007.01.01"Name="JS",File="letter.txt"	Time: 12:15:32 User: JS Doc: letter.txt
Job data string	Name=	User:
Characters to skip	<None>	<Space>
Start character	"	<None>
Stop character	"	<None>
Extracted logon	JS	JS

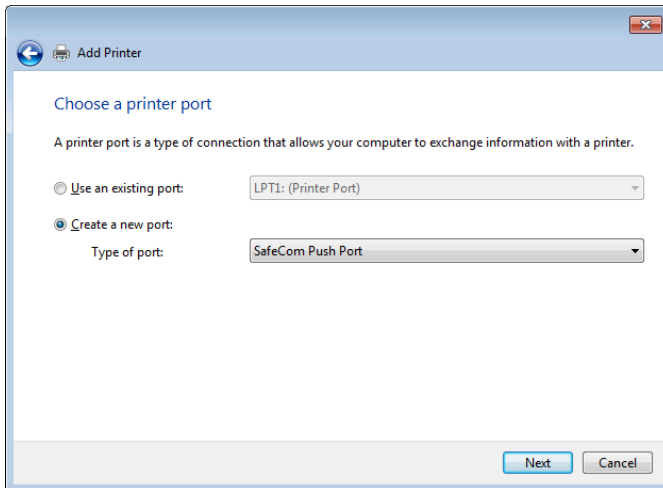
Add a SafeCom Push Port

If connecting to a shared printer, ensure that the user attempting to connect does have the relevant access rights and credentials for accessing the shared printer, and that the appropriate network logon port settings are employed when connecting to the shared printer.

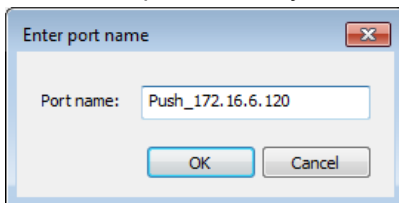
In workgroup environments, ensure that users who want to access the shared printer has an account on the server the printer is connected to, and that account uses the exact same credentials as his workstation, and that the printer has been connected using that account.

If you are printing directly via TCP/IP port 9100, follow these steps to add the SafeCom Push port to a printer.

1. Open the Windows **Control Panel** and browse to **Printers**.
2. Open the **Add Printer Wizard**.
3. Click **Add a local printer**.
4. Choose **Create a new port** and select **SafeCom Push Port** from the drop-down list. Click **Next**.



5. Enter a unique name of your choice for the port in **Port Name**. Click **Next**.



6. The dialog box **Configure Push Port** appears.

Note The Default Print Engine setting of the registry is used as the default server; if the registry setting does not exist, localhost is offered as the default.

7. In **Servers** click **Edit servers...** to add, remove, change, or test the connection to the SafeCom server.

Note It is not possible to edit an entry on the SafeCom server list in the **Edit servers** dialog. Instead you have to remove the server and then add a new.

8. Set up the **User authentication** as required according to the following descriptions.

- Select **Use network logon** to use your Windows logon as your SafeCom user logon when printing.
- Select **Use specified logon** and enter the SafeCom user logon of the user who is to receive all future prints sent to the print queues that uses this push port. This can be combined with **Group print** ([Group print](#)) by specifying the name of the group instead of the name of a user.
- Select **Show authentication dialog at every print** if you want to enter your credentials at every print job. **SafeCom PopUp** must be running on the user's computer to show dialog that prompts

for the login ([SafeCom Print Authentication dialog](#)). Up to 10 minutes may elapse before the choice take effect. The time is configured by the Windows registry setting CacheExpireSuccess.

Note The **User logon** field is limited to 20 characters; if you plan to log in using Windows credentials including domain, you must select **Windows authentication** in the SafeCom PopUp.

- Select **Show authentication dialog on first print only** if the user should only be prompted the first time they print. **SafeCom PopUp** must be running on the user's computer to show the dialog that prompts for the login ([SafeCom Print Authentication dialog](#)). Up to 10 minutes may elapse before the choice take effect. The time is configured by the Windows registry setting CacheExpireSuccess.

Note The **User logon** field is limited to 20 characters; if you plan to log in using Windows credentials including domain, you must select **Windows authentication** in the SafeCom PopUp.

- Select **Use job data logon** to extract the logon from the job data ([Configure Use job data logon](#)).
 - Select a **default domain**, to save the user to enter domain.
9. In **Output device** you need to check **Use printer IP address or hostname** and specify the IP address if you are printing directly. Click **Test connection** to display the Printer Properties dialog and to test the connection to the printer.

The printer must be online and allow SNMPv1 access via UDP port 161, otherwise you will get the message: **Not able to connect to printer**.

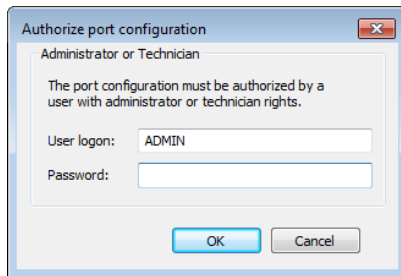
Note If you are printing via a second printer you need to check **Select the printer that this port will use as output device** and select one of the output devices.

10. Check **SNMP status enabled** if you want SNMP status to be reported.
11. In **Select printer for tracking** you can check **Select printer from list** and choose a tracking device. Alternatively check **Auto-create printer** and then enter a **Printer name** and an optional **Printer location**.
12. In the **Miscellaneous** section select according to the following descriptions:
- **V4 printer driver support**: The option is backwards compatible, thus your Microsoft v3 drivers will continue working on this port.
 - **Warning messages if PopUp is not running**: Select this checkbox to display a warning message when a user attempts to use Delegate Print or Billing Codes when printing while the SafeCom PopUp is not running. This function is only available for printers using Microsoft v3 drivers.
 - **PopUp compatibility mode**: Select this option if you want to enable legacy encryption usage on this port.
 - **Show job price before printing**: Check if users are to unconditionally see dialog with the cost of the document before they print. If the printer is a shared printer users must have SafeCom PopUp ([Add a SafeCom Push Port](#)) setup and running on their computer in order to confirm that they wish to print the document.
 - **Override user cost code**: The specified cost code overrides the cost code of the user who prints. Example: If John Smith has the cost code 2949 and prints to a Push Port where a cost code of

1009 is specified the resulting UserCostCode parameter in the tracking record will show 1009 and not 2949.

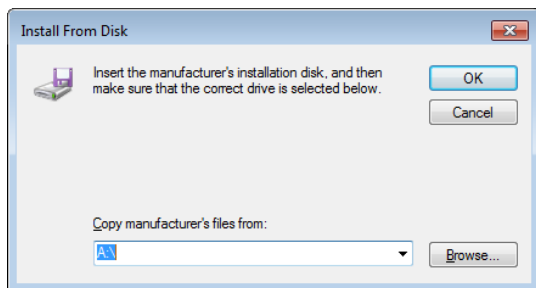
- **Override driver name:** The specified driver name overrides the driver name supplied by the printer driver. This is particular useful to differentiate printers using the HP Universal Print Driver.
- **Hide document name:** Select this option to enable hiding document names in the print queue. This allows for a more secure printing, as it eliminates the chance of unauthorized people seeing the original document names as these will appear encrypted. If printer pooling is enabled, all printers of the same print queue must have the same value for this setting.

13. Click **OK** and the **Authorize port configuration** dialog opens.



14. Enter **User logon** and **Password** for a user with SafeCom Administrator or Technician rights. Click **OK**.

15. Click the button **Have Disk** and in the **Install From Disk** dialog browse to the files from the printer manufacturer's installation disk (or downloaded the files from the manufacturer's web site). Click **Next**.



16. Enter a **Printer Name**. Click **Next**.

17. Select **Share this printer** and enter **Share name** (P101). Click **Next**.

18. Set up whether or not this printer should be your default Windows printer. Click **Print a test page** to verify the system. Click **OK** when prompted to confirm that the test page printed correctly. Click **Finish**.

Check the **Properties** of the printer:

1. Back in the **Control Panel** right-click the printer, and then click **Printer Properties**.
2. On the **Device Settings** tab check settings, such as paper size in the trays and installable options.
3. On the **Advanced** tab check **Start printing after last page is spooled**. This is required in order for the tracking and billing information to be correct. Also it allows for faster spooling.

4. Click **OK**.

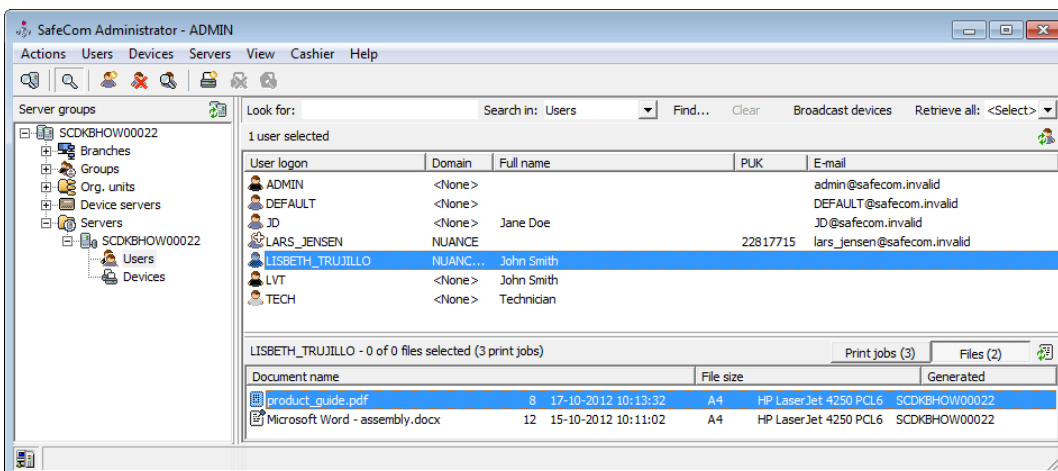
SafeCom Smart Scan

Smart Scan represents an easy way to handle scan-to-folder functionality that bypasses both Microsoft Outlook and complex password issues.

Users start by logging in on the MFP and tap the Smart Scan icon. Scans on the MFP are sent to the SafeCom server that handles administration of the scan-job and stores the document file in a private scan folder reserved for the user. This means that scanned files are also subject for deletion according to the specified time on the Server properties in **SafeCom Administrator**.

Users then access and download their files to any chosen location through **SafeCom Move** – an application running on their PC's system tray - or through the **SafeCom Web Interface**. The solution adds increased security because scan files on the server are encrypted until they are retrieved by the user.

The SafeCom Administrator has been updated to also display a users scanned files. In the document list for each user, toggle between the **Print jobs** and **Files** to view all pending print jobs or scanned files.



Note Smart scan is supported on Ricoh devices and HP FutureSmart devices. Refer to these guides *SafeCom Go HP Administrator's Guide* or *SafeCom Go Ricoh Administrator's Manual* for detailed information on setup and configuration.

SafeCom Move – scMove.exe

SafeCom Move is a simple way for the user to manage pending print jobs or files scanned via SafeCom Smart Scan.

From SafeCom Move the user can access scanned files, delete them, or download them to any location specified by the user. Furthermore the user can retain/unretain, or delete regular print jobs.

The scMove.exe is located in the SafeCom installation folder:

C:\Program Files\ SafeCom\SafeComG4

Note SafeCom Move (scMove.exe) must be installed in a folder that also includes the following DLL files: scScum.dll, sclntrfLib.dll, scSecureLib.dll and scUtilib.dll.

We recommend that you run scMove.exe from a file share in which case you need to ensure that **Internet Properties** on the computer allows local (Intranet) sites and includes the specified share. Otherwise Windows may present a **Security Warning** stating **The publisher could not be verified**. See ([scPopUp: The publisher could not be verified](#)).

If Windows Firewall ([Windows Firewall](#)) is installed on the computer then TCP port 5740 must be open.

Setup SafeCom Move

1. To start the scMove.exe, use the command:

```
scMove.exe
```

Note By default SafeCom Move is set up to run against the SafeCom Server on the localhost and with login type 'U' (User logon and PIN code).

2. Change the SafeCom Server and the login method by using the following commands:

```
scMove /H [hostname]  
scMove /L [login type]
```

Login types:

- **U** - Userlogon and PIN code (default)
- **I** - ID code and PIN code
- **W** - Windows authentication

To for example change to Windows authentication enter:

```
scMove /L W
```

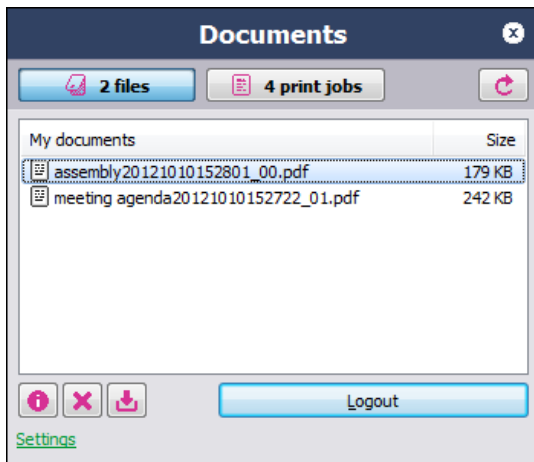
3. To view scMove help, use the command:

```
scMove.exe /?
```

SafeCom Move example

Below is an example of how SafeCom Move looks to the users.

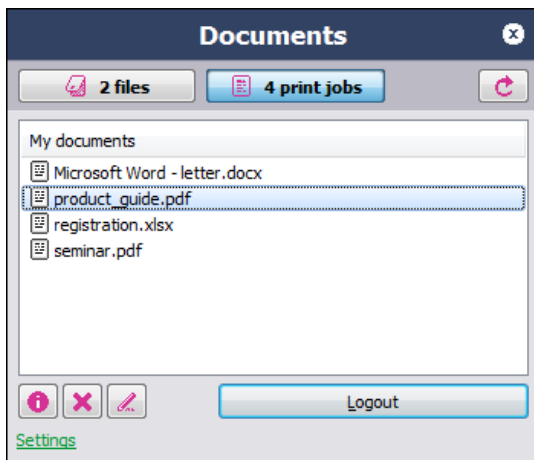
Files:



When selecting a file, the user can choose to view the detailed information of the file, delete it, or download it.

Under **Settings**, the user can set a default directory location for downloaded files.

Print jobs:



When selecting a print job, the user can choose to view the detailed information of the job, delete it, or retain/unretain it.

SafeCom PopUp – scPopUp.exe

SafeCom PopUp displays the following popup dialogs on the user's screen:

- **Print authentication** For user authentication at print submission time when a user is not logged onto the network. This can be configured for both the SafeCom Pull Port ([SafeCom Pull Port](#)) and the SafeCom Push Port ([Push print tracking](#)). The Print Authentication dialog can be customized, see

([Customizing SafeCom PopUp dialogs](#)). Authentication by card at print submission time is possible by specifying the /AU and /LC startup parameters to scPopUp ([Setup SafeCom PopUp](#)).

- **Delegate print** With SafeCom Delegate Print users grant permission to other users to print or collect print jobs on their behalf ([Delegates](#)).
- **Client billing** With SafeCom Client Billing ([SafeCom Client Billing](#)) it is possible to ask users to select a billing code at print submission time.
- **Print confirmation** With SafeCom Rule Based Printing ([Creating the rules](#)) it is possible to increase cost awareness among users by asking them to confirm that the document should be printed.
- **Show job price before printing** With SafeCom Push Print ([Push print tracking](#)) it is possible to show the job price to the user at print submission time.
- **SafeCom Print Client off line printing** When a user submits a print job and the SafeCom server is offline, the **SafeCom Print Client** dialog opens ([Direct print if SafeCom server is offline](#)), offering the user to choose a printer to send the print job to directly.

Setup SafeCom PopUp

scPopUp.exe is installed as part of a **Server installation** ([Server installation \(Advanced\)](#)) and **Client installation** ([Client installation](#)). The PopUp is also installed and started automatically as part of the Print Client installation ([SafeCom Print Client](#)), although with the Print Client the PopUp installation can optionally be deselected. The scPopUp.exe is located in the SafeCom installation folder:

C:\Program Files\SafeCom\SafeComG4

Note

- scPopUp.exe must be the same version as the SafeCom G4 server software. From S82 070.520*10 onwards, scPopUp does not work with earlier versions of SafeCom Pull Port or SafeCom Push Port.
- From S82 070.520*10 onwards, SafeCom Pull and Push ports work with older version of SafeCom PopUp if the **PopUp compatibility mode** option is checked for the Pull ([SafeCom Pull Port](#)) or Push ([Add a SafeCom Push Port](#)) port.
- In case of using Microsoft v3 printers, when the popup is not running but would be needed for certain operations (for example, authentication), a notification is displayed with the Windows Print System Asynchronous Notification. The user can start scPopUp and click **OK** on the message tab to continue the printing without interrupting the job in question.
- In case of shared network printer queues, restarting the Print Spooler on the server due to any modifications may be only detected after a couple of minutes of delay on the SafeCom PopUp running on your workstations.
- If the computer running SafeCom PopUp is connected to a new shared SafeCom queue, you must restart SafeCom PopUp to detect and work with the new queue.

If you intend to run `scPopUp.exe` from a file share you should ensure that **Internet Properties** on the computer allows local (Intranet) sites and includes the specified share. Otherwise Windows may present a **Security Warning** stating **The publisher could not be verified**. See ([scPopUp: The publisher could not be verified](#)).

To start scPopUp:

1. Start `scPopUp64.exe`. We recommend setting up `scPopUp64.exe` to start each session, either by making a shortcut in the Windows **Startup** folder or by starting it in a logon script. To view PopUp help, use the command:

```
ScPopUp64.exe /?
```

Help:

```
scPopUp64.exe [/AU [r:][<yy>|<yy:uu>]][/CA <"path">][/G][/K][/R][/S][/U][/WT [p:]<"title">[:zz]]
```

- /G — Run in guest mode, prohibits the user to exit the application.
- /K — Timeout on a dialog will select OK button as default.
- /R — Reset saved scPopUp settings to their defaults.
- /U — Specify the LCID of your preferred language (1033, etc.)
- /S — Show splash screen on startup.
- /CA <"path"> — Specifies the path of the language captions file.
- /AU [r:][<yy>|<yy:uu>] — Show/hide authentication status dialog.
 - r — Indicates that authentication status timer is reset on every print job (default: no).
 - yy — The authentication status dialog timeout warning. Default: 60 seconds.
 - uu — The duration of how long the dialog is displayed (default: 5 seconds, always shown: 0)
- /WT [p:]<"title">[:zz] — Force logout based on Window Title
 - p — Indicates that we logout when window "title" appears instead of disappears.
 - zz — The check interval in seconds (default: 5 seconds)

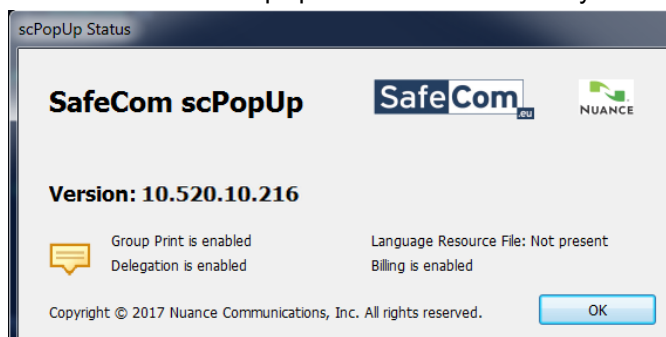
Example:

```
scPopUp64 /AU R:300 /WT "Clinical Management System":5
```

Note The *title* parameter only looks for text matches in window titles and is unable to differentiate files containing the defined text from real applications. Example: If you have defined *Clinical Management System* in the window title parameter and open a document containing the phrase *Clinical Management System*, the popup will not react to closing the Clinical Management System application since the document is still open.

If no arguments are supplied, the PopUp starts only with TCP connection.

2. Double-click the scPopUp icon in the Windows system tray to see status and version.



SafeCom PopUp deployment on Windows computers

The following **SafeCom Popup dialog** software must be deployed to client computers:

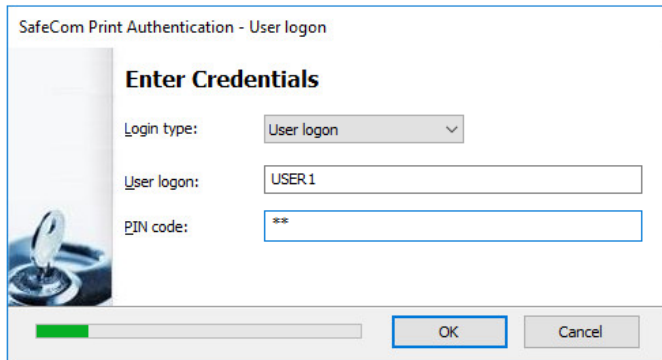
scPopup.exe

scPopup.ini (optional; for modifying or localizing the strings of the application)

SafeCom PopUp examples

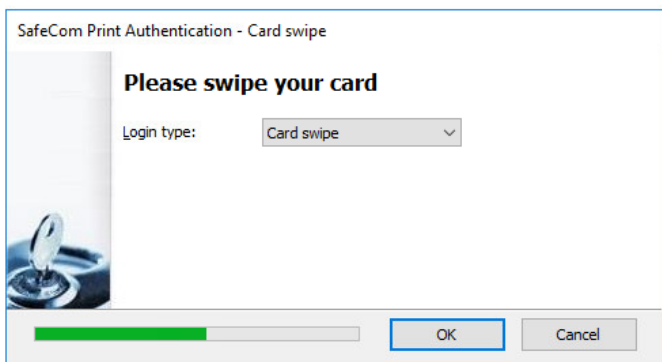
Below are some examples of how the SafeCom PopUp appears on users' computer screen.

- **Print authentication** If one of the **Show authentication dialog** options is enabled on the SafeCom Pull Port ([Configure the SafeCom Pull Port](#)) or SafeCom Push Port ([Push print tracking](#)).



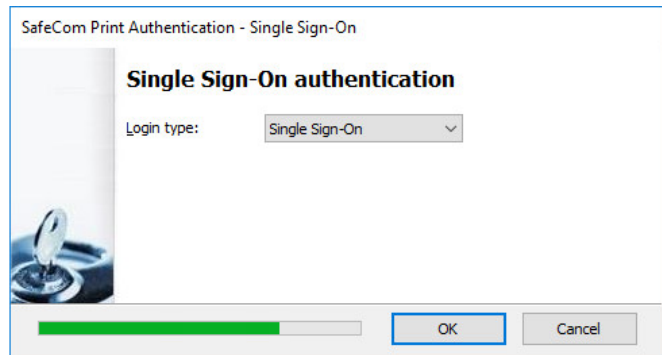
The dialog box is titled "SafeCom Print Authentication - User logon". It features a vertical image on the left showing a hand swiping a card. The main content area is titled "Enter Credentials" and contains three input fields: "Login type:" with a dropdown menu set to "User logon", "User logon:" with a text box containing "USER1", and "PIN code:" with a text box containing "**". At the bottom, there is a progress bar (partially filled with green), an "OK" button, and a "Cancel" button.

With card swipe:



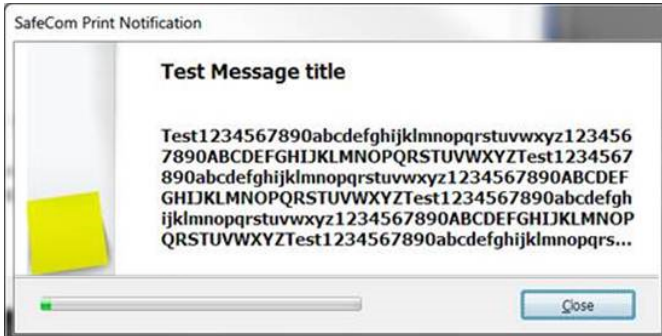
The dialog box is titled "SafeCom Print Authentication - Card swipe". It features a vertical image on the left showing a hand swiping a card. The main content area is titled "Please swipe your card" and contains one input field: "Login type:" with a dropdown menu set to "Card swipe". At the bottom, there is a progress bar (partially filled with green), an "OK" button, and a "Cancel" button.

Single Sign-On:

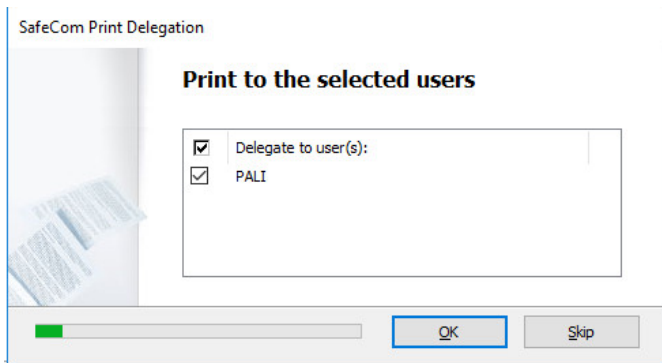


The dialog box is titled "SafeCom Print Authentication - Single Sign-On". It features a vertical image on the left showing a hand swiping a card. The main content area is titled "Single Sign-On authentication" and contains one input field: "Login type:" with a dropdown menu set to "Single Sign-On". At the bottom, there is a progress bar (partially filled with green), an "OK" button, and a "Cancel" button.

- **Print confirmation** If the rule has **Notify by popup** enabled and/or includes the action **Confirm pull job. Message: 'text'** or **Confirm push job. Message: 'text'** ([Creating the rules](#)).



- **Delegated print** If delegated print is allowed on the SafeCom server users can delegate their print jobs to each other via the print delegation dialog. Delegate relationships are set up in the SafeCom Administrator and/or the SafeCom Web Interface.



Control dialog timeout

Timeout for scPopUp is controlled from the Windows Registry settings of the SafeCom Pull Port and SafeCom Push Port.

1. Open the **Registry Editor** and browse to: For **Pull Port** browse to: HKEY_LOCAL_MACHINE \SYSTEM\ CurrentControlSet\Control\Print\Monitors\ SafeCom Pull Port\Ports For **Push Port** browse to: HKEY_LOCAL_MACHINE\SYSTEM\ CurrentControlSet\Control\Print\Monitors\ SafeCom Push Port\Ports The location of registry settings is the same in a cluster.
2. Create a new DWORD named DialogTimeout. It can take any of a value between 3 and 600 seconds. The default is 60 seconds.

Remember logon timeout

This is the logon validity time in seconds if the Authentication dialog had the **Stay logged in** checkbox checked, and there was a successful authentication.

The setting is optional.

1. Open the **Registry Editor** and browse to: HKEY_LOCAL_MACHINE\SOFTWARE\ SafeCom \SafeComG4\SafeCom Notifier The location of registry settings is the same in a cluster.
2. Create a new DWORD named RememberLogonTimeout. The default is 300 seconds.

Note

- When a user is logged on, the system tray tooltip of scPopUp changes to show the name of logged in user.
- The command line option /AU is related to this function, as it displays if a user is logged on in a format of a status dialog (Authentication Status Dialog). If /AU r is used, every subsequent printing resets the timer to the value of RememberLoginTimeout (or 300 seconds, if the setting is not created).

Working with languages

Adding a language, localizing or modifying the UI strings of SafeCom PopUp requires modifying the scPopUp.ini file. The language can be selected on the Settings window of SafeCom PopUp, or set via the /U command line parameter ([Setup SafeCom PopUp](#)).

An example of scPopUp.ini can be found in the \template subdirectory of your SafeCom G4 installation directory.

The **General information** section must always be present in your scPopUp.ini, in the same format as in the template.

New languages are defined by their LCID.

Printing encrypted documents

With SafeCom Encryption documents can be encrypted on the network; from the moment the user clicks print on their computer and until the document is collected at the device. This prevents anyone from reading the documents, should they be intercepted on the network. Documents are always encrypted when traveling from the SafeCom Pull Port to the SafeCom server and when they are stored for later printing.

Prerequisites:

- **Encryption** is included in the SafeCom license key code ([License](#)).
- The user has encryption enabled, that is, **Encrypt documents** is checked on the **Settings** tab in the **User properties** dialog ([Settings](#)).
- The device has encryption enabled, that is, **Encryption** is checked on the **License** tab in the **Device properties** dialog ([License](#)).
- A local SafeCom Pull Printer is installed on the computer of the user requiring encryption ([Add a SafeCom Pull Printer on client computers](#)).
- The device is connected to the SafeCom Controller's 2-port switch. On devices with an internal SafeCom Go solution decryption is done inside the device.

Make all printing go through the SafeCom

This section describes how you can ensure that all printing is done solely through SafeCom. When using the word “ensure” we disregard outrageous user behavior, such as disconnecting the SafeCom hardware - an act, which could probably be made subject to prosecution.

Basically you only need to take special precautions for devices with a built-in and connected network interface. An obvious precaution is to ensure that only the SafeCom servers are allowed to connect to the device's network interface.

Some network interfaces, such as the HP JetDirect print servers and Ricoh Network Interface Cards, features an IP host access list. Only the hosts on the list are allowed to access the network interface. In this case it means that the IP address of the SafeCom server and/or SafeCom Controller should be the only ones on the list. The SafeCom Controller should have a fixed IP address.

You may also need to disable selected network printing protocols, such as the Internet Printing Protocol (IPP). Some network devices also offer the possibility to disable their parallel and/or USB port. For additional information, please refer to the documentation that came with your device / network interface or contact your printer vendor.

Install a card reader on a computer

If the administrator is to register cards with users ([Let administrator register cards to users](#)) it requires a card reader to be connected and configured on the computer.

The stand-alone card readers ([Table 1: SafeCom Controller supported SafeCom ID Devices](#) on page [Table 1: SafeCom Controller supported SafeCom ID Devices](#)) can be used with the **SafeCom Administrator**. Most USB card readers can be connected to the computer via the USB port and used directly. Connecting a SafeCOM ID device needs to be connected to a USB port if you want to enable SafeCom Print Authentication by card. The serial card readers can be connected to the computer via a SafeCom Serial PC Cable (p/n 660010). The cable connects to the computer's RS-232 DB9 connector for communication and 5 Volt power must be supplied via the PS2 keyboard pass-thru connector.

1. Connected the USB card reader to the USB port. The serial card reader should be connected to the computer's serial port (COM1, COM2 or COM3).
2. Start **SafeCom Administrator**.
3. On the **Actions** menu, click **Options**.
4. Click on the **Card reader** tab in the **Options** dialog and make your selections.

Note SafeCom ID devices come with ID Device Licenses, whereas ID device licenses for third-party ID devices must be purchased separately.

Install SafeCom Smart Printer Add-on and Driver

The Smart Printer Add-on and Driver increases versatility across mixed printer vendor parks as it ensures that users can use only one print queue, run even complex jobs on all printers and not encounter problems with driver incompatibilities.

The Smart Printer Add-on and Driver create and store print data on the SafeCom Server or the Print Client in Microsoft XPS format (XML Paper Specification format) until it knows which printer will be used. When the user logs onto an MFP, the system identifies the device type and only then runs the job through the correct vendor-specific printer driver.

The Add-on and Driver software is distributed in 2 separate installation packages:

- **SafeCom Smart Printing Driver** A printer driver that converts the print data to XPS.
- **SafeCom Smart Printer Add-on** A service that is installed either on the **SafeCom Server** or on the computer running the **SafeCom Print Client**. The service directs the print job to the best suitable printer driver from the specific printer vendor.

Follow the steps below to enable printing using the concept of SafeCom Smart Printer Driver.

1. Install the **SafeCom Smart Printer Add-on**:
 - SafeCom Server ([Install Smart Printer Add-on on SafeCom Server](#)).
 - SafeCom Print Client ([Install Smart Printer Add-on on SafeCom Print Client](#)).
2. Install **SafeCom Smart Printing Driver** ([Install SafeCom Smart Printing Driver](#)) and add a SafeCom Pull Printer that uses the Smart Printing Driver.
3. Verify the installation by collecting your first document ([Verification - Collect your first document](#)).

Tip about vendor specific drivers:

It is recommended to install vendor specific printer driver in advance. For HP Universal Print Driver and similar this is best accomplished, by downloading the latest version and subsequently extract the files and use the add driver function in Windows **Print Server Properties** to add the printer driver.

Install Smart Printer Add-on on SafeCom Server

Prerequisites:

- SafeCom G4 Server version S82 070.510*01 or newer.
- Windows Server 2012 / 2012 R2, (32-bit or 64-bit).
- Microsoft .Net Framework 3.5.

Installation:

1. Download the safecom_smart_printer_addon_xxx.exe file from the link supplied to you. The installation must be **Run as administrator**.
2. Follow the instructions and click **Finish** when done.
3. Install the **SafeCom Smart Printing Driver** as described in section ([Install SafeCom Smart Printing Driver](#)).

Install Smart Printer Add-on on SafeCom Print Client

Prerequisites:

- SafeCom Print Client version S82 070.510*03 or newer.
- Windows 7 or later.
- Microsoft .Net Framework 3.5.

Installation:

1. Download the safecom_print_client_smart_printer_addon_xxx.exe file from the link supplied to you. The installation must be **Run as administrator**.
2. Follow the instructions and click **Finish** when done.
3. Install the **SafeCom Smart Printing Driver** as described in section ([Install SafeCom Smart Printing Driver](#)).

Note Similar to the SafeCom Print Client software the Add-on can also be deployed silently using the /VERYSILENT option ([Command line parameters](#)).

Install SafeCom Smart Printing Driver

Prerequisites:

- Windows 8, 7, Windows Server 2016/2012/2012 R2.

Installation:

1. Download the safecom_smart_printing_driver_xxx.zip file from the link supplied to you.
2. Extract the printer driver files to a folder, that you can reference later on as you proceed to **Add a SafeCom Pull Printer** as described in Chapter 4. Remember to print a test page as you will use if for verification in ([Verification - Collect your first document](#)).

Configuring drivers to use both 32-bit and 64-bit clients

To support client computers that use different processor architectures than the print server, you must install additional drivers. For example, if your print server is running a 64-bit version of Windows and you want to support client computers running 32-bit versions of Windows, you must add x86-based drivers for each printer.

1. Open Print Management on the print server.
 - a. In the left pane, click **Print Servers**, click the applicable print server, and then click **Printers**.
 - b. In the center pane, right-click the printer to which you want to add additional printer drivers, and then click **Manage Sharing**.
 - c. Click **Additional Drivers**. The **Additional Drivers** dialog box appears.
 - d. Select the check box of the processor architecture for which you want to add drivers. For example, if the print server is running an x64-based edition of Windows, select the **x86** check

box to install 32-bit version printer drivers for client computers running 32-bit versions of Windows.

- e. If the print server does not already have the appropriate printer drivers in its driver store, Windows prompts you for the location of the driver files. Download and extract the appropriate driver files, and then in the dialog box that appears, specify the path to the .inf file of the driver.

Note For more information on handling driver configuration under various Windows operating systems, check the [relevant Microsoft article here](#).

Verification - Collect your first document

1. As you installed **SafeCom Smart Printer Driver** and added the **SafeCom Pull Printer** that uses the driver ([Install SafeCom Smart Printing Driver](#)) you should have printed a **test page**. If not, then please print a test page before proceeding.
2. Open **SafeCom Administrator** and verify that the **test page** is listed as a pending document for you and that the **SafeCom Smart Printer Driver** is listed as the **Driver**.
3. Verify that the SafeCom-enabled device you intend to collect the document at is indeed configured for **High-speed printing** (default).
4. Walk to the device and log in. Print the **test page**.

Note You will experience a **first-time delay** of 10-30 seconds as the system is creating the print queue the first time.

5. The automatically created print queue is named *SafeCom-<Device ID>*. Depending on your setup you can verify the existence of the print queue on either the **SafeCom Server** referenced by the SafeCom-enabled device or your computer running the **SafeCom Print Client**.

Note

- The <Device ID> can be seen in **SafeCom Administrator** in the upper right corner (ID: xx) on **Settings** tab in the **Device properties** dialog. The **ID** can also be added as separate column to the list of devices in **SafeCom Administrator**. In the list of devices right-click the column header and check **ID** on the menu.
- If the SNMP community name of the device is not **public**, you have to set it manually via **Control Panel > Devices and Printers > Safecom-<Device ID>> Printer properties > Ports > Configure Port... > SNMP Status Enabled > Community Name**.

6. You may wish to print and collect a second test page to verify the absence of the delay you experienced when collecting the first document in step 4 above.

If it failed to print:

If the service fails to locate a compatible driver for the device, the queue generation will fail and the print will be aborted. Trace will contain the error (example):

```
Mon Jun 03 15:45:52.773, tid:03708> Result: [0x80131500]: Failed to register device "2". Failed to locate driver for Hewlett-Packard - HP LaserJet flow MFP M525.
```

Installing a compatible driver and repeating the printing process will fix the issue.

Additional information: SafeCom Tech Note Smart Printer Driver D20206.

Update selected SafeCom components

To update to a completely new SafeCom G4 Server version, please refer to the sections: Single server ([Update SafeCom software – single server](#)), Multiserver installation ([Using Group Management Service Account for services](#)) and Cluster installation ([Cluster installation](#)).

SafeCom Support may in between regular releases release patches for selected components. Always read the release note that accompanies the supplied patch, as it may contain additional and important information.

The update of selected SafeCom components is covered as follows:

- SafeCom Administrator, scAdministrator.exe ([Update SafeCom Administrator](#))
- SafeCom Port Monitors, scPullPM2k.dll and scPushPM2k.dll ([Update SafeCom Port Monitors](#)).
- SafeCom Job Server, scJobServer.exe ([Update scJobServer.exe](#)).
- SafeCom Secure Library, scSecureLib.dll ([Update scSecureLib.dll](#)).
- SafeCom ID code conversion, filtercard.dll ([Update filtercard.dll](#)).
- SafeCom Parser, scParser.dll ([Update scParser.dll](#)).
- SafeCom Rule Executer, scRuleExecuter.dll ([Update scRuleExecuter.dll](#)).

Update SafeCom Administrator

1. Close **SafeCom Administrator**.
2. Replace the scAdministrator.exe in the SafeCom installation folder with the new one.

Note

- If the server is clustered use the Cluster Administrator to move the virtual server as you update scAdministrator.exe on the nodes.
- To determine the version right-click the scAdministrator.exe file, click Properties and click on the Version tab.

Update SafeCom Port Monitors

On **Windows 32-bit**:

1. On the computer stop the **Print Spooler** ([How to start and stop the Print Spooler](#)).
2. Replace the scPullPM2k.dll and scPushPM2k.dll files in the C:\Windows\system32 folder.
3. Start the **Print Spooler**.

On **Windows 64-bit**:

1. On the computer stop the **Print Spooler** ([How to start and stop the Print Spooler](#)).

2. Replace the scPullPM2k64.dll and scPushPM2k64.dll files in the C:\Windows\system32 folder.
3. Replace the scPullPM2k.dll and scPushPM2k.dll files in the C:\Windows\syswow64 folder.
4. Start the **Print Spooler**.

Note

- If any of the servers are clustered use the Cluster Administrator to move the virtual server as you update the files on the nodes.
- To determine the version right-click the file, click Properties and click on the Version tab.

Update scJobServer.exe

1. On all the SafeCom servers you must stop the **SafeCom Service** ([How to start and stop the SafeCom Service](#)) and replace the scJobServer.exe in the SafeCom installation folder with the new one and then restart the **SafeCom Service**.

Note On Windows 64-bit the file is named scJobServer64.exe.

2. If you are using the SafeCom G4 Web Interface you must also restart IIS Admin Service, HTTP SSL, World Wide Web publishing service for the fix to take effect.

Note

- If any of the servers are clustered use the Cluster Administrator to move the virtual server as you update the scJobServer.exe on the nodes.
- To determine the version right-click the scJobServer.exe file, click Properties and click on the Version tab.

Update scSecureLib.dll

1. On all the SafeCom servers you must stop the **SafeCom Service** ([How to start and stop the SafeCom Service](#)) and **Print Spooler** ([How to start and stop the Print Spooler](#)) and replace the scSecureLib.dll in the SafeCom installation folder with the new one and then restart the **SafeCom Service** and **Print Spooler**.

Note On Windows 64-bit the file is named scSecureLib64.dll.

2. If you are using the SafeCom G4 Web Interface you must also restart IIS Admin Service, HTTP SSL, and World Wide Web publishing service for the fix to take effect.

Note

- If any of the servers are clustered use the Cluster Administrator to move the virtual server as you update the scSecureLib.dll on the nodes.
- To determine the version right-click the scSecureLib.dll file, click Properties and click on the Version tab.

Update filtercard.dll

This section is relevant only for customers who have been supplied with a filtercard.dll to accomplish on-the-fly ID code conversion. This method can be used in installations where SafeCom ID devices return ID codes differently.

1. Unzip the received file.
2. If the received DLL file is not already named filtercard.dll then rename it to filtercard.dll.
3. Copy the filtercard.dll file to the SafeCom installation folder. The default folder is: C:\Program Files \SafeCom\SafeComG4\
4. Restart the **SafeCom Service**.

The above steps should be performed on all SafeCom servers. It should also be performed on all the computers that have **SafeCom Administrator** installed and a card reader connected ([Install a card reader on a computer](#)).

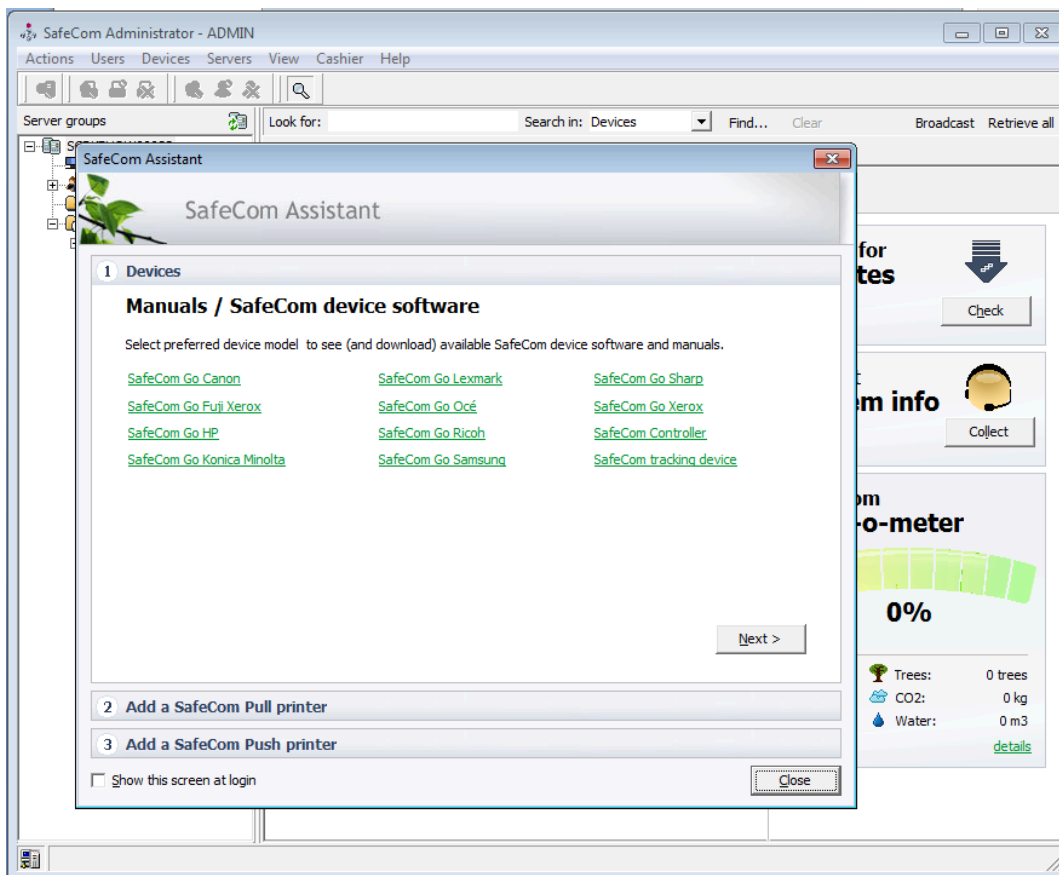
Chapter 5

SafeCom Administrator

Introduction

SafeCom Administrator is the application you use to configure and administrate your SafeCom solution. **SafeCom Administrator** can be installed on any Windows computer and used to administrate all the SafeCom servers within TCP/IP range of the computer.

When you log in to **SafeCom Administrator** it will present the **SafeCom Assistant** ([SafeCom Assistant](#)). This will guide you through the steps needed to make your devices part of the SafeCom solution.



Install SafeCom Administrator

To administrate your SafeCom solution from other computers, you simply install the **SafeCom Administrator** on those computers. If you want to install a local SafeCom Pull Printer or SafeCom Push Printer on this computer also you must install SafeCom Client first ([Add a SafeCom Pull Printer on client computers](#)).

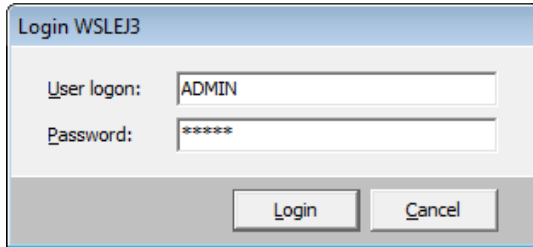
1. Download the safecom_g4_x64_xxxx.exe file from the link supplied to you. The installation must be **Run as administrator**. When the installation program is launched click **Next**.
2. Click **Advanced installation**. Click **Next**.
3. Click **Tools**.
4. Check **SafeCom Administrator**. Follow the instructions on the screen or refer to [Log in to SafeCom Administrator](#) for details.

Log in to SafeCom Administrator

1. Click **Start**, point to **All Programs, SafeCom G4**, and click **SafeCom Administrator**.

Note If you want to restart SafeCom Administrator right after closing it, either wait for a few seconds or check and ensure that the previous instance is no longer running in the background.

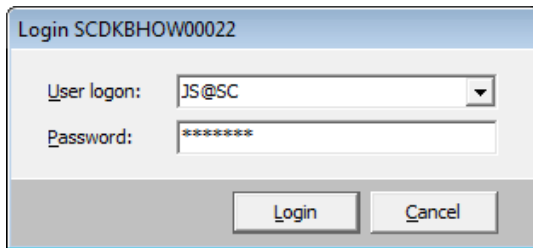
2. In **SafeCom Administrator** click on the server to log in and enter the user logon and password:
 - a. To log in enter the user logon (default ADMIN) and password (default nimda). Once you are logged in, you can change the user logon and password.



The screenshot shows a dialog box titled "Login WSLEJ3". It has two input fields: "User logon:" with the text "ADMIN" and "Password:" with "*****". Below the fields are two buttons: "Login" and "Cancel".

Note If the user belongs to a domain it must be specified in front of the user's logon followed by a slash (/) or a backslash (\). Example: MYDOMAIN\JS. Alternatively you can specify user logon followed by (@) and the domain, like this JS@MYDOMAIN.

- b. To log in with Windows credentials, enter Windows logon followed by @ and the domain in the **User logon** field and then enter the password.



The screenshot shows a dialog box titled "Login SCDKBHOW0022". It has two input fields: "User logon:" with a dropdown menu showing "JS@SC" and "Password:" with "*****". Below the fields are two buttons: "Login" and "Cancel".

SafeCom Assistant

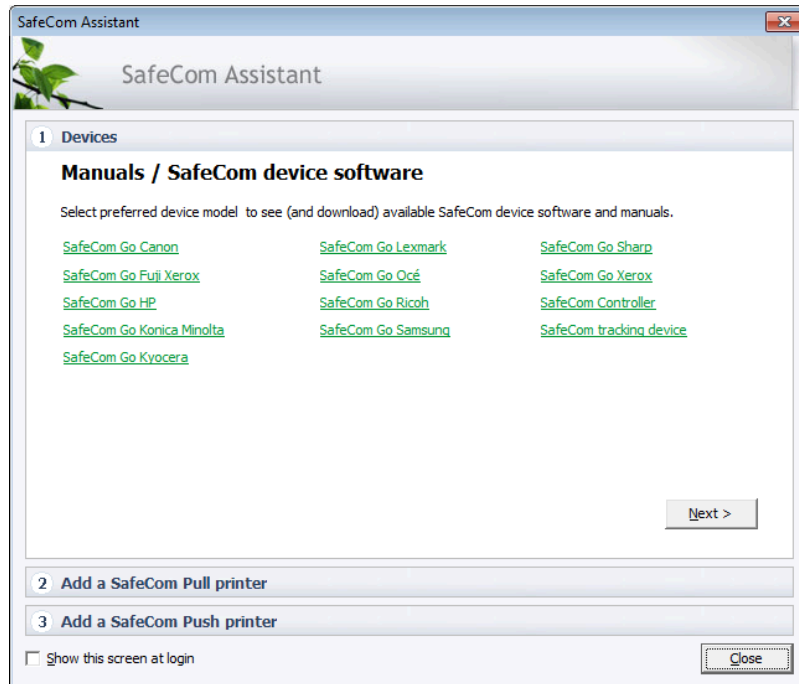
When you log in to **SafeCom Administrator** it will present the **SafeCom Assistant**. However, it is not present in multiserver solutions.

The **SafeCom Assistant** will guide you through a 3-step process to make your devices part of the SafeCom solution. You can jump between the steps by clicking on the title, for example **2 Add SafeCom Pull Printer**.

Clear **Show the screen at login** if you do not want the **SafeCom Assistant** to open at login.

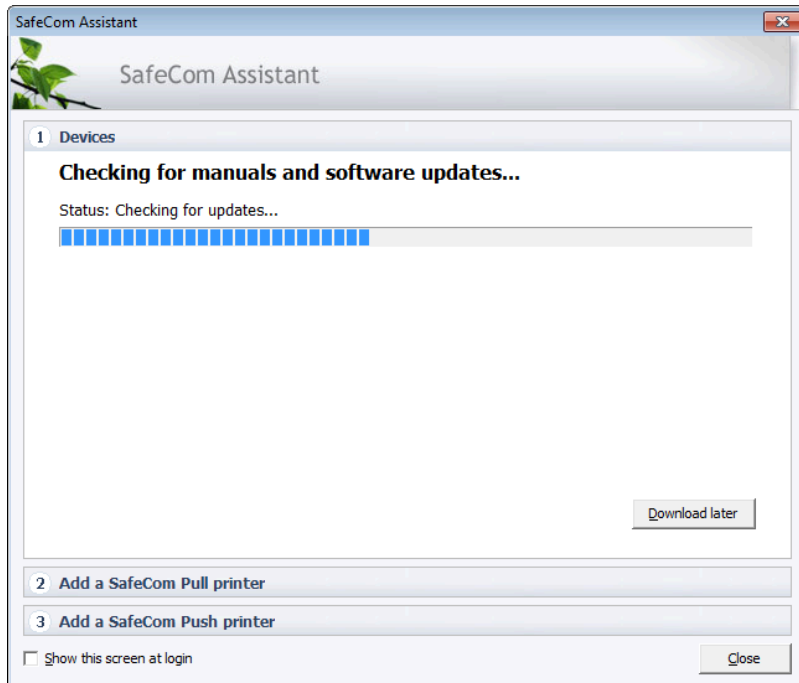
1. Devices

- **Select device type** Click the type of SafeCom device; **SafeCom Go** (Canon, Fuji Xerox, HP, Konica Minolta, Kyocera, Lexmark, Océ, Ricoh, Samsung, Sharp, Xerox) or **SafeCom Controller** (Other).

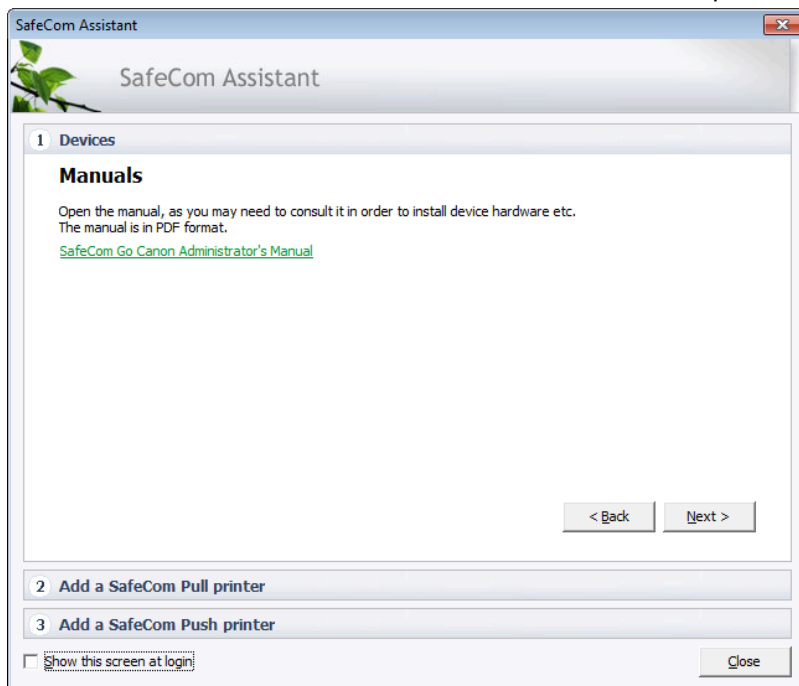


- **Download device manuals and software** Download is required if the manuals and device_software ([Location of device software](#)) subfolders does not contain the required files. Click **Next**.¹⁹

¹⁹ To get future updates use **Check for updates** in the **System overview** ([System overview](#)).



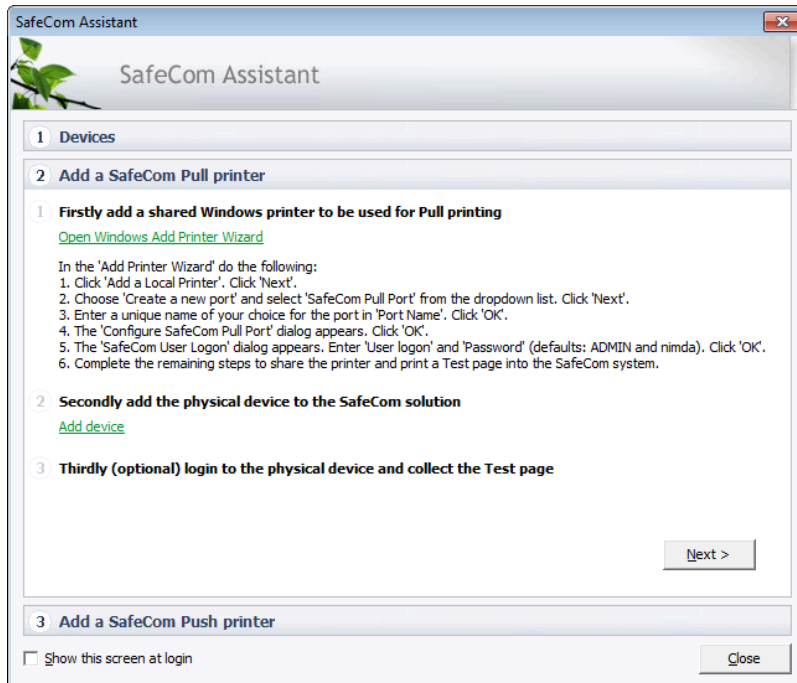
- **Open device manual** (and install device hardware etc.)The relevant device manual appears. Open the manual, as you may need to consult it in order to install device hardware and/or send software to the device. The manual is in PDF format and requires **Adobe Reader**. Click **Next**.²⁰



²⁰ The manual is also added to the list of manuals in the **System overview** ([System overview](#)).

2. Add a SafeCom Pull Printer

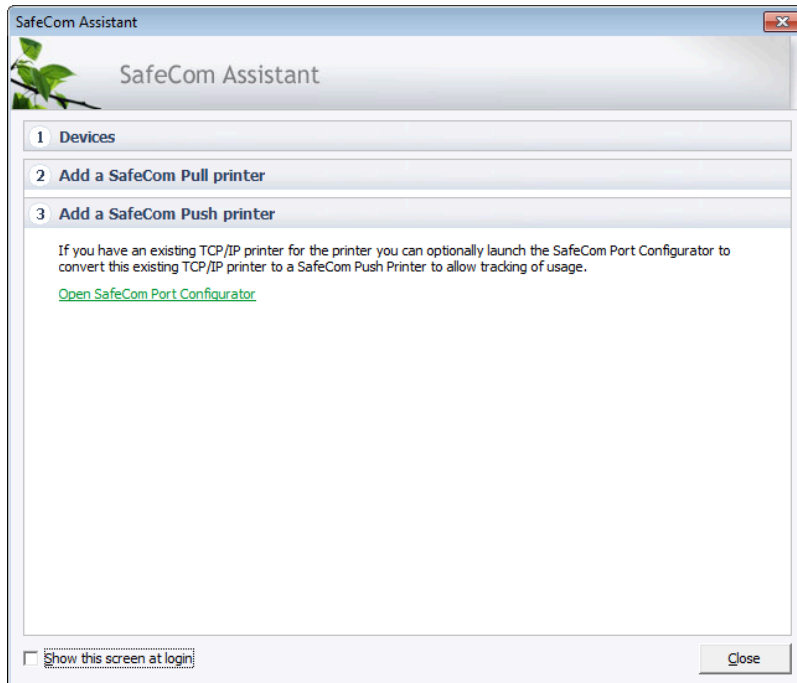
- **Add a SafeCom Pull printer** Click **Windows Add Printer Wizard** to open this and add a shared printer to be used for Pull printing. Follow the instructions in the device manual. If a **SafeCom Pull Printer** is already added you do not need to do this.



- **Add device** Click **Add device** to add the physical device to the SafeCom solution. On SafeCom Go HP, SafeCom Go Lexmark and SafeCom Go Ricoh the steps include sending software to the device. Complete the steps according to the device manual or as documented in section [Add device](#).

3. Add a SafeCom Push Printer

- **Open SafeCom Port Configurator** If you have an existing TCP/IP printer and wish to convert this to a SafeCom Push printer and thus also be able to track documents that are printed directly. Click **Close** and complete the steps in **SafeCom Port Configurator** ([SafeCom Port Configurator](#)).

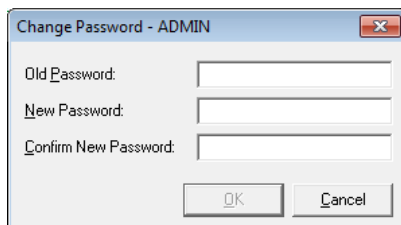


Change password

1. On the **Users** menu, click **Change password**.

Note Passwords can be max. 16 characters.

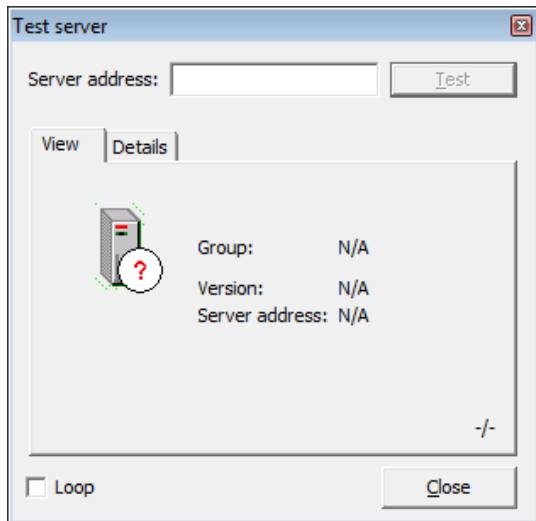
2. Enter your **Old password** and **New password** and **Confirm new password**.
3. Click **OK**.



The password can also be changed in the **User properties** dialog ([Rights](#)).

Test server

1. On the **Actions** menu, click **Test server...**
2. Enter the **Server address** (IP address or hostname) and click **Test**.



The connection can also be tested in the **Server properties** dialog ([Server](#)) and by right-clicking a SafeCom server and click **Test server...**

The **Loop** check box and **Server address** are only present when the **Test server** dialog is opened from the **Actions** menu.

Menus and commands

This section lists the **SafeCom Administrator** menus and commands, their shortcut keys and a reference to the relevant sections in this manual. Additional commands may appear if your solution includes any add-on modules such as Tracking and Pay.

Actions	Login	ENTER	Log in to SafeCom Administrator
	Logout	CTRL+Q	
	Test server...		Test server
	Reports...	CTRL+R	SafeCom Reports
	Export...	CTRL+E	Export data

	Server group Add server group... Remove server group... Server group properties... Locate server groups	CTRL+L	
	Options...		Options dialog
	Exit	ALT+F4	
Users	Refresh	F5	
	Add user...	INS	Add users manually
	Delete user	DEL	Delete users
	Import users...		Import users
	Aliases...		
	ID codes...		List of ID codes
	Domains...		
	User groups Add group... Delete group Group properties...	INS DEL ALT+ENTER	Groups
	Jobs Refresh... Auto-retrieve Delete job	F5 DEL	Delete a user's print jobs (documents)
	Change password...		Change password
	User properties...	ALT+ENTER	User properties
Devices	Refresh	F5	
	Add device...	INS	Add device
	Delete device	DEL	Delete devices
	Import Ethernet Card Reader		Import Ethernet Card Readers
	Send Go Loader...		Update software
	Update software...		Update software
	Restart...		Restart devices
	Open in web browser		Open in web browser
	Monitor setup...		Monitor device








	Charging schemes Refresh Add charging scheme Delete charging scheme Charging scheme properties		Charging schemes
	Device properties...	ALT+ENTER	Device properties

Servers	Refresh		
	Add server...		Add server
	Delete server...		Delete a secondary server from a multiserver group
	License...		License
	Branches Add branch... Delete branch... Branch properties...	INS DEL	
	Organizational units Add org. unit... Delete org. unit Org. unit properties...	INS DEL	Organizational units
	Device servers Add device server... Delete device server Device server properties... Device server failover		Device Servers
	Rule Based Printing...		SafeCom Rule Based Printing (RBP)
	Client Billing Manage billing codes... Import billing codes... Schedule billing code import...		SafeCom Client Billing
	Tracking data Export tracking data... Import tracking data codes...	Export tracking data Hide job names in tracking data	
	Statistics...		Delete device server
	Event log...		Event log
	Server properties...	CTRL+ENTER	Server properties










View	SafeCom Assistant...		SafeCom Assistant
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	Toolbars Users Devices Servers Charging schemes Search Tools		
	View server group info...		Server group info
	Expand server view at login All Branches Groups Servers		
Cashier	Account status...		Account status
	Cash flow report...		Cash flow report
Help	Support...		
	SafeCom online...		
	About...		




Server group and server icons














	Server group
	Primary server
	Secondary server
	Offline server
	Unsupported server group (old version)
	Server group is unavailable (unable to connect)
	Replication problems

User icons










	Standard user
	Default user
	Locked user (login prevented)
	User with no defined home server
	User has been moved to a failover server
	Technician
	Cashier user (requires SafeCom Pay)
	Administrator
	Administrator with limited rights

Device icons





	MFP or printer with SafeCom Controller
	MFP with SafeCom Go/SafeCom Controller
	MFP with SafeCom Go/SafeCom Device Server








	MFP with SafeCom Go Canon
	MFP with SafeCom Go HP
	Printer with SafeCom P:Go HP
	MFP with SafeCom Go High-end HP
	MFP with SafeCom Go Lexmark
	Printer with SafeCom P:Go Lexmark
	MFP with SafeCom Go Ricoh
	Printer with SafeCom P:Go Ricoh
	Push Printer
	Ethernet Card Reader
	Device with no defined home server
	Device registration not completed
	Device not registered in the SafeCom solution

Document icons

	Document
	Retained document
	Group printed document
	Delegated document
	Branch office document
	Branch office document retained
	Document delegated and retained
	Job deleted after first print
	Group retained print job

Other icons

	Branches (top level)
	Branch
	Computer in branch
	Groups (top level)

	Group
	Organizational units (top level)
	Org. unit
	Servers (top level)
	Device server group
	Standard charging scheme (requires SafeCom Tracking)
	Default charging scheme (requires SafeCom Tracking)

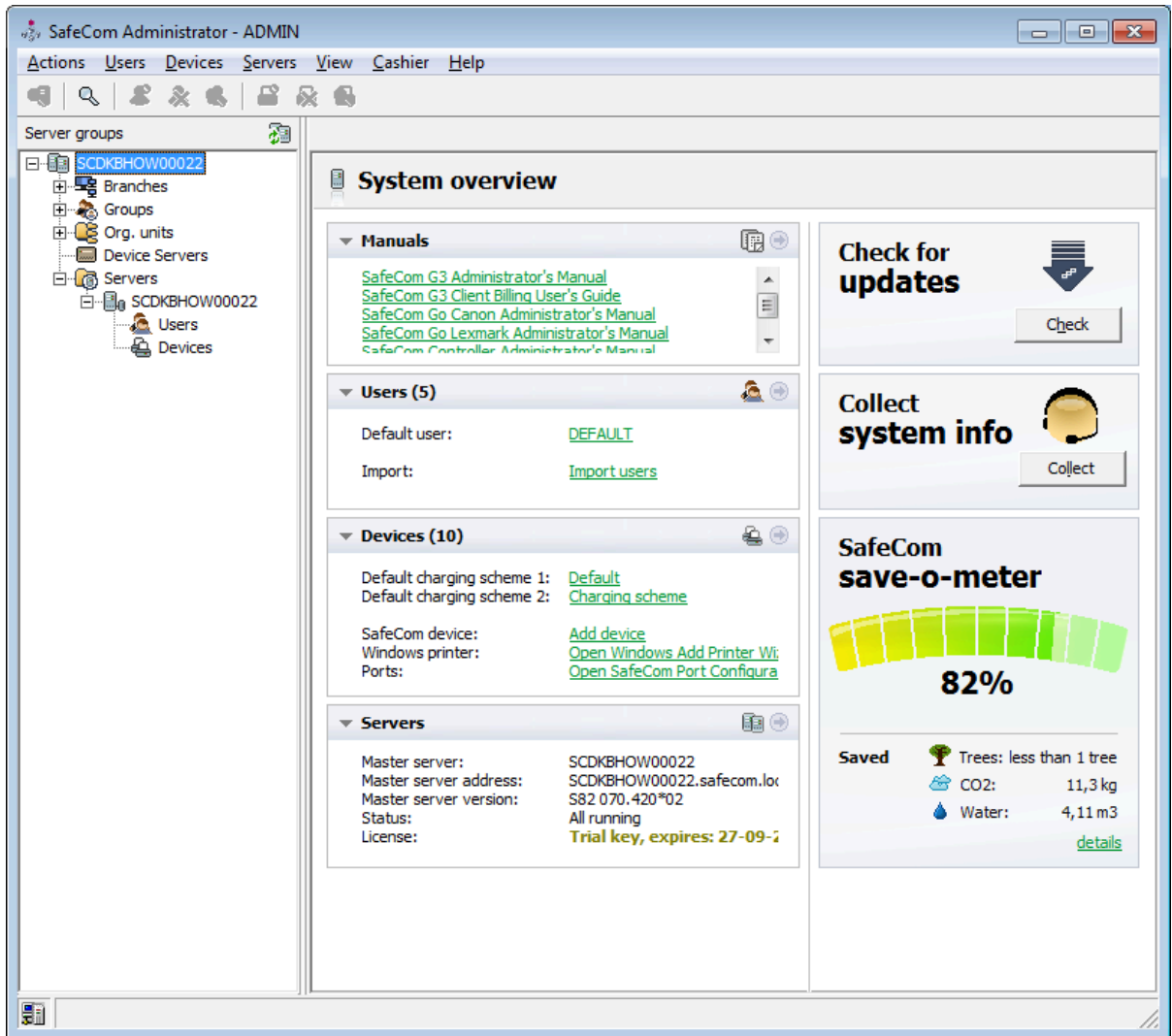
Built-in user accounts

The SafeCom solution features two built-in user accounts:

- **ADMIN** Administrator account with the default password nimda.
- **TECH** Technician account with the default password hcet, initial PUK code 12345678 and default PIN code 1234.

System overview

Click the server group to open **System overview**. This provides an easy access to system information, manuals, updates, and common tasks.



Guides

- SafeCom G4 Administrator's Guide (this guide) is the initially listed manual. Relevant SafeCom Go Administrator's Guides and others are added to the list as you use the **SafeCom Assistant** (SafeCom Assistant).

Users

Show the total number of users (initially two). Click the **Users** arrow icon to open the list of users on the primary server.

- **Default user** shows the user logon of the defined default user (Default user). Click the user logon to open the **User properties** dialog.
- Click **User import** to open the **Scheduled user import** dialog (Import users). The date and time of the next scheduled user import is shown.

Devices

Show the total number of devices. Click the **Devices** arrow icon to open the list of devices on the primary server.

- **Default charging scheme 1** and **Default charging scheme 2**. Click the respective names to open the **Charging scheme** dialog ([Charging schemes](#)).
- Click **Add device** ([Add device](#)) to configure and register the device on the SafeCom primary server. This function is not available in a multiserver solution, as you would normally have devices registered on the secondary servers.
- Click **Windows Add Printer Wizard** to open this.
- Click **SafeCom Port Configurator** to open this ([SafeCom Port Configurator](#)).

Servers

Servers show information about the primary (and secondary servers. Click the **Servers** arrow icon to open the list of servers.

Click the **License** arrow icon to open the **License** dialog ([License](#)).

Device Servers

Device Servers show information about the device servers. Click the **Device Servers** arrow icon to open the list of device servers and device server groups.

Right-click a device server in the list to access the grouping feature ([Grouping device servers](#)).

Each device has a specific device server as “home” server (the device server to which the device was added to), and by default all information and data of a device is handled by the home server of that device. In case of device failover or device server fallback, the members of the device group distribute the incoming load evenly.

Note If device failover occurs while a user is logged in, the fallback to the “home” device server does not occur until the user logs out and the device goes into idle state; this prevents user session interrupts.

Collect system info

In **Collect System Info** click **Collect**.

Check for updates

In **Check for updates** click **Check**. A connection is established to the SafeCom Update Server to check for new updates of manuals, device software and release notes. Click **Run in background** to have the files downloaded while you continue your work. If access to the Internet requires use of a **Proxy** server this can be specified on the **Network** tab in the **Options** dialog ([Network](#)).

Note If the **Check for updates** function is used on a cluster, you are advised to update both nodes.

Save-O-Meter

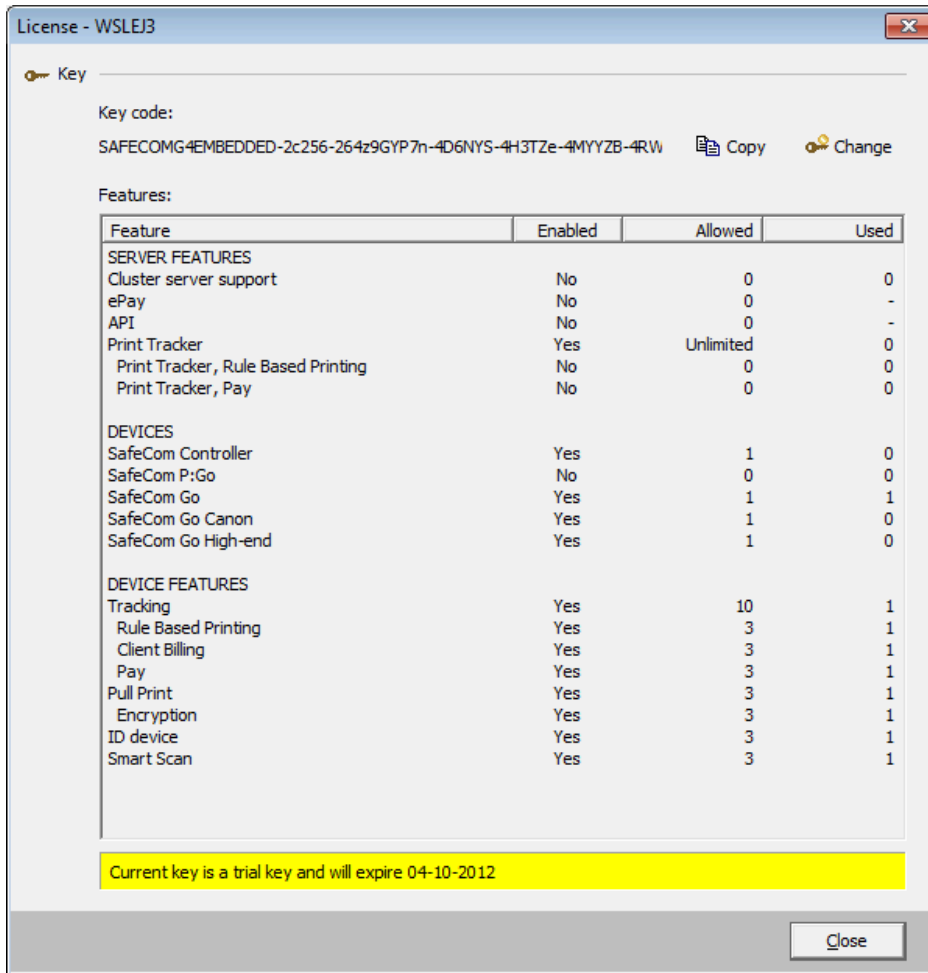
In order for the SafeCom Save-O-Meter to work the **Track deleted print jobs** on the **Tracking** tab in the **Server properties** dialog must be checked ([Tracking](#)).

For more information on Save-O-Meter, the Widget, and how savings are calculated, refer to *SafeCom Save-O-Meter Administrator's Manual*.

Note The widget requires .NET Framework 4.0 or later to function properly.

License

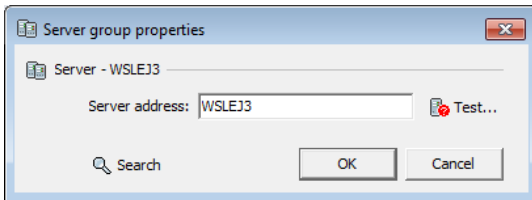
The **License** dialog can be accessed from the **Servers** menu. The **License** dialog shows the number of licensed server features, devices and device features and it allows you to install license upgrades in the form of a key code. More information about license key codes is available in [Install the SafeCom license key code](#).



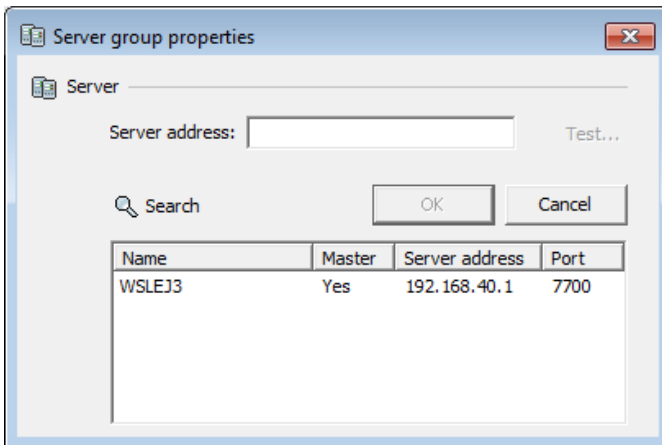
Enter your key code in **Enter key code** and click **Apply**. **Current key** displays the license key code currently used by the SafeCom server. **Listing features** displays the features activated by the current license key code. Refer to section [Advanced search – Device licenses](#) to see how the **Find devices** function can be used to see which device is using which device license.

Server group properties

The **Server group properties** dialog can be accessed from the **Servers** menu and by right-clicking the group in the **Server groups** pane.



Click **Search...** to search for server groups. Search result is shown in the dialog. Click **Test...** to test the connection.



Server properties


The **Server properties** dialog can be accessed from the **Servers** menu, the **Server** tool button and by right-clicking the server in the **Server groups** pane.

The dialog comprises the tabs:

- **Server** ([Server](#))
- **Users** ([Users](#))
- **Devices** ([Devices](#))
- **E-mail** ([E-mail](#))
- **Failover** ([Failover servers](#))
- **Tracking** ([Tracking](#) and [Configure SafeCom primary server](#))
- **Billing** ([Billing](#) and [Configure SafeCom Client Billing](#))
- **Encryption** ([Encryption](#))

Server

Server group is the name of the server group. **Computer name** must match the computer name of the SafeCom server. Refer to [Determine the Computer Name](#).

Note If using SafeCom Administrator version 9.41.6.2, the server group name can be changed. If clicking the **Refresh servers** icon  in the **Server groups** pane within a minute after changing the name, the old server group name appears again in the **Server groups** pane. Click the **Refresh servers** icon again after another minute, and the new name appears in the **Server groups** pane.

Org. unit is the organizational unit the SafeCom server belongs to ([Organizational units](#)). **Server address** is the address of the SafeCom server. Click **Test server...** to test the connection ([Test server](#)).

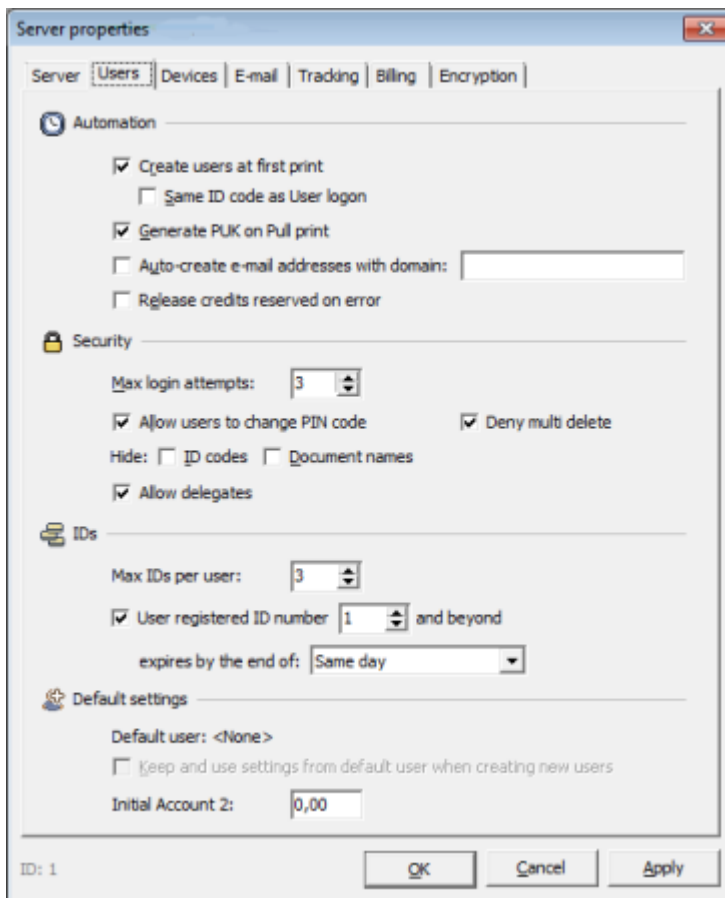
Check **Write event to Windows event log** ([Event log](#)) if you wish to be able to use the **Window Event Viewer** to view event log messages from the SafeCom solution.

Check **Audit log** if you wish to be able to use the **Window Event Viewer** to view log messages related to user login/logouts from the SafeCom solution.

Database integrity check verifies the consistency between document references in the SafeCom database and executes the delete document functionality. The check can take place on selected weekdays (Monday, Tuesday, ... , Sunday) at a specific time or at a regular predefined intervals starting at a specific time. The available intervals are every 10, 20, or 30 minutes, or every 1, 2, 3, 4, 6, 8 and 12 hours. Every 2 hours on all weekdays is default.

Check **Delete print jobs after** to keep the print in the SafeCom solution for the specified number of **day(s), hour(s)** and **min(s)**. The default is 1 day.

Users



Under **Automation** you can choose to **Create users at first print** ([Create users at first print](#)). This means that a new user account is created in the database the first time the new user prints with the SafeCom solution. Check **Same ID code as User logon** if newly created users log in at the device with their user logon (JS).

Check **Generate PUK on Pull print** if the PUK code should be generated on Pull print. The PUK code can be e-mailed ([E-mail](#)).

Check **Create e-mail addresses with domain** to combine the user logon (JS) and the E-mail domain (safecom.eu) into the user's valid e-mail address.

Check **Release credits reserved on error** to give back users reserved credits if an error occurs. This is only relevant if SafeCom Pay ([Ensure users pay](#)) is used.

Under **Security** you can specify **Max login attempts** to control the number of times the user can try to log on with an invalid PIN code, before the account is locked. The default is 3 times. The Administrator can unlock a locked user account by clearing **Prevent login** on the **Identification** tab in the **User properties** dialog ([Identification](#)).

Note The max login attempts do not apply to users with Administrator rights on the device side. The setting does affect scAdmin, thus administrators can lock themselves out if the max login attempts are exceeded. Ensure that you set up your system carefully, use multiple administrator accounts to be able to unlock locked administrator accounts.

Check **Allow users to change PIN code** to allow users to change their PIN code through the SafeCom G4 Web Interface and SafeCom-enabled devices (restrictions may apply). Do not check this if you wish to manage PIN codes centrally.

Check **Deny multi delete** to prevent deleting multiple devices and users (This option is only editable for administrators with full rights for users).


Check **ID codes** to hide user codes and card numbers in **SafeCom Administrator** to all users except the users with administrator rights ([Hide ID codes](#)). The administrators are still able to see ID codes and export these.

Check **Document names** to hide document names in **SafeCom Administrator**. When this is checked the **Document name** column in the list of a user's pending jobs is not visible for users that do not have administrator rights ([Hide document names](#)).

Check **Allow delegates** to permit users to delegate or accept delegation of print jobs. **Allow delegates** is not selected by default.

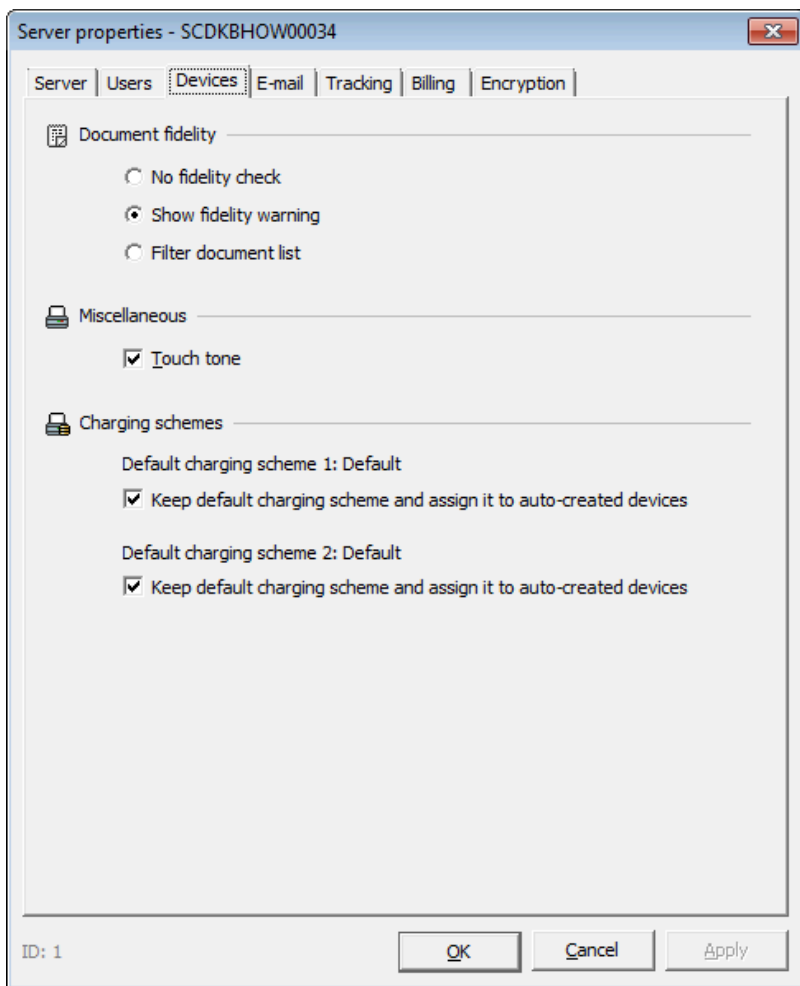
Under **IDs** you can specify the **Max IDs per user**. By default there is one ID per user. The IDs control is not present in the **Server properties** dialog of SafeCom secondary servers. You can also specify an expiration date for the user ID via the **expires by the end of** list.

Under **Default settings** it shows if a default user is defined ([Default user](#)). If there is a default user you can choose to **Keep default user and use settings when creating new users**. You can select the **Default user** by right-clicking a user with Standard rights in the list of users.

In the list of user the default user is shown with a plus sign: 

Initial account 2 is only relevant if SafeCom Pay ([Ensure users pay](#)) is used.

Devices



As discussed in [Printer driver and document fidelity considerations](#) **Document fidelity** is determined by comparing the name of the printer driver embedded in the print job with the list of driver names returned by the SafeCom Controller or SafeCom Go. You may choose among the following options:

- **No fidelity check** All the user's documents can be collected at the device.
- **Show fidelity warning** All the user's documents can be collected at the device. If a SafeCom Front-end is used a warning dialog will appear whenever the user attempts to print a document that was generated with a driver that is not included on the SafeCom Controller's list of driver names.
- **Filter document list** Only those of the user's documents with a matching driver name can be collected at the device.

Touch tone controls if touching the touch-screen should cause a beep sound. The change takes effect the next time someone logs in at selected SafeCom ID devices.

E-mail

SMTP mail server shows the hostname or the IP address of the mail server that is used to send outgoing mails. **Port** is 25 by default.

Reply address is used by the SafeCom auto-mailer when sending e-mails. Some mail servers require a valid reply address in order to deliver the mail. The default `safecom@safecom.invalid` satisfies this syntax check.

E-mail address: Type in the e-mail address to which SafeCom should send **Event** and **Credits reserved notification** messages. These e-mail messages help administrators address potential problems proactively. For example, these e-mails may inform the administrator that a trial license is about to expire in a couple of days. The administrator can also look in the Event log ([Event log](#)).

If you check **E-mail PUK code when generated** the PUK code is automatically sent to the user via e-mail using the template `EmailPUK.txt` ([Customize and translate e-mail messages](#)). A PUK code is generated in the following ways:

- If **Generate PUK on Pull print** is checked on the **Users** tab in the **Server properties** dialog ([Users](#)).
- When generating a PUK code on the **ID code** tab in the **User properties** dialog ([ID code](#)).
- When importing users and **Generate PUK** is checked in the step ([Import users](#)).

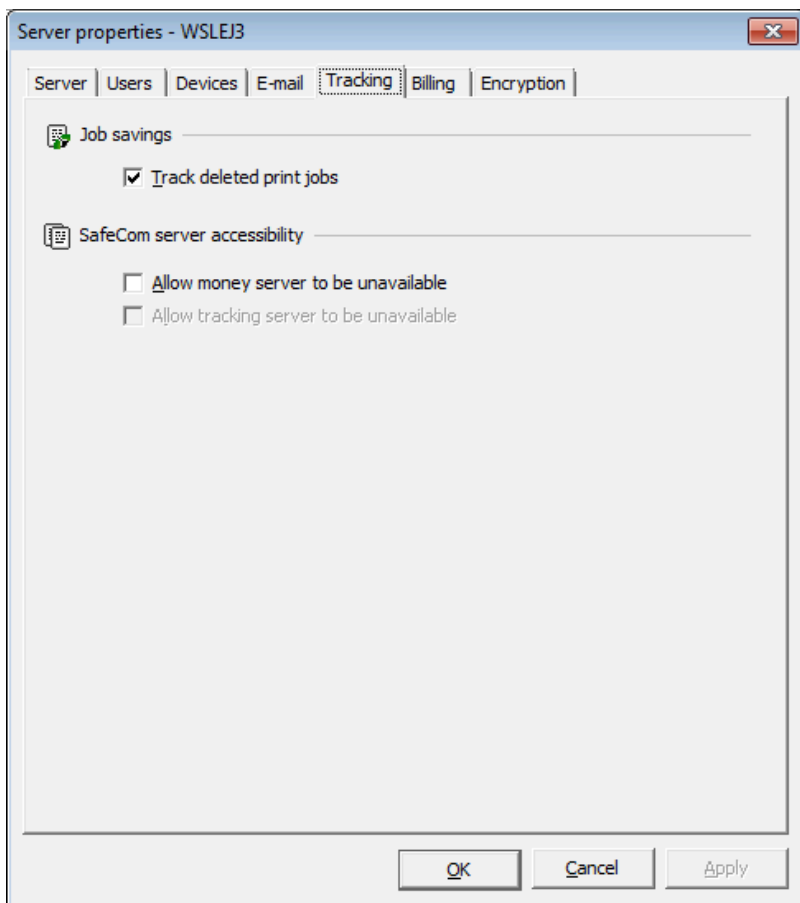
Note No e-mail is sent if the PUK is generated from the SafeCom G4 Web Interface.

If you check **E-mail welcome message to new users** a welcome message is automatically sent to the user via e-mail using the template EmailWelcome.txt ([Customize and translate e-mail messages](#)).

If you check **E-mail job deletion note to author of job** the author will receive an e-mail when a document has been deleted. See EmailJobDelete.txt in [Customize and translate e-mail messages](#).

In **E-mail delete warning to:** you can check **Author of job** and/or **Recipients of job**. If checked an e-mail warning is sent the specified length of time prior to deletion. See EmailWarning.txt [Customize and translate e-mail messages](#).

Tracking



Check **Track deleted print jobs** to have the SafeCom solution track deleted jobs and to see the effect in the **Save-O-Meter** ([Save-O-Meter](#)).

Check **Allow money server to be unavailable** if you want pay users to be able to print and log in to devices even if it is not possible to charge the user for the jobs produced by the user. The setting has no effect without a Pay license.

Check **Allow tracking server to be unavailable** if you want tracking users to be able to print and log in to devices even if it is not possible to track the jobs produced by the user. The tracking server can only be

allowed unavailable if the money server is allowed unavailable. The setting has no effect without a Pay license.

How it works:

- A severity 2 event (error) is created in the SafeCom event log ([Event log](#)) when the first pay user logs in while the money server is unavailable. The user is treated as a tracking user. If the tracking server is unavailable the user is treated as a no cost user.

A severity 5 event (information) is created in the SafeCom event log ([Event log](#)) when the first user logs in and the servers are available again.

In a multiserver solution the **Tracking** tab looks different on the primary server ([Configure SafeCom primary server](#)) and the secondary server ([Configure SafeCom secondary servers](#)).

Billing

The screenshot shows the 'Server properties - WSLEJ3' dialog box with the 'Billing' tab selected. The dialog is divided into three main sections:

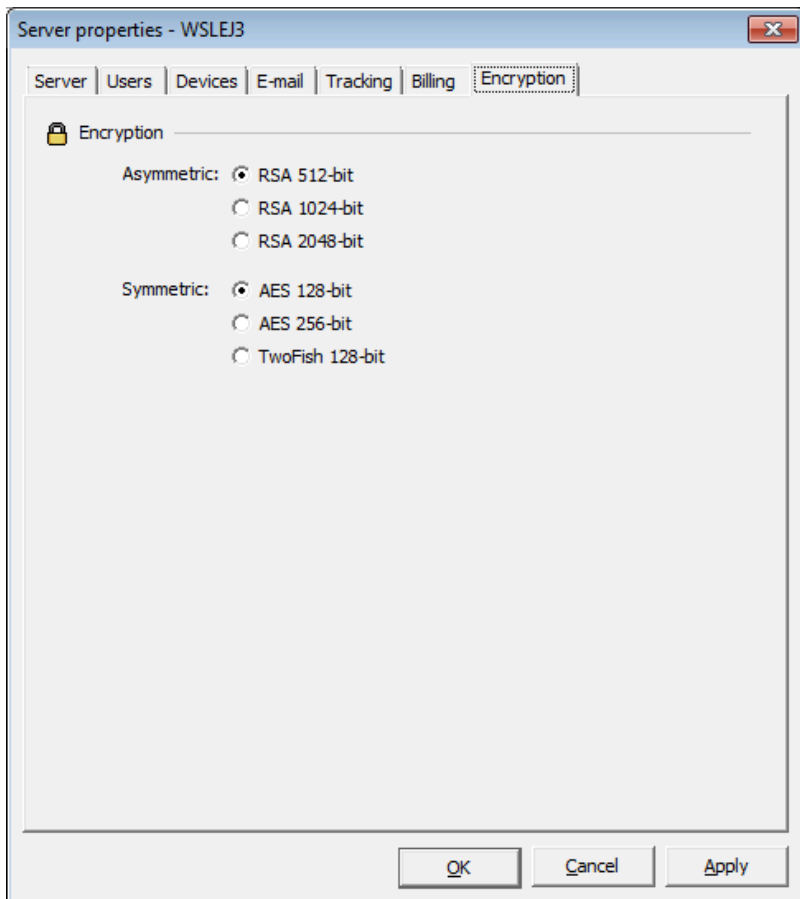
- Billing codes:**
 - Primary code:** A text box containing 'Client code'.
 - Display format:** A dropdown menu set to 'Primary code'.
 - Size:** A spinner box set to '0'.
 - Secondary code:** An unchecked checkbox.
 - Primary description:** A dropdown menu set to 'Primary description'.
 - Size:** A spinner box set to '0'.
- Billing window:**
 - Store tracking data temporarily to allow users commit billing after:** An unchecked checkbox.
 - Time settings:** Three spinner boxes for 'days' (0), 'hours' (0), and 'minutes' (0).
- Commit billing records:**
 - Move billing records to tracking data:** A section with two radio buttons: 'Move once at' (selected) and 'Move every'.
 - Move once at:** A dropdown menu set to '00:00'.
 - Move every:** A dropdown menu set to '6 hours'.
 - Starting at:** A dropdown menu set to '00:00'.
 - on days:** A list of days with checkboxes: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday, all of which are checked.

At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Apply'.

Check **Store tracking data temporarily to allow users to apply billing codes**. State time to elapse before the billing data is committed and when the billing data should be moved to the tracking data.

Refer to section [Configure SafeCom Client Billing](#) for additional information.

Encryption



All control data that is exchanged using the SafeCom protocol is encrypted according to the choice of cipher. This includes login requests with user details such as user logon, card numbers, PIN codes and passwords. Other data that is encrypted include List of documents, tracking data, event log information etc.

Asymmetric: RSA is used for asymmetric encryption and for exchange of the symmetric keys. RSA is a very slow encryption algorithm and is not suited to encrypt and decrypt bulk data efficiently. The default is **RSA 512-bit** encryption.

Symmetric: Encryption of bulk data is done using more efficient algorithms, either AES (Rijndael algorithm) or TwoFish, a proposal by NIST (National Institute of Standards and Technology) for an Advanced Encryption Standard. The default is **AES 128-bit** encryption.

Pending documents are always encrypted using 128-bit encryption. Pull print data is always encrypted on the network while traveling to the server. Pull print data traveling to a device is encrypted if:

Encrypt documents is enabled for the user ([Settings](#)).

Encryption is enabled for the device ([License](#)).

By default any client will try to honor the encryption method and size that has been specified on the server. Clients include the SafeCom Print Client, SafeCom Pull Port, SafeCom Push Port, SafeCom Administrator, SafeCom Reports, SafeCom Web Interface, and SafeCom Go devices.

The SafeCom Go devices will take the processing power and memory of the device into consideration. This means that in most cases no additional configuration steps are required on the device. Refer to the relevant *SafeCom Go Administrator's Guide* for additional information.

The choice of encryption on the server take effect once the SafeCom Service has been restarted on the server. When a secondary server is added it will by default get the same encryption settings as that of the primary server.

User properties

The **User properties** dialog is accessed from the **Users** menu, the **User** tool button and by right-clicking a user in the **Users list**.

The dialog tabs are:

- **Identification** ([Identification](#))
- **Settings** ([Settings](#))
- **ID code** ([ID code](#))
- **Rights** ([Rights](#))
- **Member of** ([Member of](#))
- **Aliases** ([Aliases](#))
- **Delegates** ([Delegates](#))
- **Account** ([Account](#))
- **Billing** ([Billing](#))

Identification

Add User - JOHN_SMITH

Identification | Settings | ID code | Rights | Member of

Information

Domain: <None>

User logon: JOHN_SMITH

Full name: John Smit

Home server:

Org. unit: <None>

E-mail: john_smith@safecom.eu

Description:

Cost code:

Home folder:

Credits

Account 1: 0.00 Low limit: 0.00

Account 2: 300.00 Credits reserved: 0.00

Login


Login without PIN code

Create user Cancel

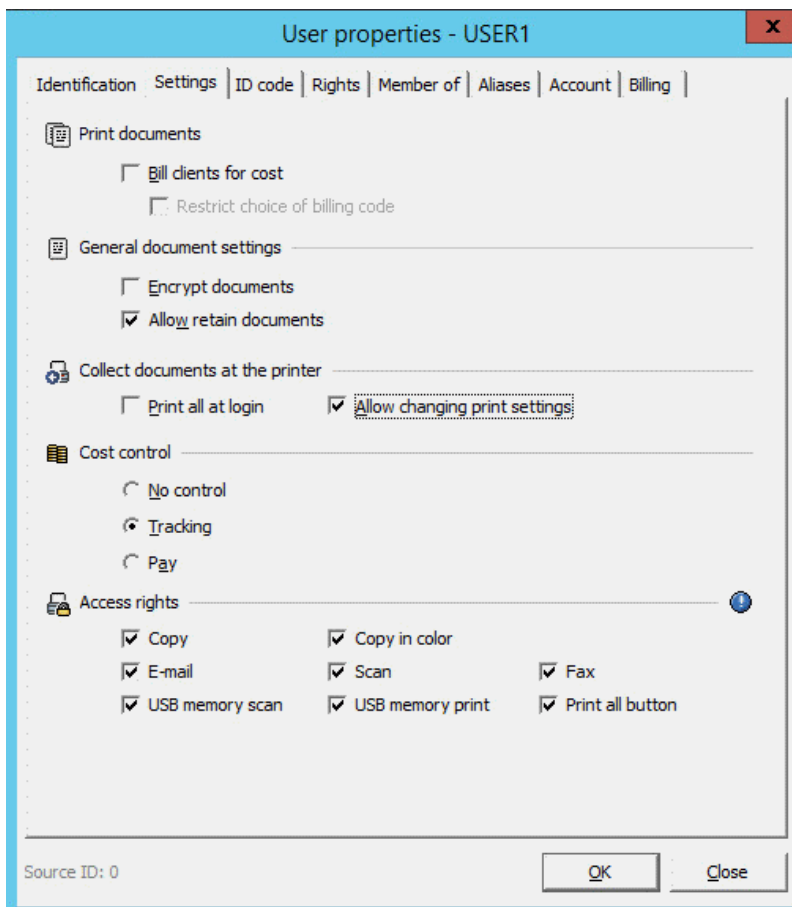
- **Domain:** The domain the user belongs to.
- **User logon:** This is identical to the user's Windows logon. The user logon is mandatory, maximum 20 characters and must be unique in regards to other user logons, user aliases, and group names. **ID** is the database ID.
- **Full name:** The user's name.
- **Home server:** The SafeCom server the user belongs to. Only present if you have a SafeCom License Key.
- **Org. unit:** The organizational unit the user belongs to ([Organizational units](#)).
- **E-mail:** The user's e-mail address. The SafeCom solution can use the e-mail address to send welcome message and PUK code message.
- **Description:** Enter an optional description of the user.
- **Cost code:** Use to enter a cost code of the user.

- **Home folder:** The personal network folder of the user.

Note This option is only available for HP FutureSmart devices. For more information refer to *SafeCom Go HP Administrator's Guide*.

- **Credits section:** Only relevant if the **Cost control** is set to **Pay** on the **Settings** tab.
- **Logins failed:** The number of consecutive failed login attempts for the user. Click **Clear** to set the number to zero. If this number reaches the **Max login attempts** specified on **Users** tab of the **Server properties** dialog, the user is prevented from printing (**Prevent login** is checked).
- **Prevent login:** Check to make the user unable to log in at the device. A user that is prevented from printing is shown as  in the **User list**.
- **Login without PIN code:** Check if the user should *not* be required to enter a 4-digit PIN code at the device (restrictions may apply).
- **Source ID:** This indicates from which source the user was imported. A value of zero indicates that the user was manually created.

Settings



For additional information about **Bill clients for cost** see [SafeCom Client Billing](#).

Encrypt documents is only relevant if encryption of document is indeed possible ([Printing encrypted documents](#)).

Allow retain documents shows if the user is allowed to keep documents on the server so they can be printed multiple times.

Print all at login is if all the user's documents should be printed as soon as the user logs in at the device. Documents are printed in chronological order (oldest first).

Allow changing print settings shows if the user can force B/W and Duplex printing on the device. Checking the option displays the relevant Forced Mono-Duplex (FMD) control buttons on the device screen, allowing the users to force monochrome (by pressing **B/W** or **Clear B/W**, as appropriate) and/or duplex (**Duplex** or **Clear Duplex**, as appropriate) printing. The setting can be managed for a group of users if the **Property** dialog is opened when multiple users are selected from the user list.

Note

- If this setting is applied to the Default user correctly, all new users inherit this value of the setting.
- This option requires a Rule-Based Printing (RBP) license.
- This option is only available for HP FutureSmart devices.


For additional information about **Cost control**, see Chapter [SafeCom Tracking](#) [SafeCom Tracking](#) and Chapter [SafeCom Pay](#) [SafeCom Pay](#).

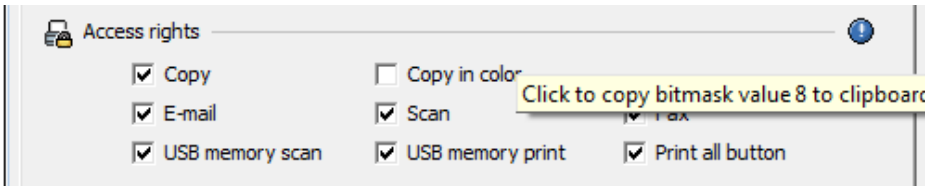
Access rights are what users are allowed to do at the devices in your print environment. By default users have access to all device functions.

- **Copy**
- **Copy in color**
- **E-mail**
- **Scan**
- **Fax**
- **USB memory scan** allows users to scan from a flash memory or mass storage device
- **USB memory print** allows users to print from a flash memory or mass storage device

Note USB memory print workflows are tracked and priced as copy workflows.

- **Print all button**

The concept is based on a bitmask and the bitmask can be imported as part of the user import ([Import users](#)). To see the current value position the mouse pointer on the blue icon . Click the icon to copy the value to the clipboard.

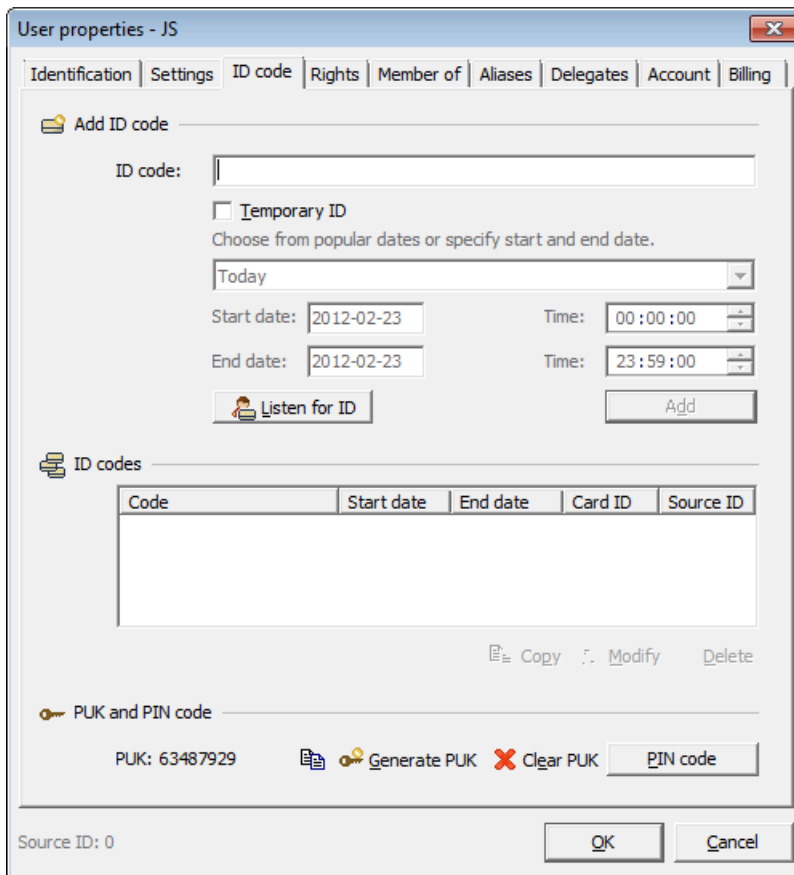


Tip When importing users check the **Modify users** checkbox on the **Rules** step of the **User import configuration** wizard and run the import twice immediately. This lets users with access rights to all functions keep their access rights.

In the database the bitmask is stored as an Integer (32 bits). A bit value of 0 (zero) means that access is allowed. A value of 1 (one) means that access is denied.

Note The restrictions imposed are device-dependent.

ID code



By default there is one ID (card or code) per user. The maximum IDs per user can be specified on the **Users** tab in the **Server properties** dialog ([Users](#)) of the SafeCom primary server.

1. Enter the **ID code** and click **Add**. A warning appears when the maximum number of IDs per user is reached.
2. If the ID code is only to be valid for a restricted period, check **Temporary ID**. Expired IDs are deleted from the SafeCom solution automatically within 10 minutes.

Note If **Temporary ID** is checked an e-mail reminder can be set up to be sent to the user specified days before the ID code expires. This way the user is reminded to either generate a new ID code themselves (if the user is allowed) or to make sure a new ID code is generated for them.

3. Choose from the popular dates: **Today**, **Today and tomorrow**, **This week** (End date is the coming Sunday at midnight), **This month** (End date is the last day of the month at midnight), or **Specify dates**.
4. Choose **Specify dates** and specify the **Start date**, **End date** and **Time**.
5. Click the calendar icon to open **Choose date** dialog for easy date selection.
6. Click **Listen for ID** if a card reader is installed on the computer ([Install a card reader on a computer](#)).




Note If you are using Micro Multi-Card Reader, ensure that it is set to **Keyboard emulated** mode. Use the Reader Maintainer tool to set this option.

In **ID codes** the available codes are listed. **Start date** and **End date** appear only if **Temporary ID** was checked when the ID was added. The **Source ID** indicates from which source the ID was imported. A value of zero indicates that the ID was manually added.

7. Select an ID code and click one of the buttons:

 Copy	 Modify	 Delete
Copy ID code	Modify ID code	Delete ID code

8. In **PUK and PIN code** use these there buttons:

	 Generate PUK	 Clear PUK
---	---	--

Copy PUK code	Generate PUK code	Clear PUK code
----------------------	--------------------------	-----------------------

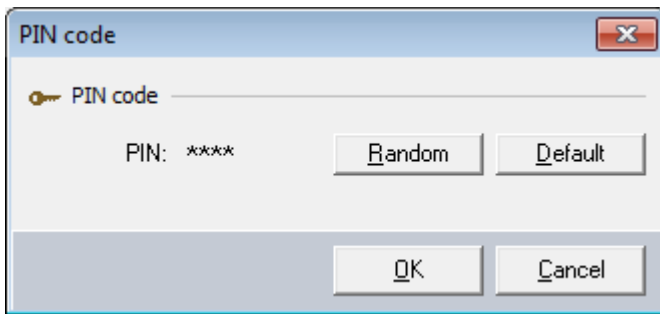
The user can have one PUK code open at a time.

Note The PUK code is generated irrespectively if you subsequently click **Cancel** to exit the **User properties** dialog.

The behavior of the **Generate PUK** button depends on the following:

- **Single ID per user** (default) Generating a new PUK code will delete the PIN code and remove any current registration with an ID.
- **Multiple IDs per user** Generating new PUK codes is possible until the maximum number of IDs has been reached. Otherwise one of the existing IDs must be deleted before a new PUK code can be generated.

9. Click **PIN code** to open the **PIN code** dialog.



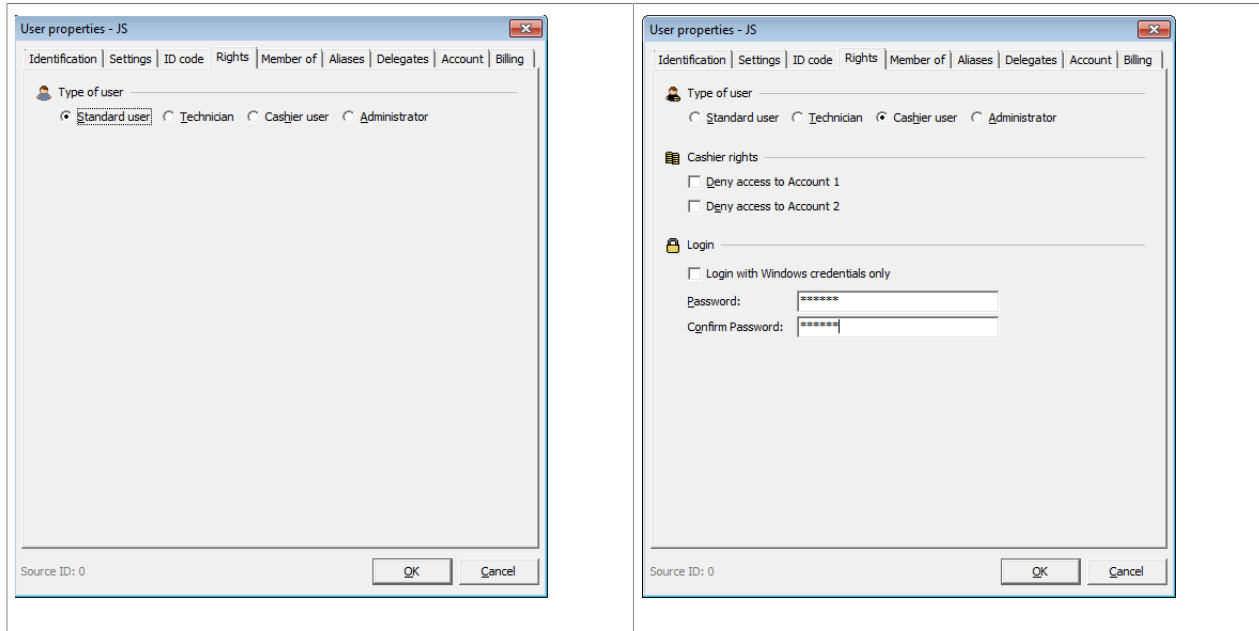
A **PIN code** contains the 4-digit PIN code. If a PIN code is assigned when the dialog is opened the field contains '****'.

10. Click **Random** to assign and display a randomly generated PIN code.
11. Click **Default** to assign and display the default PIN code '1234'. Changing the PIN code automatically clears **Prevent login** and reset **Logins failed** to zero on the **Identification** tab in the **User properties** dialog. The user can have only one PIN code.

If no PIN code is specified, but only a code, the user is assigned the default PIN code when **OK** is clicked in the **User properties** dialog.

If allowed (**Users**) the user may subsequently change the PIN code and ID code at the SafeCom G4 Web Interface or at the SafeCom-enabled device (restrictions may apply).

Rights



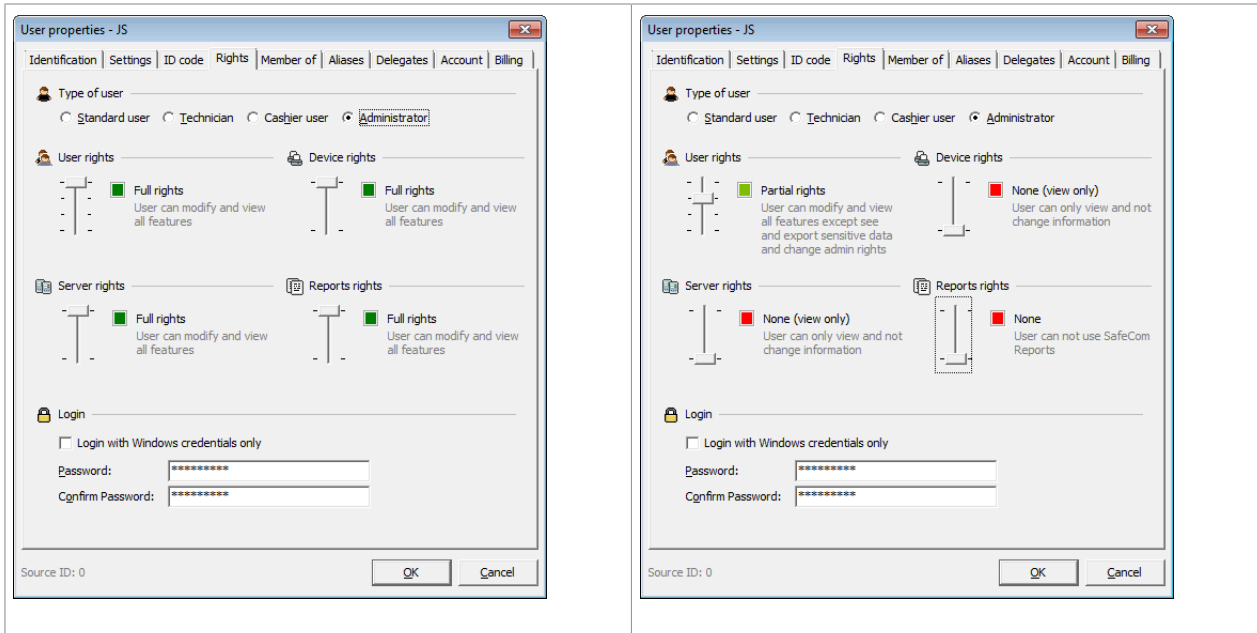
A standard user can have any server as their home server, whereas users with other rights must have the primary server as their home server.

Selecting **Technician** rights allows users to install SafeCom devices. Devices are operable and can be used for Pull Printing once a user with Technician or Administrator rights has logged in at the device. In a SafeCom Pay solution the Technician's (or Administrator's) **Cost control** setting should be set to **No control** or **Tracking** because choosing **Pay** will prevent the user from registering SafeCom devices at the device.

Selecting **Cashier user** (Requires SafeCom Pay) rights allows the user to use SafeCom Administrator in Cashier mode.

When **Administrator**, **Technician**, or **Cashier user** is selected, two additional password fields and a checkbox to set up login with Windows credentials are displayed in the dialog:

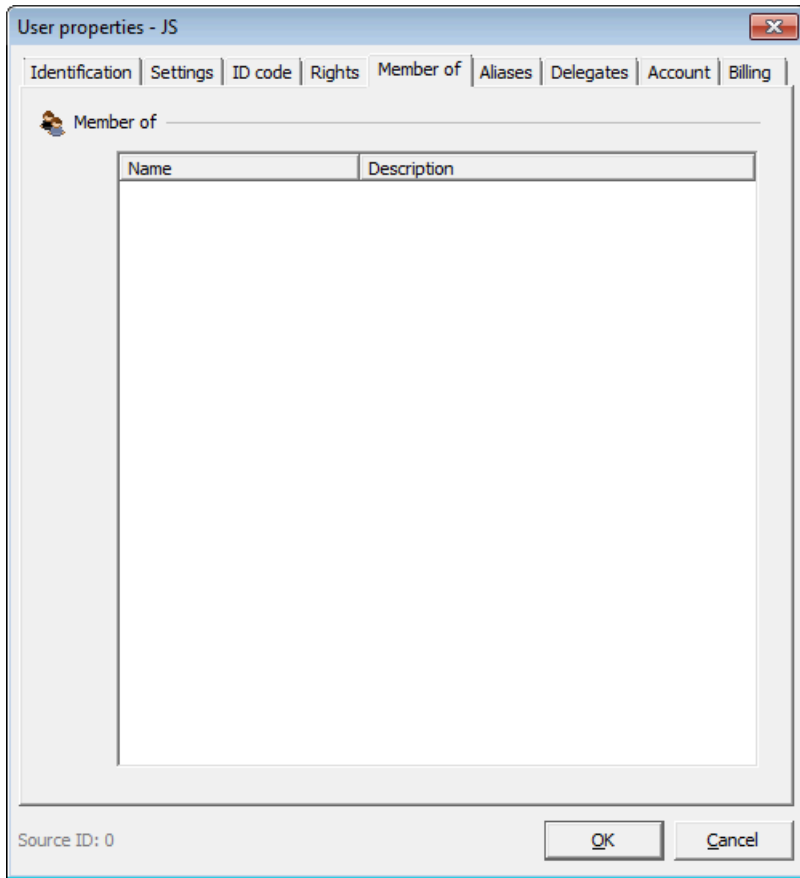
- **Login with Windows credentials only**
Restricts login to Windows credentials only.
- **Password** Enter a password of your choice to password-protect login or to change your existing password.
- **Confirm Password** Re-enter the new password.



If you select **Administrator**, the user is given administrator rights, allowing the user to modify users, modify devices, group, and server.

- **User rights Full rights** allow you to add, modify, and delete users. With **Partial rights** it is possible to do everything except modify user rights and export ID codes and PUK codes. **Limited rights** only allow assigning a new **Code**, **PIN code**, and **PUK code** as well as clear **Logins failed** and **Prevent login**. It is not possible to add, modify, and delete users. Typically Help Desk personnel are issued this s type of limited administrative rights.
- **Device rights Full rights** allow you to add, modify, and delete devices.
- **Server rights Full rights** allow you to add, modify, and delete servers.
- **Report rights Full rights** allow you to log in to **SafeCom Reports** ([SafeCom Reports](#)).

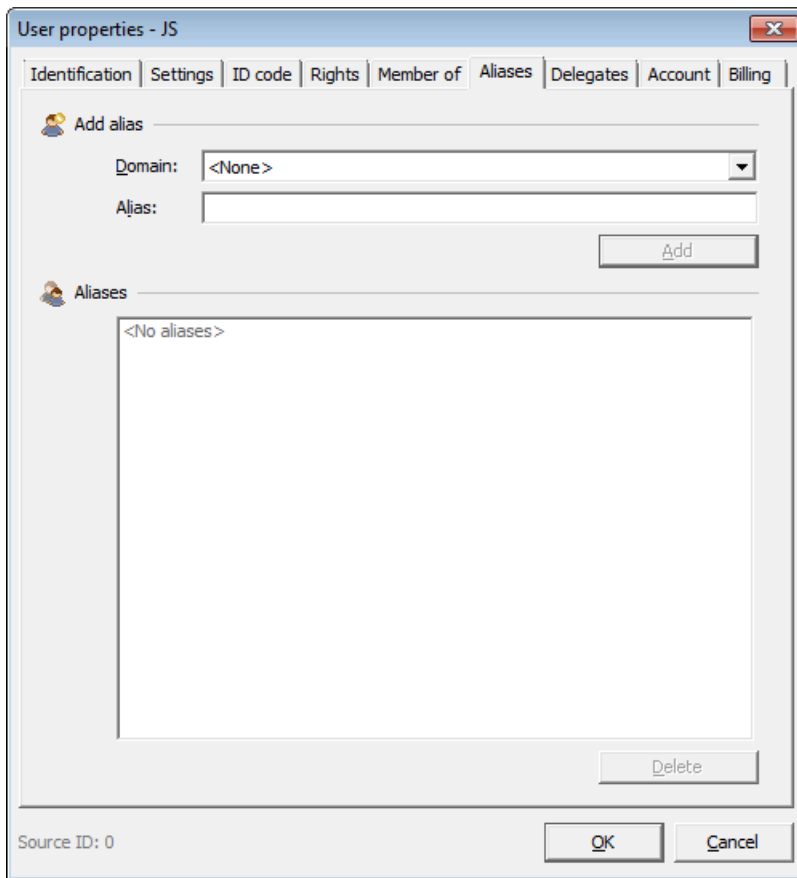
Member of



Member of contains a list of the groups the user belongs to.

Aliases

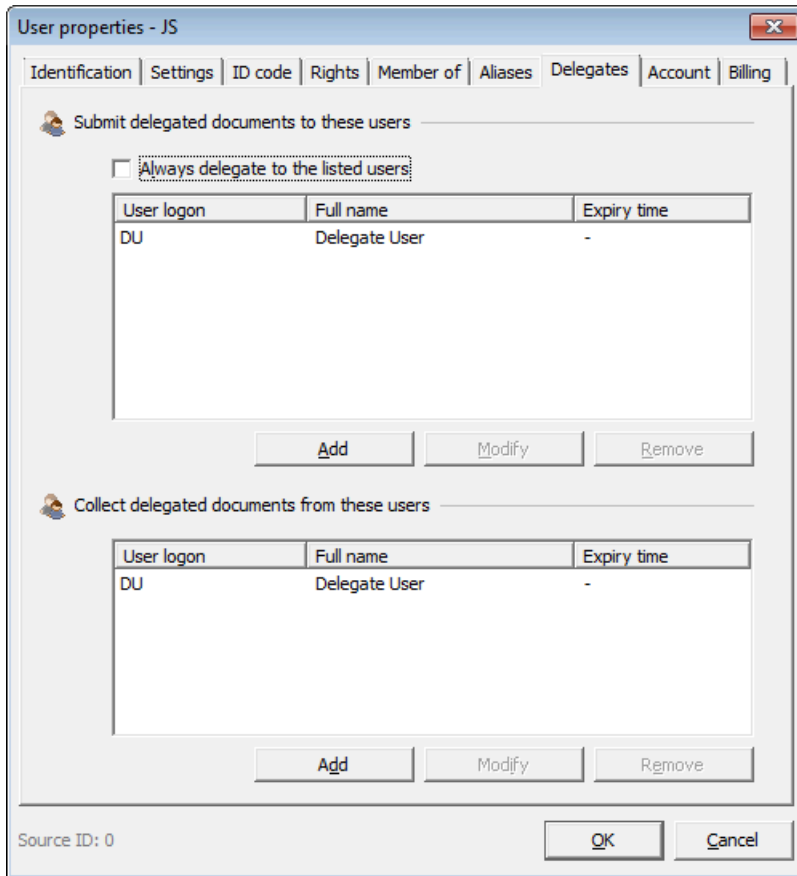
The SafeCom solution supports printing from multiple client operating systems. Since users often do not use the same user logon for all systems, the SafeCom solution's aliases mapping feature allows user access their documents from all systems using the same SafeCom account.



Enter the **Alias** and click **Add**. To delete an alias, select the alias and click **Delete**. The alias must be unique in regards to other user aliases, user logons and group names. 20 characters is the maximum length of an alias. Any number of aliases can be entered. In the **Aliases overview** dialog ([List of aliases](#)) it is possible to see which alias is mapped to what user.

Delegates

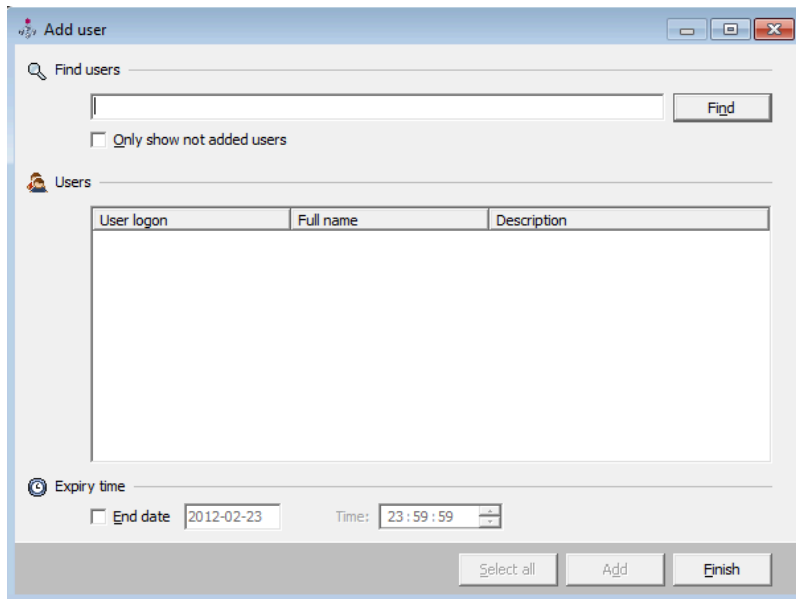
Note The **Delegates** tab is only visible if **Allow Delegates** is selected on the **Users** tab in the **Server Properties** dialog, see [Users](#).



With SafeCom Delegate Print, users grant permission to other users to print or collect print jobs on their behalf. Setup is centrally controlled under **Delegates**, while users themselves can also manage who is allowed to carry out print tasks for them (see *SafeCom G4 Delegate Print User's Guide*).

To select a user to collect documents on behalf of another user

1. Under **Submit delegated documents to these users**, click **Add**.



2. In the **Add user** dialog:

- a. If you know the name of the user:

Enter the name in **Find users** and click **Find**. If SafeCom recognizes the user, their name is listed under **Users**. Select their name in the list and click **Add** to confirm. If SafeCom does not recognize the user you will get the *<No matches found!>* message.

- b. If you are unsure of the user name or want to select more than one user:

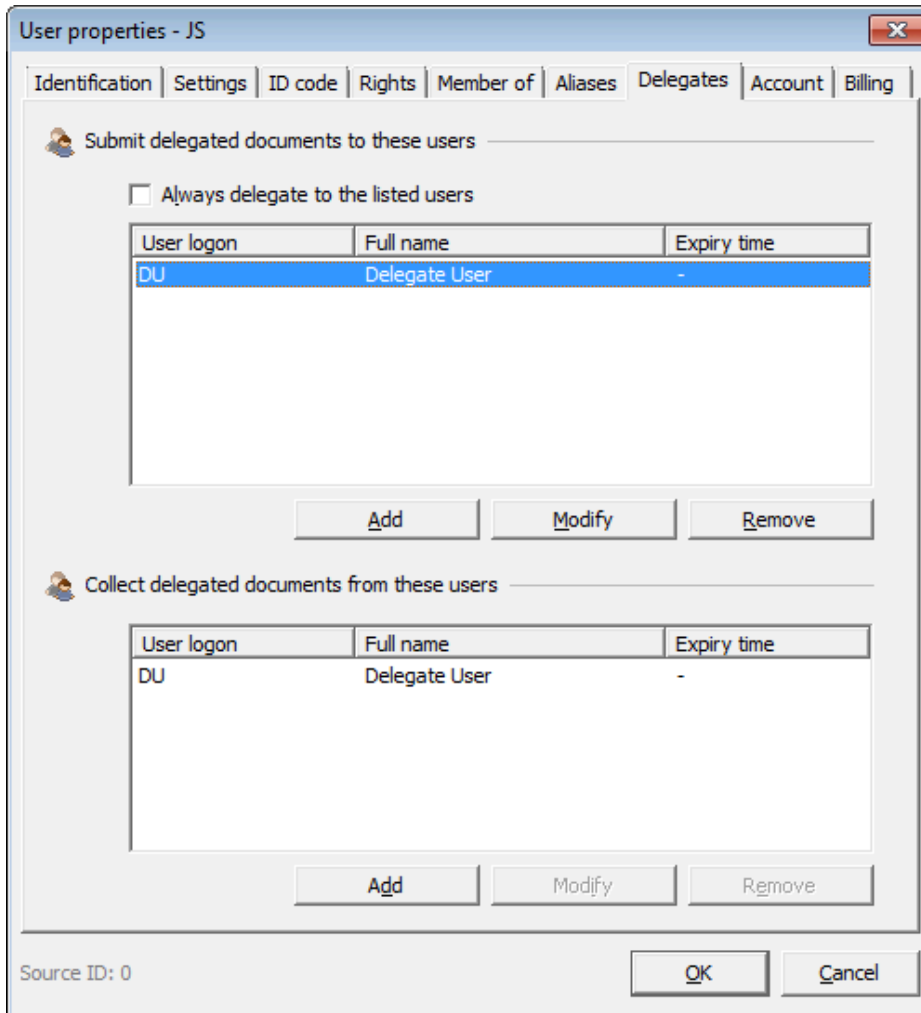
Under **Find users** click **Find**. In the **Confirm** dialog click **Yes** for SafeCom to retrieve all users listed in the database. In the **Users** list, select the names of the users for delegate print or click **Select all** and **Finish**. You can select up to 10 delegates.

To select a user who can delegate the collection of their documents to another user

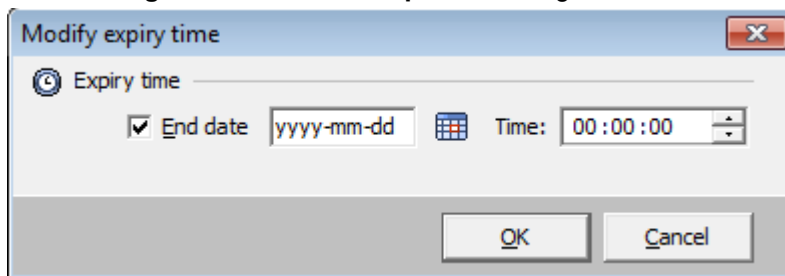
1. Under **Collect delegated documents from these users**, click **Add**.
2. See 2 above to select users. You can select up to 10 delegates.

For users in the list to always be delegated all submitted documents, select **Always delegate to the listed users**. With this option enabled, the user who submits documents for delegation will not need to confirm delegation through SafeCom PopUp.

To set a time limit on print delegation



1. Under **Delegates** in the **User Properties** dialog, select the name of the user and click **Modify**.



2. Select **End date** and enter the date that print delegation should end and click **OK**.
If there is a delegate print relationship with a time limit that should be permanent, deselect **End date**.

Users who have a submit/collect relationship in delegate print always have user properties that correlate. When you change, for example, the expiration date for a user who submits a print job for the other user to collect, the date is automatically updated in the user properties of the other user.

Account

User properties - JS

Identification | Settings | ID code | Rights | Member of | Aliases | **Account** | Billing

Information

Full name: John Smith
 User logon: JS
 PIN code: **** Generate random PIN
 Prevent login: Not locked

Account info

Account 1:	0,00
Account 2:	0,00
Low limit:	0,00
Reserved:	0,00
Disposable:	0,00

Transaction

Amount: do add amount on Account 1

Comment:

Transactions Record

Source ID: 0 OK Cancel

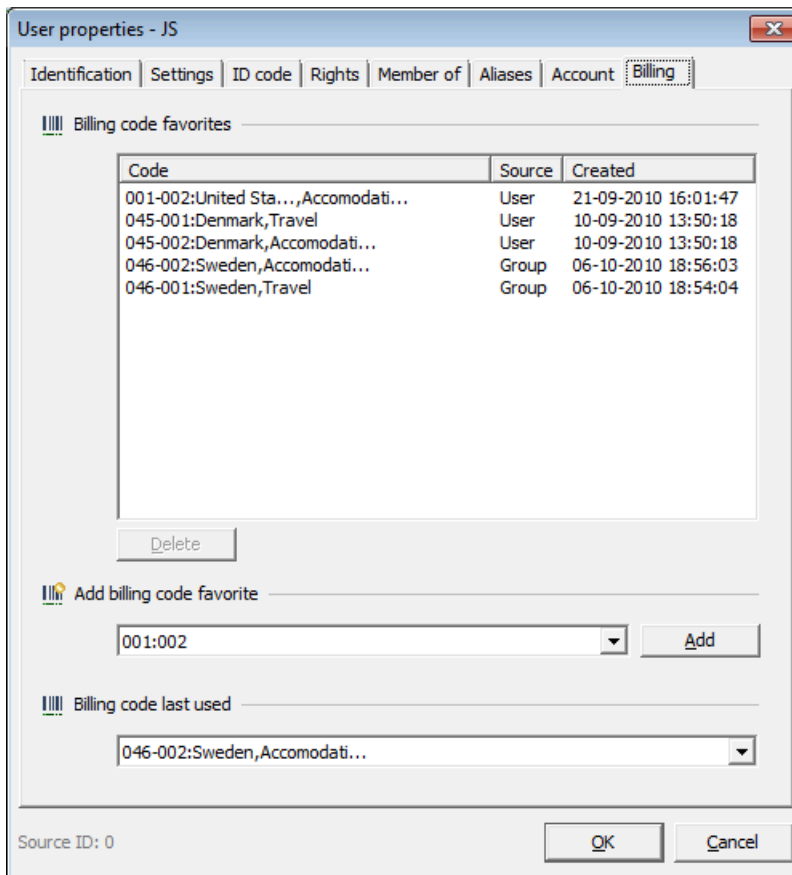
- **Account 1:** Shows the current amount of money available with the user. **Account 2:** Shows the current available quota available for the user.
- **Low limit:** This is the lowest amount that should be available in order to print (Allows negative figures). Click to edit the Low limit.

Note In some cases, the user may not be able to print or copy, even if the account balance exceeds the lower limit by more than the expected printing or copying cost. The user estimate may be lower than the preliminary calculation, which may include not only the price per page, but the job start-up cost also, and considers using at least one color impression. In copy job pre-calculations the size of the document not yet known, so SafeCom takes the Other paper size into account, which may not have the required balance.

- **Reserved:** This is the amount of credits reserved due to a print or copy job that finished in error. It should be 0.00 (zero) most of the time. If the system has reserved any credits you will see a positive amount printed in red color. Click to edit the Reserved. The amount must be greater than 0.00 (zero) and less than or equal to the currently reserved amount of credits.

- **Disposable:** This amount is equal to **Balance** minus **Low limit** and **Reserved**.
- **Amount:** Type in amount to **add** to, **subtract** from or **set** account to – select appropriate action from the drop-down list. Select appropriate account and click **Record** to carry out the transaction.
- **Comment:** Add any description (optional).
- **Transactions:** View a list of user account transactions.

Billing



Click **Add** to add the selected billing code to the **Billing code favorites** list. It will be listed in the **Source** column as **User**. The user billing code can be removed from the list by clicking **Delete**. Billing code favorites that are listed in the **Source** column as **Group** are billing codes that are associated to the groups of which the user is a member. In this dialog it is not possible to remove group billing codes from the list. This must be done through the **Billing** menu in the **Group properties** dialog ([Select favorite billing codes for a group](#)).

Note

- If a Tracking user only has one billing code favorite then this code is automatically applied to all of his print jobs. To change this, the user should tap the **Account** icon and select **No billing**.
- If a Tracking or Pay user sets **NONE** as his default billing code on the SafeCom Web Interface, any jobs where no billing code is specified in the workflow are billed as **NONE**, and are charged to the user, if applicable.
- A user's billing code favorites are replicated to all secondary servers which means, that a user is still able to view and use the favorite billing codes even if the home server is changed. This does not apply to **Last used** billing codes. (To see what elements are replicated between secondary servers, see [Check that the replication is working](#))

Device properties

The **Device properties** dialog can be accessed from the **Devices** menu, the **Device** tool button and by right-clicking a device in the **Devices** list.

The dialog comprises the tabs: **Settings**, **Charging scheme** and **License**. Each tab is described subsequently.

Settings



ID specified in the upper right corner, is the device ID that for example is used when setting up SafeCom Smart Printer Driver. Refer to *SafeCom Tech Note Smart Printer Driver*. Click the ID to copy to clip board.

Name is a field for specifying a name for the device (mandatory).

Model is a field for specifying the model and/or manufacturer of the device (optional).

Home server is the SafeCom server the device belongs to. Only present if you have a SafeCom Multiserver license key.

Device server is the SafeCom Device Server that the device belongs to.

Community name is the SNMP community name of the device. The default value when adding a device is **public**. If the SNMP community name is different, you have to perform additional steps ([Add device](#)).

Org. unit is the organizational unit the device belongs to ([Organizational units](#)). Only present if there are any defined organizational units.

Branch is the branch the device belongs to ([Branches](#)). Only present if there are any defined branches.

Location is a field for indicating the place where the device is physically located (optional).

Device address is the hostname or IP address of the device. Click the IP address to copy it to clip board.

Capabilities show a number of checkboxes depending on the device and SafeCom license key code. Check **Duplex supported**, **Color supported**, **Large format print**, **Restricted access**, **Allow Pay user** (only available if the server key license allows one or more Pay devices), and **Push print** if the device supports it.

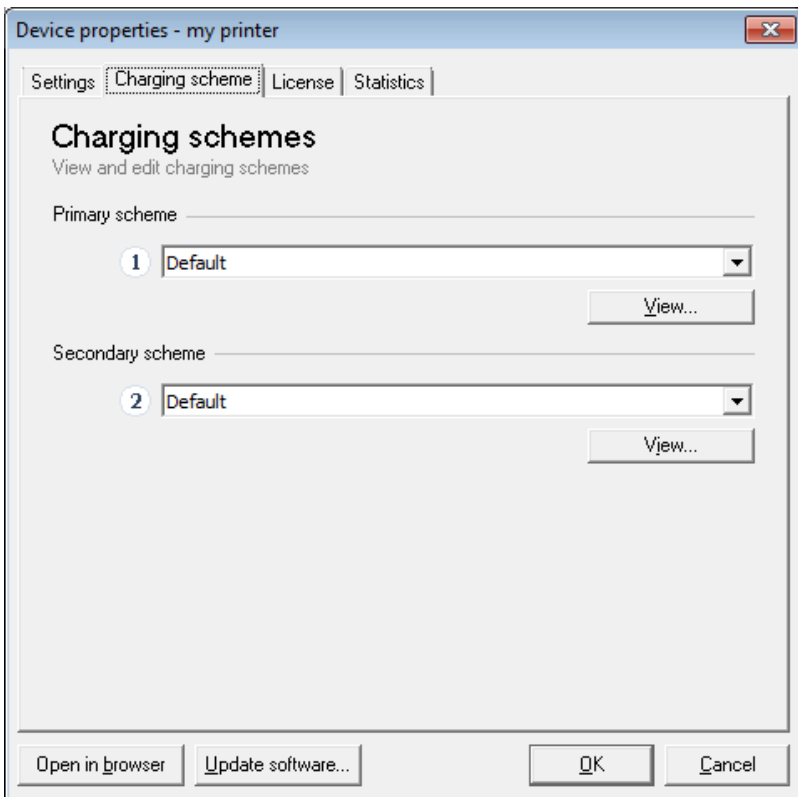
Restricted access can be used to control users' access to the device based the organizational relationship ([Organizational units](#)).

Click **Open in browser** if you want to access the device's web interface ([Open in web browser](#)).

Click **Update software...** to update the software of the device ([Import Ethernet Card Readers](#)).

Charging scheme

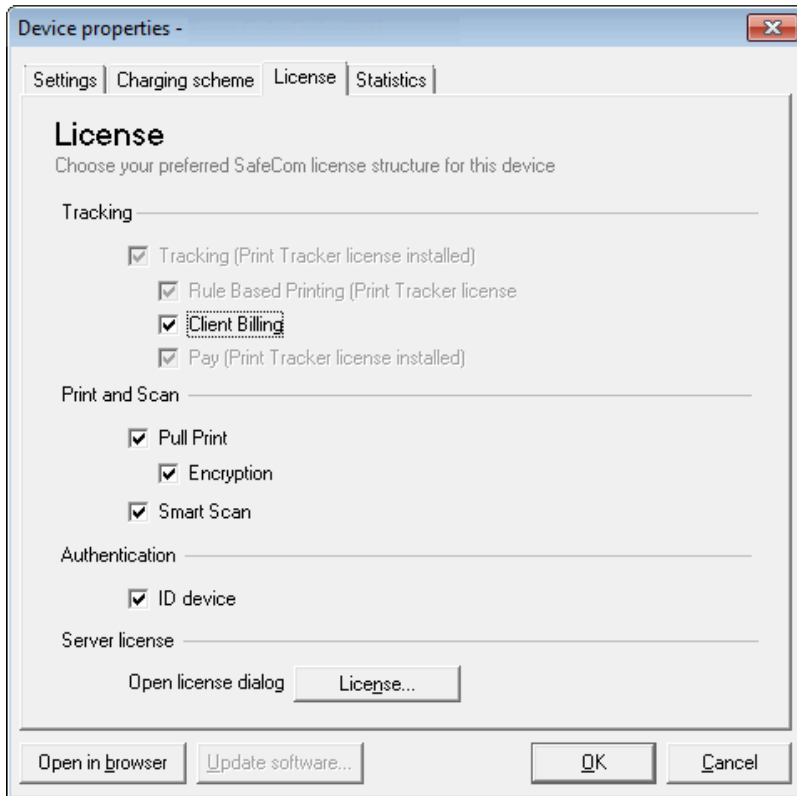
On the **Charging scheme** tab in the **Device properties** dialog it is possible to choose which charging schemes should be used on the device in question.



Click **View...** to see the charging scheme ([Charging schemes](#)).

License

On the **License** tab in the **Device properties** dialog it is possible to choose which SafeCom features should be enabled on the device in question.

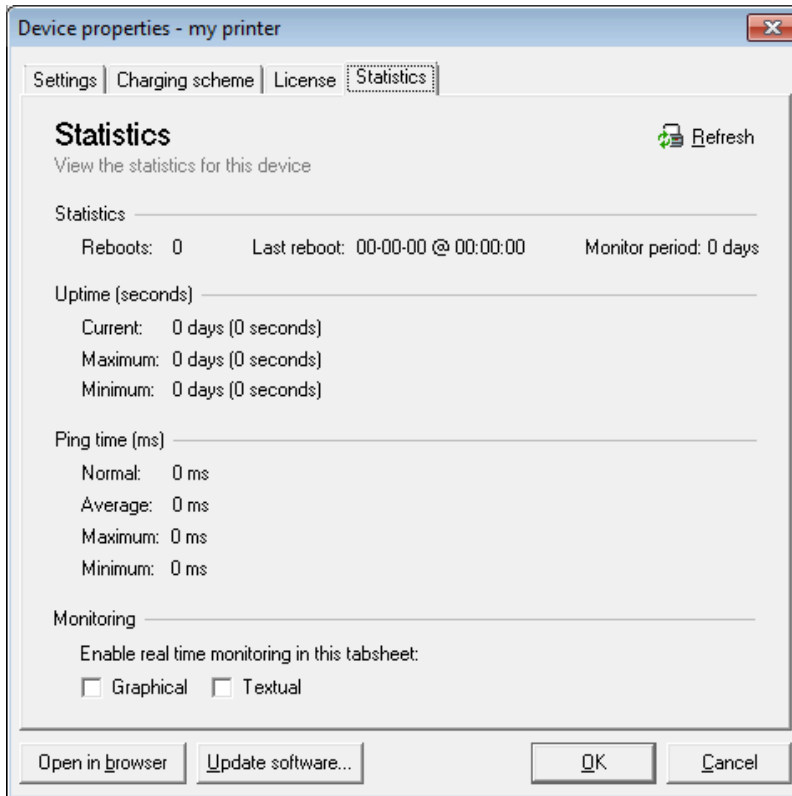


The checked features are only accepted if the license key code allows the device features. Click **License...** to open the **License** dialog ([License](#)) to see if the license key code allows the additional features to be enabled for this device.

Note When using a Ethernet card reader, ensure that the ID device option is cleared for the device assigned to the Ethernet card reader, as the Ethernet card reader uses a license by itself.

Statistics

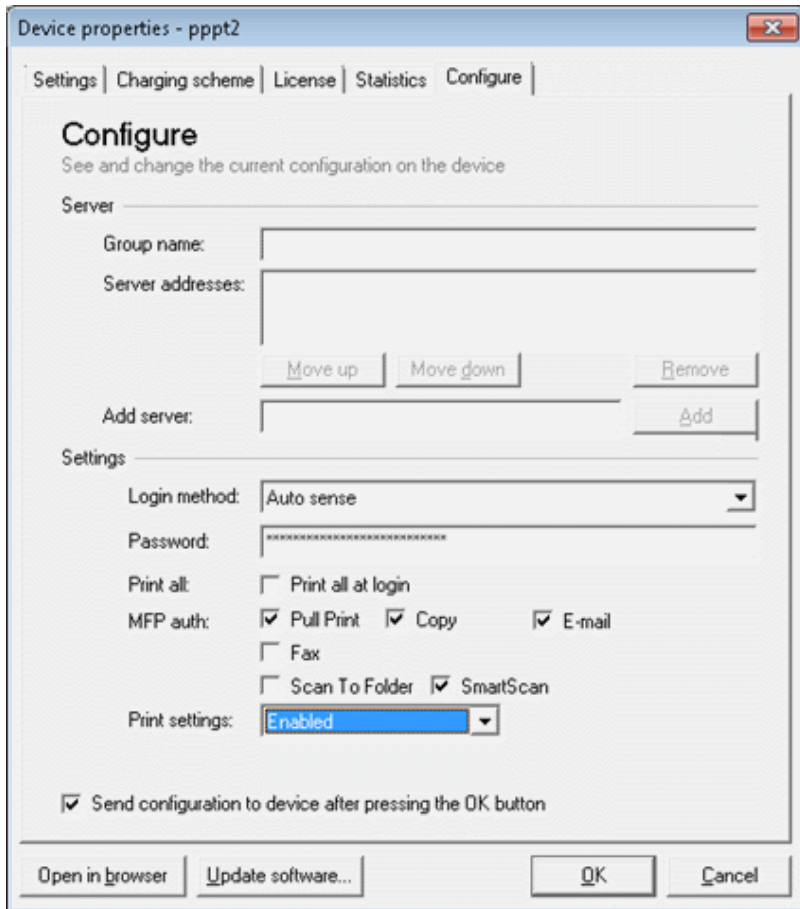
On the **Statistics** tab in the **Device properties** dialog it is possible to see a Textual and **Graphical** representation of the statistics. The **Statistics** tab is not presented if you have opened multiple devices.



How to monitor device status is covered in section [Monitor device](#).

Configure

On the **Configure** tab in the **Device properties** dialog allows you to modify selected settings that are stored with the device. The **Configure** tab is not presented if you have opened multiple devices.



The **Details** section is used to specify the SafeCom server. You can directly enter **Group name** and SafeCom server IP address in **Add server**. Use the **Move up** and **Move down** button to prioritize the order in which the servers are contacted in case the first one on the list becomes unavailable.

Login method: Specifies how users must identify themselves to log in to the device.

Print all at login: Check if all the user's documents should be printed as soon as the user logs in. This setting applies to the device. If checked this overrules the equivalent user property on the SafeCom G4 server.

MFP auth: The SafeCom product on the device will control access to the selected functions. Additional options may be available on the device's SafeCom Configuration web page.

Print settings: regulates whether users are allowed to control their print jobs. When set to **Enabled**, this control is independent from the user-specific settings. Set to **Disabled**, the device hides the options from all users and the job settings cannot be changed. Set to **User Setting**, the device enables or disables the features according to the currently logged on user's settings.

Note To properly calculate job prices, ensure that the duplex and color capabilities of the device are set correctly on the **Settings** tab of the **Device Properties** in SafeCom Administrator.

Check **Send configuration to device on OK** if you want to save the configuration changes when you click **OK**.

Click **Open in browser** if you want to access the device's web interface ([Open in web browser](#)).

Click **Update software...** to update the software of the device ([Import Ethernet Card Readers](#)).

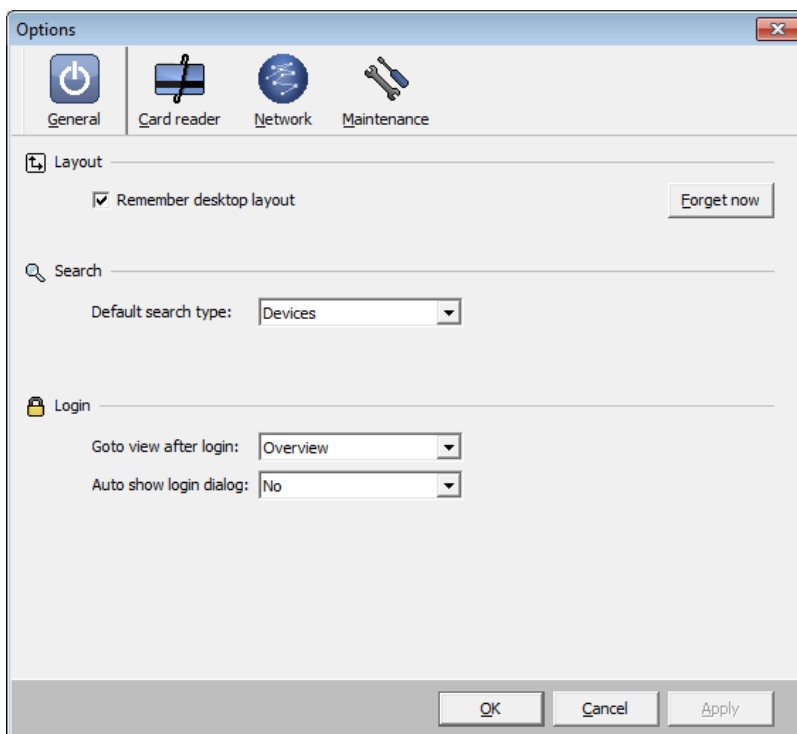
Options dialog

The **Options** dialog can be accessed from the **Actions** menu.

The dialog comprises the tabs: **General**, **Card reader**, **Network** and **Maintenance**. Each tab is described subsequently.

General

Check **Remember desktop layout** if you want to remember the position and size of **SafeCom Administrator** when you exit. The next time you start **SafeCom Administrator** it appears as when you exited. Click **Forget now** to reset the desktop layout.

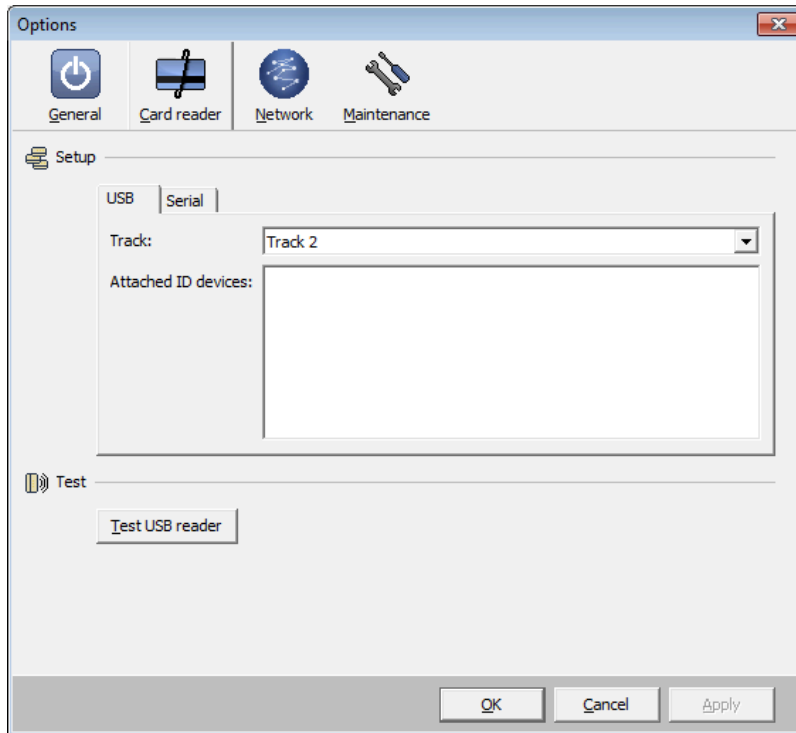


Card reader

[Install a card reader on a computer](#) describes how to connect the card reader.

USB card reader:

1. Check **USB** if a USB card reader is connected.
2. Click **Test USB reader** and present the card.

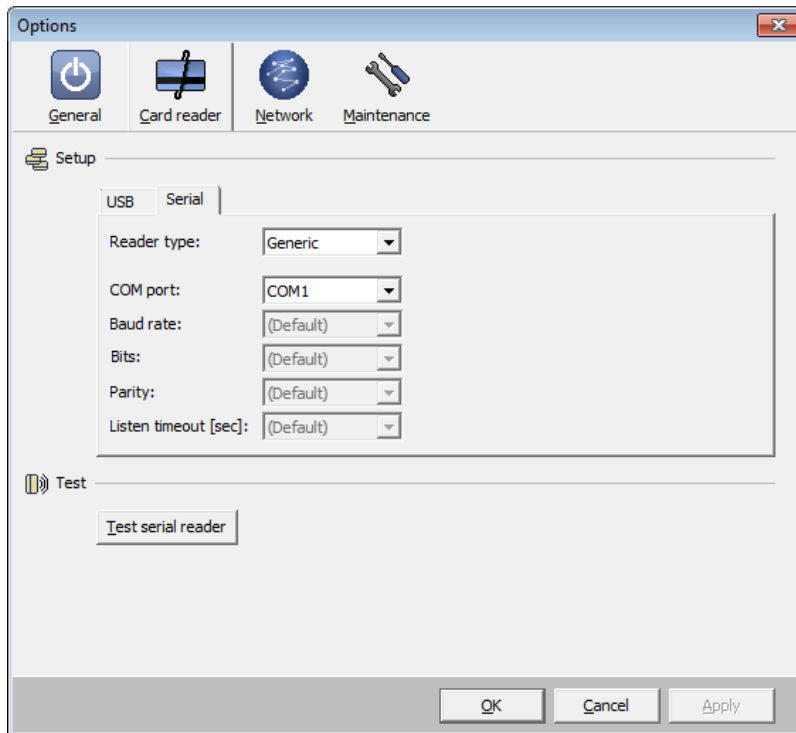


Note If you are using Micro Multi-Card Reader, ensure that it is set to **Keyboard emulated** mode. Use the Reader Maintainer tool to set this option.

Serial card reader:

1. Choose a **Reader type** from the list: **None**, **Generic**, **Magnetic**, **Adazzi**, **HID Prox**, **Legic**, and **Mifare**. Click **Support** to see the latest list of supported card readers on our web site.
2. Choose a **COM port** from the list: **COM1**, **COM2**, and **COM3**.

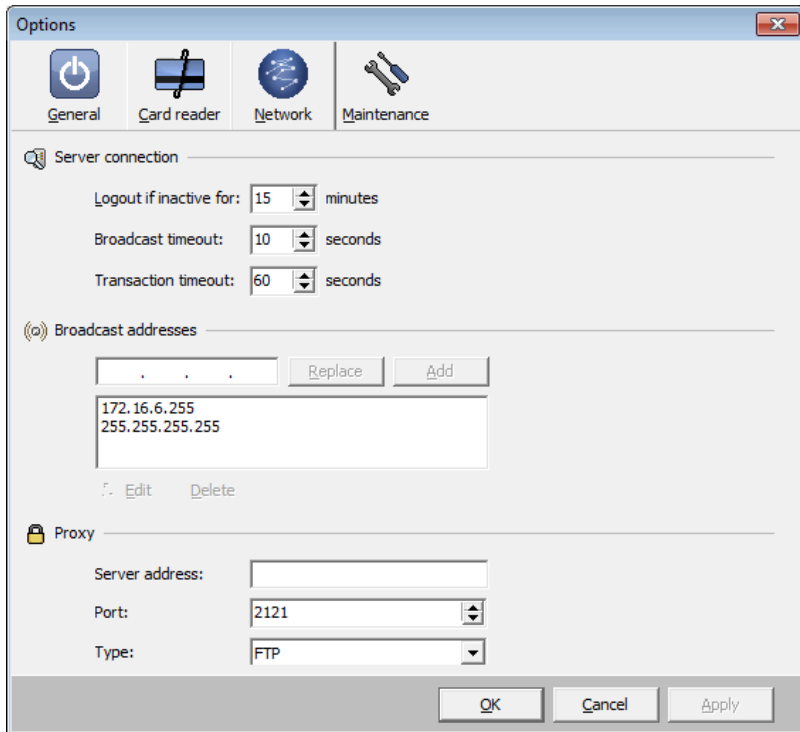
3. Click **Test** and use the card to test if reading is possible. If it fails you may need to move the card reader to another **COM port**.



If your card reader does not match any of the listed reader types you should select **Generic** and find the correct combination of **Baud rate**: 4800, 9600, 14400, 19200, 28800, 38400, **Bits**: 7 or 8 and **Parity**: No, Even and Odd.

Listen timeout can be 10, 20, 30, 40, 50 and 60 seconds. Listen time out determines the maximum number of seconds that may parse from you click **Listen for ID** on the **ID code** tab in the **Users properties** dialog ([ID code](#)) and until you use the card with the card reader.

Network



In **Logout if inactive for** you can change the automatic logout time. If no activity has been registered in the **SafeCom Administrator** for the number of minutes shown, all open connections are closed. The default is 15 minutes and the maximum value is 99 minutes.

Broadcast timeout is the time in seconds the **SafeCom Administrator** will search for SafeCom servers and devices on the network. Default is 10 seconds.

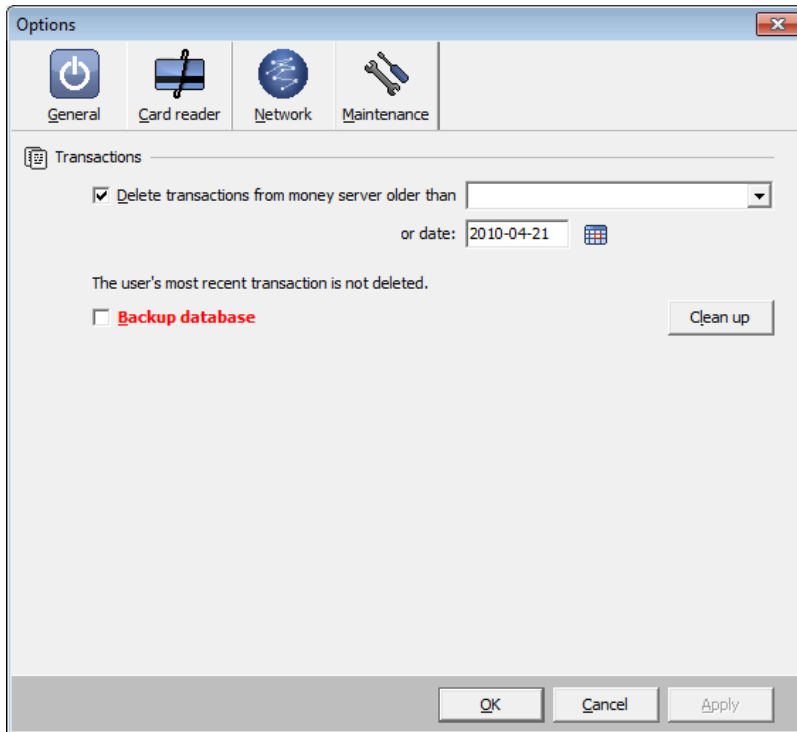
Transaction timeout is the time in seconds the **SafeCom Administrator** will maximum wait for a SafeCom server to respond. We recommend that this be only increased in large installations with thousands of users. Default is 60 seconds.

Broadcast addresses show the list of network masks for all TCP/IP networks containing SafeCom servers and devices. You must configure this list correctly for the **SafeCom Administrator** to be able to locate all SafeCom servers and broadcast for SafeCom devices.

Note It is recommended to replace 255.255.255.255 with a list of individual masks, as broadcasting may otherwise not work.

If access to the Internet requires use of a **Proxy** the **Check for updates** ([Check for updates](#)) cannot connect to the SafeCom Update Server to check for new updates of manuals, device software and release notes. Specify the **IP address**, **Port** (default 2121) and **Type** (default FTP) of connection the proxy server is using.

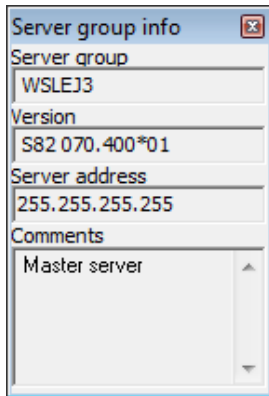
Maintenance



In a Pay solution you may wish to delete transaction records older than a certain date. Specify the exact **Date** or select a date from the list, that includes the selections: **1 month, 2 months, ..., 11 months, 1 year, 2 years, ..., 5 years**.

Check **Backup database** to have a backup created of the scpurse database before deletion. The user's most recent transaction is not deleted. Click **Clean up**.

Server group info



On the **View** menu check **View server group info** to display the **Server group info** dialog.

The **Server group info** dialog will update its content whenever you select another server and you are not required to log in to the server. You can anchor the Server group info dialog to the bottom of the **Server groups** pane by dragging it to the bottom left corner of the **SafeCom Administrator**.

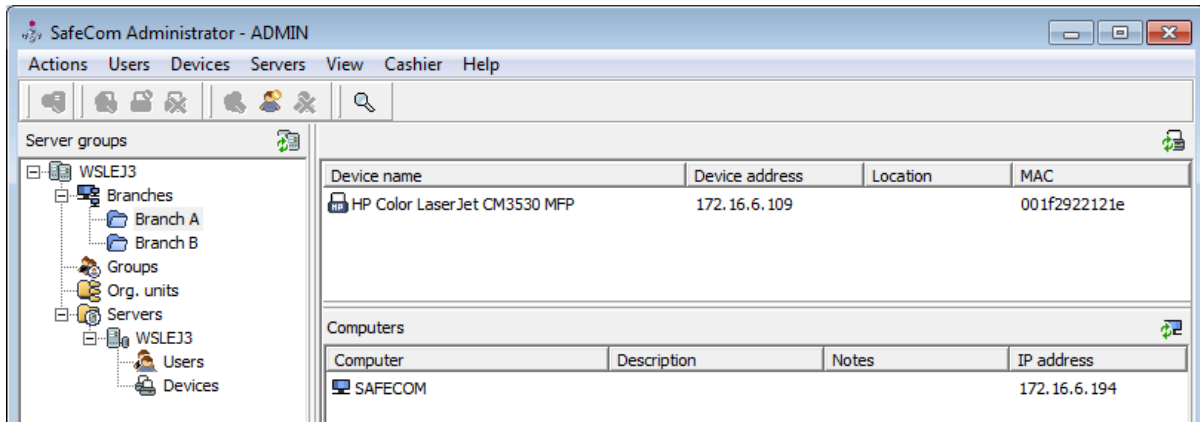
Branches

In **SafeCom Administrator** it is possible to define branches and associate devices and computers to these. This is used to ensure that devices within the branch allow collection of documents only that reside on the computers that belong to the same branch. The table below reflects when printing is possible.

	Computer belongs to No branch	Computer belongs to Branch A	Computer belongs to Branch B
Device belongs to No branch	Yes	Yes	Yes
Device belongs to Branch A	Yes <i>Computer is added to Branch A</i>	Yes	No
Device belongs to Branch B	Yes <i>Computer is added to Branch B</i>	No	Yes

In this context the term computer denotes a computer that is running the SafeCom Client Print software where documents reside on the computer's local hard disk drive rather than on a SafeCom server.

The maximum number of branches, computer, users, and devices is virtually unlimited, but of course subject to the limitations imposed by the size of the database.



1. Click the **Branches** icon in the **Server groups** pane to expand the list of defined branches (in alphabetic order). Two panes appear to the right. The top pane is the **Devices** pane. The bottom pane is the **Computers** pane.
2. In the **Devices** pane click **Refresh** to retrieve an updated list from the database of all the devices that have not been added to a branch.
3. Right-click the device and click **Properties** to open the **Device properties** dialog ([Settings](#)).
4. In the **Computers** pane click **Refresh** to retrieve an updated list from the database of all the computers that have not been added to a branch.
5. Right-click the computer and click **Properties** to open the **Computer properties** dialog ([Computer properties](#)).

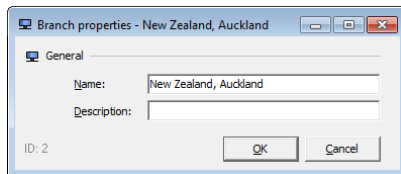
Administrator rights

Within the SafeCom solution the administrator must have **Full server rights** to modify branches, computers, and the branch property in devices.

Add a branch

Branches can be added in the **Branches** dialog. The **Branches** dialog can be accessed from the **Servers** menu.

1. Click the **Branches** icon in the **Server groups** pane. On the **Servers** menu click **Branches** and click **Add branch...**
2. Right-click the **Branches** icon in the **Server groups** pane and click **Add Branch...**



3. Enter the **Name** of the branch and an optional **Description**. Click **OK**. **ID** is the database **ID** of the branch.

4. To associate devices and computers to a branch you can drag and drop these between the branches. Alternatively you can select the branch from the **Branch** list in the **Device properties** dialog ([Device properties](#)) or the **Computer properties** dialog ([Computer properties](#)).

Delete a branch

1. Right-click the branch in the **Server groups** pane and click **Delete Branch**.

Note A Branch can only be deleted if no device and computers reference it.

Add a device to a branch

Adding a device to a branch can be done in the following ways:

In the **Devices** pane select the device and drag and drop it onto the branch in the **Server group** pane.

In the **Device properties** dialog select the **Branch**.

Remove a device from a branch

Removing a device from a branch can be done in the following ways:

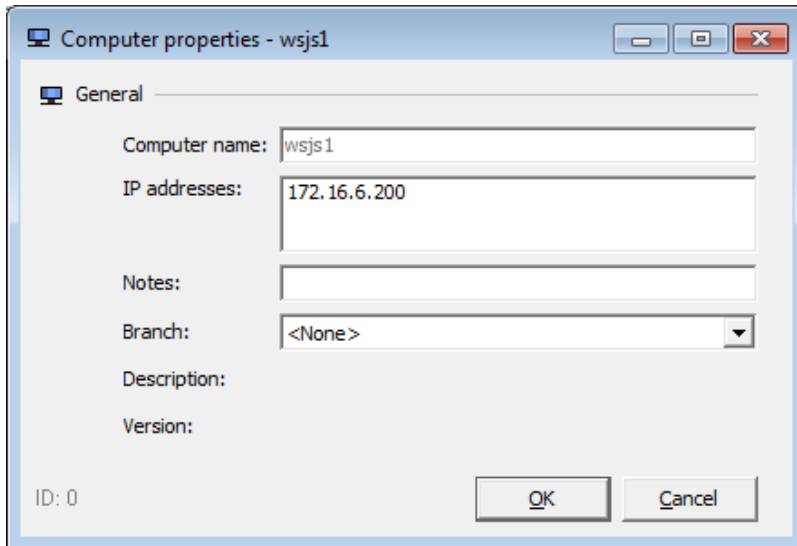
In the **Branch devices** pane select the device and drag and drop it onto the **Branches** icon in the **Server group** pane.

In the **Branch devices** pane right-click the device and click **Remove device from branch**.

In the **Device properties** dialog change **Branch** to <None>.

Computer properties

Right-click a computer in the **Computers** pane to open the **Computer properties** dialog.



Computer name is the hostname (FQDN) of the computer.

IP address holds the IP address the computer had the last time it was started.

Notes hold optional notes that have been entered by the administrator.

Branch is the branch the device belongs to. Only present if there are any defined branches.

Description holds the description of the computer.

Version is the version of the SafeCom Branch software running on the computer.

ID is the database ID of the computer.

Note

- The computer is listed in the SafeCom database by its GUID (globally unique identifier). The Computer name, IP address and Description fields are not editable once the computer has been added. These properties are automatically updated when the SafeCom Branch software is started on the computer.
- Tracking data is reported to the Home Server of the user printing. The computer has no Home Server itself.

Add a computer to SafeCom solution

A computer is by default added to the SafeCom solution the first time the installed SafeCom Branch software is started. Information about the computer is stored in the SafeCom Job Database (score) on the SafeCom primary server.

Add a computer to a branch at first print

A computer that has not been added to a branch will have the branch determined at first print. When the first document is pulled from the local hard disk drive of the computer the computer is added to the same branch as the device pulling the document.

Add a computer to a branch manually

Adding a computer to a branch can be done manually in the following ways:

In the **Computers** pane select the computer and drag and drop it onto the branch in the **Server group** pane.

In the **Computer properties** dialog select the **Branch**.

Import computers

Computers can be imported into the SafeCom solution in the following ways:

Right-click a branch and click **Import computers**.

Import source file can be in CSV format and can contain the following columns:

Computer name (mandatory)

IP address (optional)

Description (optional)

Remove a computer from a branch

Removing a computer from a branch can be done in the following ways:

In the **Computers** pane select the computer and drag and drop it onto the **Branches** icon in the **Server group** pane.

In the **Computers** pane right-click the computer and click **Remove computer from branch**.

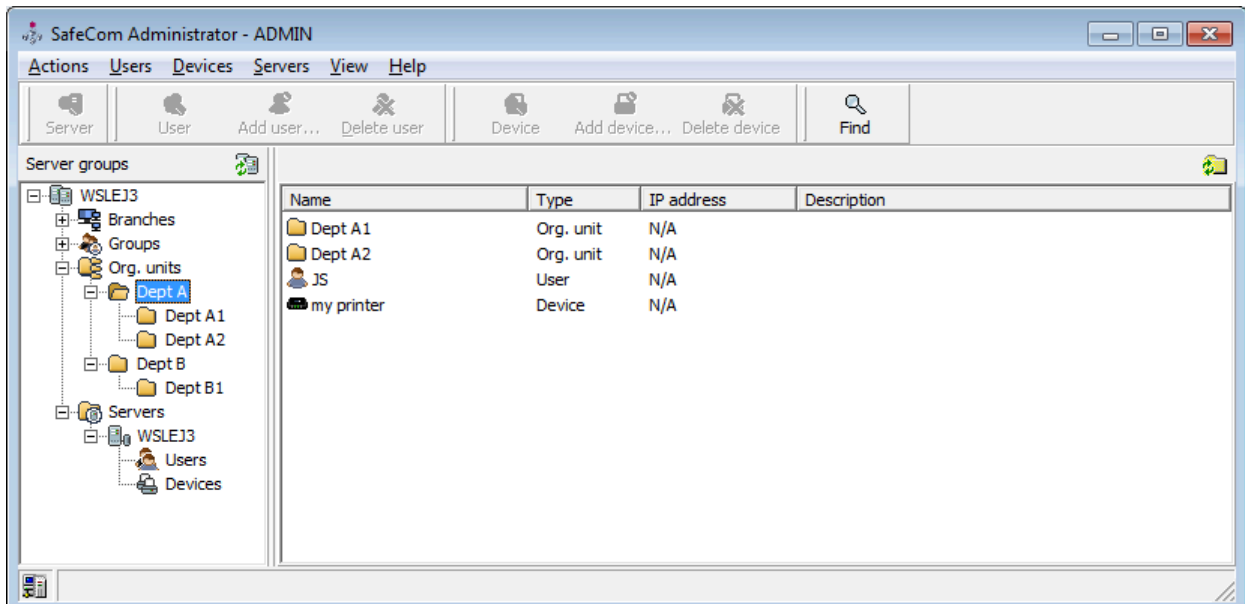
In the **Computer properties** dialog change **Branch** to <None>.

Delete a computer from the SafeCom solution

Deleting a computer from the SafeCom solution can be done by right-clicking the computer in the **Computers** pane and clicking **Delete computer**.

Organizational units

With the concept of organizational units you can use **SafeCom Administrator** to visualize the organizational/departmental relations between users, devices and servers in your SafeCom solution.



There is a strong resemblance between the organizational unit concept and the folder structure on a computer and many of the same rules apply. The organizational path can be up to 255 characters long.

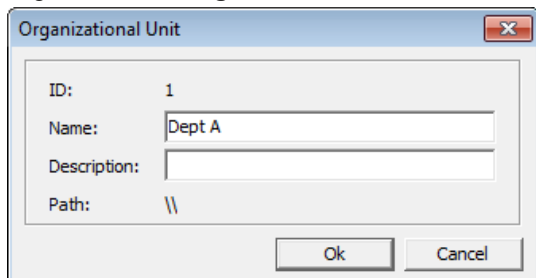
The organizational relationship can be used to restrict users' access to devices. Refer to [Restrict access to devices](#).

Add an organizational unit

Organizational units can be added in the **Organization Unit** dialog. The **Organization Unit** dialog can be accessed from the **Servers** menu. To add an organizational unit do the following:

1. Click the **Org. units** icon in the **Server groups** pane. On the **Servers** menu click **Organizational units** and click **Add org. unit...**

2. Right-click the **Org. units** icon in the **Server groups** pane and click **Add org. unit...**



3. Enter the **Name** of the organizational unit and an optional **Description**. Click **OK**. ID is the database ID of the organizational unit. This corresponds to UserNodeID in tracking records.
4. To associate resources (users, devices and servers) to an organizational unit you can drag and drop these between the organizational units. Alternatively you can select the organizational unit from the **Org. unit** list in the resource's properties dialog.

New users, devices and servers are always created at the root. The relationship to an organizational unit must be done manually using drag and drop. Users, devices and servers can be assigned to one and only one organizational unit.

Note Restricted access does not work until a device is added to the organizational unit.

Delete an organizational unit

1. Right-click the organizational unit in the **Server groups** pane and click **Delete org. unit**.

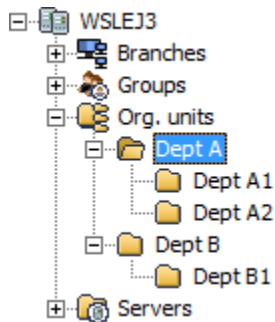
Note Organizational units can only be deleted if they are not referenced by any user, device, server and organizational unit.

Restrict access to devices

The following rules apply to restricted access.

- A device with **Restricted access** can only be used by users who have the device in their organizational path.
- A device without **Restricted access** can be used by any user regardless of the user's and device's organizational path.
- **Restricted access** does not apply to users with SafeCom Technician or Administrator rights.

Examples:



- Devices with restricted access in **Dept A1** can be used by all users in **Dept A1**.
- Devices with restricted access in **Dept A** can be used by all users in **Dept A, Dept A1** and **Dept A2**.
- Devices without restricted access in **Dept A1** can be used by all users.
- Devices without restricted access in **Dept A** can be used by all users.

How it works:

The user cannot log in to the device if **Restricted access** is checked on the **Device properties** dialog ([Settings](#)) and the device is not part of the user's organizational path.


The user may see the message "Restricted Access" on the device's control panel if a SafeCom Go product is used or on the SafeCom Front-End.

Groups

With the concept of groups you can use **SafeCom Administrator** to organize users into groups. Information about groups can be imported from and synchronized with Active Directory ([Rules](#)). However, it is also manually possible to add groups ([Add groups manually](#)), delete groups ([Delete groups](#)) and add members to groups ([Add members to a group](#)). It is even possible to print to groups ([Group print](#)).

Add groups manually

Groups can be added in the **Add group** dialog.


1. Click on the **Groups** icon  in the **Server groups** pane. On the **Users** menu click **User groups** and then **Add group...**

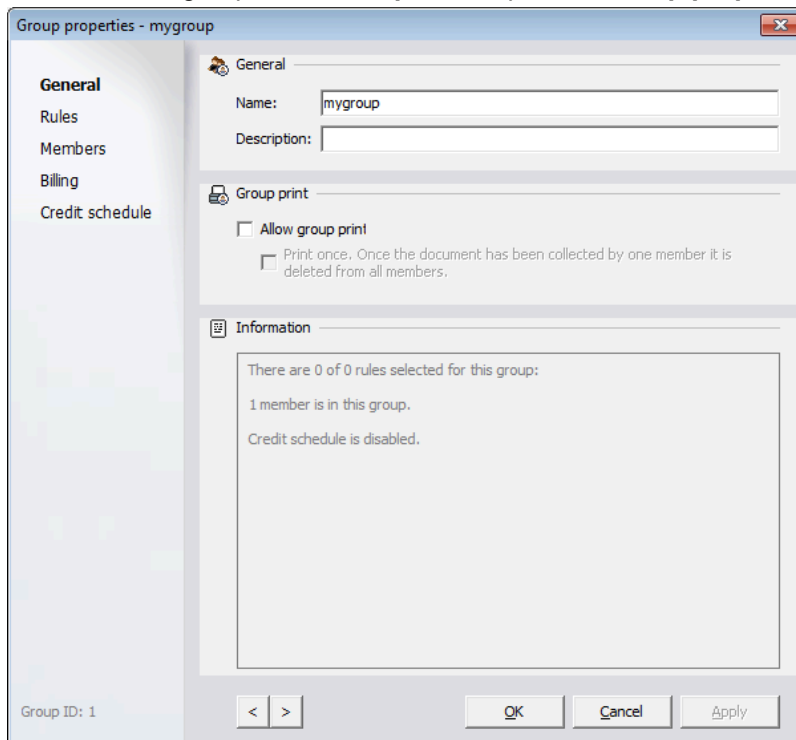
2. Enter a **Name** and an optional **Description**. Click **Add**. The name must be unique in regards to other groups, user logons, and user aliases.

Note The group name cannot be more than 20 characters if group print should be allowed ([Group properties dialog](#)). Group name cannot contain slash (/) or backslash (\).

3. Click **Close** when finished adding groups.

Group properties dialog

1. Click on the **Groups** icon  in the **Server groups** pane.
2. Double-click a group in the **Group list** to open the **Group properties** dialog.



The **Group properties** dialog includes these menus:

- **General** On the **General** menu you can change the **Name** and **Description** of the group and allow **Group print** ([Group print](#)).
- **Rules** On the **Rules** menu you can select the rules to be used by the group. For additional information about rules please refer to Chapter [SafeCom Rule Based Printing \(RBP\)](#).
- **Members** On the **Members** menu you select which users are a member of the group ([Add members to a group](#)).
- **Credit schedule** On the **Credit schedule** menu you can add and subtract credits on a scheduled basis ([Credit schedule](#)).

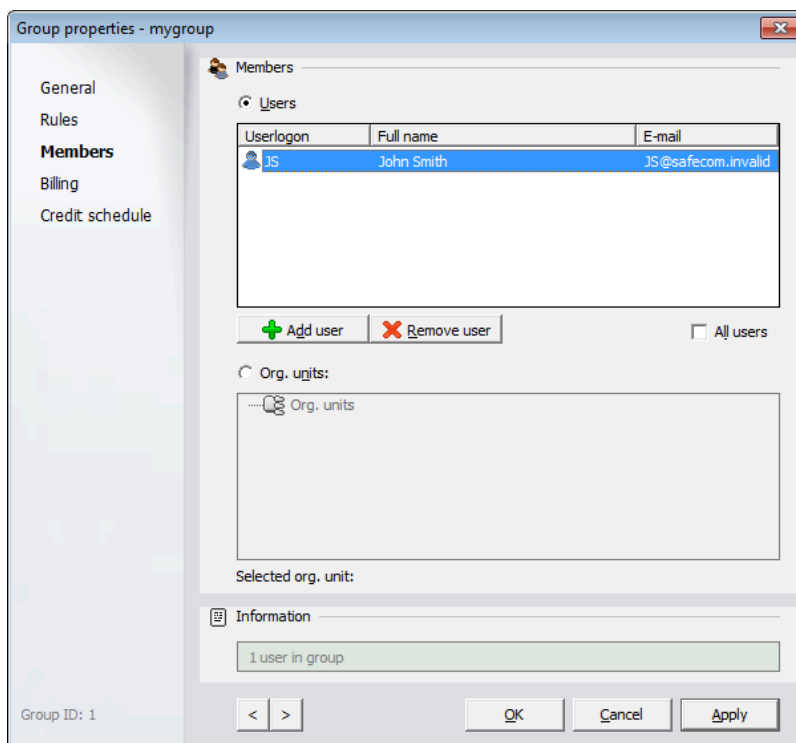
Delete groups

In the **Groups list** select the groups you wish to delete. You can delete the groups in the following ways:

- Select the group and press the DEL key.
- Right-click the group and select **Delete group...**

Add members to a group

1. Open the **Group properties** dialog ([Group properties dialog](#)).
2. Click on the **Members** menu.



2.

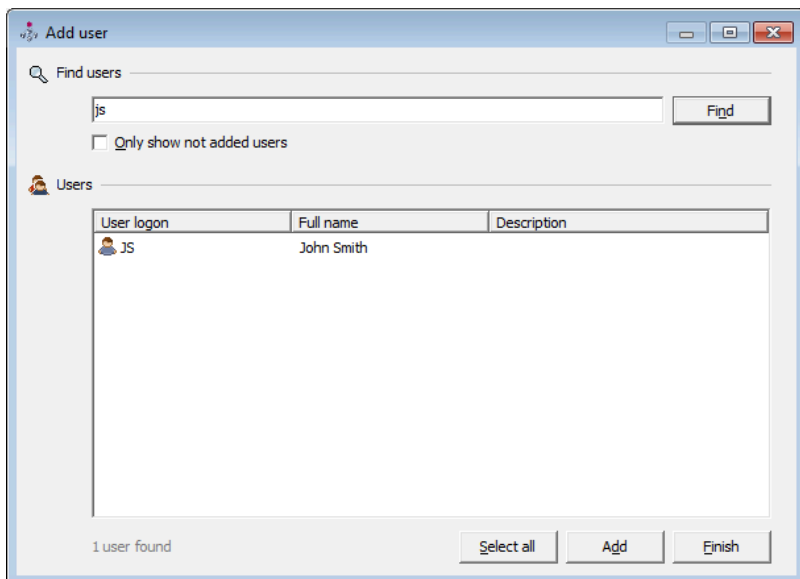
Members can be added in only one of the following two ways:

- Select **Users** to add users individually. Check **All users** to include all users as members. Click **Add user** to open the **Add user** dialog to select users individually.
- Select **Org. units** to add users by org. unit. Selecting an org. unit will also include the users in the sub units.

Note

- The root Org. unit cannot be selected in the **Members** section.
- Any subsequent import of users and groups ([Import users](#)) may override your selections.

Clicking **Add user** opens the **Add user** dialog.



1. Enter your find criteria and click **Find**. The find function is using field based case insensitive free text search.
2. Click **Select all** or press and hold down CTRL, and then click each user. Check **Differences** to filter away the users who are already member of the group.
3. Click **Add**.
4. Click **Finish** when you are done selecting and adding users to the group.
5. In the **Group properties** dialog click **Apply** and then **OK**.

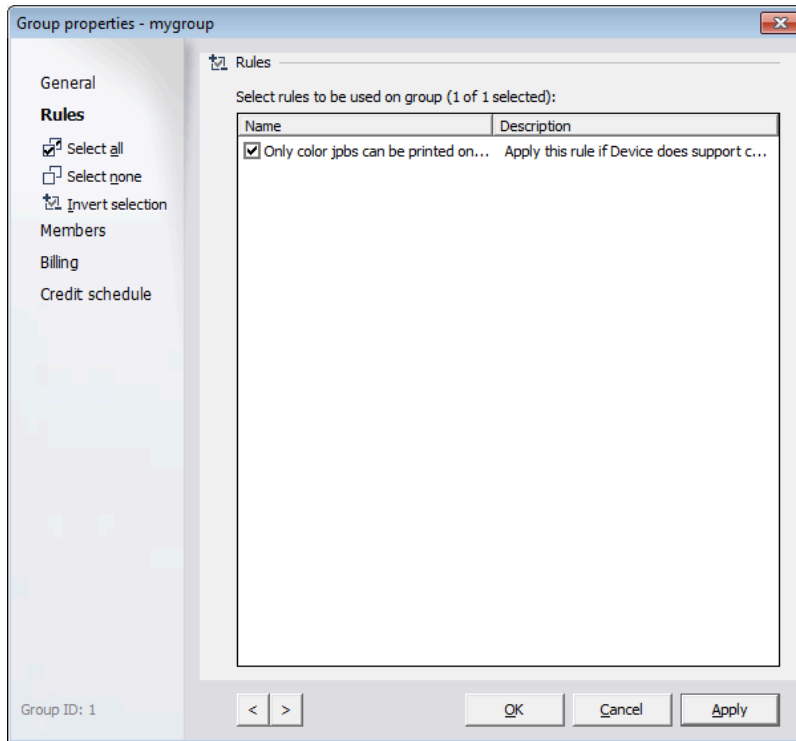
Remove users from a group

1. Open the **Group properties** dialog ([Group properties dialog](#)).
2. Click on the **Members** menu.
3. Press and hold down CTRL, and then click each user.
4. Click **Remove user**.

Select rules to be used on a group

1. Open the **Group properties** dialog ([Group properties dialog](#)).

2. Click on the **Rules** menu.

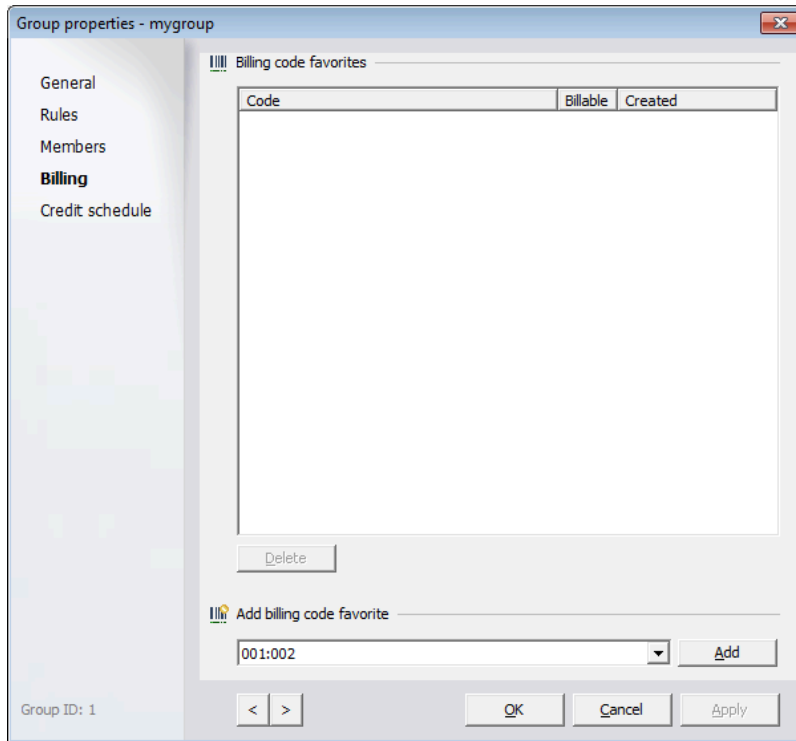


3. Check the rules you want to be used on the group.
4. Click **OK**.

Select favorite billing codes for a group

1. Open the **Group properties** dialog ([Group properties dialog](#)).

2. Click on the **Billing** menu.



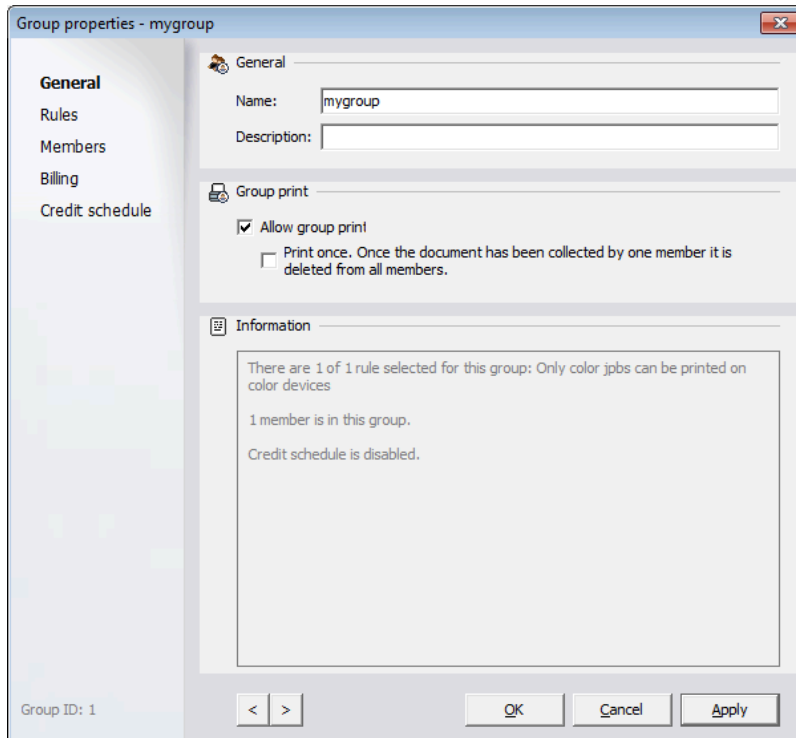
3. Click **Add** to add the selected billing code to the **Billing code favorites** list. The group billing code can be removed from the list by clicking **Delete**.
4. Click **OK**.

Group print

By allowing group print for a group the members of that group can collect the documents sent to the group.

1. Open the **Group properties** dialog ([Group properties dialog](#)).

2. Click on the **General** tab.

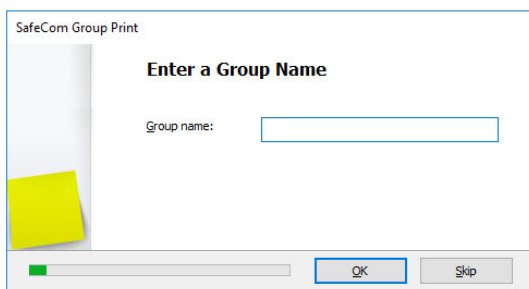


3. Check **Allow group print**.

4. Check **Print once** to delete the document from all members once one member has collected it.

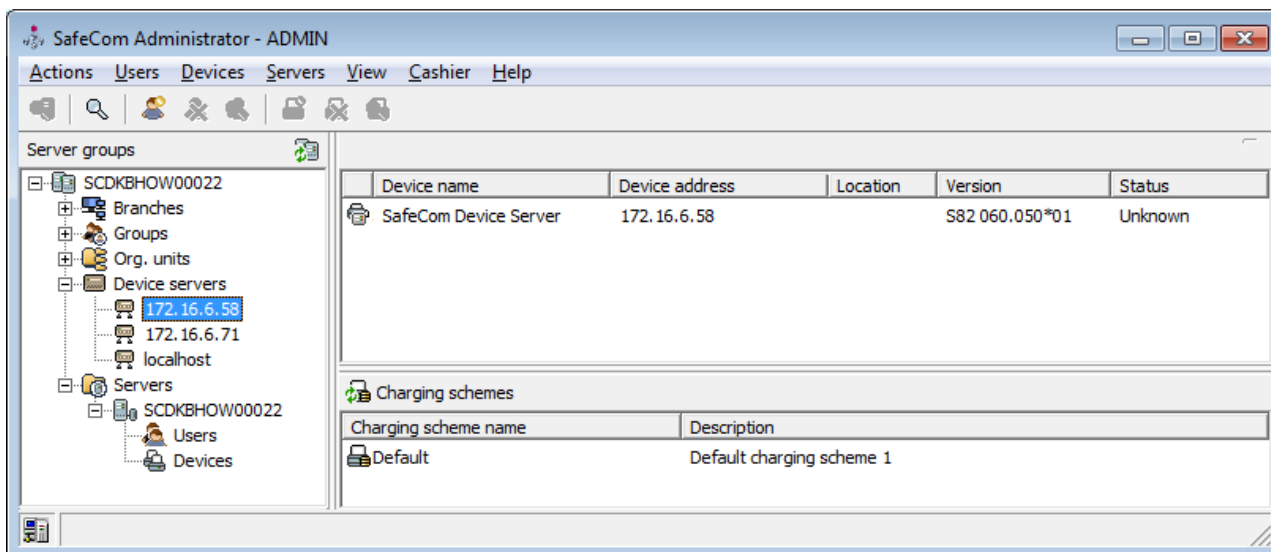
5. Click **OK**.


To use group printing, ensure that the Group Print window is enabled via the scPopUp settings, then when the screen below is displayed, enter the relevant Group Name:



Device Servers

Under **Device Servers** in SafeCom Administrator, you gain a great overview of the SafeCom Device Servers including the specific devices that are added to each device server.



Furthermore it is indicated with the icon  next to the device server if the connection to a device server is lost, in which case you benefit from having a quick overview of which devices no longer work as a result of the lost connection.

Note If your device fleet includes HP Pro devices, ensure that the HP Pro devices are using a dedicated device server.


The following sections cover how to:

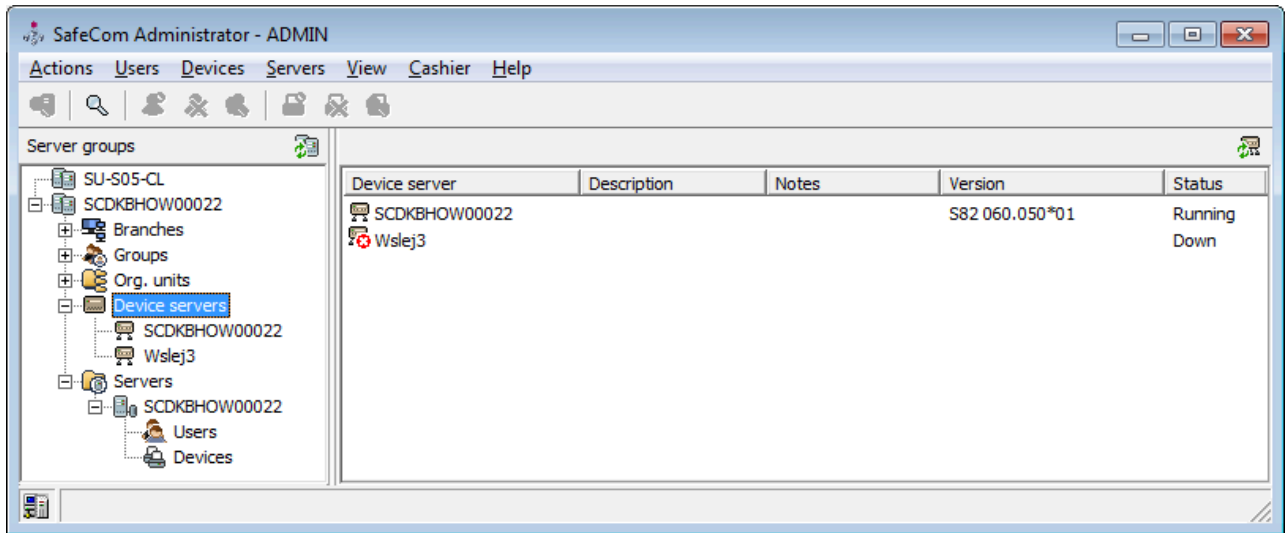
- Add a device server in the SafeCom Administrator ([Add Device Server](#))
- View and change the device server properties ([Device server properties](#))
- Delete a device server ([Delete device server](#))
- Configure a device server for failover (5.14.4)

Add Device Server

Adding a Device Server to SafeCom Administrator can be done from the Device Server:

1. Open a web browser on the Device Server, and log in to the Device Server.
2. Click **Device Server** on the left pane.
3. Under **SafeCom Servers**, click the **[+]** icon to add a SafeCom Server.
4. Enter the server address and click **OK**. To add localhost as the server, leave the **Address** field blank and click **OK**.
5. Click **Save**.

If the connection to the device server is down it is indicated with the icon  next to the device server and the status is **Down**.



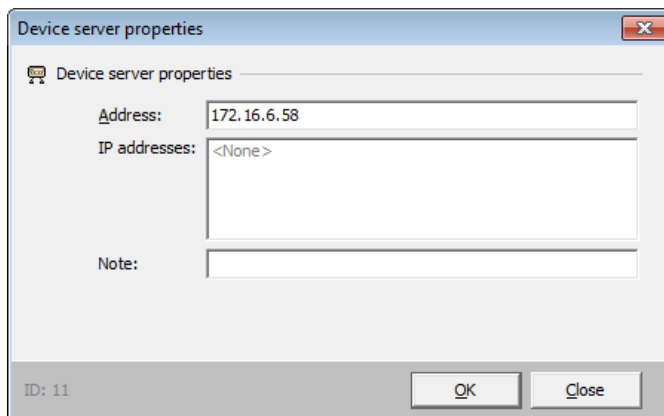
Once a device server is added, the devices added to that specific device server (via the add device functionality) are automatically added to the device server in the **Device Servers** menu. To add a new device to the device server, go to section [Add a device to a SafeCom Device Server](#).

Device server properties

If for example the device server has a changed IP address, this can be changed under the **Device server properties**. Furthermore you can edit the note to the device server if necessary and if the device server has multiple IP address, they are also listed in the **Device server properties**.

To view the device server properties:

1. Double-click the **Device servers** container in the **Server groups** pane.
2. Right-click the device server and click **Device server properties**.



3. Make the necessary changes to the device server properties.
4. Click **OK**.

Delete device server

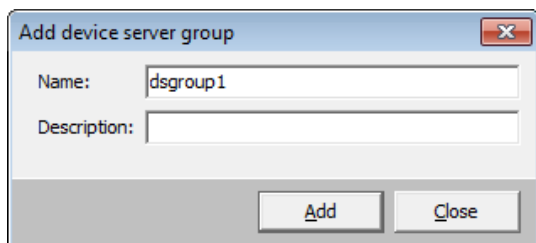
To delete a device server:

1. Right-click the device server.
2. Click **Delete device server**.
3. Click **OK**.

Grouping device servers

Grouping device servers is mandatory for using device server failover. Device servers belonging to the same group monitor the status of the group members, and in case of a group member failing or shutting down, the rest of device server group distributes the workload of the downed device server among the rest.

1. Open the **Device Server** list.
2. Click **Add device server group**.



3. Enter a **Name** and optionally a **Description** for the device server group.
4. Click **OK**.
5. Drag and drop the device servers to incorporate them into the newly created group.
6. Restart the device servers incorporated to the group.

Note

- If device failover occurs while a user is logged in, the fallback to the “home” device server does not occur until the user logs out and the device goes into idle state; this prevents user session interrupts.
- When a device failover or device server fallback occurs, the device may need rebooting or reconfiguring, depending on the vendor (the device reboot is handled automatically).

Delete device server group

To delete a device server group:

1. Remove all device servers from the group.
2. Right-click the device server group.
3. Click **Delete device server group**.

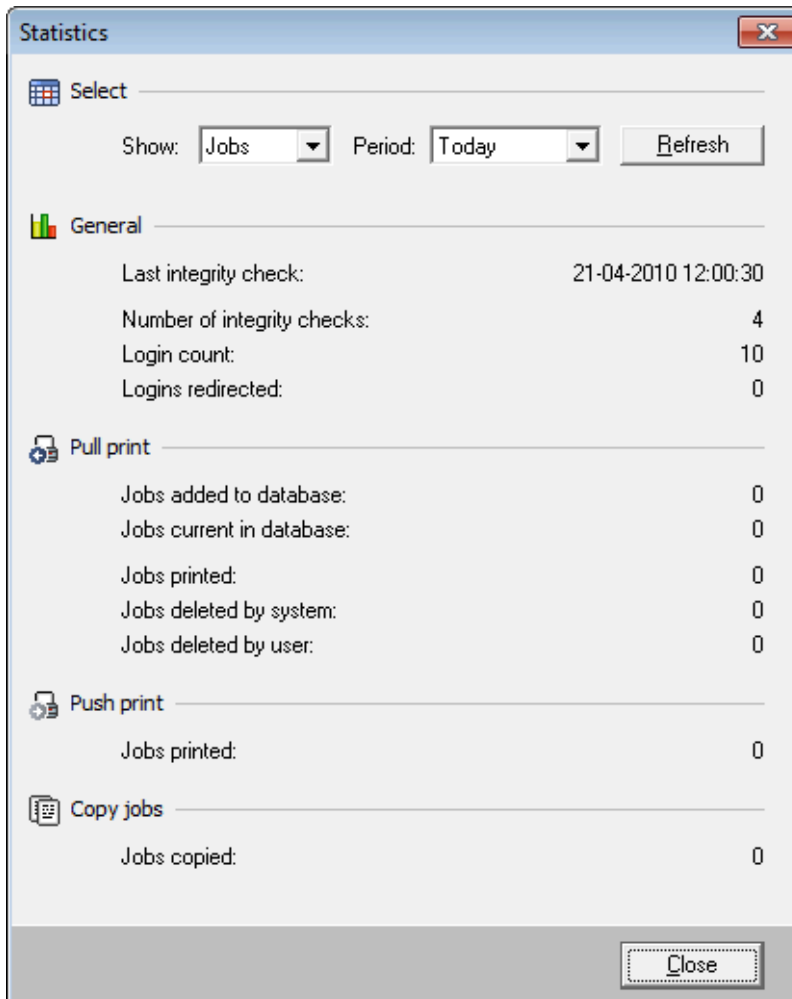
4. Click **OK**.

Statistics

The SafeCom solution collects statistics every time an integrity check is performed ([Server](#)). The **Statistics** dialog can be accessed from the **Servers** menu.

The **Statistics** dialog will by default show the number of jobs handled today. **Period** can be **Today**, **One week**, or **One month**. **Show** can be **Jobs**, **Pages** or **Size**. Click **Refresh** to update the statistics.

Jobs that are deleted by users with Administrator rights are tracked as **Jobs deleted by system** and not as **Jobs deleted by user**.



The screenshot shows the 'Statistics' dialog box with the following data:

Category	Item	Value
General	Last integrity check:	21-04-2010 12:00:30
	Number of integrity checks:	4
	Login count:	10
	Logins redirected:	0
Pull print	Jobs added to database:	0
	Jobs current in database:	0
	Jobs printed:	0
	Jobs deleted by system:	0
	Jobs deleted by user:	0
Push print	Jobs printed:	0
Copy jobs	Jobs copied:	0

Event log

Event log messages are written to the SafeCom event log database and optionally to the Windows event log if this is enabled in the **Server properties** dialog ([Server](#)).

SafeCom event log:

The **Event log** dialog can be accessed from the **Servers** menu and by right-clicking a SafeCom server. If your SafeCom solution does not quite behave the way you expect it to you should always look in the event log for a possible explanation. In the event log you will for example find information about license issues.

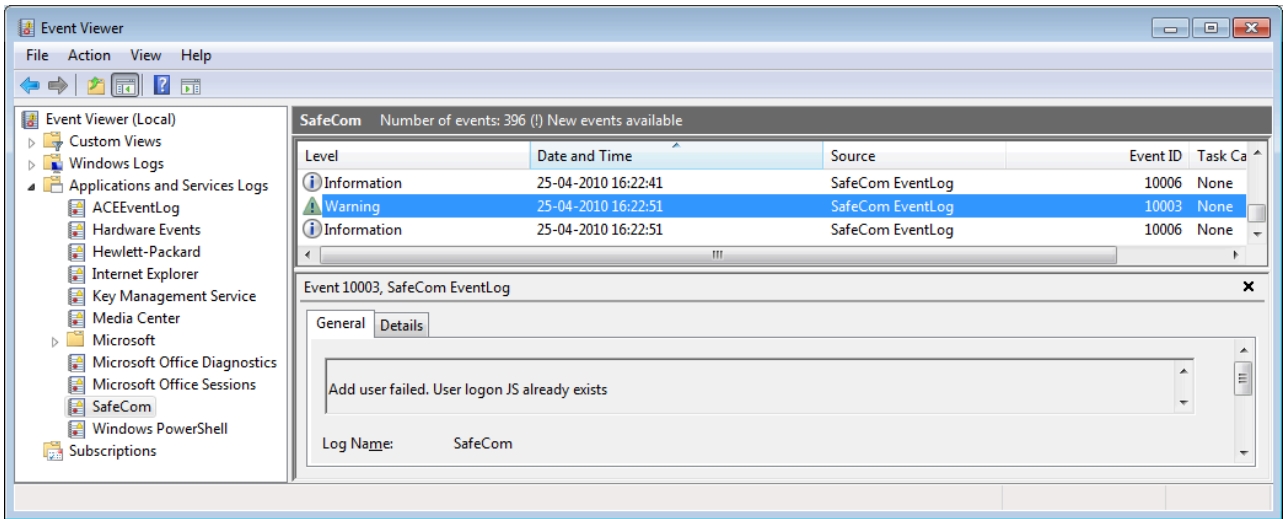
The event log records which user with special rights (Administrator, Technician or Cashier) logs in and performs such tasks as: add, modify or delete of users, devices, servers and charging schemes. These events all get severity 6 (Information) and will NOT be forwarded to the administrator by e-mail.

1. Open the **Event log** dialog.
2. Select the period. A number of predefined periods are available ranging from **Today** to **7 days back**. Choose **Specify period** to freely specify the beginning (from) and finish (to) of the period.
3. Click **Refresh** to view the events for the selected period.
4. Click **Save to file...** to save the events as a CSV file with the fields: EventId, UserId, DateTime, Abstract, Module, Severity and Description.

Windows event log:

Provided writing events to the Windows event log is enabled ([Server](#)) it is possible to use the **Windows Event Viewer** to see these and also to use **Microsoft Operations Manager (MOM)** to monitor SafeCom event alert messages.

1. Open the **Control Panel** on the computer where the SafeCom server software is installed.
2. Click **Administrative Tools**. Click **Event Viewer**.
3. Click **SafeCom**.



Note Messages are stored on a per server basis (and per node basis in a clustered environment). This implies that Microsoft Operations Manager (MOM) should be set up to monitor all SafeCom servers within the solution and not just the SafeCom primary.

The table below describes how SafeCom event log messages are mapped to the Windows event log.

SafeCom Field	Windows Field	Comment
EventDateTime	Date	Date. Example: dd-mm-yyyy
	Time	Time hh:mm:ss
Severity	Type	Error - SafeCom Severity 1 and 2 Warning - SafeCom Severity 3 and 4 Information - SafeCom Severity 5 and 6
	Event ID	SafeCom Severity 1 -> Windows EventID 10001 2 -> Windows EventID 10002 3 -> Windows EventID 10003 4 -> Windows EventID 10004 5 -> Windows EventID 10005 6 -> Windows EventID 10006
Abstract / EventSubject	Description	Description of the event
Description / EventText		
Module / CodeModule		
	Source	Always SafeCom EventLog
	Category	Always None
	User	Always N/A
	Computer	Computer

UserId / CreatorId		N/A
Viewed		N/A
EventId		N/A

Event severity

Events are sorted in six levels on three categories: Level 1 and level 2 events are categorized as errors, level 3 and level 4 events are categorized as warnings, and level 5 and level 6 events are categorized as information.

Export data

Users that are administrators in the SafeCom solution and have **Full user rights** can export data about users, devices, and servers in XML or CSV format.

Export users

1. On the **Actions** menu, click **Export...**
2. Check **Users**.
3. Click **Next**.
4. Select **Save as type** and enter **File name**. Click **Save**.
5. Click **Close**.

Note When exporting to a CSV file it is only the first AliasName, CardNo, and GroupID that is exported for each user. When exporting to an XML file all Aliases, Cards and Groups with additional details are exported.

The XML tags are covered in the tables in the following. The CSV column header is the same as the XML tag.

Parameter	Description
UserID	Database ID of the user
UserLogon	Logon name
FullName	Full name
HomeServer	Home server
EMail	E-mail address
Description	Description
UserNodeID	Database ID of the organizational unit the user belongs to
CostCode	Cost code
LoginsFailed	Number of failed login attempts
UserLocked	Prevent login. Values: Yes No

AvoidPINCode	Login without PIN code. Values: Yes No
AllowRetainDocuments	Allow retain documents. Values: Yes No
EnableBillingDialog	Bill client for costs. Values: Yes No Yes_Restrict
PrintAll	Print all at login. Values: Yes No
AccountingModel	Cost control. Values: NONE PRINT_AND_PAY PAY_AND_PRINT
PUKCode	PUK code

Parameter	Description
GroupID	Database ID of the group
GroupName	Group name
GroupDescription	Group description

Parameter	Description
CardID	Database ID of the card
CardNo	Card number
SourceID	Source ID of the card
TemporaryCard	Temporary card. Values: Yes No
StartDate	Start date, yyyy-mm-dd
StartTime	Start time, hh:mm:ss
EndDate	End date, yyyy-mm-dd
EndTime	End time, hh:mm:ss

Parameter	Description
AliasID	Database ID of the alias
AliasName	Alias name

Export servers

1. On the **Actions** menu, click **Export....**
2. Check **Servers.**
3. Click **Next.**
4. Select **Save as type** and enter **File name.** Click **Save.**
5. Click **Close.**

The XML tags are covered in the table in the following. The CSV column header is the same as the XML tag.

Parameter	Description
-----------	-------------

ServerID	Database ID of the server
ComputerName	Computer name
IPAddress	IP address
MasterServer	Primary server. Values: Yes No

Export devices

1. On the **Actions** menu, click **Export...**
2. Check **Devices**.
3. Click **Next**.
4. Select **Save as type** and enter **File name**. Click **Save**.
5. Click **Close**.

The XML tags are covered in the table in the following. The CSV column header is the same as the XML tag.

Parameter	Description
DeviceID	Database ID of the device
Name	Device name
Model	Device model
Type	Device type. Values: SafeCom Controller SafeCom Go <vendor> SafeCom P:Go <vendor> SafeCom Go High-end HP
Version	Version
HomeServer	Home server
Location	Location
IPAddress	IP address
DuplexSupport	Duplex support. Values: Yes No
RestrictedAccess	Restricted access. Values: Yes No
ColorSupport	Color support. Values: Yes No
PushPrint	Push print. Values: Yes No
PullPrint	Pull print. Values: Yes No
LicenseTracking	Tracking license. Values: Yes No
LicenseClientBilling	Client Billing license. Values: Yes No
LicenseRuleBasedPrinting	Rule Based Printing license. Values: Yes No
LicensePay	Pay license. Values: Yes No
LicensePullPrint	Pull Print license. Values: Yes No
LicenseEncryption	Encryption license. Values: Yes No
DeviceMac	MAC address

ChargingSchemeID	Database ID of charging scheme
ChargingSchemeType	Type of charging scheme. Values: Primary (1) Secondary (2)
ChargingSchemeName	Charging scheme name
ChargingSchemeDescription	Description of charging scheme

Export billing codes

1. On the **Actions** menu, click **Export...**
2. Check **Billing codes**.
3. Click **Next**.
4. Select **Save as type** and enter **File name**. Click **Save**.
5. Click **Close**.

The XML tags are covered in the table in the following. The CSV column header is the same as the XML tag.

Parameter	Description
BillingCodeID	Database ID of the billing code
BillingCode	The billing code
BillingDescription	The description of the billing code
Level	The level. 1 for primary code and 2 for secondary code.
SourceID	Source ID of the combined billing code
Billable	Billable. 1 if the billing code is billable and 0 if it is not billable.

Export 2-level billing codes

1. On the **Actions** menu, click **Export...**
2. Check **Billing, primary and secondary codes**.
3. Click **Next**.
4. Select **Save as type** and enter **File name**. Click **Save**.
5. Click **Close**.

The XML tags are covered in the table in the following. The CSV column header is the same as the XML tag.

Parameter	Description
CombCodeID	Database ID of the combined billing code
BillingCodeID1	Database ID of the primary code
BillingCodeID2	Database ID of the secondary code
PrimaryBillingCode	The primary code

PrimaryBillingDescription	The description of the primary code
SecondaryBillingCode	The secondary code
SecondaryBillingDescription	The description of the secondary code
SourceID	Source ID of the billing code
Billable	Billable. 1 if the billing code is billable and 0 if it is not billable.

Chapter 6


Manage servers

Introduction

SafeCom servers can be organized into two types of server groups in the **SafeCom Administrator**:

- **Single server group.** This is a group consisting of only a primary server.
- **Multiserver group.** This is a group with multiple servers - one primary server and one or more secondary servers. This requires SafeCom Multiserver Support.

Below, the different icons for Server groups and Servers in the SafeCom Administrator are listed.

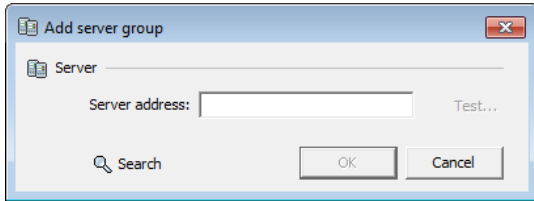
	Server group
	Primary server
	Secondary server
	Offline server
	Unsupported server group (old version)
	Server group is unavailable (unable to connect)

Add a single server group

To add single server groups in the SafeCom Administrator:

1. Open and log in to the SafeCom Administrator.

2. Click the **Actions** menu, browse to **Server group**, and then click **Add server group**. You can also right-click in the **Server groups** pane and then select **Add server group**.



3. Specify the **Server address** of the SafeCom server you want to have as primary server. If you do not know the name of the server, click **Search...** to search for the appropriate primary server.
4. Click **Test** to verify that you can connect to the server.
5. When the green play button appears the server is running properly and you can click **Close**.
6. Click **OK** to add server group.

The new single server group is now available in the **Server groups** pane in the **SafeCom Administrator**. To log in, double-click the server group and enter login credentials.

Create a multiserver group

To create a multiserver group you need to have SafeCom installed on at least two different servers (see [Multiserver installation](#)). One server is a primary and one is to be added to the primary server and turned into the secondary server in the multiserver group.

Note The installed SafeCom G4 version must be the same for all servers.

Prerequisites

Note

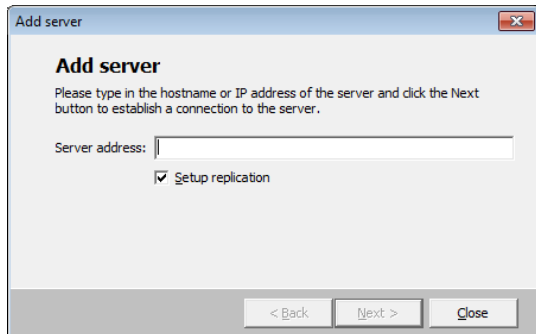
- Before creating a Multiserver group, make sure to go through the prerequisites in [Multiserver installation](#).
- Create a back-up of the primary server in case a restore is necessary.

Add server

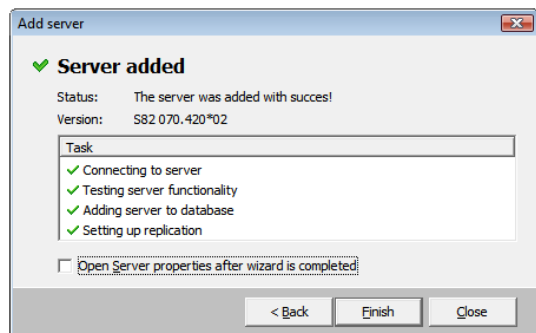
Note When you add a server to a primary server group, secondary servers lose their existing data including devices, users, and print jobs.

1. In the **SafeCom Administrator**, log in to the primary server.

- Browse to the **Servers** container in the left menu, right-click, and then click **Add server**.



- Enter the **Server address** of the secondary server (IP address or hostname).
- Clear **Setup replication**, if replication is not necessary.
- Click **Next** and the server is now being added. This can take a few minutes. The server is added successfully when a green check mark appears next to **Server added**.



- Once the server is added, select **Open Server properties after wizard is completed** if needed.
- Click **Finish**.

Note

- If you want to add the secondary server immediately after deleting it, you may have to restart SafeCom Administrator before you can add the same secondary server.
- If you are using an external SQL server, the newly-added secondary server may display a yellow triangle to show the ongoing replication process. This icon is removed once the replication finishes running. If the triangle vanishes from the list view but is still present in the tree view, restart SafeCom Administrator.

Troubleshooting

If the attempt to create a multiserver fails, review the list of prerequisites in [Multiserver installation](#). For troubleshooting tips, go through the lists below.

On the primary server:

- Check that publication and subscription are set up. Refer to section [Check that the replication is working](#).
- Reinitialize subscription (refer to section [Reinitialize the subscription](#)) or repair replication from SafeCom Administrator (refer to section [Repair replication](#)).
- Use the tool SQL management studio for troubleshooting the SQL.

On the secondary server:

- If secondary server does not start up, enable **SafeCom Trace** to view the job server trace log file.
- Restart the SafeCom Service on secondary.
- Restart the SQL service (SafeComExpress) on secondary.
- Toggle online/offline tracking on secondary.

Fixes:

- If there is no backup, the primary server may be fixed by removing excess rows from SafeCom Database table: SCServerInfo, SCServerSettings.

Remove single or multiserver group

A server group can be deleted in the following two ways:

- Select the server group that must be deleted in the Server groups pane. Click the **Actions** menu, browse to **Server group**, and then click **Remove server group**.
- Right-click the server group in the **Server groups** pane and select **Remove server group**.

Removing a server group only prevents it from appearing in the **Server groups** pane, it is not deleted completely.

Delete a secondary server from a multiserver group

If the server group contains multiple servers you can delete the servers that are not the primary server. You must be logged into the server group to delete a server. You can delete a server from the server group in the following way:

- From the **Servers** menu click **Delete server**.

Before you can delete the server the following conditions must be met.

- **Secondary server must be running** The secondary server must be running at the time of deletion because otherwise its reference to the primary server cannot be removed from its database.
- **No users must have the server as home server** Verify this in **SafeCom Administrator** by clicking on the server in question and verify that the **Users** folder is empty.
- **No devices must have the server as home server** Verify this in **SafeCom Administrator** by clicking on the server in question and verify that the **Devices** folder is empty.

Note All Windows print queues that uses a **SafeCom Pull Port** to connect to the deleted server will stop working until they have been configured to use another server in the group.

To remove the SafeCom Server software from the deleted server you must log in to the server and uninstall the SafeCom software ([Uninstall SafeCom software](#)).

Failover servers

In a SafeCom multiserver solution additional resilience can be achieved by specifying a prioritized list of servers that users should be moved to in the event that their home server becomes unavailable. The home server is where the user's documents remain until they are either collected or deleted.

Note If the **Store Doc on First Server** option is enabled, the user's documents are stored on the first server the Pull Port print queue contacts.

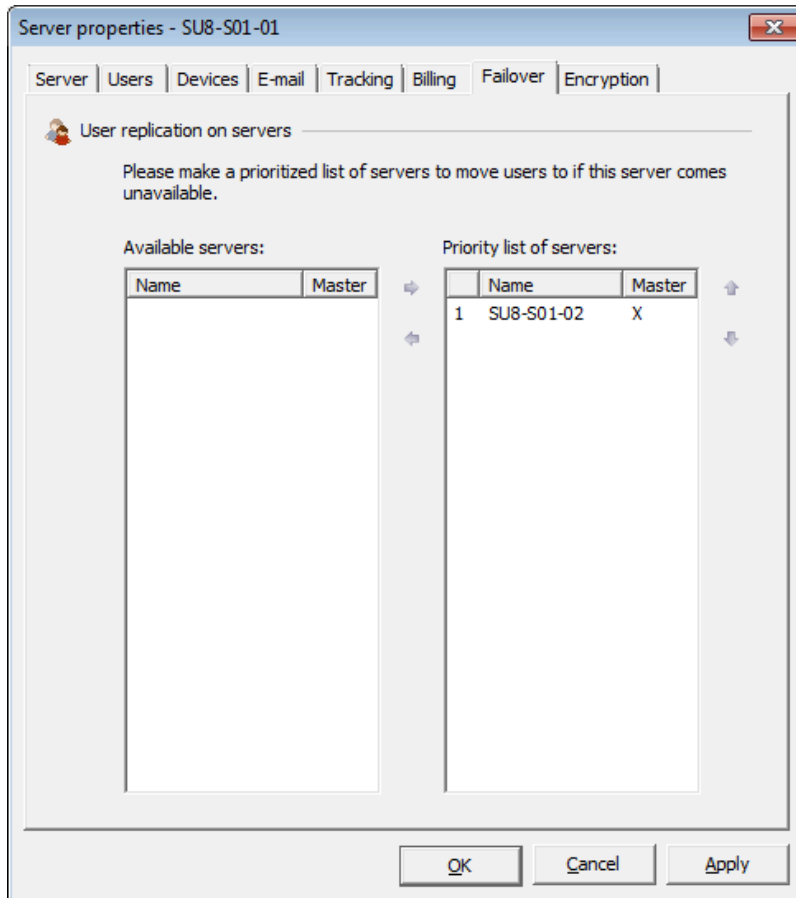
Prerequisites:

- The SafeCom primary server and the SQL primary server are available.
- Users with special rights are not moved as they always have the SafeCom primary server as their home server.

The user's home server will automatically be reset to the original once the original home server is available again. To avoid excess network load pending documents are not moved when the user's home server change. Users may therefore have to submit their documents for printing again.

1. Open the **Server properties** dialog ([Server properties](#)).

- Click on the **Failover** tab (only available on secondary servers).



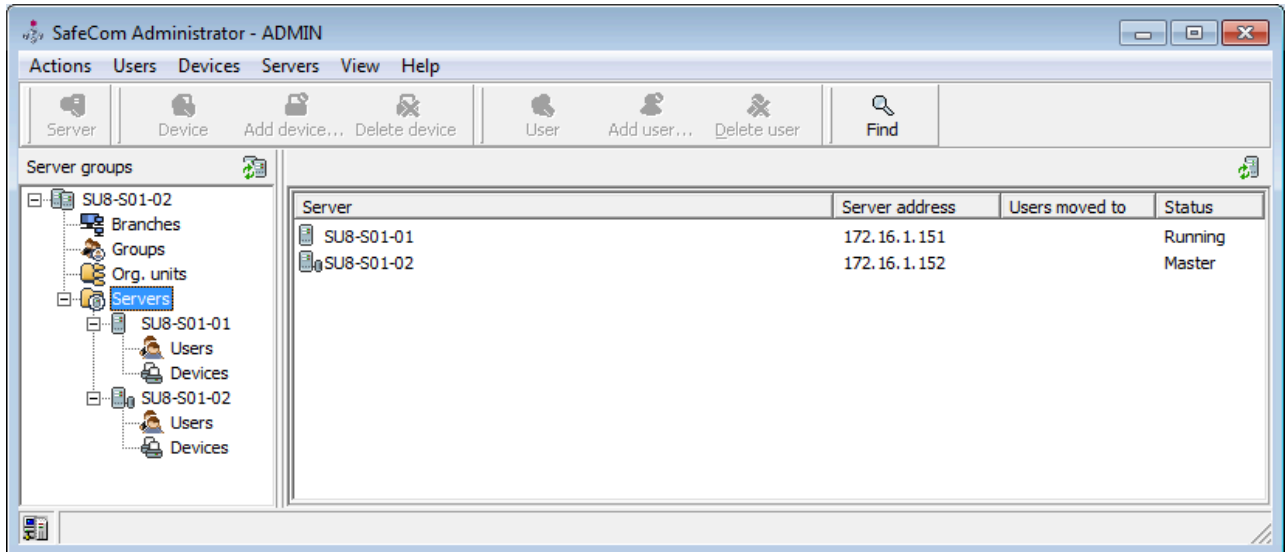
- Select a server and use the left arrow and right arrow buttons to add and remove server to and from the list of failover servers.
- Use the up arrow and down arrow buttons on control the priority of the failover servers. The primary server will always have lowest priority.
- Click **Apply** to accept the changes.

At the end of section [Servers](#) there is a table that can be used to plan how servers should failover.

How it works:

- When a server goes down the failover process is initiated after approx. 2 minutes and the users' home server reference is changed to the failover server with the highest priority. The change sets in on the affected secondary servers as soon as the changed home server reference has been replicated from the SQL primary server to the databases used by the secondary servers. The failover triggers a severity 2 event (error) in the SafeCom event log ([Event log](#)). The event includes the name of the server that went down and the name of the failover server.
- When the server comes back the users that originally belonged to it are moved back. The fallback triggers a severity 5 event (information) in the SafeCom event log ([Event log](#)). The event includes the name of the server that came back up and the name of the failover server that temporarily acted as home server.

Status of servers can be viewed by clicking the **Servers** icon  in the **Server groups** pane. Status can be Running, Down or Master.



The TELNET interface ([TELNET interface](#)) can also be used to view the status of the servers. Once logged in use the TELNET command **server info**. Below is an example of the server status:

```
ServerId ComputerName Ip Status UserMovedTo
```

```
1 SAFECOM4 172.16.6.164 MASTER -
```

```
2 SAFECOM5 172.16.6.165 UP -
```

```
3 SAFECOM6 172.16.6.166 DOWN 4
```

```
4 SAFECOM7 172.16.6.167 UP -
```

In the above example the secondary server SAFECOM6 is unavailable and all the users have been moved to SAFECOM7 (ID 4).

Chapter 7

Manage users

Introduction

User management was introduced in section [User creation and management](#), and the interface dialogs described in chapter [SafeCom Administrator](#). This chapter covers how to manage users in more detail.

Default user

When you define a default user, new users inherit default user properties. Typically one default user resides on the SafeCom primary server.

Tip For ease of use, we recommend using the logon DEFAULT.

Create a default user:

1. On the **Users** menu, click **Add user** and enter DEFAULT in **User logon**.
2. On the **Identification** tab ([Identification](#)) and **Settings** tab ([Settings](#)) check the desired settings.
3. Click **Add**. Click **Finish**.
4. Right-click the DEFAULT user and click **Set as default user**.

User properties inherited from the default user

Tab	User Property	Factory default
Identification (Identification)	Low limit	0,00
	Login without PIN code	No
Settings (Settings)	Print documents	
	Bill clients for cost	No
	Restrict choice of billing code	No
	General document settings	
	Encrypt documents	No
	Allow retain documents	Yes
	Collect documents at the printer	

Print all at login	No
Cost control	
No control	Yes – if no license key
Tracking	Yes - if part of license key
Pay	Yes - if part of license key
Access Rights	
Copy	Yes
E-mail	Yes
USB memory scan	Yes
Copy in color	Yes
Scan	Yes
USB memory print	Yes
Fax	Yes
Print all button	Yes

Prevent login and account credit balance are not inherited from the default user.

User properties inherited from other sources

Tab	User Property	Factory default
Identification (Identification)	Initial account 2	0,00
ID code (ID code)	PIN code	1234
Rights (Rights)	Standard user	Standard user

Initial Account 2 is specified on the **Users** tab in the **Server properties** dialog ([Users](#)). This setting is only relevant if **Cost control** is **Pay**.

How to delete a default user:

1. Open the **Server properties** dialog and click on the **Users** tab ([Users](#)).
2. Clear **Keep default user and use settings when creating new users** and click **OK**.
3. Right-click the default user and click **Delete user**.

In a multiserver solution there can be a default user per server. Please read the following to understand how the concept of default user comes into play in different situations:

- **Manually added users** ([Add users manually](#)) When users that are added manually via the **SafeCom Administrator** the **User properties** dialog is pre-filled according to the settings of the default user defined on the SafeCom server they are added to. If there is no default user factory defaults are used. The home server becomes the one they are added to. Users that are added while the **Find users** list is open will have the **User properties** dialog pre-filled according to the default user on the primary server.

- **Created users at first print** ([Create users at first print](#)) Users that are created at first print inherit the settings of the default user defined on the SafeCom primary server. If there is no default user factory defaults are used. The home server is set to the SafeCom primary server.
- **Imported users** ([Import users](#)) Users that are imported inherit the settings of the default user defined on the SafeCom primary server or the settings of a particular user if this is specified for the scheduled import. If there is no default user factory defaults are used. The home server remains undefined until they get in contact with the SafeCom solution in any of the following three ways:
 - **Printing** If their first action is to print, their home server will be the one referenced by the SafeCom Pull Port.
 - **Log in at device** If their first action is to log in at a SafeCom-enabled device their home server will be the one that is referenced by the SafeCom-enabled device.
 - **SafeCom G4 Web Interface** If their first action is to log in to the SafeCom G4 Web Interface their home server will be the one referenced by the SafeCom G4 Web Interface (typically the SafeCom primary server).

Import users

It is possible to create multiple user import schedules. This gives great flexibility as exemplified in the following bullets.

- **Run now** Click **Run now** to instantly run any user import. This way user import is performed immediately during initial configuration.
- **Import from multiple sources** Import users from different sources, for example the Active Directory, a file or even a different part of the same Active Directory. The SafeCom Administrator supports infinite possibilities.
- **Default user per import schedule** Select **Apply settings from default user** or choose which settings should be applied from a specific user. **Example:** *An educational institution imports staff from one part²¹ of the Active Directory and sets them to Tracking. It then imports students from another part of the Active Directory and has them inherit the settings of a manually²² created user (DEFAULT_STUDENT) which is set to Pay.*
- **User handling** There is only one way that users created at first print or added manually in **SafeCom Administrator** can be deleted during a scheduled import. These users are only deleted if they had, at any time, also been part of a scheduled import and are subsequently missing from a later scheduled import. The SafeCom solution will notice their absence and delete them. Whenever a user is imported the ID of the import schedule is recorded in the database together with the user. A manually added user initially has the Source ID 0. User Logon is unique regardless of Source ID. The function **Find user** ([Find users](#)) allows selection of Source ID as criteria.
- **ID handling** There is only one way that IDs (or cards) registered at the device or added manually in **SafeCom Administrator** can be deleted during a scheduled import. These IDs are only deleted if their card numbers had, at any time, also been part of a scheduled import and are subsequently missing from a later scheduled import. The SafeCom Solution will notice their absence and delete them. Whenever an ID code is imported the ID of the import schedule is recorded in the database together with the ID code. A manually added ID codes initially has Source ID 0. In the **ID codes overview** dialog

²¹ See search root and search filter in section [Properties \(Active Directory\)](#).

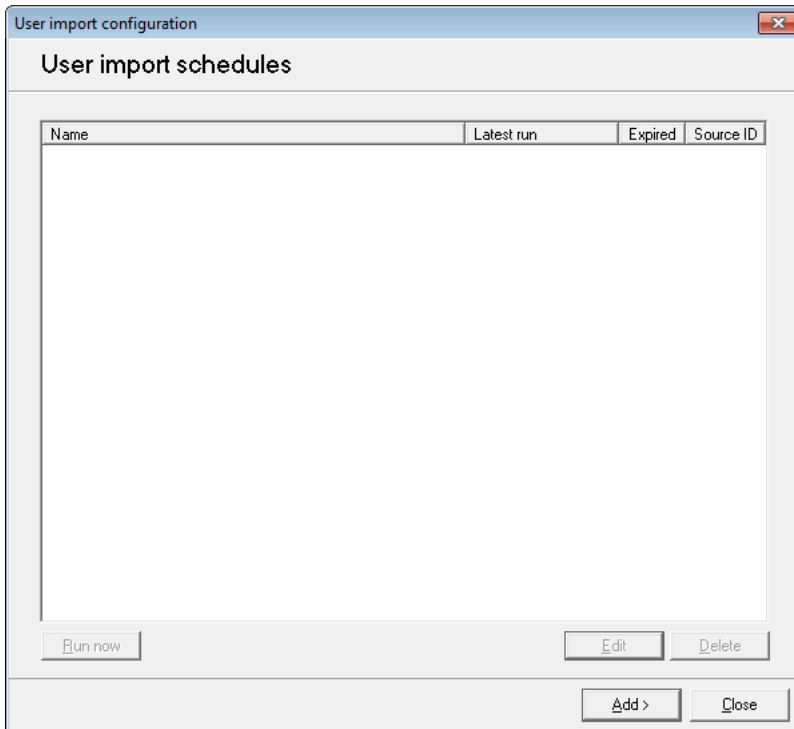
²² A User Logon that starts with DEFAULT_ makes it easier to find the user and keep the user out of any scheduled import to prevent unintentional deletion.

([List of ID codes](#)) the Source ID can be seen for each ID code. ID code must be unique regardless of Source ID. If **Max IDs per user (Users)** is greater than 1, you can add an ID as long as the user has not reached the maximum number of IDs. If a user is listed with another ID code in the same and subsequent import, the original ID code is replaced with the new one.

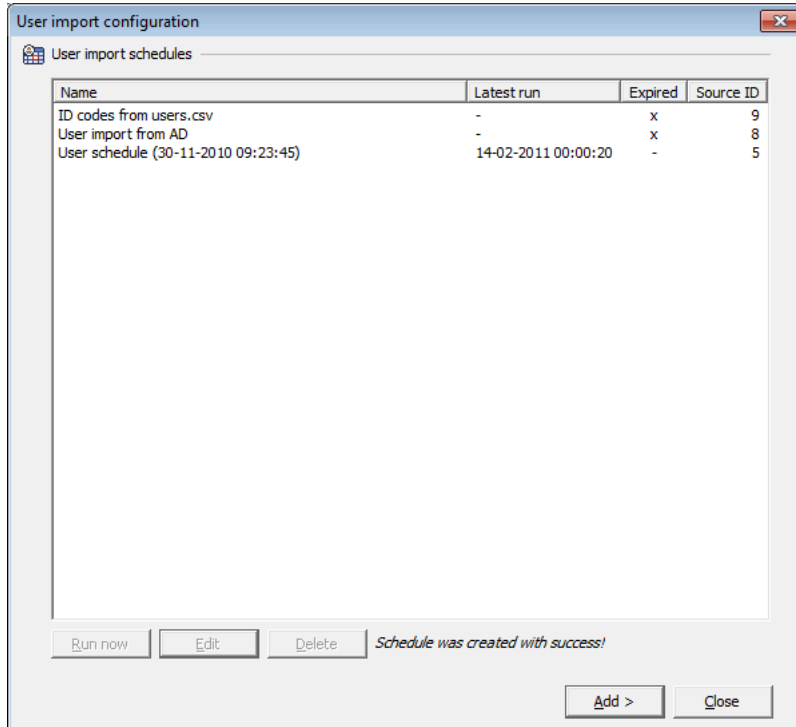
- **Secondary and primary source** A secondary source is only meant to modify the settings of existing users, typically the ID code or cost code. A primary source is usually used to add, modify and delete users and contains User Logon. The secondary source must include the User Logon as the unique identifier. **Example:** Users and most of their settings are imported from Active Directory (primary source) and card numbers are imported from a CSV file (secondary source). In the CSV file the user's logon is listed together with the ID code.

Overview

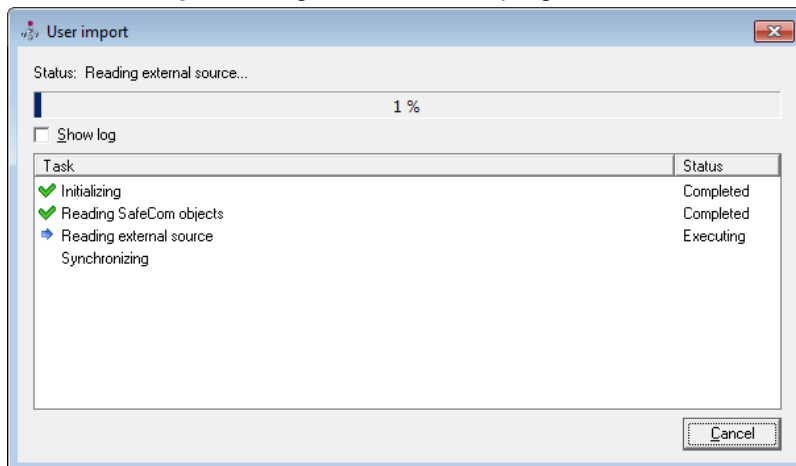
1. On the **Users** menu, click **Import users...**
2. The **User import schedules** dialog appears.
3. Click **Add** and proceed to **Server (Server)**.



- If at least one scheduled import is defined, select it. To test it click **Run now**. Click **Edit** to proceed to **Server (Server)**. Click **Delete** to delete the scheduled import. When a schedule is deleted the Source ID of the affected users and ID codes are reset to 0.



- In the **User import** dialog, there is both a progress bar and status list.



Check **Show log** to see a user import log ([User import log file](#)).

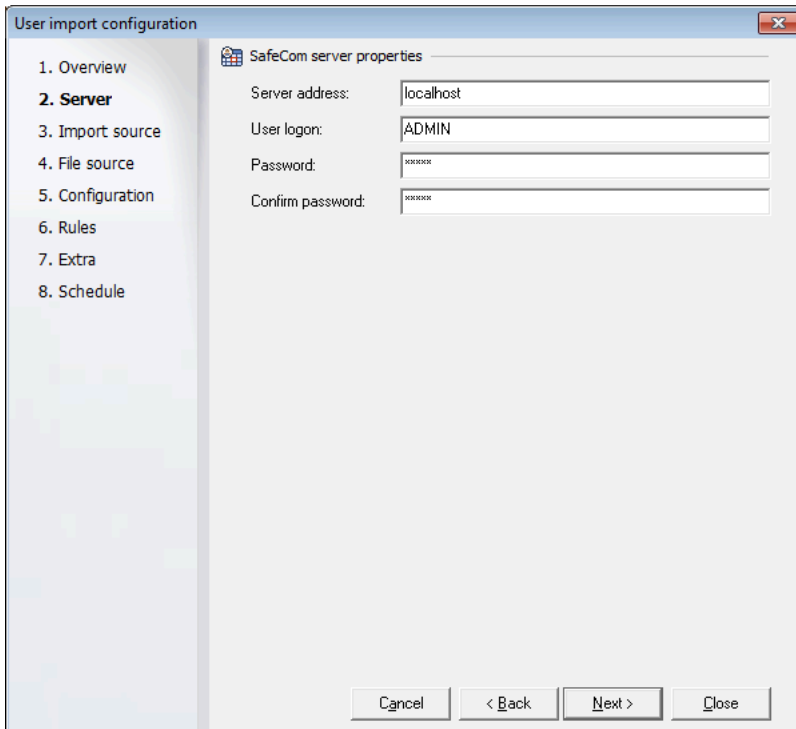
Server

- The **SafeCom server properties** dialog appears.

2. Enter **Server address** (hostname or IP address), **User logon** with Administrator rights and **Password**.
3. Click **Next** and proceed to **Import source** ([Import source](#)). If you are editing an existing schedule, click **8. Schedule** to jump directly to the **Schedule information** dialog ([Schedule](#)), and make changes to the name of the schedule or the actual schedule.

Note

- In a multiserver installation, you should specify the primary server for best performance.
- In a multiserver installation, you can use the PerformanceWaitTime registry key under HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafeComG4 to set up performance data collection from the secondary server(s) to the primary server on a regular basis. The default value of the registry setting is 3600 seconds (1 hour). After modifying the value, you must restart SafeCom for the changes to take effect.

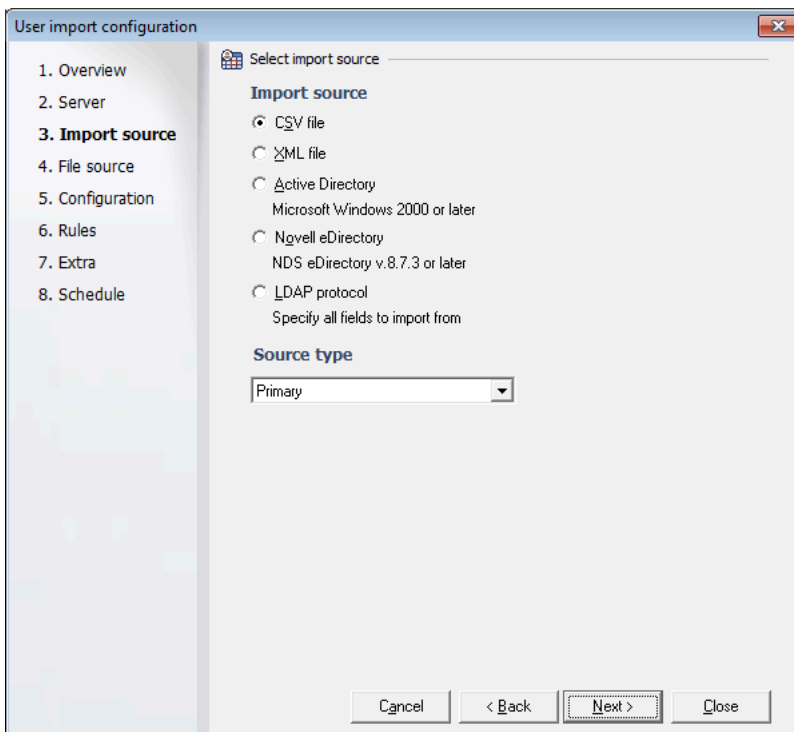


Import source

1. The **Select import source** dialog appears.
2. Select the source of the user import.
3. Click **Next** and proceed to the relevant bolded sections:

	CSV file	XML file	Active Dir	Novell eDir	LDAP
1. Overview			Overview		

2. Server	Server				
3. Import source	Import source				
4. File source	File source (CSV file and XML file)	File source (CSV file and XML file)			
4. Properties			Properties (Active Directory)	Properties (Novell eDirectory)	Properties (LDAP server)
5. Configuration	Configuration (CSV)	Configuration (XML)	Configuration (Active Directory)	Configuration (Novell eDirectory)	Configuration (LDAP server)
6. Rules	Rules				
7. Extra	Extra				
8. Schedule	Schedule				



Source type can be **Primary** (standard) or **Secondary**. Only select **Secondary** if the import is meant to modify only the settings of existing users, typically card number or cost code. The secondary source **MUST** include the User Logon as the unique identifier.

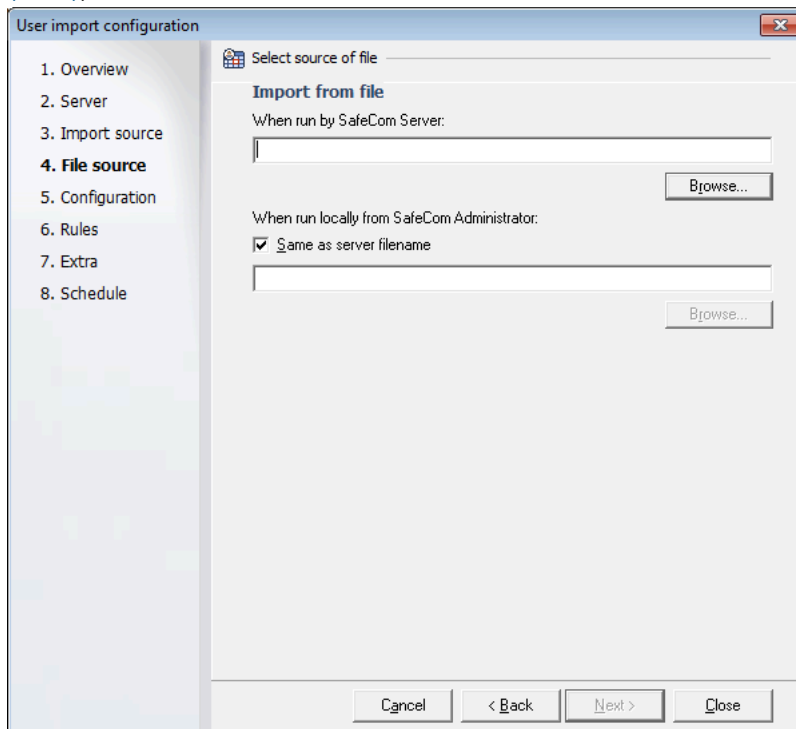
File source (CSV file and XML file)

1. The **Select source of file** dialog appears.

2. Browse to the import file. Specify the name of the file to import from (with full path) as seen from the SafeCom server. The account that runs the SafeCom Service (normally the **Local System** account) must have read access to the file.

Note If you intend to click **Run now** in the **User import schedules** dialog to run the import momentarily the file to import from (with full path) should be specified as seen locally from the computer where you are running **SafeCom Administrator**.

3. Click **Next** and proceed to **Configuration** for CSV ([Configuration \(CSV\)](#)) or XML ([Configuration \(XML\)](#)).



Properties (Active Directory)

1. The **Active Directory properties** dialog appears.
2. Enter **AD server** (hostname or IP address), **User account** (specify the user logon followed by (@) and the domain, like this ADMIN@MYDOMAIN Alternatively you can specify: MYDOMAIN\ADMIN) and **Password**.

3. Click **Next** and proceed to **Configuration (Configuration (Active Directory))**.

The import can be secure and happen via SSL (LDAPS) and port 636 by preceding the **AD server** with LDAPS://. If another port is used it must be specified after the hostname or IP address. Example:

```
LDAPS://myserver.mydomain.com:8010
```

For the secure import to function the AD server must have **Certificates Services** installed ([Install certificate](#)) and running and the SafeCom Server must trust the certificate from the AD server.

Check **Search root** to import all users from the specified organizational unit and below.

```
Search root example: OU=MyDept,OU=MyCompany,DC=MyDomain,DC=com
```

Check **Search filter** ([Search filter](#)) to import user objects matching the specified filter. **Search filter** example: (&(objectClass=user)(sAMAccountName=*))

Properties (Novell eDirectory)

1. The **Novell eDirectory properties** dialog appears.
2. Enter **eDir server** (hostname or IP address), **User account** (specify the user logon, like this: cn=Administrator, o=Admins) and **Password**. If using LDAPS use the server name from the certificate, typically the DNS name: LDAPS://dns name.

3. Click **Next** and proceed to **Configuration** ([Configuration \(Novell eDirectory\)](#)).

Check **Search root** to import users or enter the specific organizational unit where you want **Search root** to look for users, for example:

```
ou=MyDept,o=MyOrg
```

Check **Search filter** ([Search filter](#)) to import user objects matching the specified filter. **Search filter** example:

```
(&(objectClass=user)(Uid=*))
```

Properties (LDAP server)

1. The **LDAP server properties** dialog appears.
2. Enter **LDAP server** (hostname or IP address), **User account** and **Password**.
 - If the LDAP server is an **AD server**, specify the user logon followed by (@) and the domain like this: ADMIN@MYDOMAIN. Alternatively you can specify: MYDOMAIN\ADMIN.
 - If the LDAP server is an **eDir server**, specify the user logon like this: cn=Administrator, o=Admins.
 - If the LDAP server is a Linux/Unix, specify the user logon like this: The DN distinguished name must be cn=xxxx, ou=xxxx, dc=xxxx, dc=com, or a Uid=xxxx, ou=xxxx, dc=xxxx, dc=com.
 - If using LDAPS use the server name from the certificate, typically the DNS name: LDAPS://dns name.

3. Click **Next** and proceed to **Configuration** ([Configuration \(LDAP server\)](#)).

The screenshot shows the 'User import configuration' dialog box. On the left is a sidebar with a list of steps: 1. Overview, 2. Server, 3. Import source, 4. Properties (highlighted), 5. Configuration, 6. Rules, 7. Extra, and 8. Schedule. The main area is titled 'LDAP server properties' and contains the following fields and options:

- LDAP server: [Text input field]
- User account: [Text input field]
- Password: [Text input field]
- Confirm password: [Text input field]
- Search root: [Text input field]
- Search filter: [Text input field]

At the bottom of the dialog are four buttons: Cancel, < Back, Next >, and Close.

Refer to section [Properties \(Active Directory\)](#) if the import needs to be secure. Check **Search root** to import users from that organizational unit, for example:

- Search root example **AD server**:

```
OU=MyDept, OU=MyCompany, DC=MyDomain, DC=com
```

- Search root example **eDir server**:

```
ou=MyDept, o=MyOrg
```

Check **Search filter** ([Search filter](#)) to import user objects matching the specified filter.

Configuration (CSV)

1. The **Specify fields in CSV file** dialog appears.
2. Check the configuration options as required (see below).

3. Click **Next** and proceed to **Rules (Rules)**.

The screenshot shows the 'User import configuration' dialog box with the following fields and values:

Field	Value
Separator character:	;
User logon:	0
Full name:	0
Description:	0
E-mail:	0
ID Code:	0
PIN code:	0
Org. unit:	0
Alias:	0
Cost code:	0
Domain:	0
Access rights mask:	0

The 'Next >' button is highlighted, indicating the user should proceed to the next step.

Specify from which field in the CSV file the values should be retrieved. Leave a field value of 0 to avoid import.

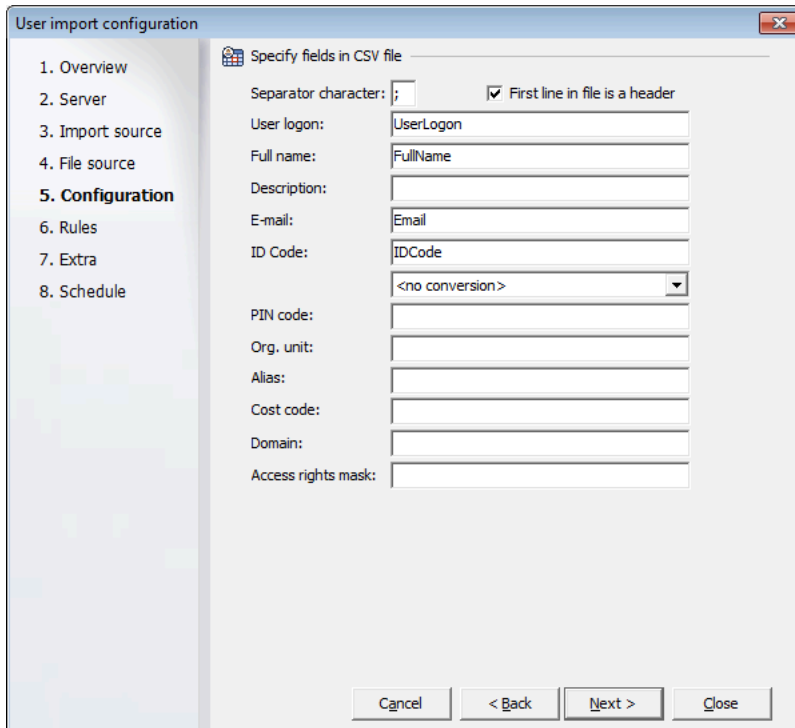
Example CSV file with header and two entries:

```
UserLogon;FullName;Email;IDCode
JS;John Smith;JS@safecom.eu;1232
JD;Jane Doe;JD@safecom.eu;9856
```

Microsoft Excel files with the extension *.csv cannot be used directly. Open the file in **Notepad**, for example, to ensure that it is a plain text file like the example and to determine what **Separator character** is used (semicolon is default).

If you check **First line in file is a header** you will need to specify the name of the field rather than the number. The field name is case insensitive.

If **Code** is being imported and the import consists of magnetic card ID codes select the appropriate conversion method ([Conversion of magnetic ID codes](#)).



In **Alias** you can specify multiple fields, by separating them by semicolon.

Example:

```
Alias1; Alias2; Alias3
```

In **Access rights mask** specify the access rights mask (See [Settings](#)).

Configuration (XML)

There is no **XML configuration** dialog. Proceed to **Rules (Rules)**. The syntax of the XML file is illustrated by this example:

```
<?xml version="1.0" ?>
<UserList>
  <User>
    <UserLogon>JS</UserLogon>
    <FullName>John Smith</FullName>
    <Description>location 1</Description>
    <EMail>JS@safecom.eu</EMail>
    <CardNo>1232</CardNo>
    <PINCode>2222</PINCode>
    <OrgUnit>\MyCompany\MyDepartment</OrgUnit>
    <Alias>JSmith</Alias>
    <CostCode>90678</CostCode>
  </User>
</UserList>
```

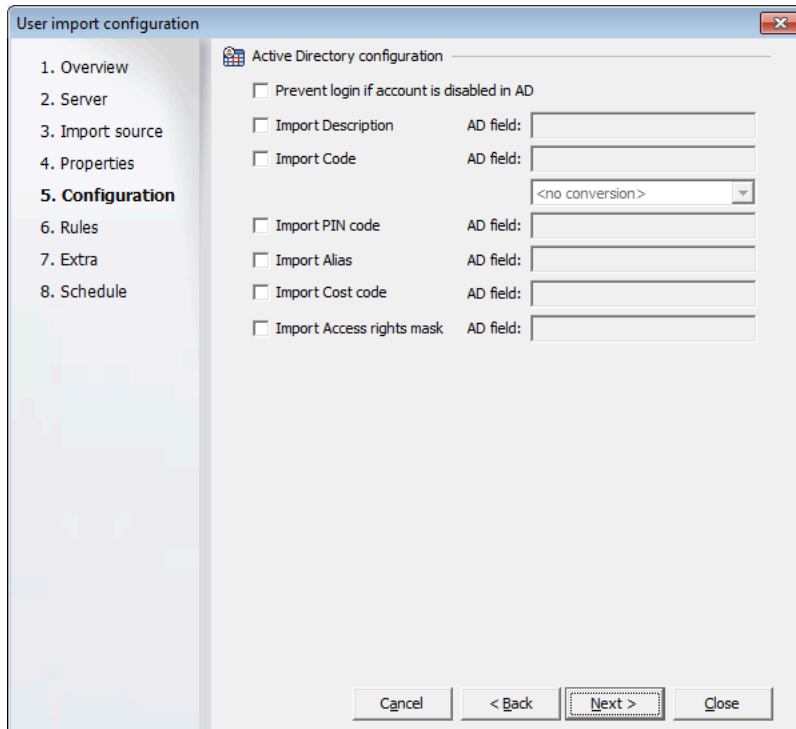
Parameter	Description	Remark	Default value
UserLogon	The user's logon name. Maximum 20 characters.	Mandatory	None

Parameter	Description	Remark	Default value
FullName	The user's full name. Maximum 80 characters.	Optional	None
Description	Description field. Maximum 80 characters.	Optional	None
Email	The user's E-mail address. Maximum 80 characters.	Optional	None
CardNo	The ID code. Maximum 39 characters. Refer to User authentication by card or ID code	Optional	None
PINCode	The 4-digit PIN code.	Optional	1234
OrgUnit	The organization unit.	Optional	None
Alias	Alias. Maximum 20 characters. Maximum 10 Alias tags.	Optional	None
CostCode	Cost code. Maximum 50 characters.	Optional	None
AccessRightsMask	Access rights mask. Integer (See Settings).	Optional	0

Configuration (Active Directory)

1. The **Active Directory configuration** dialog appears.
2. Check the configuration options as required (see below).

3. Click **Next** and proceed to **Rules (Rules)**.



4. Check **Prevent login if account is disabled in AD** if users who are disabled²³ in Active Directory should be prevented from logging in to the SafeCom solution (Login denied). In **SafeCom Administrator** this is reflected by the status of the **Prevent login** check box on the **Identification** tab of the **User properties** dialog (**Identification**).
5. Check **Import Description** and specify the **AD field** that holds the description. Check **Import Code** and specify the **AD field** that holds the ID code. If the import consists of magnetic card ID code select the appropriate conversion method ([Conversion of magnetic ID codes](#)). Check **Import PIN code** and specify the **AD field** that holds the PIN code.
6. Check **Import Alias** and specify the **AD field** that holds the alias. You can specify multiple alias fields, by separating them by semicolon. Example: Alias1; Alias2; Alias3.
7. Check **Import Cost code** and specify the **AD field** that holds the cost code. Check **Import Access rights mask** and specify the **AD field** that holds the access rights mask (See [Settings](#)).

Note The options listed above are in addition to the automatically used options listed in the table below.

These standard AD attributes are used during the import:

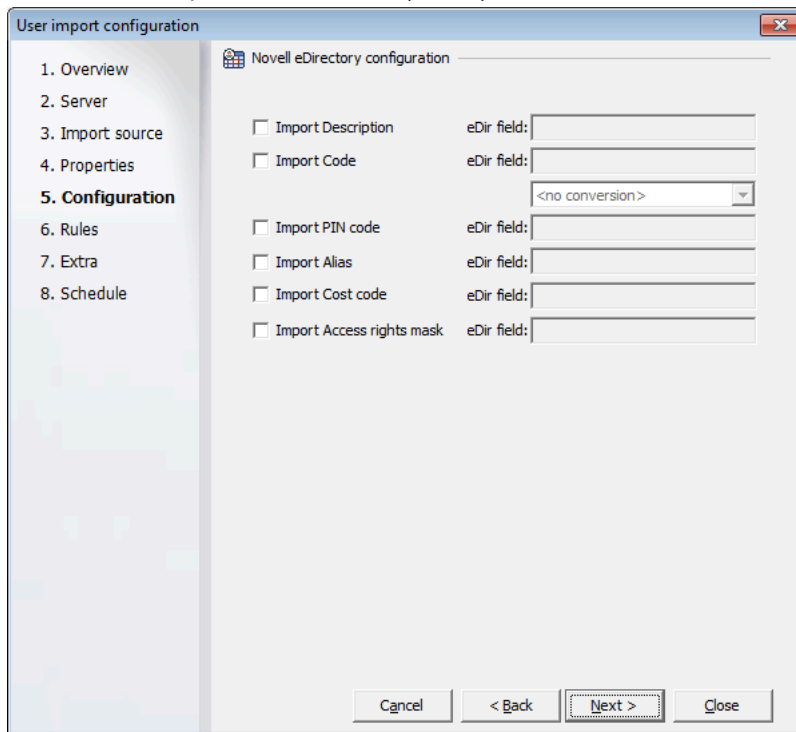
Microsoft Management Console	AD Field name	SafeCom	Examples
User logon name	sAMAccountName	User logon	JS

²³ The user is considered disabled in Active Directory if the UF_ACCOUNTDISABLE bit is set in the userAccountControl attribute.

Display name	DisplayName	Full name	John Smith
Description	Description	Description	location 1
E-mail	Mail	E-mail	JS@safecom.eu
Account is locked out	userAccountControl	Prevent login	
Org. unit	distinguishedName	Org. unit	ou=MyDept, ou=MyCompany
		Alias	Jsmith
		Cost code	
		Access rights mask	

Configuration (Novell eDirectory)

1. The **Novell eDirectory configuration** dialog appears.
2. Check the configuration options as required (see below).
3. Click **Next** and proceed to **Rules (Rules)**.



4. Check **Import Description** and specify the **eDir field** that holds the description.
5. Check **Import Code** and specify the **eDir field** that holds the ID code. If the import consists of magnetic card ID code select the appropriate conversion method ([Conversion of magnetic ID codes](#)).
6. Check **Import PIN code** and specify the **eDir field** that holds PIN code.

7. Check **Import Alias** and specify the **eDir field** that holds alias. You can specify multiple alias fields, by separating them by semicolon. Example: Alias1; Alias2; Alias3.
8. Check **Import Cost code** and specify the **eDir field** that holds the cost code.
9. Check **Import Access rights mask** and specify the **eDir field** that holds the access rights mask (See [Settings](#)).

Note The options listed above are in addition to the automatically used options listed in the table below.

These Novell eDirectory attributes are used during the import:

Novell ConsoleOne	eDir Field name	SafeCom	Examples
Unique ID	Uid	User logon	JS
Full name	FullName	Full name	John Smith
Department	Ou	Description	location 1
E-mail address	Mail	E-mail	JS@safecom.eu
dn ²⁴	Dn	Org. unit	ou=MyDept, o=MyOrg
		Alias	Jsmith
		Cost code	
		Access rights	

Configuration (LDAP server)

1. The **LDAP server configuration** dialog appears.
2. Check the configuration options as required (see below).

²⁴ The organizational unit is extracted from the distinguished name in Novell eDirectory and not held in one particular field.

3. Click **Next** and proceed to **Rules (Rules)**.

The screenshot shows the 'User import configuration' dialog box with the 'LDAP server configuration' section active. The 'User logon' checkbox is checked, and the 'LDAP field' is empty. Other options like 'Full name', 'Description', 'E-mail', 'Code', 'PIN code', 'Org.unit', 'Alias', 'Cost code', and 'Access rights mask' are unchecked. The 'Code' dropdown is set to '<no conversion>'. Navigation buttons 'Cancel', '< Back', 'Next >', and 'Close' are at the bottom.

4. Check **User logon** and specify the **LDAP field** that holds the user logon.
5. Check **Full name** and specify the **LDAP field** that holds the full name.
6. Check **Description** and specify the **LDAP field** that holds the description.
7. Check **E-mail** and specify the **LDAP field** that holds the e-mail address.
8. Check **Code** and specify the **LDAP field** that holds the ID code. If the import consists of magnetic card ID codes select the appropriate conversion method ([Conversion of magnetic ID codes](#)).
9. Check **PIN code** and specify the **LDAP field** that holds PIN code.
10. Check **Org. unit** and specify the **LDAP field** that holds organizational unit information.
11. Check **Alias** and specify the **LDAP field** that holds alias. In **Alias** you can specify multiple fields, by separating them by semicolon. Example: Alias1; Alias2; Alias3.
12. Check **Cost code** and specify the **LDAP field** that holds the cost code.
13. Check **Access rights mask** and specify the **LDAP field** that holds the access rights mask (See [Settings](#)).

Rules

1. The **Rules when importing users** dialog appears.
2. Check the rules as required (see below).

3. Click **Next** and proceed to [Extra](#).

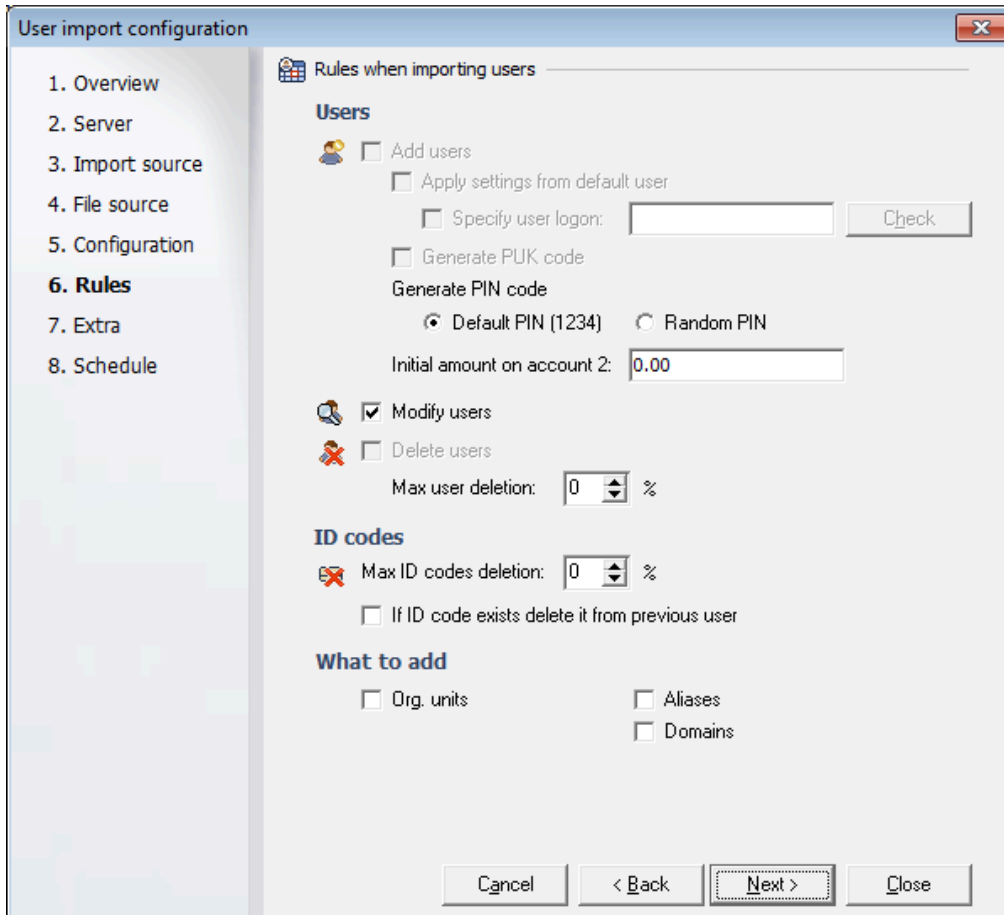
4. Check **Add users** to have all users imported. Check **Apply settings from default user** if you want the newly imported users to inherit the settings of the default user.

Note The following settings are not inherited even though **Apply settings from default user** is checked: **Prevent login**, **Account Credit Balance**, and **User Access Rights**.

5. Check **Specify user logon** and enter the user logon of the user from which you wish the new users to inherit settings. In a multiserver installation the default user must have the primary server as home server.
6. Check **Generate PUK code** if you want a PUK code to generated. The PUK code can be e-mailed to users ([E-mail](#)). **Generate PUK code** is dimmed if ID codes are part of the import. Check **Generate PIN code** to generate PIN codes for AD users missing PIN codes in AD. Already existing PINs in AD will not be overwritten. Choose between **Default PIN (1234)** and **Random PIN**. Change **Initial amount on account 2** to another value than 0.00 only if the solution involves Pay and the initial amount on the account should have the specified value. See also section [Credit schedule Credit schedule](#).
7. Check **Modify users** will modify the settings of any user that were previously imported through this schedule, that is, the schedule ID of the user matches that of the schedule. Running the import twice will ensure that users with access rights to all functions keep these access rights.
8. Check **Delete users** to delete any existing users that is now missing from this import, but were previously imported through this schedule, that is, the schedule ID of the user matches that of the schedule. The default user and users with special rights ([Rights](#)) are not deleted.

9. Use **Max user deletion** as a safety measure to prevent unintentional deletion of users. A value of 0% will cause the import to take place anyhow. A value of 20% will cancel the import if it would result in a deletion of every fifth or more users that were previously imported through this same scheduled import. Use **Max ID code deletion** as a safety measure to prevent unintentional deletion of ID codes. A value of 0% will cause the import to take place anyhow. A value of 20% will cancel the import if it would result in a deletion of every fifth or more ID code that were previously imported through this same scheduled import. The import of a user will fail if the user's ID code is already registered with another user in the SafeCom solution. To resolve this check **If ID code exists delete it from previous user**. For this to work you are advised to check **Modify users** and/or **Delete users**. During the import users are sorted alphabetically based on their user logon and ID codes are being reused in that order. Details are recorded in the log file. Check **Org. units** to extract organizational units ([Organizational units](#)). Check **Aliases** will import alias from the list if fields specified in the **Alias** field.
10. The following two checkboxes are only present when importing from **Active Directory**:
 - Check **Groups** to import group ([Groups](#)) information from Active Directory and include it in the import.
 - Check **Synchronize groups** if you want the information in Active Directory to completely control which groups a user is member of and any local changes made within the SafeCom solution are lost at the subsequent import from Active Directory.

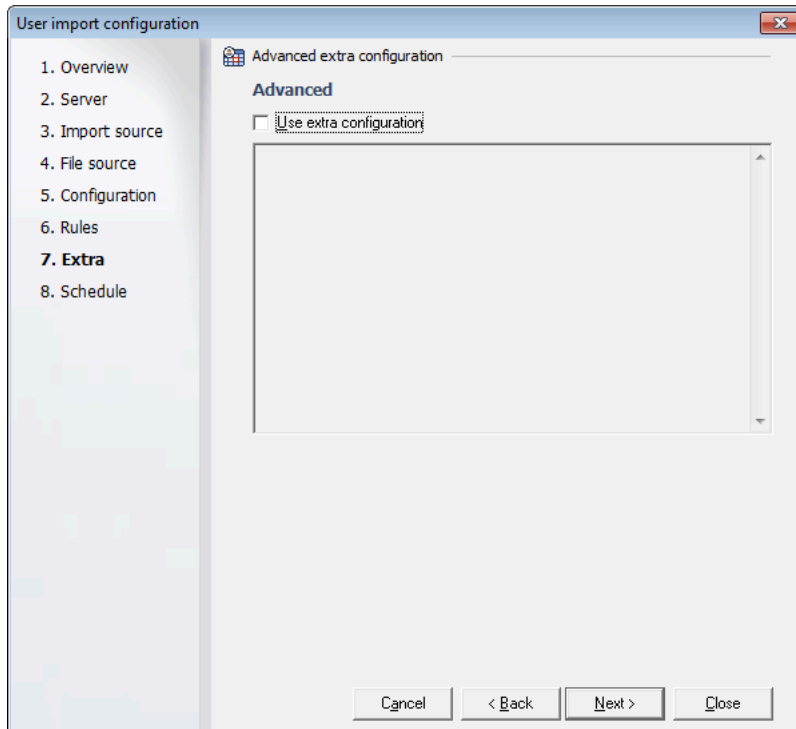
Most of the controls are dimmed when **Source type** is set to **Secondary** in the **Select import source** dialog ([Import source](#)).



Extra

1. The **Advanced extra configuration** dialog appears.
2. If a special user import module has been supplied you should check **Use extra configuration** and enter the configuration according to the supplied instructions.

3. Click **Next** and proceed to **Schedule** ([Schedule](#)).



Schedule

1. The **Schedule information** dialog appears.
2. Check the schedule options as required (see below).

3. Click **Finish** to save the changes return to **Overview** ([Overview](#)) where the scheduled import, including its Source ID, is listed and can be Run now.

The screenshot shows the 'User import configuration' dialog box with the 'Schedule information' tab selected. The dialog has a sidebar on the left with steps 1 through 8, where '8. Schedule' is highlighted. The main area contains the following fields and options:

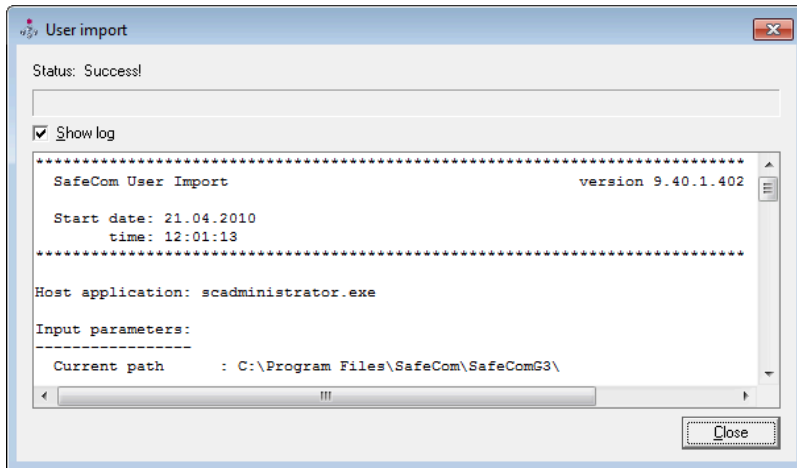
- Schedule information**: A text box for 'Name' is empty.
- Frequency options: Manual, One time only, Daily, Weekly, Monthly.
- Select the start time for this task**: 'Start date' is 2010-11-12 with a calendar icon; 'Time' is 00:00 with a time picker.
- Select the end date (optional)**: A checkbox for 'Date' is unchecked, with a date field set to 2010-11-12 and a calendar icon.
- Frequency**: 'Perform this task:' dropdown is set to 'Every 24 hours'. Other options are Weekdays and Every 1 days.

At the bottom are buttons for 'Cancel', '< Back', 'Finish', and 'Close'.

4. Enter a meaningful **Name**. If you leave it empty it will get populated with the text **User schedule (date time)**.
5. It is possible to schedule imports **One time only**, **Daily**, **Weekly** and **Monthly**. Check **End date** and specify a date for when the scheduled import should end. Please ensure that the end date does not conflict with the selected frequency options. Otherwise you may risk that the scheduled import will not run.

User import log file

During the import a log file is created.



A log file with the name <Lyyyymmddhhmmss.log>, where

- *yyyy* is the year
- *mm* is the month
- *dd* is the day
- *hh* is the hour
- *mm* is the minutes
- *ss* is the seconds

The log file is stored in the `logfiles` folder below the SafeCom G4 installation folder. The default folder is:

```
C:\Program Files\ SafeCom\SafeComG4\logfiles
```

During import you may encounter conflicts because either the UserLogon (cc = 58) or the Card number (cc = 60) already exists. Examples:

- Not able to add new user. Logon <UserLogon>, cc = 58
- Not able to add new user. Logon <UserLogon>, cc = 60
- Not able to modify user (modify). Logon <UserLogon>, cc = 58
- Not able to modify user (modify). Logon <UserLogon>, cc = 60

If the import includes aliases you may also get these messages either because the specified user does not exist (cc = 54) or the specified alias already exists (cc = 73). Examples:

- Not able to add new alias. User <UserLogon> Alias <Alias>. cc = 54
- Not able to add new alias. User <UserLogon> Alias <Alias>. cc = 73

Provided **If ID code exists delete it from previous user** ([Rules](#)) was checked during import there will be an entry in the log file for each reused ID code. Example:

```
27.11.2008 10:16:15: Duplicate card Card3 removed from user USERC 27.11.2008 10:16:15:
Duplicate card Card3 given to user USERD
```


2. Right-click the certificate file and click **Install Certificate**.
3. Complete the steps presented by the **Certificate Import Wizard**.

Note If a one-time import is to be done the certificate must be installed on the computer from where the **SafeCom Administrator** is used.

Conversion of magnetic ID codes

When importing magnetic ID codes you have to choose which track you want to use (Track1, Track 2 or Track 3). Track 2 is normally the one you should use.

If you are using SafeCom magnetic cards the ID code is stored on Track 2 and is printed on the card. However, you cannot just import the ID code.

First register the card at the device and check what it looks like in when it appears in **SafeCom Administrator**. If the ID code contains any of the letters 'C', 'D' or 'E' within the number (not at the end or the start) then the letter need to be replaced with another character at the same location. In the example below the '=' character is inserted in order to get a resulting 'D'.

Example:

- 60321700000002954890103000
This is how the ID code is printed on the card.
- B6032170000000295489D0103000F1
This is how the ID code appears in **SafeCom Administrator** if it has been registered at a device or in SafeCom Administrator using a connected (card reader).
- 6032170000000295489=0103000
This is how the ID code needs to look like before import. The '=' character is inserted in order to get a resulting 'D'.
For the letter 'C' to appear insert '<'.
For the letter 'D' to appear insert '='.
For the letter 'E' to appear insert '>'.

Create users at first print

As discussed in [Create users at first print](#) this method keeps administrative overhead to a minimum.

1. On the **Servers** menu click **Properties**. In a multiserver solution these changes are only required on the SafeCom primary server.
2. Click the **Users** tab ([Users](#)).
3. Check **Create users at first print**.
4. Check **Create e-mail addresses** and enter the **E-mail domain**.
5. Check **Keep default user and use settings when creating new users** and select the **Default user**.
6. Click the **E-mail** tab ([E-mail](#)).
7. Verify that a valid **SMTP mail server** has been specified.

8. Check **E-mail PUK code to new users** and any other of the messages you may wish to enable.
9. Customize the e-mail messages if required ([Customize and translate e-mail messages](#)).

Add users manually

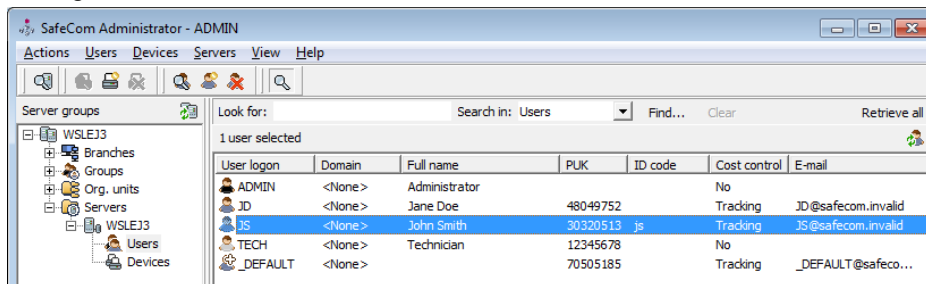
You can add users in the following ways:

- Right-click in the **Users list** and select **Add user**.
- On the **Users** menu click **Add user**.
- Click the **Add user** tool button.

Refer to the **User properties** dialog in [User properties](#) for a description of the fields.

Find users

1. p1. Click the **Find** tool button.
2. Change **Search in** to **Users**.

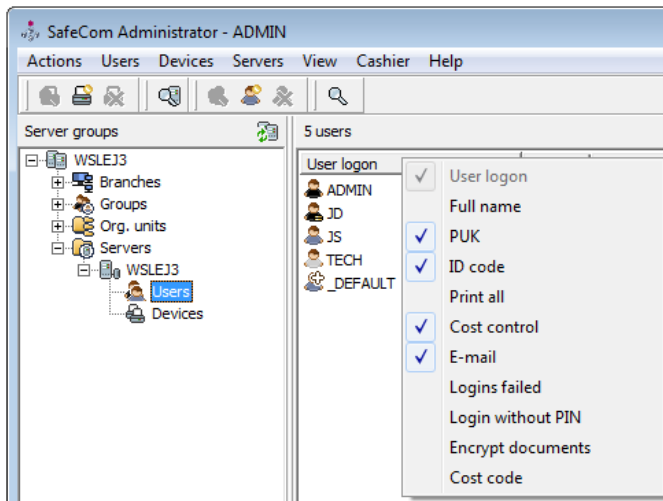


3. Enter search string in **Look for** and click **Find now**. The find function uses case insensitive free text search. Click **Retrieve all** to display all users regardless of their home server. Click **Clear** to reset the find function.
4. Or Click **Find...** to open the **Find users** dialog. Enter your find criteria and click **Find**. The find function is using field based case insensitive free text search, with the exception of ID codes. To find a particular ID code enter the complete **ID code** in the right case or click **Listen for card** if a card reader is installed on the computer ([Install a card reader on a computer](#)).

Customize the user list view

1. In the **User list** right-click one of the column headers, such as **User logon**.

2. Check the properties that should appear as columns in the **User list**.



Hide ID codes

For security reasons, viewing ID codes (user codes and card numbers) in **SafeCom Administrator** can be restricted for users with no administrator rights.

To hide ID codes:

1. Start SafeCom Administrator and log in.
2. Check Hide ID codes on the Users tab in the Server properties dialog.
3. Identify the users with administrator rights who are not allowed to see ID codes and make sure to change their user rights to Partial rights or lower.

Users with only **Partial** user rights can then no longer:

- See the ID codes on the ID code tab in the **User properties** dialog.
- View the column **ID codes** in the list of users.
- Open the **ID codes overview** dialog from the **Users** menu.
- See ID codes when testing a connected USB or Serial card reader.

Note Checking **Hide ID codes** does not affect the users view in SafeCom Web Interface. Hiding ID codes in the Web Interface must be set up in scWebConfigurator.exe. Refer to *SafeCom G4 Web Interface Administrator's Manual*.

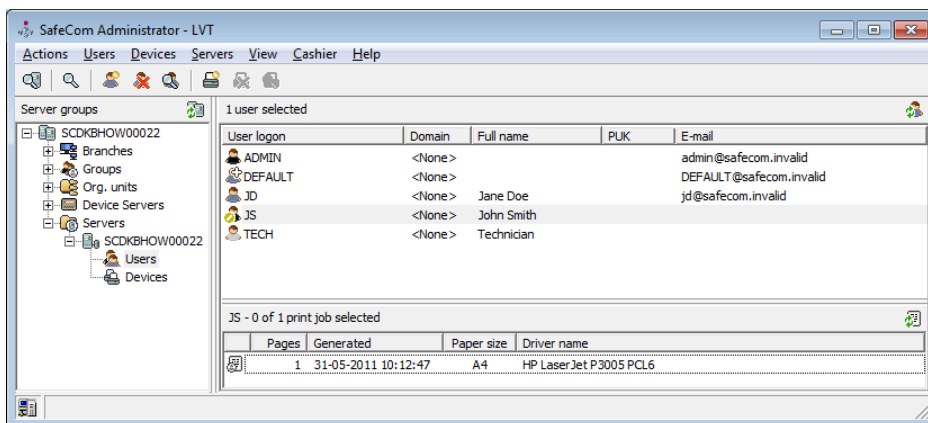
Hide document names

To hide document titles:

1. Start SafeCom Administrator and log in.

2. Check Hide Document names on the Users tab in the Server properties dialog.
3. Identify the users with administrator rights who are not allowed to see ID codes and make sure to change their rights to Full rights or lower.

A user with no administrator rights can then no longer see document titles in the list of print jobs under any user, including in the users own list of documents. It is also possible to hide document names in the print queue ([Configure the SafeCom Pull Port](#)).



Note Checking **Hide Document names** does not affect the users view in the SafeCom Web Interface.

Edit the properties of multiple users

1. Use **Find users** ([Find users](#)) to get a list of relevant users.
2. Do one of the following:
 - To select consecutive users, click the first user, press and hold down SHIFT, and then click the last user.
 - To select nonconsecutive users, press and hold down CTRL, and then click each user.
 - To select all the users in the window, press CTRL+A.
3. Press ALT+ENTER or right-click the selected user(s) and select **User properties**.
4. Make the required changes on the **Identification** and **Settings** tab.
 - On the **Identification** tab ([Identification](#)) it is possible to edit these properties: **Domain**, **Home server**, **Org. unit**, **Description**, and **Cost code**. It is possible to 1) click **Clear** to set the number of failed login attempts to zero, 2) Check or clear **Prevent login** and 3) Check or clear **Login without PIN code**.
 - On the **Settings** tab ([Settings](#)) it is possible to edit all properties.
 - On the **ID code** tab ([ID code](#)) it is possible to 1) click **PUK** to generate a new PUK code and 2) click **PIN code** to assign a default PIN code. The PUK code can be e-mailed to users ([E-mail](#)).
5. Click **OK**.

When editing multiple properties the following legend applies:

- **Check boxes** can have three states: Checked, clear and dimmed. If it is dimmed it is because the selected users have difference properties.
- **Fields** is shown with a light gray background color and the text N/A in black if the selected users have different properties.
- **Drop-down lists** is shown with a light gray background and the first element in the list.

Delete users

In the **Users list** select the users you wish to delete. You can delete the users in the following ways:

- Right-click the selected user and select **Delete user**.
- On the **Users** menu, click **Delete user**.
- Select the user and press the DEL key.

User redaction

About this feature

User redaction is a feature in SafeCom G4 Server available from version 10.530. This feature enables administrators to redact certain user-specific data, including personally identifiable information in the database for deleted users.

Scope of redaction

Data redaction includes tracking data and transactional data in databases of the primary server only. It overrides those database fields that can be used to identify a user, but the tracking and transaction data remains unchanged. The textual information replaced by a placeholder text of *Redacted field* and numeric values are reset to zero. The redaction procedure ensures that the users can be differentiated but not identifiable after deletion. It guarantees that SafeCom Reports shows appropriate statistical information including user reports.

How to use this feature

This feature is available through SafeCom Administrator.

Redacting upon deletion

The user deletion dialog provides a checkbox for redacting data for the user being deleted. When this checkbox is selected, user redaction takes place immediately upon deletion. If you select not to redact user data at deletion, you will still have a way to redact user data for previously deleted users, see below.

To redact data for a user upon deletion:

1. In SafeCom Administrator, select the users you would like to delete.

2. Press the **Delete** key, or right-click and click **Delete user**, or click on **Delete user** menu item in **Users** menu.
3. On the confirmation dialog that appears, select the check box with the **Permanently redact personal data** label.
4. Click **OK**.

Redacting a previously deleted user

The administrator can decide to redact data for users that have been deleted earlier in SafeCom.

To redact data for a previously deleted user, do the following:

1. In SafeCom Administrator, on the menu bar, click **Users**, and click **Redact user data**. The **Redact user data** dialog appears.
2. Under **Find users**, enter the search criteria for the deleted user you would like to redact.
3. Click **Find** to have a list of deleted users whose user logon, full name or email address contain the search criteria. An unfiltered list of deleted users can also be retrieved using blank value for search. The operation may result in large number of hits. Therefore, only the first 100 users are going to be listed.
4. In the **Users** list, select one or more users to redact, then click **Redact**.

Important notes about user redaction

Redacting is irreversible

User data redaction cannot be undone. This process results in unrecoverable data loss in the database in records related to the redacted user.

Data in logs or previously exported data is not redacted

SafeCom does not redact any data already written to software logs including SafeCom Event database, Event Log or trace logs. Personal user data can be found in previously exported tracking records, transactional data, user lists or database backups. The administrator should make sure that these previously exported files are cleaned up as needed.

Email warnings about the upcoming deletion of print jobs may contain personally identifiable data like the name of the print job.

Data in other tracking fields

Depending on usage, there are other fields in the database that may hold personally identifiable data such as the names of devices, billing code fields, port names, user cost code fields. These fields are not redacted by this feature.

Print job data may remain temporarily on servers or Print Clients after user deletion

When users are deleted from the system, their print jobs are not immediately deleted from the database. Print job lifetime is dependent on periodic job synchronization between servers, the schedule of database integrity checks and other job lifetime configurations.

In group print and delegated print scenarios, retained jobs may remain in the system.

Data stored on secondary servers and Print Clients is not redacted

Primary database may receive tracking records for an already deleted user from various sources.

Secondary servers or Print Client can work in offline mode. Tracking data including users' personal data is stored locally in this case. The administrator should make sure that the proper amount of time has passed between a user's last action and the time of redaction to make sure all data from secondary servers and Print Clients is synchronized with the primary server. Redaction only takes place on the primary server, and then changes in the database are propagated to secondary servers.

If the redaction was performed before data synchronization, then the operation must be repeated in order to have data redacted completely.

If tracking data arrives to the primary database after redaction and a new redaction is repeated by administrators later, the newly redacted records will not be associated with the earlier redacted tracking records by any of the relevant database fields.

Billing data may not be redacted if a user is deleted and redacted before the billing window closes

If a billing window is enabled, and all tracking records for a deleted user are waiting for user review, thus, no final committed records are in the tracking database yet, then this user cannot be found by the search operation in the Redact user data dialog box. In general, it is recommended to wait for the billing window to pass after redacting a deleted user.

Note that the tracking records for user review are also in scope of the data redaction procedure.

Information in jobs owned by non-redacted users is not redacted

In some scenarios, there may be information on redacted users in metadata of print jobs belonging to different, non-redacted users, even after the redaction takes place. For example, when a redacted user delegated a job to another user, the delegated print job will contain a reference for the redacted user as the delegator. This is a temporary situation. When these print jobs are printed or purged, this data is expected to disappear from the system.

Users with the same User logon property in different domains

In tracking and transactional data, SafeCom does not differentiate between users with the same User logon property but different domains. Although these User logons can be used to log in with different user credentials, they will be treated as one user during redaction, and data for all these users will be redacted.

The Redact user data dialog will only find users having jobs

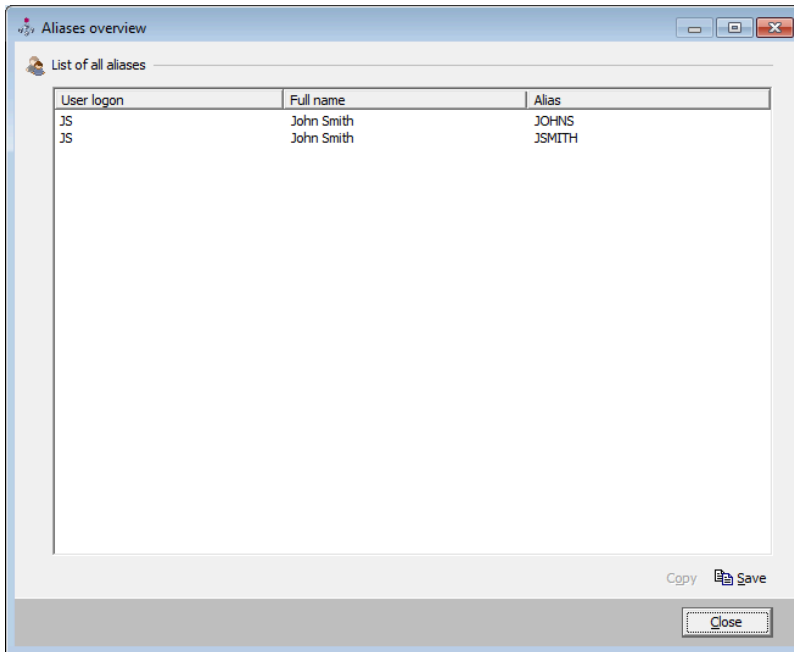
User search in the Redact user data dialog uses the core and tracking databases to find users. Those deleted users who have no released jobs will not be found by this dialog. This may affect Pay and Administrator users.

Redacting users in an upgraded SafeCom G4 Server environment

Data redaction works without any further limitation in an upgraded SafeCom environment. The upgrade mechanism guarantees that the database tables are upgraded according to the requirements of the feature.

List of aliases

1. On the **Users** menu click **Aliases...**



2. The **Aliases overview** dialog appears.
3. Click **Copy** to copy the selected aliases to the clipboard.
4. Click **Save** to save the list of aliases to file ([Save aliases to file](#)).

Save aliases to file

1. Open the **Aliases overview** dialog ([List of aliases](#)).
2. Click **Save**.
3. Select **Save as type** (XML or CSV) and enter **File name**. Click **Save**.

The XML tags are covered in the table in the following. The CSV column header is the same as the XML tag.

Parameter	Description
UserLogon	Logon name

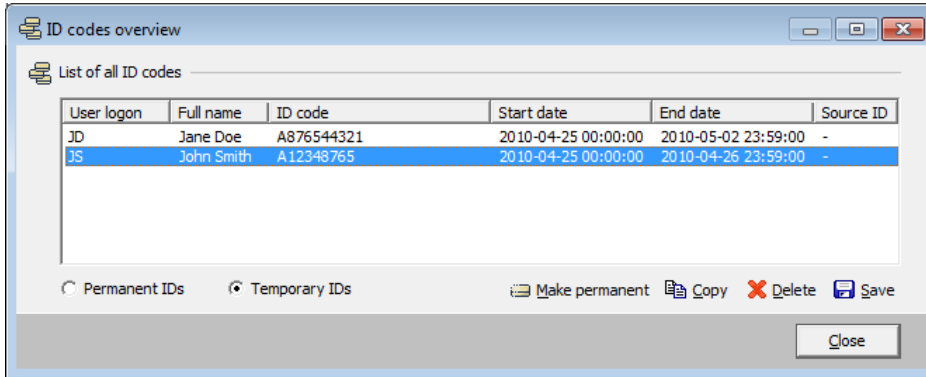
FullName	Full name
Alias	Alias

List of ID codes

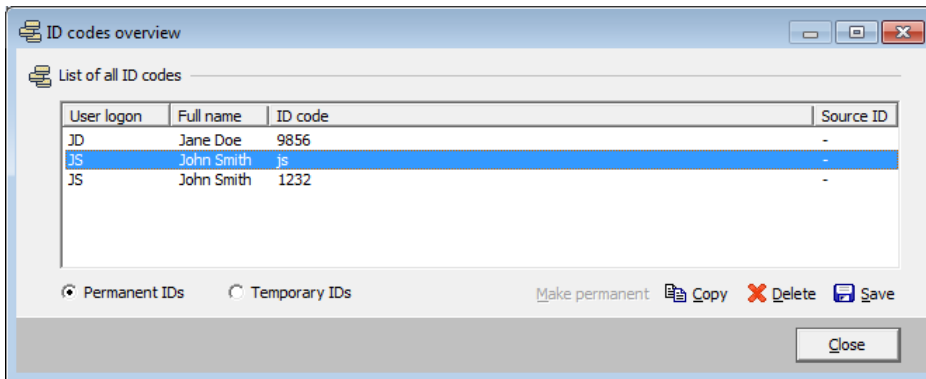
1. Open the **SafeCom Administrator** and log in.

Note Only users with administrator rights have the option to open the ID codes overview if **Hide ID codes** is checked in **Server properties** on the **Users** tab.

2. On the **Users** menu click **ID codes...**
3. The **ID codes overview** dialog appears. The list of temporary IDs is displayed by default.



4. Check **Permanent cards** to see list the permanent cards.



- Click **Make permanent** to change selected temporary ID(s) to permanent ID(s).
- Click **Copy** to copy the selected ID codes to the clipboard.
- Click **Delete** to delete the selected IDs from the user(s).
- Click **Save** to save the list of ID codes to file ([Save ID codes to file](#)).

Save ID codes to file

1. Open the **ID codes overview** dialog ([List of ID codes](#)).
2. Click the **Save** button. Either **Temporary IDs** or **Permanent IDs** are saved. The saved information includes User Logon, Full name and ID code (decrypted). If **Temporary IDs** are saved the **Start date** and **End date** is NOT included.
3. The **Save list of ID codes** dialog appears. Select **Save as type** (CSV, XML or TXT). Enter **File name** and click **Save**. The XML tags are covered in the table in the following. The CSV column header is the same as the XML tag.

Parameter	Description
UserLogon	Logon name
FullName	Full name
CardNo	ID code

Customize the format of ID codes

Default settings.

When a user generates an ID code via the SafeCom Web Interface, the ID code is set by default to the following:

- Six characters in length – with a minimum two digits and two letters (lower case only).
- Temporary – ID codes expire six months after they are created.

Also by default, the SafeCom solution sends three e-mail warnings to the user that their ID code is going to expire. The first e-mail is a three week warning, the second a two week warning and the last one is a seven day warning.

To customize ID code settings:

1. Open the IDCodeGenerating.txt file. The file is located in the %SafeCom%\Templates folder. By default located in:

```
C:\Program Files\ SafeCom\SafeComG4\Templates
```

The content of **IDCodeGenerating.txt**:

```

;-----
; This file specifies the configuration
; of generation of ID codes in SafeCom.
;; (c) 2011 SafeCom A/S
;-----
[Params]
Version="1"
CodePattern="11xx**"
ExpireWarning1="21"
ExpireWarning2="14"
ExpireWarning3="7"

```

2. Change the file as follows.

Note When choosing the number of characters in the ID code, make sure there are a sufficient number of permutations possible, considering the number of ID codes needed in your organization.

- **CodePattern:** This string specifies the minimum number of digits, minimum number of lowercase letters and the total length.
 - The string “11xx**” indicates a 6 character string, with minimum 2 digits (11) and 2 letters (xx).
 - The string “11111” indicates a 5 digit string.

Note: Only numbers 0-9 and letters a-z (lower case only) can be used. No special characters are allowed.

- **ExpireWarning1:** This string is when the first e-mail is sent warning that the ID code expires in the specified amount of days.
- **ExpireWarning2:** This string is when the second e-mail is sent warning that the ID code expires in the specified amount of days.
- **ExpireWarning3:** This string is when the final e-mail is sent warning that the ID code expires in the specified amount of days.

Note An automatic e-mail reminder can be set up to notify the user their ID code will soon expire ([Customize and translate e-mail messages](#)). The generated ID codes follow the settings configured under the **Users** tab of **Server properties (Users)**.

3. Save the changes to the file.
4. Copy the file from the **Templates** folder to the SafeCom install folder on the SafeCom primary server. The new template takes effect immediately after restarting the SafeCom service.

User has lost ID card

If a user loses their ID card the user needs to register another card.

1. Find the user ([Find users](#)).
2. Open the **User properties** dialog. Click on the **ID code** tab ([ID code](#)).
3. Click **PUK** to generate a new PUK code or enter the **ID code**.

User has forgotten ID code

If the user forgets their ID code, you can retrieve it.

1. Find the user ([Find users](#)).
2. Open the **User properties** dialog. Click on the **ID code** tab ([ID code](#)).
3. **Code** contains the ID code.

User has forgotten PIN code

If the user forgets their PIN code you can generate a new PIN code.

1. Find the user ([Find users](#)).
2. Open the **User properties** dialog. Click on the **ID code** tab ([ID code](#)).
3. Click **PIN code**.
4. Click **Random** to assign and display a randomly generated PIN code. Click **Default** to assign and display the default PIN code '1234'. Refer to [Allow users to change their PIN code](#) on how users can subsequently change the PIN code.

Delete a user's print jobs (documents)

Select the user, whose print jobs (documents) you wish to delete. In the **Job list** select the print jobs and you can delete them in the following three ways:

- On the **Jobs** menu, click **Delete job**.
- Right-click the selected job and select **Delete job**.
- Press the DEL key.

The job list may contain these columns:

- **Document name**. The name of the print job.
- **Pages**. The number of pages in the print job.
- **Generated**. The date and time when the job was stored.
- **Paper size**. The paper size (A4, Letter, ...).
- **Driver name**. The name of the print driver.
- **File location**. The computer where the print job is stored. The computer is running the SafeCom server software or the SafeCom Print Client.
- **Job distributor**. The SafeCom server the SafeCom Pull Port or SafeCom Print Client was referencing at the time of printing.

Customize and translate e-mail messages

E-mail messages can be customized and translated to give the users the highest user satisfaction. Dates are written according to the server's short format.

To use a specific e-mail template, copy the template file from the templates folder to the SafeCom installation folder on the SafeCom primary server. The new template automatically takes effect. The files are located in the %SafeCom%\Templates folder,

```
C:\Program Files\ SafeCom\SafeComG4\Templates
```

The e-mail templates:

- **EmailWelcome.txt** Send welcome message to new user if **E-mail welcome message to new users** is checked on the **E-mail** tab in the **Server properties** dialog ([E-mail](#)).
- **EmailPUK.txt** Send PUK code to user if **E-mail PUK code when generated** is checked on the **E-mail** tab in the **Server properties** dialog ([E-mail](#)).
- **EmailCode.txt** Send code to user if the EmailCode.txt file is located in the SafeCom installation folder. The E-mail is sent if the code is added in **SafeCom Administrator**, through APIs or via an import. If the user gets for example two codes during an import, then the user will receive two e-mails, one with each code.
- **EmailJobDelete.txt** Send note to author about document that has been deleted if **E-mail job deletion note to author of job** is checked on the **E-mail** tab in the **Server properties** dialog ([E-mail](#)).
- **EmailWarning.txt** Send warning to author and/or recipients about document to be deleted if **E-mail delete warning** is checked on the **E-mail** tab in the **Server properties** dialog ([E-mail](#)).
- **EmailIDCodeExpireWarning.txt** Send e-mail reminder to users warning them, that they have an ID code that is about to expire.
- **Email DelegateRequest.txt**
Send e-mail notification to potential user of SafeCom Delegate Print.
- **EmailDelegateRequestAccept.txt**
Send e-mail where a user accepts use of SafeCom Delegate Print.
- **EmailDelegateRequestReject.txt**
Send e-mail where a user rejects use of SafeCom Delegate Print.

In the **EmailWelcome.txt** and **EmailPUK.txt** file it is possible to use the tags:

- <%ACCOUNTINGMODEL="No|Tracking|Pay For Print"%>
- <%CREDITS%>
- <%ENCRYPTION="No|Yes"%>
- <%GROUPNAME%>
- <%LOGINWITHOUTPIN="No|Yes"%>
- <%PIN%>
- <%PRINTALL="No|Yes"%> <%PUK%>

EmailWelcome.txt<%SUBJECT="Welcome to SafeCom"%>

```
Dear <%USER%>,
You have been added as a user to the SafeCom solution.
You are about to experience the patented SafeCom Pull Print
technology. It gives you the freedom to collect your documents
at any SafeCom-enabled printer when it suites you.
When you print via SafeCom uncollected documents are deleted
after <%JOBDELETEDAYS%> day(s), <%JOBDELETEHOURS%> hour(s)
and <%JOBDELETEMINUTES%> min(s).
www.safecom.eu
```

EmailPUK.txt

```
<%SUBJECT="SafeCom PUK code"%>
Dear <%USER%>,Your PUK code is: <%PUK%>
When you present the card at a SafeCom-enabled printer you
will be prompted for the above PUK code.
Write down the PUK code and bring it with you so you can
enter it when you are at the printer.
```

Once you have entered the PUK code, you do not need the PUK code any longer.
www.safecom.eu

EmailCode.txt

```
<%SUBJECT="SafeCom ID code"%>
Dear <%USER%>,
You have been granted the following ID code:
<%CardNo%>
To login at the SafeCom-enable printer you can enter the
above code.
www.safecom.eu
```

EmailWarning.txt

```
<%SUBJECT="[SafeCom] Delete warning"%>
This mail is to inform you that
your document: <%DOCUMENTNAME%>
submitted on <%SUBMITDATE%><%SUBMITTIME%>
will be deleted on <%DELETEDATE%><%DELETETIME%>
<%USERLIST TEXT="Document has not yet been collected by:"%>
www.safecom.eu
```

EmailJobDelete.txt

```
<%SUBJECT="[SafeCom] Document deleted"%>
This mail is to inform you that
your document: <%DOCUMENTNAME%>
submitted on <%SUBMITDATE%><%SUBMITTIME%>
has been deleted.
<%USERLIST TEXT="Document was not collected by:"%>
www.safecom.eu
```

EmailIDCodeExpireyWarning.txt

```
<%SUBJECT="[SafeCom] ID code is about to expire"%>
This mail is to inform you that you have an ID code that
will expire on: <%DELETEDATE%><%DELETETIME%>
Please click the link below to generate a new ID code or
contact your administrator.
www.safecom.eu
```

EmailDelegateRequest.txt

```
<%SUBJECT="[SafeCom] Print delegate request"%>
Dear <%USER%>,
<%DELEGATEUSER%> has requested print delegation. Click the
link below to open a web browser and respond to the request.
http://server/safecom/<%DELEGATELINK%>
Print delegation enables you to submit delegated documents
to selected users and/or accept delegated documents from
selected users.
www.safecom.eu
```

EmailDelegateRequestAccept.txt

```
<%SUBJECT="[SafeCom] Print delegate request accepted"%>
Dear <%USER%>,
<%DELEGATEUSER%> has accepted your print delegate request.
www.safecom.eu
```

EmailDelegateRequestReject.txt

```
<%SUBJECT="[SafeCom] Print delegate request rejected"%>
Dear <%USER%>,
```

```
<%DELEGATEUSER%> has rejected your print delegate request.  
www.safecom.eu
```

Chapter 8

Manage devices

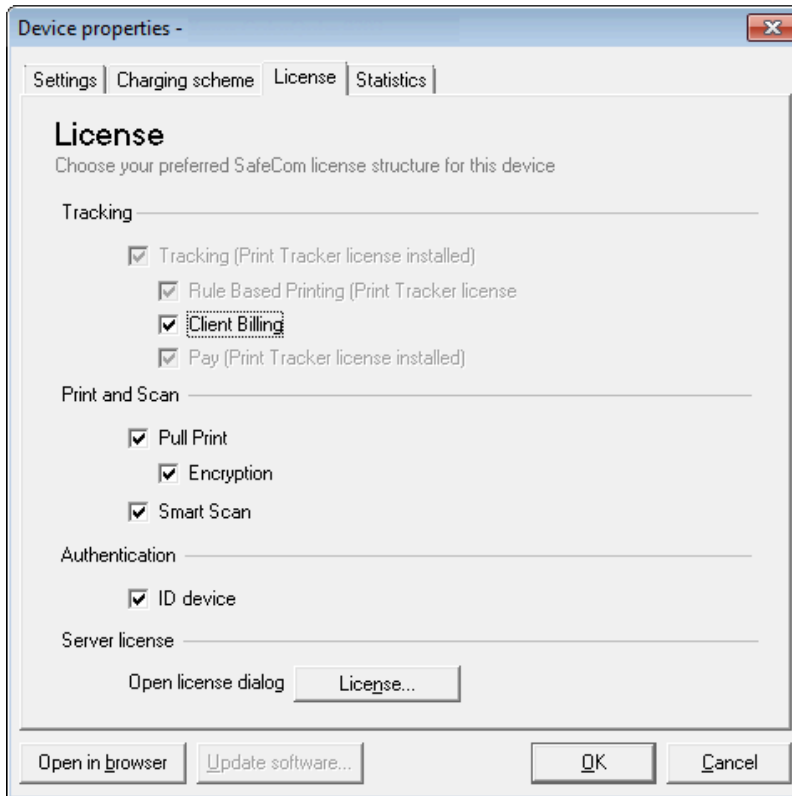
Introduction

From within **SafeCom Administrator** it is possible to manage SafeCom devices and do the following:

- **Device license** ([Device license](#)) Choose licenses for the device.
- **Add device** ([Add device](#)) Register a device in the database.
- **Add device to a SafeCom Device Server** ([Add a device to a SafeCom Device Server](#)) Register a device to a device server.
- **Find devices** ([Find devices](#)) Search the database for devices.
- **Broadcast for devices** ([Broadcast for devices](#)) Broadcast on the network to find SafeCom Controllers and devices with SafeCom Go.
- **Customize the device list view** ([Customize the device list view](#))
- **Edit the properties of multiple devices** ([Edit the properties of multiple devices](#))
- **Delete devices** ([Delete devices](#)) Remove a single or multiple devices from the database.
- **Update software** ([Import Ethernet Card Readers](#)) Load new software to a single or multiple devices.
- **Monitor device status** ([Monitor device](#)) See the online status of devices. Enable device status logging for troubleshooting purpose.
- **Restart devices** ([Restart devices](#)) Restart a single or multiple devices.
- **Open the device's web interface** ([Open in web browser](#)) The web interface that can be used for configuration.

Device license

On the **License** tab in the **Device properties** dialog it is possible to choose which SafeCom features should be enabled on the device in question.



The checked features are only accepted if the license key code allows the device features. Click **License...** to open the **License** dialog ([License](#)) to see if the license key code allows the additional features to be enabled for this device.


Add device

It is possible to add devices in the following ways:

- Right-click in the **Device list** and select **Add device**.
- On the **Devices** menu click **Add device**.
- Click the **Add device** tool button.
- In **System overview** click **Add device** (only present on single servers).

You need to know the IP address of the device. Alternatively you may try to **Broadcast** for the device ([Broadcast for devices](#)).

1. The **Add device** wizard is launched. Enter the Device address (hostname or IP address) and SNMP community name and click **Next**.



The screenshot shows a dialog box titled "Add device" with a close button (X) in the top right corner. The dialog contains the following text and fields:

Add device
Please type in the hostname or IP address of the device/controller and click the Next button to establish a connection to the device.

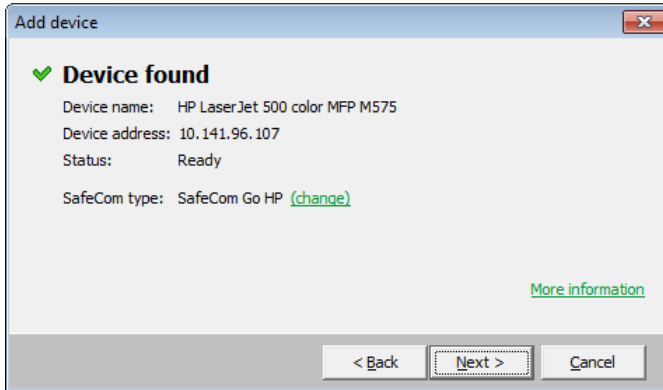
Device/controller
Address:

Device server
Address:

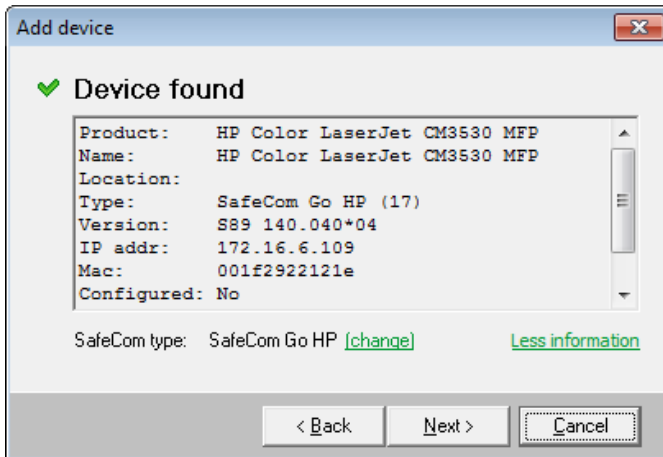
SNMP
Community name:

At the bottom of the dialog are three buttons: "< Back", "Next >", and "Cancel".

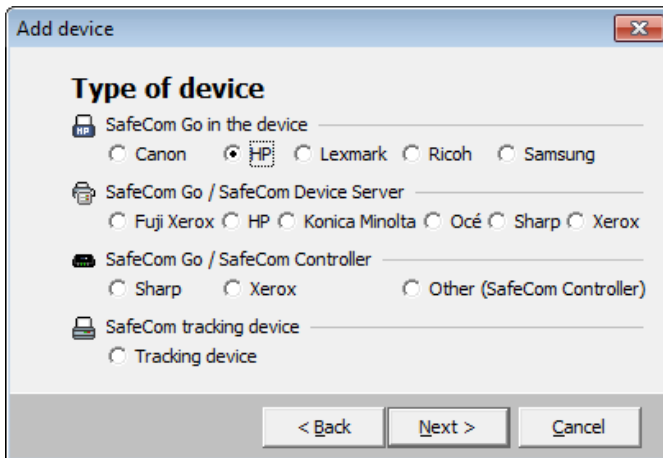
- Information is retrieved from the device to establish the type of device.



Click **More information** to see additional details:



- If you agree with the type of device click **Next**. Otherwise click **[change]** to change the **SafeCom type**.



4. Select the type of SafeCom device:
 - **SafeCom Go in the device**
 - **SafeCom Go/SafeCom Device Server**
 - **SafeCom Go/SafeCom Controller**
 - **SafeCom tracking device** ([SafeCom Tracking](#)).

Note If you select any device under **SafeCom Go/SafeCom Device Server** or **SafeCom Go/SafeCom Controller** you are prompted for the IP address or hostname of the MFP. You are also prompted for the user name and password needed to log in to the MFP.

5. Click **Next**.
6. On the **Settings** tab ([Settings](#)) specify the properties of the device (**Duplex supported** and **Color supported**).

The screenshot shows a window titled "Add Device - HP LaserJet 500 color MFP M575". It has tabs for "Settings", "Charging scheme", "License", and "Configure". The "Settings" tab is active, showing "SafeCom Go HP" with version "S95 310.050*26" and MAC "3cd92ba3b4b4". Under "General", there are fields for Name, Model, Home server (dropdown), Device server (dropdown), Location, Device address (10.140.26.157), and Community name (public). Under "Capabilities", there are checkboxes for Duplex supported, Color supported, Large format print, Restricted access, Push print (checked), and Allow Pay user. At the bottom are buttons for "Open in browser", "Add", and "Cancel".

7. Click **Add** to register the device and save it in the database.

Note The following step is only required if the SNMP community name is not **public**.

8. Locate the `scDevMonSettings.ini` file in your SafeCom installation directory, create the `[SNMPCommunityNames]` heading, and add the SNMP community name of the device in the following format: `<device IP address>=<SNMP community name>`.

Resend configuration

If a device added in the SafeCom Administrator is not configured correctly, or if the device must be reconfigured to a different server, it is possible to resend the configuration details (**Server address** and **Group name**) to the device.

1. Browse to **Devices** in the SafeCom Administrator.

2. Right-click the device and click **Resend configuration**.

The configuration details are now sent to the device and the configuration is successful when the message "Server is reconfigured" appears.

Note The Resend configuration functionality does not work with devices that are SafeCom enabled via the device server.

Add a device to a SafeCom Device Server

Before adding a device server device in SafeCom Administrator a **SafeCom Device Server** must be added to the **Device server** container in the left menu.

If the relevant device server is already added in the SafeCom Administrator, go to **Add device server device** ([Add device server and device server device](#)).

Add device server and device server device

If the SafeCom Device Server is installed on the same machine on which SafeCom Server is installed, it is automatically added to the Device Server section of SafeCom Administrator.

If the SafeCom Device Server is installed on a separate workstation, you must login to the Device Server web page, and specify the SafeCom Server there.

Note To delete the device server again you right-click the device server and select **Delete device server**.

The SafeCom Device Server is now added to SafeCom Administrator and you can now add a device ([Add device server device](#)).

Add device server device

1. Click the **Devices** container, right-click the content area and then **Add device**. The **Add device wizard** is now launched.

2. From the **Device server** drop down menu, select the relevant **SafeCom Device Server** and click **Next**.

Add device

Please type in the hostname or IP address of the device/controller and click the Next button to establish a connection to the device.

Device/controller _____
Address:

Device server _____
Address:

SNMP _____
Community name:

< Back Next > Cancel

3. Information is retrieved from the device server to establish the status of device server. Click **Next**.
4. Enter the **Printer address** (the device IP address or host name) and click **Next**.
5. Information is then retrieved from the device. Click **Next**.
6. Now select the type of device and click **Next**.
7. Enter the username and password, as specified on the device web page and click **Next**.

8. The device properties dialog now opens. Make sure to specify on the **Settings** tab the device server and the properties of the device (duplex and color supported), and ensure that the **SNMP community name** is correct.

Add Device - HP LaserJet 500 color MFP M575

Settings | Charging scheme | License | Configure

SafeCom Go HP
Version: S95 310.050*26 MAC: 3cd92ba3b4b4

General

Name: HP LaserJet 500 color MFP M575
Model: HP LaserJet 500 color MFP M575
Home server: BP-REC-S215
Device server: <None>
Location:
Device address: 10.140.26.157
Community name: public

Capabilities

Duplex supported Restricted access
 Color supported Push print
 Large format print Allow Pay user

Open in browser Add Cancel

9. Click **Add** to register the device and save it in the database. After approx. 2 minutes the device is added to the device server and available to be configured in **SafeCom Device Server**.

The device server device is now added and listed both under **Devices** in SafeCom Administrator, and on the Device Server webpage.

Print QR code for Mobile Pull Print

Allow users to Pull Print documents via their smart phone by printing a QR code for each device. Users then scan the QR code label at the device with their phone, thus identifying themselves and declaring their presence at the specific device.

The users must have a smart phone with the SafeCom Mobile Pull Print app for Android or iOS installed (you can download the app from the relevant app store). For more information about the Mobile Pull Print, refer to *SafeCom Mobile Pull Print User's Guide*.

Note SafeCom Mobile Pull Print requires SafeCom G4 and SafeCom Device Server.

Generate a QR code for a device:

1. In **SafeCom Administrator**, browse to the specific device.
2. Right-click the device and select **Generate QR code**.
3. In the **QR code for device** dialog, specify the print size and edit the text as appropriate.



4. Click **Print QR code**.
5. Now make the QR label available at the device for users to scan.

Note Make sure the **Default domain** is specified for device on the Device server web page, as the users are not prompted for domain when logging into a device using a smart phone. If the default domain is not specified, but the users are required to use domains, they can enter the domain with their username (domain\username).

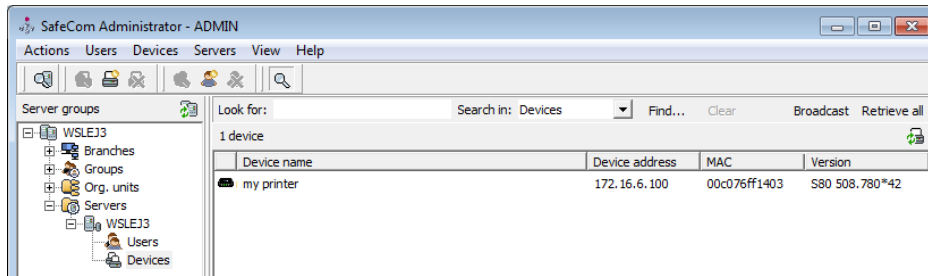
For details on how the user pull print documents at the printer refer to *SafeCom Mobile Pull Print User's Guide D20722*.

Find devices

Once a device has been registered you can use the find function in **SafeCom Administrator** to find it.

1. Click the **Find** tool button.

2. Change **Search in** to **Devices**.

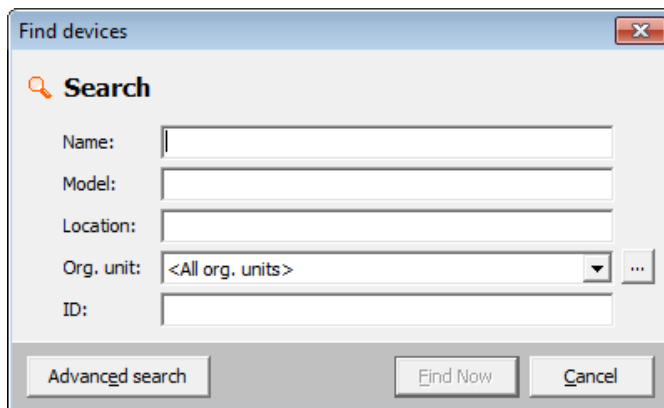


- Enter text in **Look for** and click **Find now**. The find function uses case insensitive free text search. Click **Retrieve all** to display all registered devices. Click **Broadcast** to broadcast for devices.
- Or Click **Find...** to open the **Find devices** dialog. The Find devices dialog is available in a **Simple** ([Simple search](#)) and **Advanced** ([Advanced search – Device licenses](#)) search mode. The latter is very useful if you want to search for devices based on their use of device licenses.

Simple search

The **Find devices** dialog opens in **Simple search** mode by default.

- Enter your find criteria and click **Find**. The find function is using field based case insensitive free text search.



- The search result appears with information about version and online status. Click the column label to sort the result. If you would rather see what license is in use by the different devices you can right-click in the **Device list** and check **Show device license**.

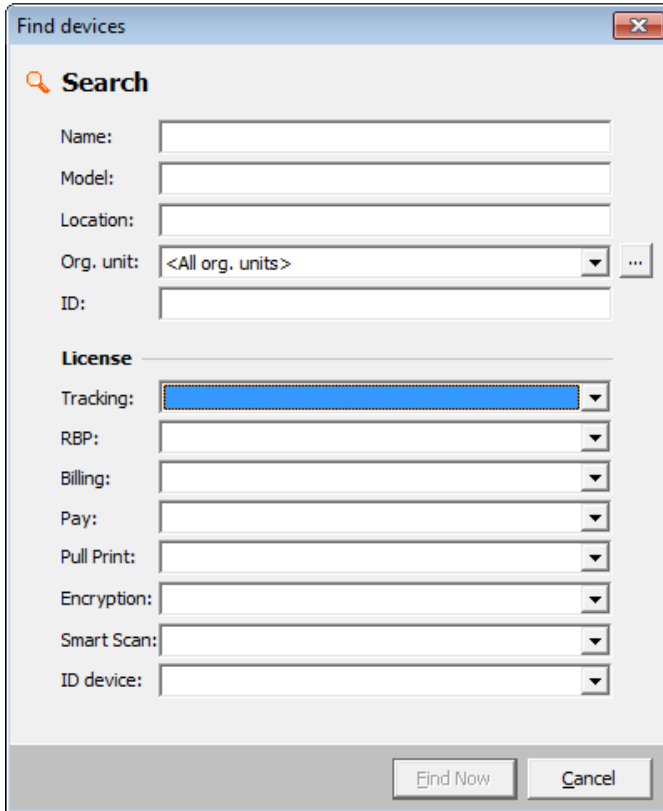
Advanced search – Device licenses

Click **Advanced** in the **Find devices** dialog to also search for devices based on their use of device licenses.

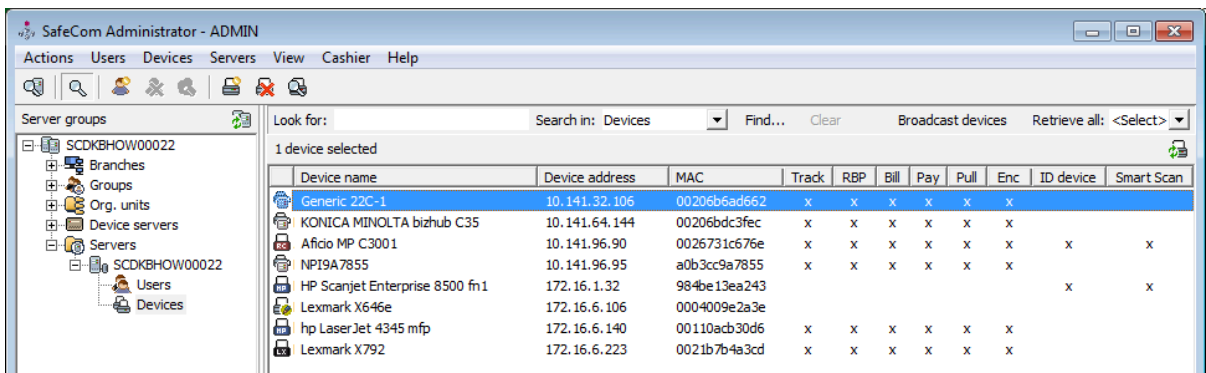
Examples:

- To find all devices that uses a Pull Print license change **Pull Print** to **Yes**.

- To find all devices that do not use a Client Billing license, change **Billing** to **No**.
- Enter your find criteria and click **Find**. The find function is using field based case-insensitive free text search.



- The search result appears with information about what license is in use by the different devices. Click the column label to sort the result.



If you would rather see the version and online status of the devices you can right-click in the **Device list** and clear **Show device license**.

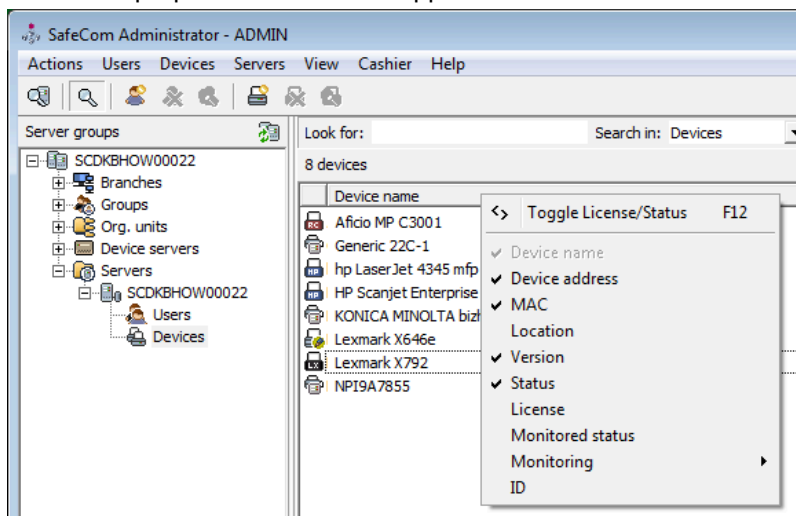
Broadcast for devices

1. Click on the **Find** button and select **Devices**.
2. Click **Broadcast...**

If a device does not appear it could be because it is powered off, not connected or not reachable because the network setup is not reflected by the list of **Broadcast addresses** ([Network](#)). If the device does not appear refer to troubleshooting ([SafeCom Administrator: Unable to locate all SafeCom devices](#)).

Customize the device list view

1. In the **Device list** right-click one of the column headers, such as **Device name**.
2. Check the properties that should appear as columns.



Edit the properties of multiple devices

1. Use **Find devices** ([Find devices](#)) to get a list of relevant devices.
2. Do one of the following:
 - To select consecutive devices, click the first device, press and hold down SHIFT, and then click the last device.
 - To select nonconsecutive device, press and hold down CTRL, and then click each device.
 - To select all the devices in the window, press CTRL+A.
3. Press ALT+ENTER or right-click the selected device(s) and select **Device properties**.

4. Make the required changes on the **Settings** and **Charging scheme** tab.
 - On the **Settings** tab ([Settings](#)) it is possible to edit these properties: **Model**, **Home server**, **Org. unit**, **Location**, **Duplex supported**, **Color supported**, **Restricted access** and **Disable Pay for Print**.
 - On the **Charging scheme** tab it is possible to edit all properties.
 - On the **License** tab ([License](#)) it is possible to edit all properties.
5. Click **OK**.

When editing multiple properties the following legend applies:

- **Checkboxes** can have three states: Checked, clear and dimmed. If it is dimmed it is because the selected devices have difference properties.
- **Fields** is shown with a light gray background color and the text N/A in black if the selected devices have different properties.
- **Drop-down lists** is shown with a light gray background and the first element in the list.

Delete devices

In the **Devices list** select the devices you wish to delete. You can delete the devices in the following ways:

- Right-click the selected devices and select **Delete device**.
- On the **Devices** menu, click **Delete device**.
- Press the DEL key.

Import Ethernet Card Readers

You can import multiple Ethernet Readers via a comma-separated csv file. First column is the IP address of the card reader, second is the **Home Server**, third is the **Secondary Server** (optional), fourth is the network address of the **Controlled Device**.

Note For **Home Server** and **Secondary Server**, use the values you set when adding those to SafeCom Administrator. You can check these under **Server properties** ([Server](#)).

Update software

In the **Devices list** select the devices you wish to update. The settings of the device are preserved during the software update. You can update the devices in the following ways:

- Right-click the selected device(s) and select **Update software**.
- On the **Devices** menu, click **Device properties**. In the **Device properties** dialog click **Update software...**
- The SafeCom Controller can also be updated via FTP.

Check the **Online status** ([Monitor device](#)) in **SafeCom Administrator** to ensure the device is powered on and ready to receive updated software.

SafeCom Controller	Software (*.b80)
SafeCom Controller Sharp OSA-enabled MFP Xerox EIP-enabled MFP	508xxx
SafeCom Controller 3 Port	312xxx
SafeCom Controller 1 Port	304xxx

SafeCom Device Server	Software
Fuji Xerox ApeosPort III, IV MFP HP LaserJet device with OXP and FutureSmart Konica Minolta OpenAPI-enabled MFP Océ OpenAPI-enabled MFP Sharp OSA-enabled MFP Xerox EIP-enabled MFP	No software on the device

Canon MFPs	Software (*.lic, *.jar)
Canon MEAP-enabled MFP	010xxx

HP MFPs and printers	SafeCom Go HP (*.b49, *.b89, *.uin)
CP4025, CP4525	151xxx
P3015	150xxx
CP3525	141xxx
CM3530 MFP	140xxx
CM6030 MFP, CM6040 MFP, CM6049 MFP	132xxx
CP6015	131xxx
P4014, P4015, P4515	130xxx
CP3505	121xxx
CM8050 MFP, CM8060 MFP	120xxx
P3005	111xxx
M3035 MFP, M4345 MFP, M4349, MFP CM4730 MFP, M5035 MFP, M5039 MFP, M9040 MFP, M9050 MFP, M9059 MFP, 9250C Digital Sender	110xxx
3000, 3800	102xxx
4730mfp	101xxx
4700	100xxx
4345mfp, 9040mfp, 9050mfp, 9500mfp	090xxx
2410, 2420, 2430, 4250, 4350	081xxx
9040, 9050	080xxx
4650, 5550	075xxx

Note SafeCom Go HP software can only be updated if a password is set for the admin account.

Lexmark MFPs and printers	SafeCom Go Lexmark (*.fls)
X463de, X464de, X466de, X466dte, X466dwe, X651de, X652de, X654de, X656de, X658de X734de, X736de, X738de, X738dte, X860e, X862e, X864e	021xxx
X642e, X644e, X646e, X646ef, X646dte, X782e, X782e XL, X850e, X854e, X940e, X945e	012xxx
T656dne	121xxx

Ricoh MFPs and printers	SafeCom Go Ricoh (*.b87, *.uin)
SP C320DN, SP C430DN, SP C431DN	150xxx
MP C300, MP C400, MP C2051,MP C2551, MP C3001SP, MP C3501SP, MP C4501SP, MP C5501SP, MP C6501SP, MP C7501SP	147xxx
SP 4210N, SP C820DN, SP C821DN	110xxx
MP 6001, MP 7001, MP 8001, MP 9001, Pro 907EX, Pro 1107EX, Pro 1357EX	100xxx
MP 2851, MP 3351, MP 4001, MP 5001, MP C2050, MP C2550, MP C2800, MP C3300, MP C4000, MP C5000	090xxx
SP C420DN	080xxx
MP 2550, MP 3550, MP 4000, MP 5000, MP C6000, MP C7500	060xxx
MP 1100, MP 1350, MP 5500, MP 6000, MP 6500, MP 7000, MP 7500, MP 8000, MP 9000, MP C2000, MP C2500, MP C3000, MP C3500, MP C4500 Pro906EX, Pro1106EX, Pro1356E	030xxx
MP 2510, MP 3010, MP 3500, MP 4500, 2051 (DSm651), 2060 (DSm660), 2075 (DSm675), 3025 (DSm725), 3030 (DSm730), 3035 (DSm735), 3224C (DSc424), 3228C (DSc428), 3232C (DSc432), 3235C (DSc435), 3245C (DSc445), 3260C (DSc460), 5560C (CS555)	020xxx

Samsung MFPs	SafeCom Go Samsung (*.b94)
Samsung XOA-enabled MFP	010xxx

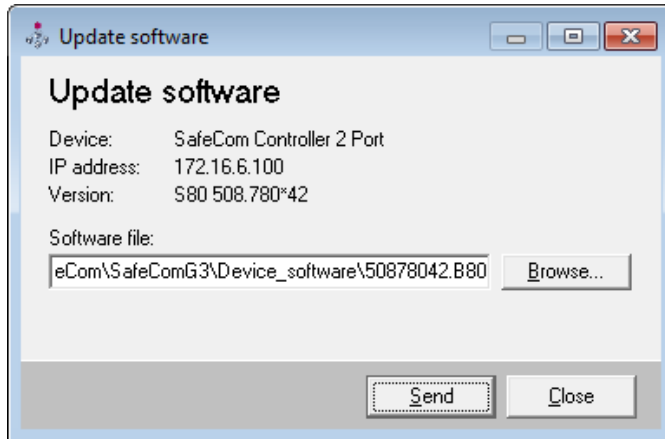
Location of device software

SafeCom Administrator will automatically pick the latest software version for updating if the files are located in the device_software subfolder to where you installed SafeCom G4 server software, normally:

```
C:\Program Files\SafeCom\SafeComG4\device_software
```

Single device software update

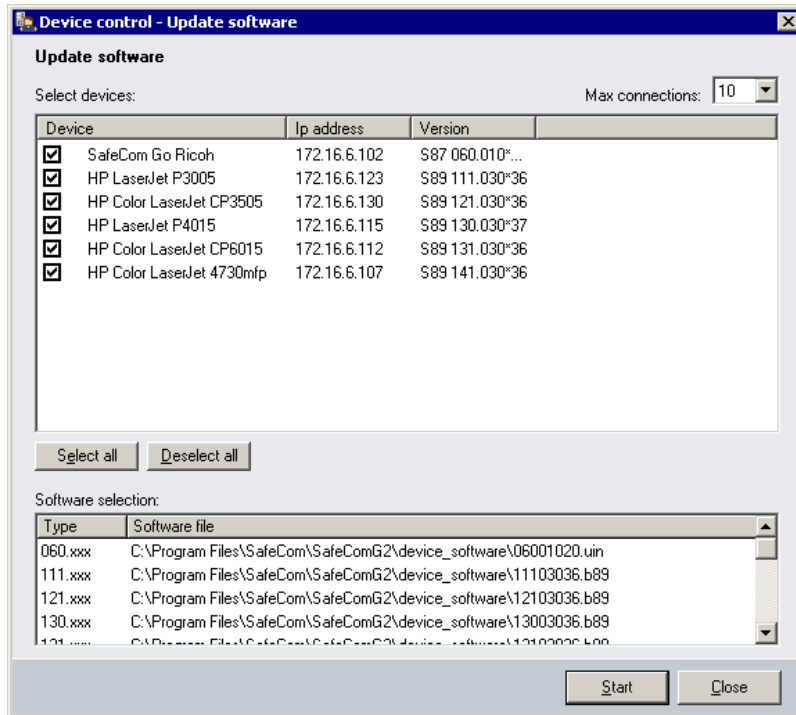
1. Open the **Device control** dialog as described in [Import Ethernet Card Readers](#). Specify the **Software file** or **Browse** to it.



2. Click **Start** to begin the software update process. If you are updating SafeCom Go HP software the **Device Authorization** dialog appears. Enter **User name** admin and the **Password**.
3. Click **Close** when the software update processes has been completed. After the process completes you can click **View log** to see the details. If the update process fails, try again. If you are updating SafeCom Go product you should refer to relevant *SafeCom Go Administrator's Manual* for troubleshooting hints.

Multiple devices software update

1. Select multiple devices. Open the **Device control** dialog as described in [Import Ethernet Card Readers](#).



2. If you have selected multiple types of devices you need to specify the **Software file(s)** for each type. Select <specify software file> and click on the browse button [...] to launch an **Open** dialog. Then browse to and select the software update file matching the select type. Repeat this step for each device type.

Max connections specify the maximum allowed devices that can be updated simultaneously. When you open the dialog the maximum connections is set to 10. You can specify a maximum of 1, 5, 10, 20, 50 or 100 connections. This limit is to ensure that the software update process does not occupy all the network bandwidth.

3. Click **Start** to begin the software update process. If you are updating SafeCom Go HP software the **Device Authorization** dialog appears. Enter **User name** admin and the **Password**.
4. Click **Close** when the software update processes has been completed for the selected devices. If the update process fails, try again or refer to Troubleshooting chapter in the appropriate *SafeCom Go administrator's Manual* (See list in section [Available documentation](#)).

Monitor device

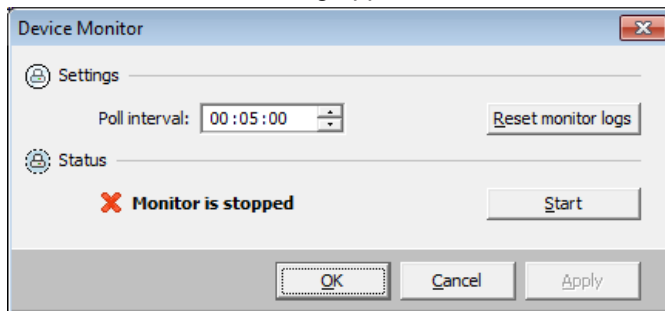
To monitor the status of the SafeCom devices from within **SafeCom Administrator** you have two possibilities:

- **Online status** (simple) In the **Devices** pane right-click any of the headers (**Device name, IP address, ...**) and check **Online** to enable status for all devices. Press F5 to retrieve device status.
- **Device status logging** (troubleshooting) Device status logging allows monitoring of reboots, uptime and response time of selected SafeCom devices. Can be very useful in troubleshooting situations. Follow the steps below to start device status logging.

Note Be aware that Device Monitoring requires a full SafeCom G4 installation to work, if only a Tools installation is used, the required service is not included, thus the Device Monitoring feature cannot be taken into use.

Start the device monitor:

1. On the **Devices** menu click **Monitor setup...**
2. The **Device Monitor** dialog appears.

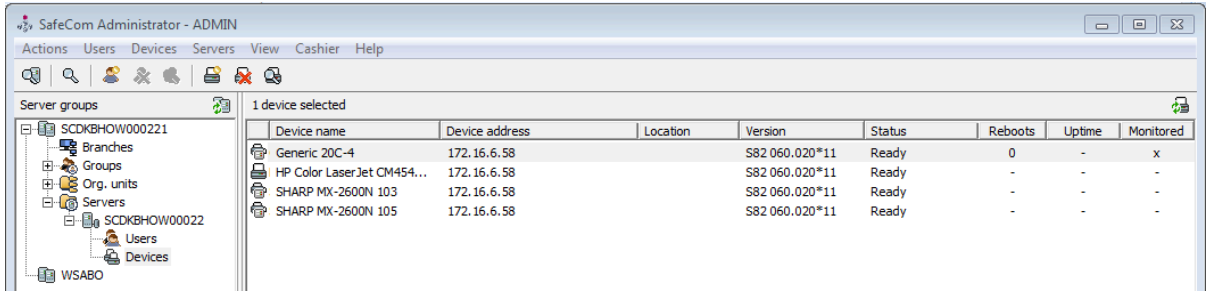


3. The default **Poll interval** is 5 minutes. Click **Start** to launch the scDevMonServer.exe process.

Enable monitoring on selected devices:

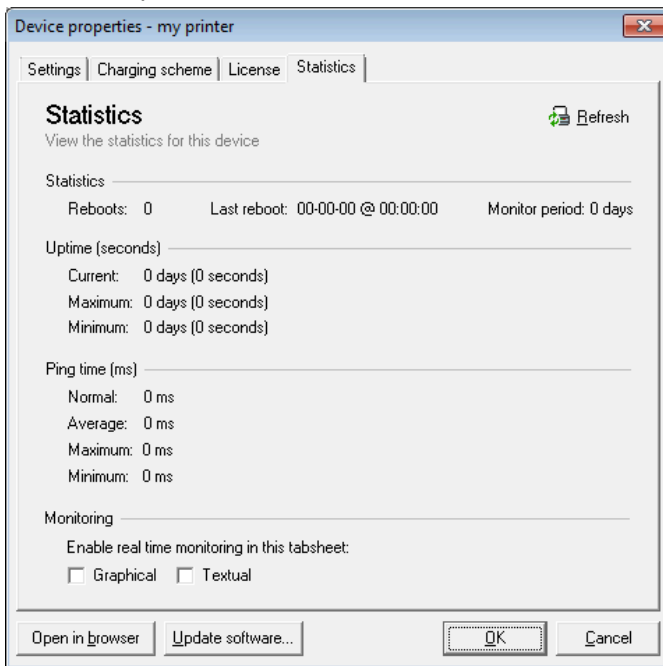
1. Use **Find devices** ([Add a device to a SafeCom Device Server](#)) to get a list of relevant devices.
2. In the **Devices** pane right-click any of the headers (**Device name, IP address, ...**) and check one of the following:
 - **Monitored status** The **Monitored** column to appear. An x indicates that the device is monitored and a – indicates that the device is not monitored.
 - **Monitoring** -> Allows you to control what details should be presented in the columns. Choose between **Reboots, Uptime, Avg. ping** and **Normal ping**. Select **All** to choose all of the above.

3. Right-click a device and click **Monitor device**.

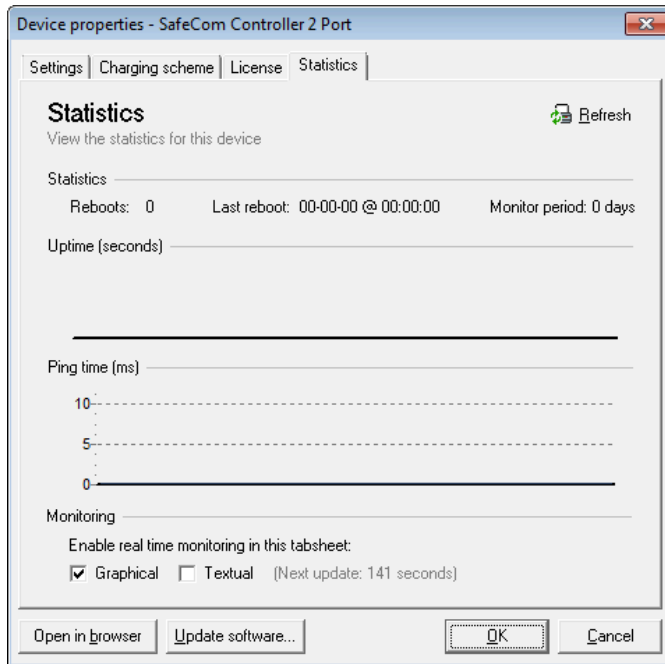


Look at device statistics

1. Open the **Device properties** dialog.
2. Click on the **Statistics** tab. The statistics tab is not presented if you have opened multiple devices.
3. A textual representation of the statistics is shown.



4. Check **Graphical** to see a graphical representation of the statistics.



Restart devices

Devices can be restarted from within **SafeCom Administrator** in two ways:

- Right-click in the **Device list** and select **Restart...**
- On the **Device** menu, click **Restart...**

Open in web browser

The SafeCom devices have a web interface that can be used for configuration. The web interface can be opened in the following ways:

- Right-click in the **Device list** and select **Open in web browser**.
- In the **Device properties** dialog ([Settings](#)) click **Open in browser**.

Restrict users' access to devices

1. Build an organizational tree by adding org. units as required ([Organizational units](#)).
2. Associate users and devices to the org. units.
3. Check **Restricted access** in the **Device properties** dialog of the intended devices ([Settings](#)).

DHCP server

You can assign a fixed IP address in the DHCP server. If you know the MAC address you can log in to the DHCP server to determine which IP address has been assigned. The MAC address of the SafeCom Controller is printed on the white label on the bottom of the SafeCom Controller. The MAC address is a 12-digit hexadecimal number.

Example: 00C076FF00F2

Shorten job names in document list

Redundant text such as Microsoft Word, Microsoft Excel and http:// can be excluded from the job name that appear in the **Document list** in the SafeCom Front-end (available as the first action after you click **MORE...**) and in the device's control panel if SafeCom Go is used.

The text to exclude is controlled by the `ExcludeJobNames.txt` file located in the `%SafeCom%\Templates` folder. The `%SafeCom%` indicates the SafeCom installation folder, normally:

```
C:\Program Files\ SafeCom\SafeComG4
```

1. Copy the `ExcludeJobNames.txt` file from the `%SafeCom%\Templates` folder to the `%SafeCom%` folder.
2. Modify the `ExcludeJobNames.txt` file in the `%SafeCom%` folder to match your requirements.
3. Restart the **SafeCom Service** ([How to start and stop the SafeCom Service](#)).

Note Subsequent modifications to the file in the `%SafeCom%` folder will take immediate effect.

ExcludeJobNames.txt

```
-----  
; This file specifies text to be excluded from  
; job names in the SafeCom Front-end.  
;  
; Text is excluded if appearing as the first part  
; of the job name.  
;  
; (c) 2003 SafeCom A/S  
-----  
Version="1"  
Item="Microsoft Word - "  
Item="Microsoft Excel - "  
Item="http://"
```

Chapter 9

SafeCom Tracking

Introduction

The SafeCom Tracking makes it possible to track print and MFP usage and costs on a per device and user basis.

You can use **SafeCom Reports** ([SafeCom Reports](#)) to view tracking data and generate reports.

Pull print tracking

Pull print tracking makes it possible to track print costs on SafeCom Pull printers. Tracking is performed by the special port monitor **SafeCom Pull Port**.

The Pull print tracking process:

1. The **SafeCom Pull Port** analyzes the document in regards to number of pages, paper size, and possible use of color and duplex.
2. The **SafeCom Pull Port** transfers the document and the resulting tracking data to the SafeCom server. The document remains on the SafeCom server until the user collects it. Documents that are not collected are automatically deleted after a configurable time.
3. When the user collects the document the price is calculated based on the charging scheme of the selected device. If **Post track** ([Post track](#)) is enabled the tracking data can be adjusted according to the information that is available from the device at print time.

Push print tracking

Push print tracking makes it possible to track print costs without installing dedicated SafeCom hardware. Push print tracking requires the use of the special port monitor **SafeCom Push Port**.

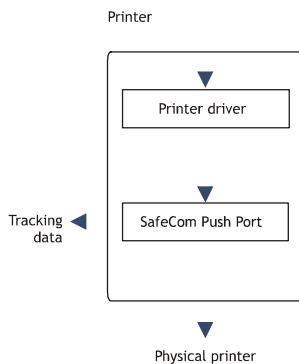
The Push print tracking process:

1. The **SafeCom Push Port** analyzes the document with regards to number of pages, paper size, use of color and duplex.

2. The **SafeCom Push Port** transfers the resulting tracking data to the SafeCom server where the data is registered under the appointed **tracking device** and the price is calculated based on the charging scheme.
3. The **SafeCom Push Port** can be configured to either:
 - **Print directly** The document is output directly to the physical device's TCP (port 9100). Refer to [Printing directly](#).
 - **Print via a second printer** The document is forwarded to the port monitor of a second printer, which in turn outputs the document directly to the physical device. The second printer is also called the **output device**. Refer to [Printing via a second printer](#).

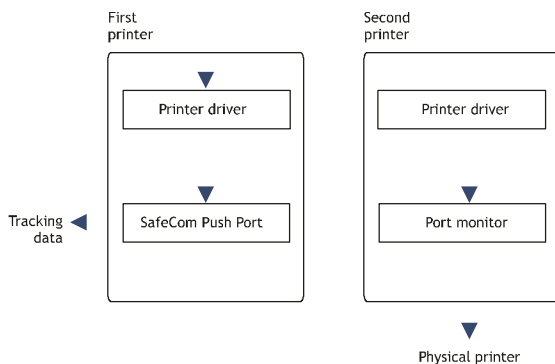
Printing directly

The method of printing directly is illustrated below:



Printing via a second printer

The method of printing documents via a second printer (**output device**) is illustrated below:



When printing via a second printer, the printer driver of the first printer formats the document, whereas the printer driver of the second printer (the output device) is not used.

The port monitor on the second printer communicates directly with the physical printer. This concept gives you the freedom to use your printer vendor supplied port monitor. Port monitors may support such protocols as: LPR, TCP (port 9100), DLC, PjL, AppleTalk or SCSI.

Only the first printer should be shared. Sharing the secondary printer will enable users to print and bypass tracking.

Note There must be one instance of the **SafeCom Push Port** per physical printer on each machine.

Add a secondary printer (output service)

As explained above the SafeCom Push print concept involves two print queues, print directly, or print via secondary printer.

In the following it is described how to add a secondary printer (output service).

1. Open the Windows **Control panel** and browse to printers.
2. Open the **Add Printer** wizard.
3. Click **Add a local printer**.
4. Choose an existing port that is used to connect to the printer. Click **Next**.
5. Click **Have Disk** and browse to install the files from the printer manufacturer's installation disk (or downloaded the files from the manufacturer's web site). Click **OK**.
6. Click **Next**.
7. Enter a **Printer Name**. Click **Next**.
8. Select **Do not share this printer**. Click **Next**.

Note Do not make this printer your default Windows printer.

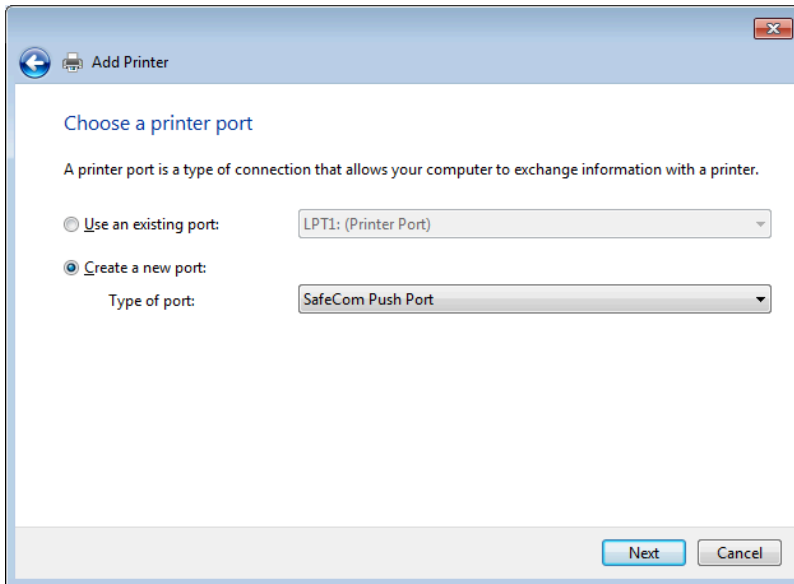
9. Click **Print a test page** to verify the system. Click **OK** when prompted to confirm that the test page printed correctly. Click **Finish**.

Add the first printer (SafeCom Push Port)

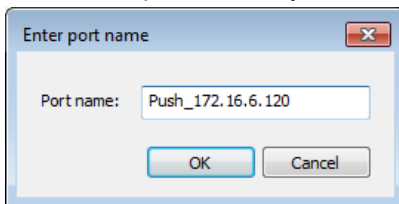
If you are printing directly via TCP/IP port 9100, follow these steps to add the first printer (SafeCom Push port).

1. Open the Windows **Control Panel** and browse to **Printers**.
2. Open the **Add Printer Wizard**.
3. Click **Add a local printer**.

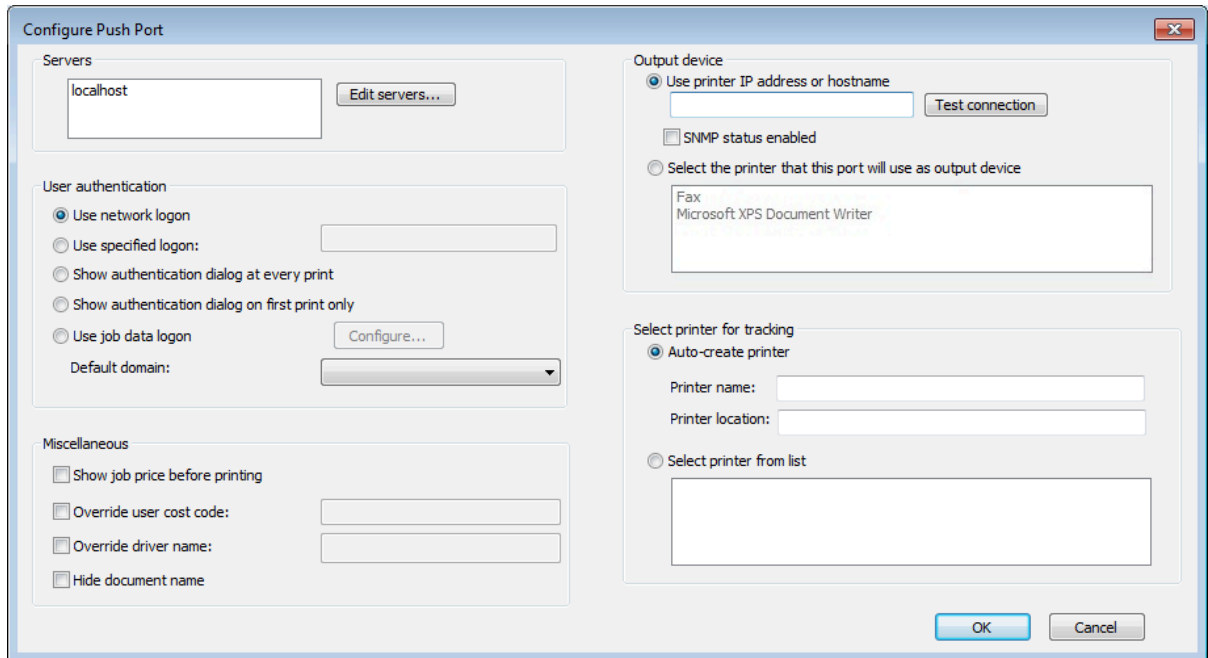
4. Choose **Create a new port** and select **SafeCom Push Port** from the drop-down list. Click **Next**.



5. Enter a unique name of your choice for the port in **Port Name**. Click **Next**.



6. The dialog box **Configure Push Port** appears.



7. In **Servers** click **Edit servers...** to add, remove, change, or test the connection to the SafeCom server.

Note It is not possible to edit an entry on the SafeCom server list in the **Edit servers** dialog. Instead you have to remove the server and then add a new.

8. Set up the **User authentication** as required according to the following descriptions.

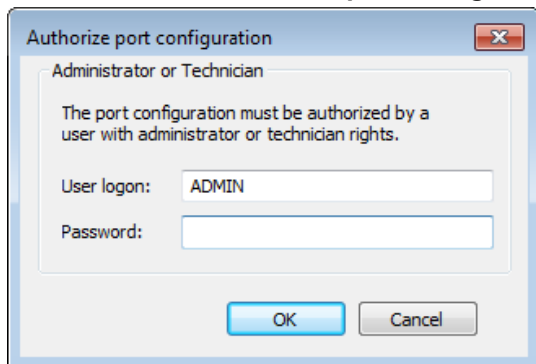
- Select **Use network logon** to use your Windows logon as your SafeCom user logon when printing.
- Select **Use specified logon** and enter the SafeCom user logon of the user who is to receive all future prints sent to the print queues that uses this push port. This can be combined with **Group print** ([Group print](#)) by specifying the name of the group instead of the name of a user.
- Select **Show authentication dialog at every print** if the user should be prompted every time they print. **SafeCom PopUp** must be running on the user's computer to show dialog that prompts for the login ([SafeCom Print Authentication dialog](#)). Up to 10 minutes may elapse before the choice take effect. The time is configured by the Windows registry setting `CacheExpireSuccess`.
- Select **Show authentication dialog on first print only** if the user should only be prompted the first time they print. **SafeCom PopUp** must be running on the user's computer to show the dialog that prompts for the login ([SafeCom Print Authentication dialog](#)). Up to 10 minutes may elapse before the choice take effect. The time is configured by the Windows registry setting `CacheExpireSuccess`.
- Select **Use job data logon** to extract the logon from the job data ([Configure Use job data logon](#)).
- Select a **default domain**, to save the user to enter domain.

9. In **Output device** you need to check **Use printer IP address or hostname** and specify the IP address if you are printing directly. Click **Test connection** to display the Printer Properties dialog and to test the connection to the printer.

The printer must be online and allow SNMPv1 access via UDP port 161, otherwise you will get the message: **Not able to connect to printer**.

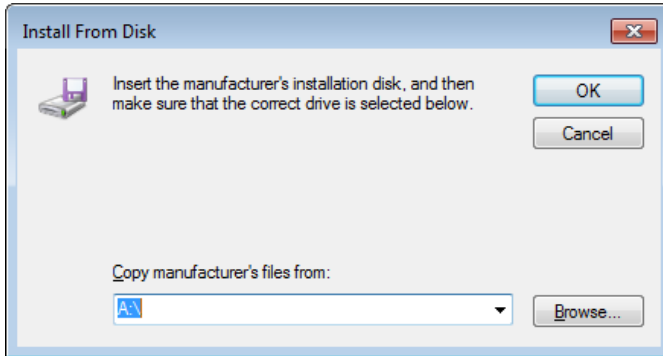
Note If you are printing via a second printer you need to check **Select the printer that this port will use as output device** and select one of the output devices.

10. Check **SNMP status enabled** if you want SNMP status to be reported.
11. In **Select printer for tracking** you can check **Select printer from list** and choose a tracking device. Alternatively check **Auto-create printer** and then enter a **Printer name** and an optional **Printer location**.
12. In the **Miscellaneous** section select according to the following descriptions:
 - **Show job price before printing:** Check if users are to unconditionally see dialog with the cost of the document before they print. If the printer is a shared printer users **MUST** have SafeCom PopUp ([Add a SafeCom Push Port](#)) setup and running on their computer in order to confirm that they wish to print the document.
 - **Override user cost code:** The specified cost code overrides the cost code of the user who prints. Example: If John Smith has the cost code 2949 and prints to a Push Port where a cost code of 1009 is specified the resulting UserCostCode parameter in the tracking record will show 1009 and not 2949.
 - **Override driver name:** The specified driver name overrides the driver name supplied by the printer driver. This is particular useful to differentiate printers using the HP Universal Print Driver.
 - **Hide document name:** Select this option to enable hiding document names in the print queue. This allows for a more secure printing, as it eliminates the chance of unauthorized people seeing the original document names as these will appear encrypted. Note that if printer pooling is enabled, all printers of the same print queue must have the same value for this setting.
13. Click **OK** and the **Authorize port configuration** dialog opens.



14. Enter **User logon** and **Password** for a user with SafeCom Administrator or Technician rights. Click **OK**.

- Click the button **Have Disk** and in the **Install From Disk** dialog browse to the files from the printer manufacturer's installation disk (or downloaded the files from the manufacturer's web site). Click **Next**.



- Enter a **Printer Name**. Click **Next**.
- Select **Share this printer** and enter **Share name** (P101). Click **Next**.
- Set up whether or not this printer should be your default Windows printer. Click **Print a test page** to verify the system. Click **OK** when prompted to confirm that the test page printed correctly. Click **Finish**.

Check the **Properties** of the printer:

- Back in the **Control Panel** right-click the printer, and then click **Printer Properties**.
- On the **Device Settings** tab check settings, such as paper size in the trays and installable options.
- On the **Advanced** tab check **Start printing after last page is spooled**. This is required in order for the tracking and billing information to be correct. Also it allows for faster spooling.
- Click **OK**.

Set TCP port to another value than 9100

The SafeCom Push Port will by default print directly to port 9100. However this can be changed as follows:

- Stop the **SafeCom Service** and the **Print Spooler**.
- Open the **Registry Editor** and browse to:


```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Monitors\SafeCom Push Port\Ports
```
- Browse to the relevant instance of the port.
- Right-click **Output Ip Port** select **Edit** and change the value from 9100 to TCP port value to be used. Click **OK**.
- Exit the **Registry Editor**.
- Start the **SafeCom Service** and the **Print Spooler**.

Allow printing at all times

The port monitors will allow print on server error by default. The behavior can be controlled via the **Registry Editor**.

It is possible to create and specify an overall AllowPrintOnServerError setting for the SafeCom Push Port. A setting like this will also prevent dropping of print jobs in case the SafeCom Push Port is referencing a non-existing tracking device.

1. Stop the **SafeCom Service** and the **Print Spooler**.
2. Open the **Registry Editor** and browse to: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Monitors\SafeCom Push Port\Ports
3. Create a new DWORD named AllowPrintOnServerError. It can take any of the following values:
 - 0: Do not print on server error.
 - 1: Allow print on server error (Default).
4. Exit the **Registry Editor**.
5. Start the **SafeCom Service** and the **Print Spooler**.

The overall AllowPrintOnServerError setting takes effect, when local PrintOnJdbError for the SafeCom Push Port has a value of 2.

Follow these steps to change the port specific PrintOnJdbError setting:

1. Stop the **SafeCom Service** and the **Print Spooler**.
2. Open the **Registry Editor** and browse to:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Monitors\SafeCom Push Port\Ports\<port>
```

 - 0: Do not print on server error.
 - 1: Allow print on server error.
 - 2: Use the overall setting AllowPrintOnServerError (Default).
3. Browse to the relevant instance of the port.
4. Right-click **PrintOnJdbError** select **Edit** and change the value. Click **OK**.
5. Exit the **Registry Editor**.
6. Start the **SafeCom Service** and the **Print Spooler**.

SafeCom Port Configurator

SafeCom Port Configurator is a wizard-based tool for converting existing TCP/IP²⁵ printers to SafeCom Push printers and revert SafeCom Push printers back to their original TCP/IP settings. The tool allows viewing of printers in the domain and easy launch of the Port configuration dialog for TCP/IP, Push and

²⁵ A TCP/IP printer is a Windows print queue that uses the Standard TCP/IP port monitor.

Pull printers. Selected settings in the scPortConfigurator.ini file ([scPortConfigurator.ini](#)) can be edited to customize the behavior of **SafeCom Port Configurator**.

This chapter includes:

- [Install SafeCom Port Configurator](#) (Install SafeCom Port Configurator)
- [Start SafeCom Port Configurator](#) (Start SafeCom Port Configurator)
- [Add server](#) (Add server)
- [Convert to Push](#) (Convert to Push)
- [Restore to TCP/IP](#) (Restore to TCP/IP)
- [List and repair printers](#) (List and repair printers)
- [Read servers from file](#) (Read servers from file)
- [scPortConfigurator.ini](#) (scPortConfigurator.ini)
- [Troubleshooting](#) (Troubleshooting)

Install SafeCom Port Configurator

SafeCom Port Configurator can be installed in the following two ways:

- **Server installation** It is always installed as part of a **Server** installation ([Server installation \(Basic\)](#)).
- **Tools installation** Optional when doing a **Tools** installation by checking **SafeCom Port Configurator**. If you intend to make a **Client** and **Tools** installation on the same computer, you should make the **Client** installation ([Client installation](#)) first.

The SafeCom installation files are copied to the SafeCom installation folder.

The default is:

```
C:\Program Files\SafeCom\SafeComG4
```

Start SafeCom Port Configurator

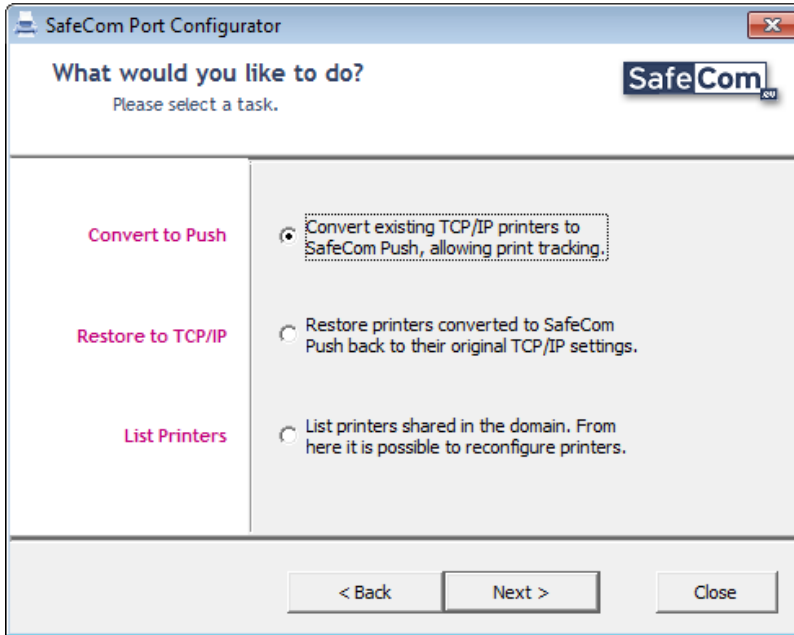
The SafeCom Port Configurator enables you to:

- **Convert to Push** ([Convert to Push](#)) Convert existing TCP/IP printers to SafeCom Push, allowing SafeCom Tracking and SafeCom Rule Based Printing.
- **Restore to TCP/IP** ([Restore to TCP/IP](#)) Restore printers converted to SafeCom Push back to their original TCP/IP settings.
- **List and Repair Printers** ([List and repair printers](#)) List printers in the domain and reconfigure these.

To start the SafeCom Port Configurator:

1. Click **Start**, point to **All Programs**, click **SafeCom G4**, and then **SafeCom Port Configurator**. Alternatively click scPortConfigurator.exe if a separate installation ([Install SafeCom Port Configurator](#)) was performed.

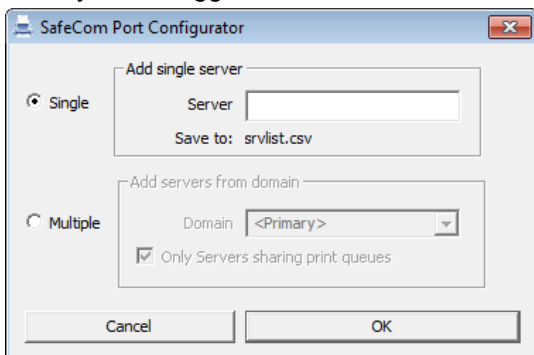
2. The **SafeCom Port Configurator** wizard appears, and you can choose the task you want to perform.



Add server

The SafeCom Port Configurator will by default list printers on the local server only. To use it to convert, restore and list printers on other servers you must add these servers to the list of servers. The list of servers is saved to and read from a file ([Read servers from file](#)).

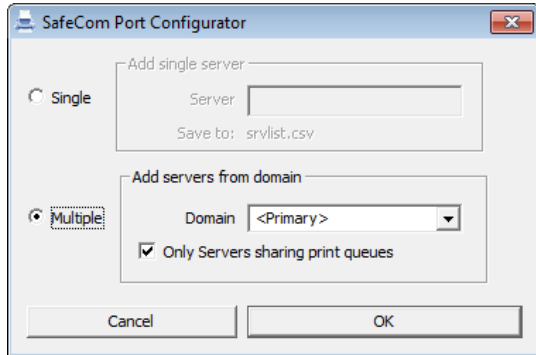
1. Start **SafeCom Port Configurator** ([Start SafeCom Port Configurator](#)) and select what you would like to do:
 - **Convert to Push** ([Convert to Push](#))
 - **Restore to TCP/IP** ([Restore to TCP/IP](#))
 - **List and Repair Printers** ([List and repair printers](#)).
2. Once you are logged in, click **Add server...** and the **Add server** dialog appears.



3. To add just one server select **Single**, enter the **Server** (Host name or IP address). Click **OK**.

Note If the server is clustered you must reference the Virtual Server.

4. To add multiple servers select **Multiple**, then select the **Domain**. Click **OK**.



Once a server has been added it is stored in a file. In section [scPortConfigurator.ini](#) it is covered how you can customize behavioral settings of **SafeCom Port Configurator**.

If you wish to remove a server open the file and remove the row containing the server(s) in question ([Read servers from file](#)).

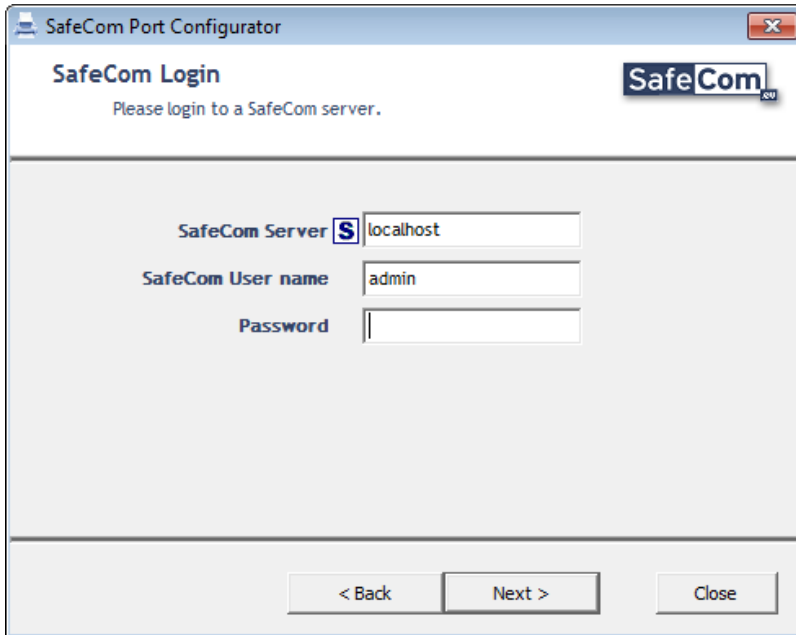
Convert to Push

To convert existing TCP/IP printers to SafeCom Push:

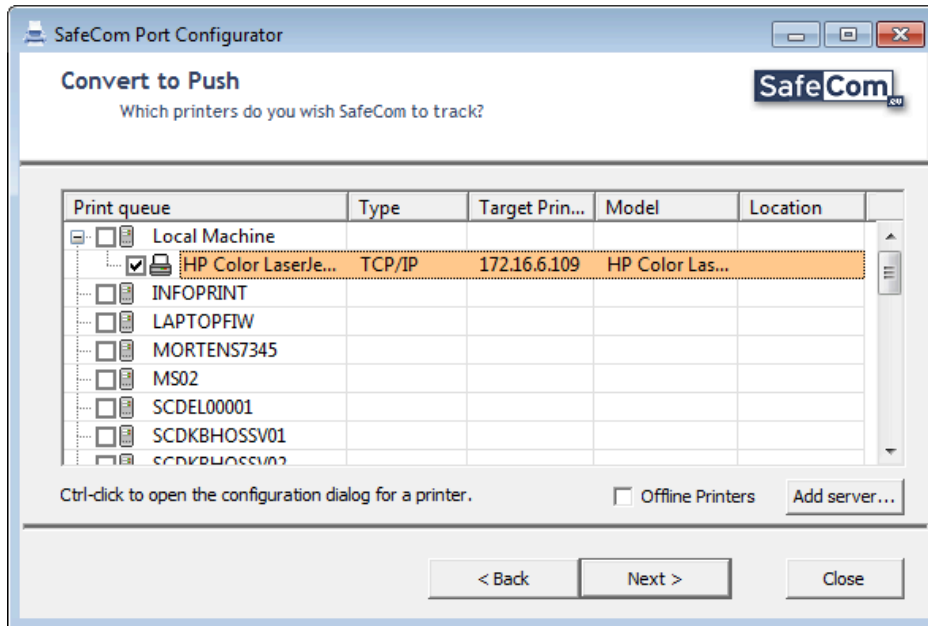
1. Start **SafeCom Port Configurator**([Start SafeCom Port Configurator](#))
2. Check **Convert to Push**. Click **Next**.

3. Enter **SafeCom Server**, **SafeCom User name** and **Password** in the **SafeCom Login** dialog. Click **Next**.

Note The SafeCom user needs to have SafeCom Administrator or Technician rights.



4. The **Convert to Push** dialog appears with one or more servers, including **Local Machine**.



Log in by using one of the following methods:

- Press **Shift + Click** on a listed server. This will prompt you to log in to the server with your **Windows user name** and **Password**.
- Click on a print server, and it will attempt to log in as the user you are already logged in as²⁶. If the server is part of a domain and you are already logged into the domain then you are logged in directly. Otherwise you are asked to log in with your **Windows user name** and **Password**.

Note A public printer is a print queue that has been made shared, and at the same time has **Allow** checked for **Print for Everyone** on the **Security** tab in the **Properties** dialog. A public printer is a print queue that has been made shared, and at the same time has **Allow** checked for **Print for Everyone** on the **Security** tab in the **Properties** dialog.

- Log in as a domain user by specifying the domain followed by a backslash (\) and the **Windows user name**. Example: MYDOMAIN\JS. Alternatively you can specify user logon followed by (@) and the domain, like this JS@MYDOMAIN.

If the server does not appear in the list, then add a new server by clicking **Add server...** ([Add server](#))

- Check the printers to be converted from TCP/IP to Push. Click **Next**.

²⁶ There will be no error messages specific for failed logons: The program will not distinguish between A) A misspelled username/password B) Successful logon of a user with not rights to "see" (server-enumerate) the printers.

6. The **Push Port Configuration** dialog appears. Make changes to the Push Port Configuration according to the descriptions below or leave the default settings. Click **Next**.

Note Ensure that your printer name is shorter than 50 characters, to avoid possible configuration issues.

User authentication

- Select **Use network logon** to use Windows logon as the SafeCom user logon when printing.
- Select **Use specified logon** and enter the SafeCom user logon of the user who is to receive all future prints sent to the print queues that uses this push port. This can be combined with **Group print** ([Group print](#)) by specifying the name of the group instead of the name of a user.
- Select **Show authentication dialog at every print** if the user should be prompted every time they print. **SafeCom PopUp** must be running on the user's computer to show dialog that prompts for the login ([SafeCom Print Authentication dialog](#)). Up to 10 minutes may elapse before the choice take effect. The time is configured by the Windows registry setting `CacheExpireSuccess`.
- Select **Show authentication dialog on first print only** if the user should only be prompted the first time they print. **SafeCom PopUp** must be running on the user's computer to show the dialog that prompts for the login ([SafeCom Print Authentication dialog](#)). Up to 10 minutes may elapse before the choice take effect. The time is configured by the Windows registry setting `CacheExpireSuccess`.
- Select **Use job data logon** to extract the logon from the job data ([Configure Use job data logon](#)).
- Select a **default domain**, to save the user to enter domain.

Check **Show job price before printing** if users are to unconditionally see dialog with the cost of the document before they if they print. If the printer is a shared printer, users **MUST** have SafeCom

PopUp ([SafeCom PopUp – scPopUp.exe](#)) set up and running on their computer in order to be able to confirm that they wish to print the document.

Check **Override user cost code** and enter the cost code to have the specified cost code override the cost code of the user who prints. Example: If John Smith has the cost code 2949 and prints to a Push Port where a cost code of 1009 is specified the resulting UserCostCode parameter in the tracking record will show 1009 and not 2949.

Check **Override driver name** and enter the driver name to have the specified driver name override the driver name supplied by the printer driver. This is particular useful to differentiate printers using the HP Universal Print Driver.

In **Sharing** you can check **Make sure printer is shared** (default) or check **Do not change share** to leave it as is.

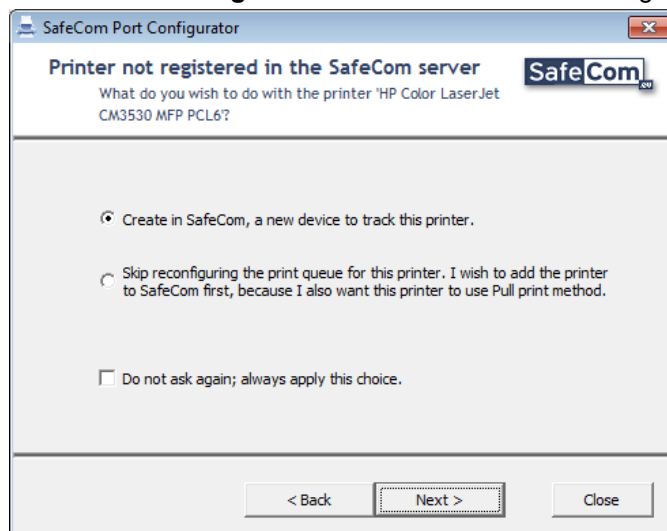
7. One of the following two dialogs will open:

- **Printer not registered in SafeCom server** (default) Create a tracking device in the SafeCom server.
- **Printer already registered in SafeCom server** A tracking device with a matching MAC address is already registered in the SafeCom server and it is suggested to use that.

Make your choices. Click **Next**.

Both dialogs are described in detail in the following:

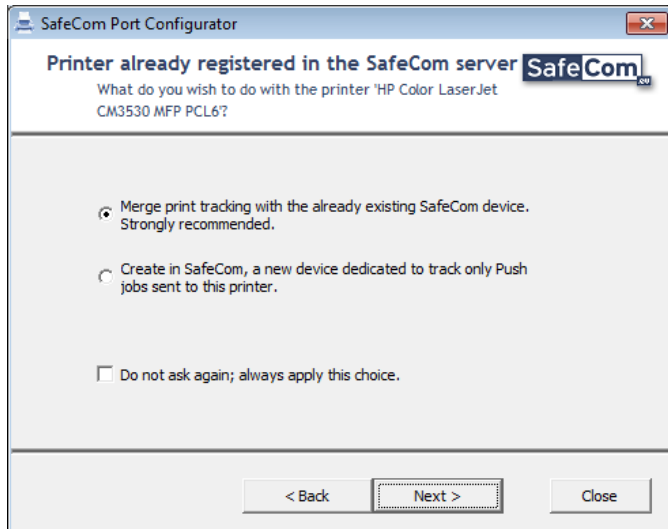
- The **Printer not registered in SafeCom server** dialog:



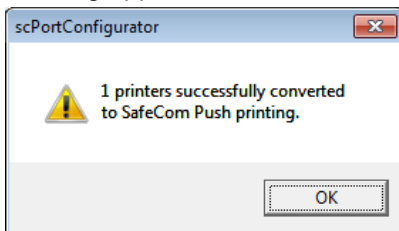
- Check **Create in SafeCom, a new device to track this printer** if your SafeCom solution is Push Print solution only.
- Check **Skip reconfiguring the print queue for this printer** if your SafeCom solution includes Pull Print and you wish to add the printer as a Pull Printer to the SafeCom solution first. This

way both Pull and Push print activity gets associated with the same tracking device in the SafeCom solution. Proceed to step 8.

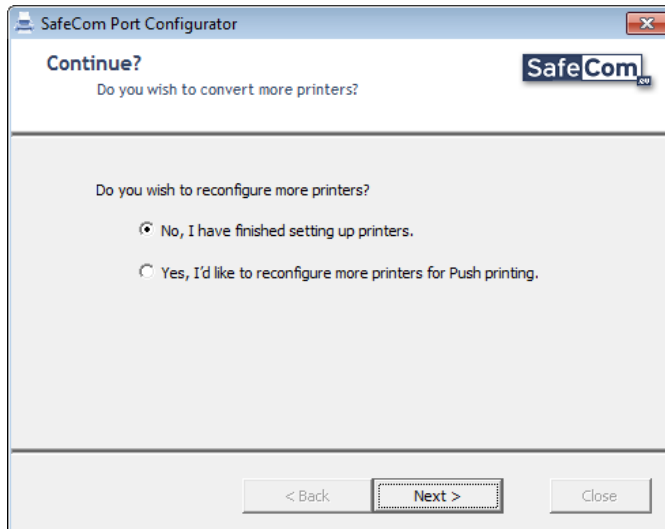
- Check **Do not ask again** if the choices are to apply in conversions made during this session.
- The **Printer already registered in SafeCom server** dialog:



- Check **Merge print tracking with already existing SafeCom device** if you wish to have all tracking registered under the same tracking device. The match is done based on the physical printer's MAC address.
 - Check **Create in SafeCom, a new device dedicated to track only Push jobs sent to this printer** if you want jobs coming from this particular print queue with a dedicated tracking device.
 - Check **Do not ask again** if the choices are to apply in future conversions.
8. A dialog appears with information about the number of converted printers. Click **OK**.



9. The **Continue** dialog appears. Make your choices. Click **Next**.



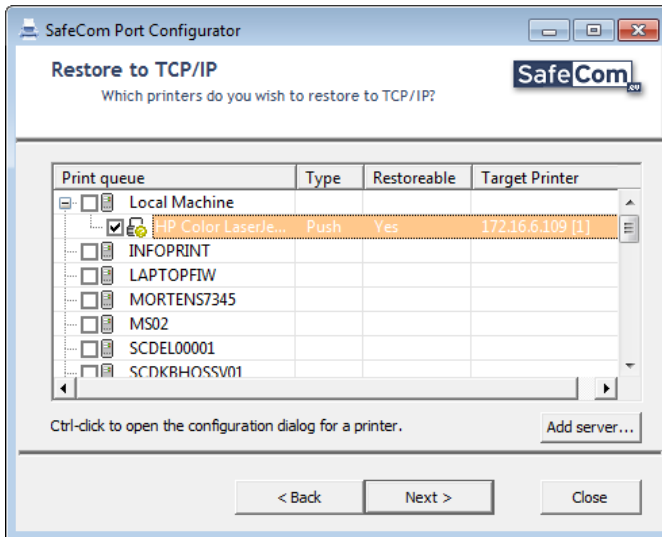
- Check **No, I have finished setting up printers** if you have finished. Click **Next** to close the **SafeCom Port Configurator**.
- Check **Yes, I'd like to reconfigure more printers for Push printing** if you wish to convert additional printers. Click **Next** to go to the **SafeCom Tracking** dialog described in step 4.

Restore to TCP/IP

To restore printers converted to SafeCom Push back to their original TCP/IP settings:

1. Start **SafeCom Port Configurator** ([Start SafeCom Port Configurator](#)[Start SafeCom Port Configurator](#)). Click **Next**.
2. Check **Restore to TCP/IP**. Click **Next**.

3. The **TCP/IP Printer Restore** dialog appears with one or more servers, including **Local Machine**.



Double-click a server to expand and to show the list of Push printers. Other types of printers (TCP/IP, Pull, etc) will not appear in the list.

Note: *SafeCom Port Configurator does not work with printers using Microsoft v4 Printer Drivers.*

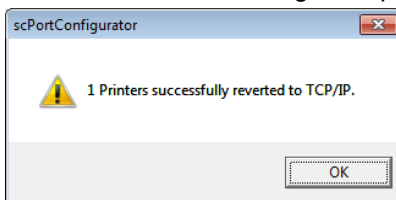
To see all printers on the server press **Shift + Click**. You will be prompted to supply a **Windows User Name** and **Password**.

- **Server NOT part of domain** If the server is NOT part of the domain you must supply **Windows User Name** and **Password** of a local administrator on the server.
- **Server part of domain** If the server is part of a domain and you are already logged into the domain then you are logged in directly. Otherwise you are asked to log in. Enter **Windows user name** and **Password**. Click **Login**.

Note If the windows user running the application has administrative rights on the clicked print server (or its domain), then both shared and non-shared (local) printers will be listed. However, if the user has no elevated rights in the machine (or domain), then only public (local) Push printers will be listed.

If the server does not appear in the list click **Add server...** ([Add server](#)).

4. Check the printers to be restored to TCP/IP. Restore is possible only if the printer has a **Yes** in the **Restorable** column. Click **Next**.
5. A dialog appears with information about the number of reverted printers. Click **OK** to go to the **TCP/IP Printer Restore** dialog in step 3.

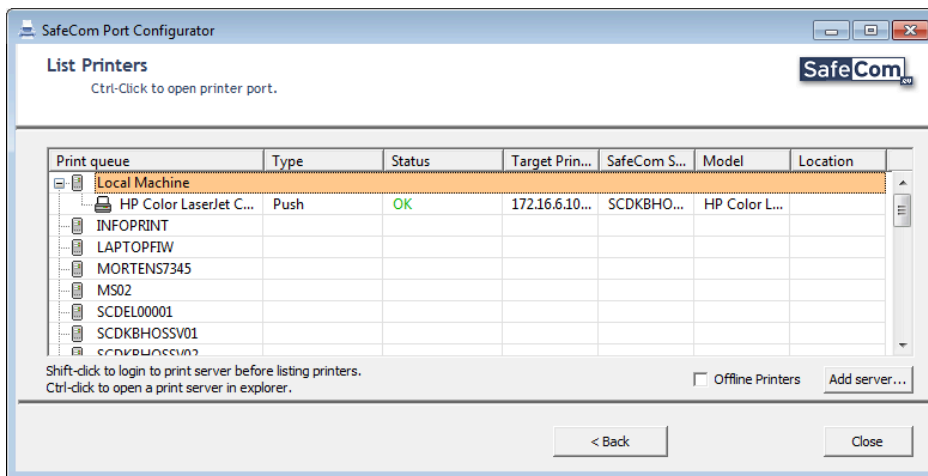


List and repair printers

The **List Printers** dialog lists the printers in the domain and enables you to reconfigure them.

To list printers in the domain:

1. Start **SafeCom Port Configurator** ([Start SafeCom Port Configurator](#)). Click **Next**.
2. Check **List Printers**. Click **Next**.
3. The **List Printers** dialog appears. Click on a server to expand it to show the list of shared TCP/IP, Push and Pull printers.

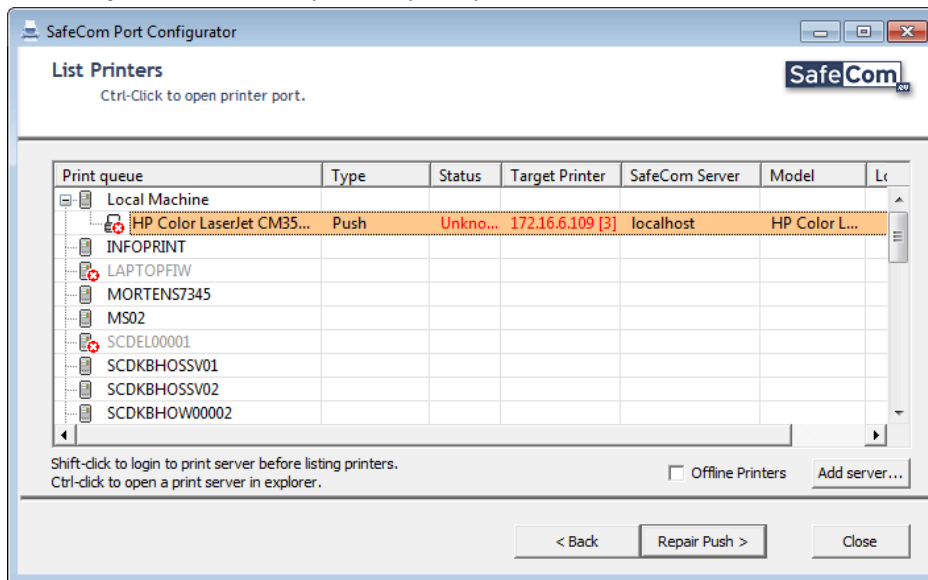


The **List Printers** dialog can also be used to identify Push Printers that are not referencing a valid tracking device (Unknown Device ID).

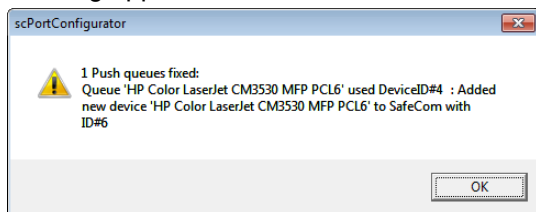
To Repair Push Printer:

1. Start **SafeCom Port Configurator** ([Start SafeCom Port Configurator](#)) and click **Next**.
2. Check **List Printers**. Click **Next**.

3. Click **Repair Push >** to repair the push printer.



4. A dialog appears with information about the number of push printers fixed. Click **OK**



Note The new device will have the **Tracking** license checked. If the SafeCom license key code is a permanent one **Rule Based Printing**, **Client Billing** and **Pay** licenses are checked if there are any spare licenses. To control use of licenses open the **License** tab in the **Device properties** dialog.

Read servers from file

SafeCom Port Configurator can read servers from file. This may prove useful in installations where browsing the domain takes too long due to the number of servers or where the possibility to browse the domain is limited.

By default the servers are read from the `svlist.csv` file located in the SafeCom Port Configuration installation folder. It is the same file that is used to record the servers that are added by clicking **Add server...** ([Add server](#))

Example `svlist.csv` file, where the first line (Host) is the header:

```
Host
server1
server2
```

In the `scPortConfigurator.ini` file it is possible to control the name of the file (`scPortConfigurator.ini`)


```
[GENERAL]
ExternalServerList_FileName=srvlist.csv
```

If you wish to remove a server you should open the srvlist.csv file and remove the row containing the server(s) in question.

scPortConfigurator.ini

An scPortConfigurator.ini file is produced to record information from the previous **SafeCom Port Configurator** session, including last used server, window sizes and column widths.

Settings in the file are added as dialogs are used. Edit selected settings to customize the behavior of **SafeCom Port Configurator**. These settings are covered in the following:

- Push port name
- Tracking device name
- Tracking device settings
- Tracking device licenses
- Convert to Push dialog
- Restore to TCP/IP dialog
- List Printers dialog
- Smart Printer Driver dialog

Push port name

The default convention for naming Push ports is similar to the one used by the Standard TCP/IP port, except that IP_ is replaced by Push_.

For example if the IP address is 172.16.6.123 the default TCP/IP port is named IP_172.16.6.123 and the Push port is named Push_172.16.6.123.

In the scPortConfigurator.ini file this is controlled as follows:

```
PortReconfiguration]
NameForNewPort_use_PortType=1
NameForNewPort_use_QueueName=0
NameForNewPort_use_PrinterIP=1
```

The Push port will inherit the print queue name if the settings are changed to:

```
PortReconfiguration]
NameForNewPort_use_PortType=0
NameForNewPort_use_QueueName=1
NameForNewPort_use_PrinterIP=0
```

Tracking device name

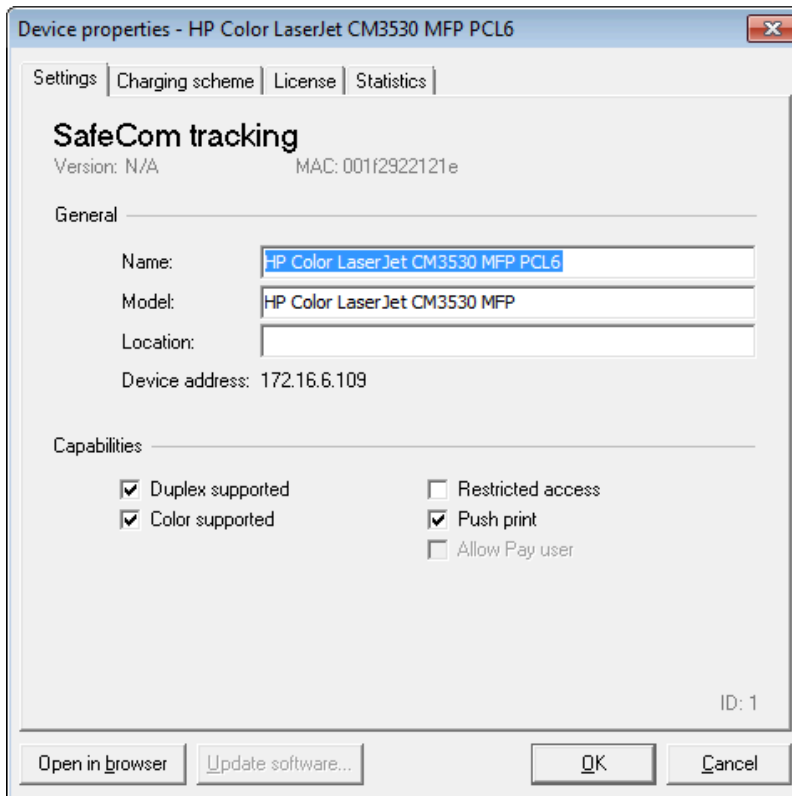
The tracking device in the SafeCom solution will by default inherit the name of the print queue. For example if the print queue name is myprinter the tracking device is named myprinter. To include additional information simply change one or more of the below settings from 0 to 1.

```
[PortReconfiguration]
NameForNewTrackingDevice_use_QHostName=0
NameForNewTrackingDevice_use_QueueName=1
NameForNewTrackingDevice_use_PrtModel=0
NameForNewTrackingDevice_use_PrtIP=0
```

```
NameForNewTrackingDevice_use_PrtLocation=0
NameForNewTrackingDevice_TokenSeparator=' '
```

Tracking device settings

The **Settings** tab in the **Device properties** dialog in **SafeCom Administrator**.



In the following it is described how selected settings from the [CoScum] section maps to the controls on the **Settings** tab in the **Device properties** dialog.

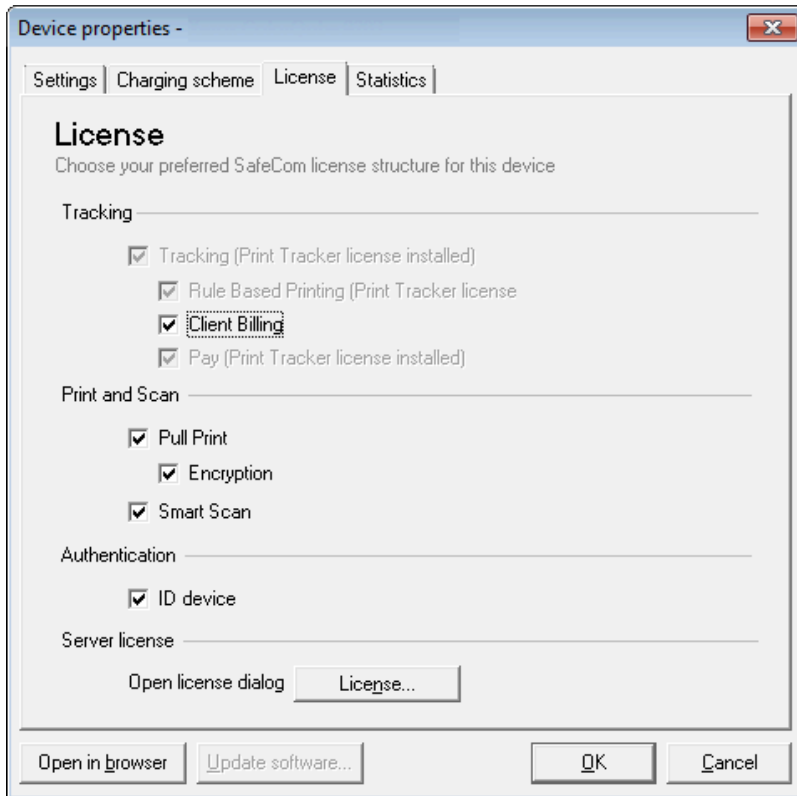
```
CoScum]
NewTrackingDevice_Default_DeviceIPAddress=127.0.0.1
NewTrackingDevice_Default_AllowPay=1
NewTrackingDevice_Default_AllowBilling=1
NewTrackingDevice_Default_RBP=1
NewTrackingDevice_Default_AllowPull=1
NewTrackingDevice_Default_AllowEncryption=1
NewTrackingDevice_Default_Duplex=0
NewTrackingDevice_Default_Color=0
NewTrackingDevice_Default_TreeNodeId=0
NewTrackingDevice_Default_DeviceTypeBitmask=2
NewTrackingDevice_Default_ServerId=-1
NewTrackingDevice_Default_DisablePayAndPrint=0
NewTrackingDevice_Default_RestrictedAccess=0
```

- **MAC** is pre-filled if the physical printer is online at the time of creation. Otherwise it will read 00000000.
- **ID** is the database ID of the tracking device.

- **Name** is for specifying a name for the device (mandatory). This is by default the name of the print queue, but it can be customized to be composed of for example the **IP address** and **Model** (Tracking Device Name).
- **Model** is for specifying the model and/or manufacturer of the device (optional). If the physical printer was online at the time of conversion it is pre-filled. Otherwise it is left blank.
- **Home server** is present only if SafeCom Multiserver Support is enabled. This can be controlled at the time of creation by setting `NewTrackingDevice_Default_ServerId`. The default is `-1`.
- **Org. unit** is the organizational unit the device belongs to. The default is `0`. The setting `NewTrackingDevice_Default_TreeNodeId` does NOT control the ID of the org. unit.
- **IP address** is pre-filled if the physical printer was online at the time of creation. Otherwise it will default to the value specified by `NewTrackingDevice_Default_DeviceIPAddress`.
- **Capabilities** show a number of checkboxes depending on the device and SafeCom license key code.
- **Duplex supported** is checked if the printer driver that is associated with the device supports duplex. The `NewTrackingDevice_Default_Duplex` is NOT used.
- **Color supported** is checked if the printer driver that is associated with the device supports color. The `NewTrackingDevice_Default_Color` setting is NOT used.
- **Restricted access**. The `NewTrackingDevice_Default_RestrictedAccess` setting is NOT used.
- **Allow Pay user** is only available if the server key license allows one or more Pay devices. The `NewTrackingDevice_Default_DisablePayAndPrint` is NOT used.
- **Push print** is checked by default.

Tracking device licenses

The **License** tab in the **Device properties** dialog in **SafeCom Administrator**.



When a tracking device is added it will always occupy at least a **Tracking** license. If the SafeCom license key code is a permanent one and there is available **Rule Based Printing**, **Client Billing** and **Pay** licenses these are also taken.

Convert to Push dialog

In the following it is described how the settings from the [PortReconfiguration] section affects the **Convert to Push** dialog ([Convert to Push](#)) and the subsequent conversion process.

```
[PortReconfiguration]
Default_Print_if_SafeCom_offline=2
GUIShowOption_Print_if_SafeCom_offline=0
Calculate_needed_tracking_licenses_before_converting_any_printer=1
Match_SCDevice_by_IP_if_TCPIP_MAC_unavailable=1
```

Default_Print_if_SafeCom_offline maps directly to the SafeCom Push Port's Windows registry setting **PrintOnJdbError**. It is recommended to leave it at the default 2 to use the overall setting **AllowPrintOnServerError**.

GUIShowOption_Print_if_SafeCom_offline can be set to 1 to cause the inclusion of an additional checkbox in the **Push Port Configuration** dialog. The checkbox maps directly to the SafeCom Push Port's Windows registry setting **PrintOnJdbError**. The checkbox can have three labels and states:

- **If SafeCom offline: Use common registry setting.** This maps to **PrintOnJdbError=2**.
- **If SafeCom offline: Don't print.** This maps to **PrintOnJdbError=0**.
- **If SafeCom offline: Allow print.** This maps to **PrintOnJdbError=1**.

Calculate needed tracking licenses before converting any printer is 1 by default. By setting it to 0 there is no check to ensure that the SafeCom license key code includes the required device tracking licenses. Lack of device tracking licenses will cause print jobs to be cancelled.

Match_SCDevice_by_IP_if_TCPIP_MAC_unavailable is used to control if the device IP address can be used to determine if the device is already registered and if the **Printer already registered in SafeCom server** dialog should appear.

Restore to TCP/IP dialog

In the following it is described how the settings from the [RestoreTCPDialog] section affects the **Restore to TCP/IP** dialog ([Restore to TCP/IP](#)) and the subsequent restore process.

```
MachinePingTimeOutMS=1000
CtrlClick_opens_remote_queue=1
SNMPWaitTimeoutMS_when_clicking_next=5000
Deserialize_remote_TCP_port_on_restore=0
```

List Printers dialog

In the following it is described how the settings from the [PrinterViewDialog] section affects the **List Printers** dialog ([List and repair printers](#)).

```
Update_scDevices_IP=1
Update_scDevices_MAC=1
Update_scDevices_Location=1
Update_scDevices_Model=1
MachinePingTimeOutMS=1000
```

Smart Printer Driver dialog

The setting **SmartPrintingReservedQueueNamePrefix=SafeCom-** regulates which TCP/IP queues are ignored; any such queues are ignored and not converted when SafeCom Port Configurator is run.

Note If the **SmartPrintingReservedQueueNamePrefix=** setting is empty; the Port Configurator ignores all queues.

scPortUtility

The SafeCom Port Configuration Utility (**scPortUtility**) is a command line tool that can be used to create SafeCom Push Ports or migrate existing Windows print queues to use SafeCom Push Port.

- Push Port Creation
- Attach Port
- Queue Migration
- List Print Queues

The operations are specified on the command line as parameters.

Command line options can use quotation marks (") for option strings that include spaces.

The SafeCom Port Utility returns an exit code, indicating a success or failure of the operation. Exit codes will be in the range 0-255.

For a detailed list of command line parameters and exit codes, see [scPortUtility operations and exit codes](#).

Simple Push Port Creation

The following example creates a new push port called **PRN-U134-PRT** for the device with IP address **10.42.58.134**. The port connects to the **SafeCom Server at 10.42.57.8**.

A tracking device will automatically be created. The tracking device name will be **PRN-U134-PRT**, the same as the **port**. The IP address for the tracking device will be the same as the output device (10.42.58.134).

To create this port, a an administrator user called **admin** will be used, where the password for that user is **nimda** (without the quotes)

```
scPortUtility --create-push-port -sc-server-address
10.42.57.8 --port PRN-U134-PRT --output-address 10.42.58.134
--sc-user admin --sc-password "nimda"
```

Attaching queue to port

The following example will, on the print server named **prnsvr02**, attach the **PRN-U134** queue to the **PRN-U134PRT** port.

```
scPortUtility --attach-port --port PRN-U134PRT --queue
PRN-U134 -target-machine prnsvr02
```

Queue migration

The following example creates a new push port called **PRN-U134-PRT** based on the settings from the Standard TCP/IP Port attached to the **PRN-U134** queue. The port connects to the **SafeCom Server at 10.42.57.8**. The queue **PRN-U134** will be connected to the newly created port **PRN-U134-PRT**.

A tracking device will automatically be created. The tracking device name will be **PRN-U134**, the same as the **queue**. The IP address for the tracking device will be the same as the previous Standard TCP/IP Port address.

An administrator user called **admin** will be used, where the password for that user is **nimda** (without the quotes).

```
scPortUtility --migrate -sc-server-address 10.42.57.8 -queue
PRN-U134 --port PRN-U134-PRT --sc-user admin
--sc-password "nimda"
```

List printing

Print all

The following example will output all queues, including queues with print pooling enabled (PRN-U135).

```
scPortUtility --list-print-queues
```

The output would be similar to:

```
"PRN-U134";"PRN-U134-PRT";"SafeCom Push Port";"SafeCom Push Port";
"PRN-U135";"IP_10.0.0.45";"TCPMON.DLL";"Standard TCP/IP Port";
"PRN-U135";"IP_10.0.0.46";"TCPMON.DLL";"Standard TCP/IP Port";
```

```
"PRN-U135";"IP_10.0.0.47";"TCPMON.DLL";"Standard TCP/IP Port";  
"PRN-U136";"IP_10.0.0.48";"TCPMON.DLL";"Standard TCP/IP Port";  
"PRN-U137";"IP_10.0.0.49";"IPP Provider";"IPP Port";
```

List print queues eligible for migration

The following example will output only queues eligible for migration.

```
scPortUtility --list-print-queues --only-migratable
```

The output on the same machine as the previous example would be:

```
"PRN-U136";"IP_10.0.0.48";"TCPMON.DLL";"Standard TCP/IP Port";
```

Troubleshooting

SafeCom Administrator: Unable to locate all SafeCom servers

The SafeCom Administrator uses broadcasts to locate the SafeCom servers. If your network is a VLAN (Virtual Local Area Network) then it may prevent the SafeCom Administrator from locating the SafeCom servers.

To solve the problem you should enter the SafeCom servers' IP addresses directly in the list of individual **Broadcast addresses** on the **Network** tab in the **Options** dialog.

Document is not printed

Check this if the document leaves the print queue as printed:

- Is the printer powered on and connected?
- Is the printer online?
- Is intervention required? Check for:
 1. wrong paper size
 2. manual feed
 3. out of paper
 4. paper jam
 5. toner low
- Does the printer driver work with the printer? Test this by using the Standard TCP/IP port instead of the SafeCom Push Port. If it still fails try to use a more appropriate printer driver. Another possibility is to test if the problem is related to a specific application or perhaps version of an application.

Check this if the document remains in the print queue:

- Is the print queue paused?

Check this if the document is deleted from the print queue:

- Does the SafeCom Event Log contain any event of the type Push print failed? The event will contain additional details indicating that perhaps the Tracking device is missing. Open the Configure Push Port dialog and verify that a SafeCom printer is selected for tracking. SafeCom Port Configurator can be used to repair the Push printer ([List and repair printers](#)).

- Does the SafeCom Event Log contain any event of the type Push print failed? The event will contain additional details indicating that perhaps the cost control of user does not match device, that is, a Pay user is trying to print on a device that does not have a Pay license.
- Does the SafeCom Event Log contain any event of the type Push print failed? The event will contain additional details indicating perhaps user credits shortage, that is, the Pay user did not have enough credits.
- Is the user subject to SafeCom Rule Based Printing and the rule is causing the deletion of the document?
- Is the user unknown to SafeCom? If SafeCom trace is enabled the PullPM2kSrv.trc will contain a line with the text: ExecuteTransaction: Status error [SC_USER_NOT_FOUND].

Document is not tracked

- Did the document print?
- Is the user set to Cost control Tracking?
- Does the device include a Tracking license?
- If Client Billing is enabled there is a delay before you can see the tracking record.

User's computer: "... Please contact your administrator!"

If there are problems that prevent users from printing documents via SafeCom, the **Messenger Service** dialog will appear on the screen.

Typical messages:

- Unable to connect to SafeCom server.
- There is not enough disk space on the SafeCom server.
- Unable to logon to the SafeCom database.
- SafeCom license violation.
- You are unknown to SafeCom.

The above SafeCom generated messages will appear after any print notification messages sent by the Windows print subsystem. For this reason we recommend that you disable notification messages from the Windows print subsystem. On the Windows server open the **Printers** folder. On the **File** menu, click **Server Properties** and click the **Advanced** tab. Refer to online Windows help.

Copy tracking

Copy tracking makes it possible to track copy costs on MFPs. Your SafeCom license key code must include Copy Control and the MFP must be networked and in most cases you need a special SafeCom MFP cable. There is a complete list of supported MFPs in *SafeCom Controller Administrator's Manual*.

Fax, Scan and E-mail tracking

Fax, Scan and E-mail tracking is possible on most MFPs equipped with SafeCom Go.

Post track

Post track affects these tracking data for Pull print jobs:

- **Tracking pages** (TrackingPageCount) is adjusted to reflect the actual number of pull printed pages. If a 100 page document is cancelled after 10 pages the job is only tracked (and priced) as 10 pages.
- **Color pages** (TrackingColorPageCount) is adjusted to reflect the actual number of pull printed pages with color.
- **Price 1** (JobPrice) and **Price 2** (JobPrice2) are adjusted as well to reflect the adjustment of Tracking pages and Color pages. See also [Accounting policy](#) **Accounting policy**.
- **Toner** (TonerCyan, TonerMagenta, TonerYellow and TonerBlack) is tracked. The values are not shown in the **Tracking record dialog** ([Tracking record dialog](#)).

Push Print Post Tracking

SafeCom Push Print Post Tracking is an extension of the tracking feature of the SafeCom solution. The tracking and charging data was based on the information that former versions of SafeCom components were able to collect while documents were printing at the workstation or the server. This data is not accurate enough to calculate the precise tracking information and the price of the jobs. The software utilizes the detailed information that is sent by the printing device itself and all information is calculated from these reports.

Note Push Print Post Tracking is supported on HP FutureSmart devices. Refer to *SafeCom Go HP Administrator's Guide* for detailed information on setup and configuration.

Planning your SafeCom Tracking solution

When planning your SafeCom Tracking solution you need to:

- Define what the cost of printing should be. This is accomplished via a charging scheme ([Charging scheme](#)). Print costs defaults to 0.00 if no charging scheme is defined.
- Set up the server properties to track deleted jobs ([Track deleted jobs](#)).
- Plan how you will secure the recorded tracking data ([Backup and restore](#)).
- Decide if you wish to use the recorded tracking data for invoicing and/or auditing ([Using tracking data](#)).
- Control what happens if the tracking server is unavailable ([Tracking](#)).
- If your SafeCom solution is a multiserver solution you need to configure if tracking data should be collected online or offline ([Multiple servers: Online or offline tracking](#)).

Defining print costs via charging schemes

The price calculation is defined in a charging scheme. The price calculation is based on paper size, number of sheets and impressions and possible use of color. Multiple charging schemes can be created to reflect the varying print costs of different printer models.

SafeCom supports dual charging schemes; each printer can be associated with two charging schemes:

- **Primary charging scheme** The primary charging scheme (Cost 1) is used to charge users and possibly invoice departments.
- **Secondary charging scheme** The secondary charging scheme (Cost 2) is used to reflect the true print costs.

It is recommended to have the **Name** and/or **Description** of the charging scheme reflect if it is a primary or secondary charging scheme. Sample charging scheme:

Print				
Price per job (start-up cost)				0.20
Price per page	Paper size	Sheet	Impressions	
			Mono	Color
	A3	0.10	0.20	0.60
	A4	0.05	0.10	0.30
	Executive	0.05	0.10	0.30
	Letter	0.05	0.10	0.30
	Ledger	0.05	0.10	0.30
	Other	0.05	0.10	0.30

Copy				
Price per job (start-up cost)				0.20
Price per page	Paper size	Sheet	Impressions	
			Mono	Color
	A3	0.10	0.20	0.60
	A4	0.05	0.10	0.30
	Executive	0.05	0.10	0.30
	Letter	0.05	0.10	0.30
	Ledger	0.05	0.10	0.30
	Other	0.05	0.10	0.30

Fax	
Price per job (start-up cost)	0.10
Price per page	0.10

Scan	
Price per job (start-up cost)	0.10
Price per page	0.10

E-mail	
Price per job (start-up cost)	0.10
Price per page	0.10

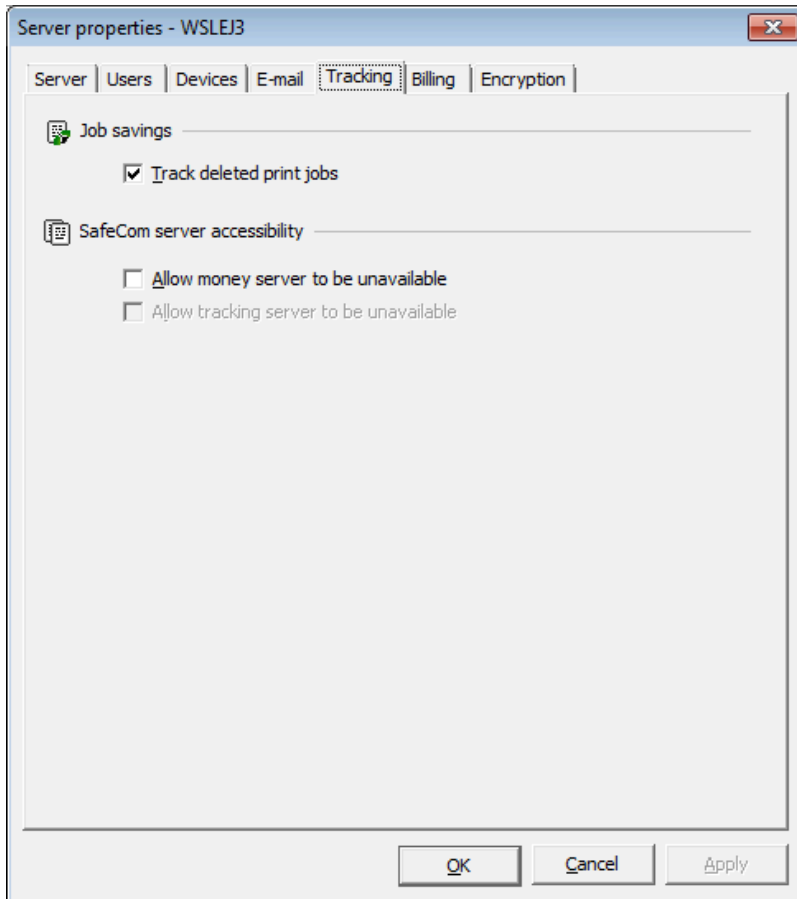
How to proceed:

1. Make a list of all the relevant printer models in your solution.
2. Calculate the costs for each printer model.
3. Make a proposal for the charging schemes. The charging schemes may require approval from higher management.
4. Use **SafeCom Administrator** to define the charging schemes ([Charging schemes](#)).

Note

- Some Windows printer drivers set paper size to “Default”. The SafeCom solution will map this to “Other”. For this reason you should set the price of “Other” to the same price as the most commonly used paper size, typically “A4” or “Letter”.
- Some MFPs can only report the number of copied pages and does not provide information about paper size or use of color and duplex. In such cases the copy page price is based on the price of “A4”.

Track deleted jobs



Backup and restore

This topic is covered in [Backup and restore](#), where you will also find information about the Tracking database.

Using tracking data

The tracking data can be exported for further analysis ([Work with the tracking data](#)) and analyzed by the supplied **Data Mining** tool ([SafeCom Data Mining](#)).

As the amount of tracking data will continue to grow it is advisable to delete tracking data ([Hide job names in tracking data](#)) once it has been exported, perhaps on a monthly or quarterly basis. During the exporting or deletion of large amount of tracking data the server may become slow. It is therefore recommended to perform this out of hours, or at least not during peak hours.

The tracking data can also be used to invoice users based on what they have printed. If you want users to pay up front you should use the SafeCom Pay module described in chapter [SafeCom Pay](#).

You can utilize the **Organizational Unit** and/or **Description** properties of users to specify their belonging to cost center, division or department. That way you can invoice the user's organizational unit.

With the **SafeCom Administrator API** (option) you can extract tracking data automatically. This XML-based tool is ideal for system integration with financial applications. Refer to the *SafeCom G4 Administrator API Reference Manual*.

Multiple servers: Online or offline tracking

SafeCom Tracking solutions with multiple servers can be configured to use:

- **Offline tracking** (recommended and set by default) Tracking data is stored locally on the SafeCom secondary server to allow subsequent scheduled collection by the SafeCom primary server. Scheduling data collection to run at night saves network bandwidth during daytime.
- **Online tracking** SafeCom secondary servers continuously report tracking data to the SafeCom primary server.

To configure offline tracking:

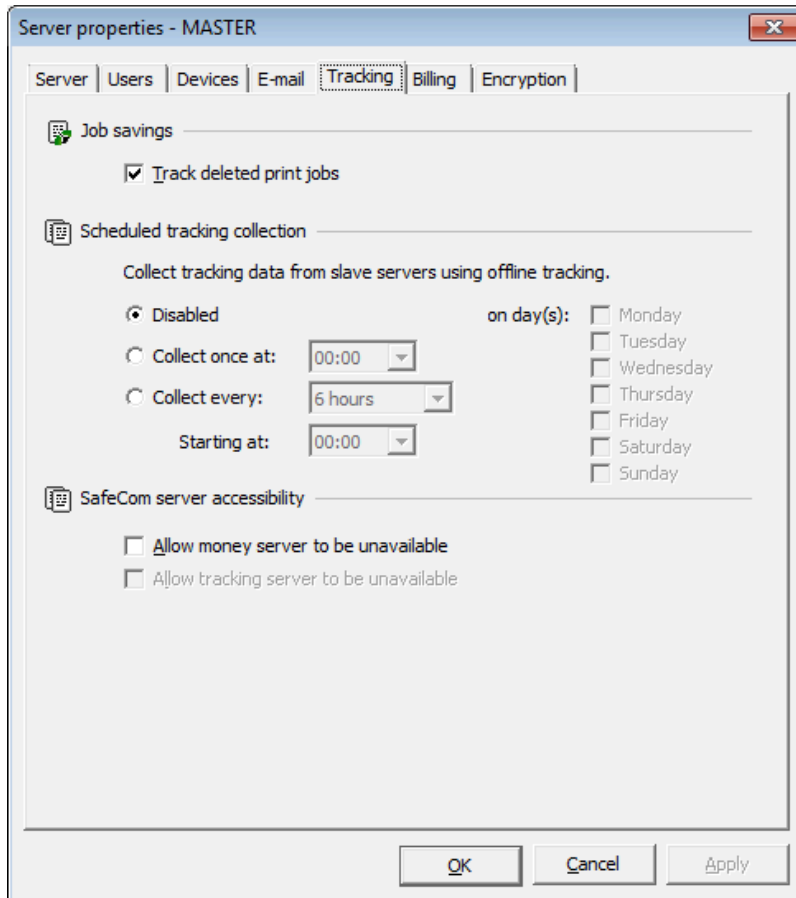
1. On the SafeCom primary server you need to enable and configure the scheduled collection of tracking data ([Configure SafeCom primary server](#)).
2. On each SafeCom secondary server you need to configure it to use offline tracking ([Configure SafeCom secondary servers](#)).

Configure SafeCom primary server

The scheduled collection of tracking data by the primary server can take place on selected weekdays (Monday, Tuesday, ... , Sunday) at a specific time or at a regular predefined interval starting at a specific time. The available intervals are every 10, 20, or 30 minutes, or every 1, 2, 3, 4, 6, 8 and 12 hours.

1. On the **Servers** menu, click **Server properties**.

2. Click on the **Tracking** tab.

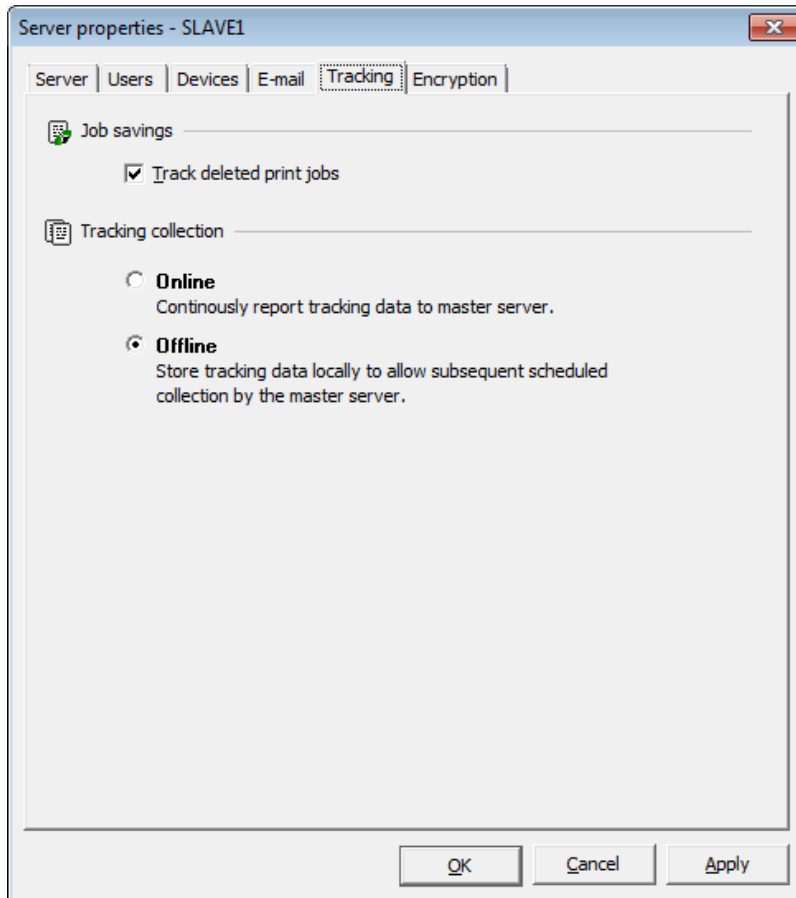


3. Configure the scheduled collection of tracking data. Click **OK**.

Configure SafeCom secondary servers

1. On the **Servers** menu, click **Server properties**.

2. Click on the **Tracking** tab.



3. Check **Offline**. Click **OK**.

Configuration overview

Before you proceed with the configuration of your SafeCom Tracking solution you should get an overview of the steps involved:

1. **Install license key code.** Use SafeCom Administrator to install your license key code with tracking enabled.
2. **Create charging schemes.** Use SafeCom Administrator to create multiple charging schemes to reflect the varying print costs of the different printer models ([Charging schemes](#)).
3. **Associate charging scheme with device.** Use SafeCom Administrator to associate a charging scheme with the device ([Associate charging scheme with device](#)).
4. **Change cost control to tracking.** Use SafeCom Administrator to change the user property Cost control to Tracking ([Change cost control to tracking](#)).

5. **Work with the tracking data.** Use the Data Mining tool to view the tracking data ([Work with the tracking data](#)).

Charging schemes

In section [Charging scheme](#) we described the concept of charging schemes, dual charging schemes, and how to set them up. The following subsections describe how to work with charging schemes in **SafeCom Administrator**.

Add charging scheme

1. On the **Devices** menu, point to **Charging schemes** and click **Add charging scheme...**
2. The **New Charging Scheme** dialog appears. Enter prices.
3. Click **Add** and then **Finish**.

New Charging Scheme

Identification

Name: ID: ?

Description:

Print | Copy | E-mail, Scan and Fax | Large format

Setup

Start-up cost per job: Enable job name pricing

Price per page

	Sheet	Mono impressions	Color impressions
A3	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>
A4	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>
Executive	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>
Letter	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>
Legal	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>
Other	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>	<input type="text" value="0.0000"/>

- **Name** is the unique name of the charging scheme (mandatory).
- **Description** is an optional description of the charging scheme.
- Enter price per job to charge a **Start-up cost per job**. Check **Enable job name pricing** if you wish to enable pricing based on job name ([Job name pricing](#)).
- Enter **Price per page** in the form of the price for **Sheet** (paper), **Mono Impression** and **Color Impression** for the paper sizes: A3, A4, Executive, Letter and Legal. Click **Set all** to quickly enter a price for all paper sizes. The price specified in **Other** is used when the paper size is unknown (or default).

4. Click the **Copy** tab to specify the prices for copy jobs.

New Charging Scheme

Identification

Name: ID: ?

Description:

Print | **Copy** | E-mail, Scan and Fax | Large format

Start-up cost

Price per job:

Price per page

	Sheet	Mono impressions	Color impressions
A3	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>
A4	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>
Executive	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>
Letter	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>
Legal	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>
Other	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>

Note Some MFPs that are unable to provide information about paper size or use of duplex and color, try to compensate for this lack of detail by reporting a higher number of copied pages. For example one monochrome A3 page or one color A4 page is reported as two pages. Or one color A3 page is reported as 4 pages.

5. For selected MFPs it is also possible to charge for fax, scan and e-mail. Click the **Fax+Scan+E-mail** tab to specify these prices.

Sample charging calculation

Job properties:

5 color pages in paper size A4 and duplex

Price per job = 0.20

Price per sheet A4 = 0.05

Price per color impression A4 = 0.30

Price calculation:

= price per job + price per sheet × number of sheets + price per impression × number of impressions

= 0.20 + 0.05 × 3 + 0.30 × 5

= 0.20 + 0.15 + 1.50

= 1.85

Charging scheme properties

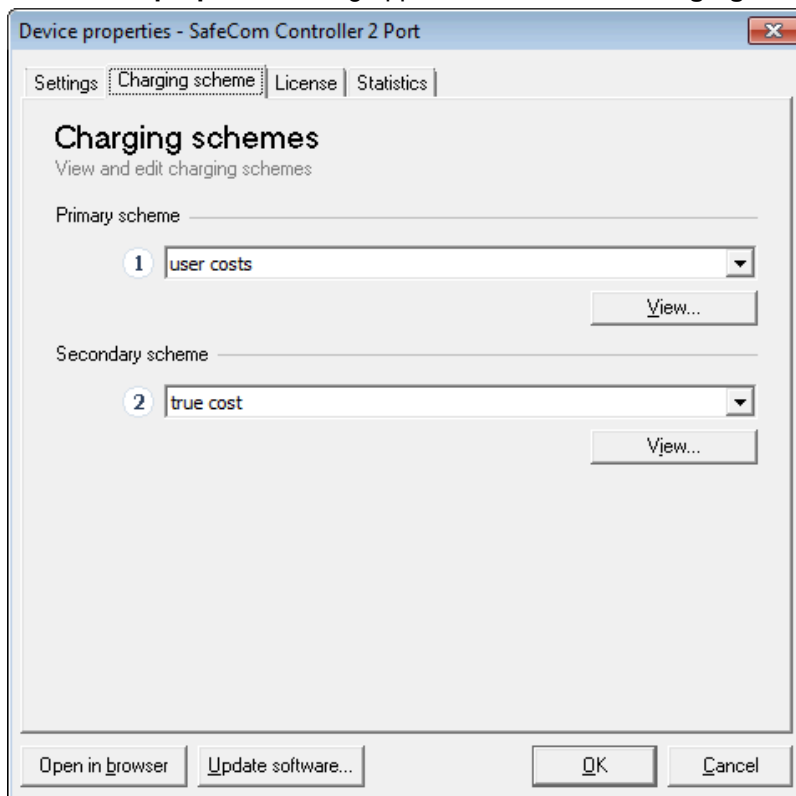
You can see the properties of a charging scheme in the following ways:

- Double-click the charging scheme in the **Charging scheme list**.
- On the **Devices** menu, point to **Charging schemes** and click **Charging scheme properties...**
- Open the **Device properties** dialog and click on the **Charging scheme** tab. Click **View...**

Refer to [Add charging scheme](#) for a description of the Charging scheme properties dialog.

Associate charging scheme with device

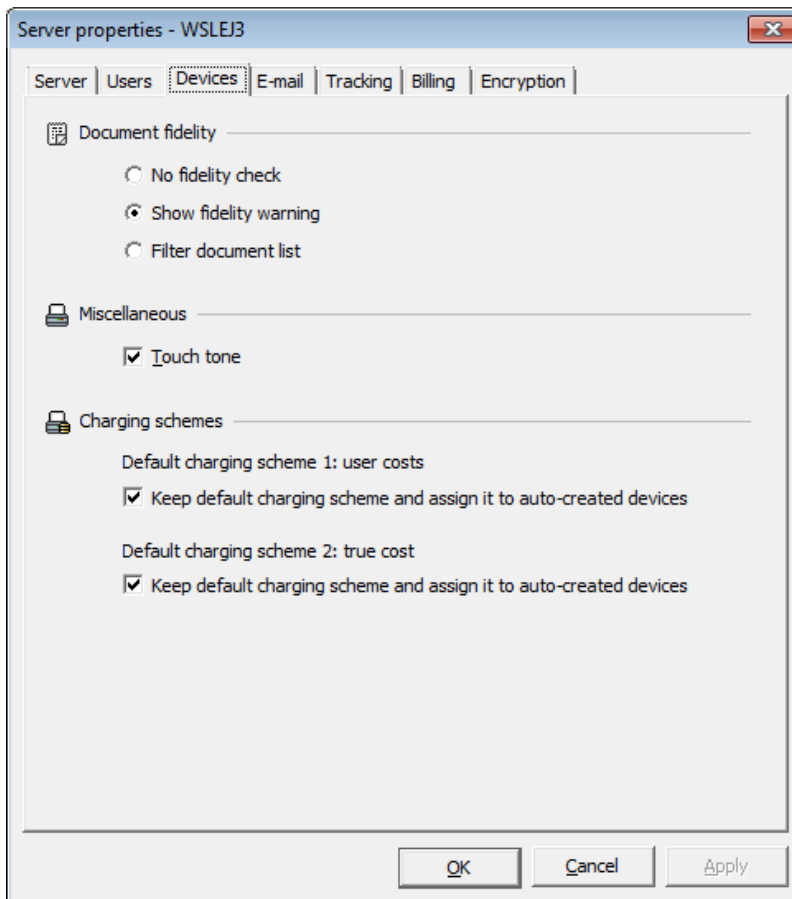
1. Double-click the device in the **Devices list**.
2. The **Device properties** dialog appears. Click on the **Charging scheme** tab.



3. Select a charging scheme as **Charging scheme 1 (primary)**. This is used to charge users and possibly invoice departments. Optionally select a charging scheme as **Charging scheme 2 (secondary)**. This is used to reflect the true print costs. Click **OK**.

Default charging scheme for new devices

A charging scheme can be marked as the default. All new devices will use this charging scheme by default.



1. In **SafeCom Administrator** open the **Server properties** dialog and click on the **Devices** tab.
2. Check **Keep default charging scheme 1 and assign it to auto-created devices** and optionally check **Keep default charging scheme 2 and assign it to auto-created devices**.
3. Click **OK**.

Delete a charging scheme

Deleting a charging scheme will remove the charging scheme from all the devices that used it. No charging is done on these devices until you select another charging scheme.

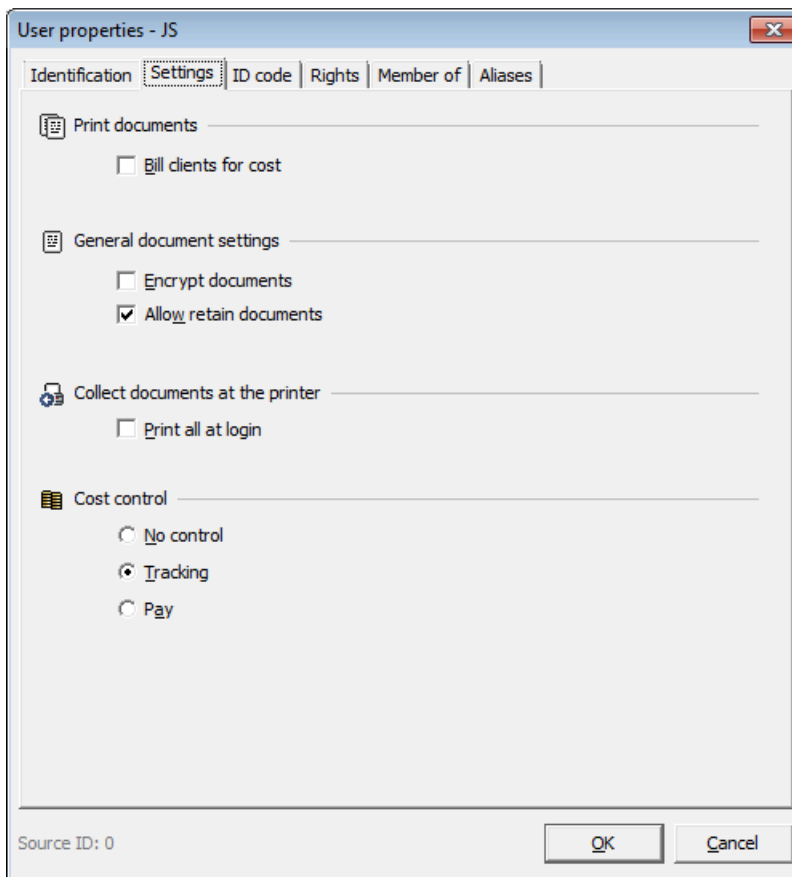
1. In the **Charging scheme list** right-click the charging scheme and select **Delete charging scheme**.

Change cost control to tracking

For existing users you must enable Tracking for each user. This is achieved by checking **Tracking** on the **Settings** tab in the **User properties** dialog of **SafeCom Administrator**.

It is possible to change the property of multiple users. Refer to [Hide ID codes](#).

By selecting a Tracking user as the default user you can make any future imported user, user created at first print and manually added user a Tracking user.



SafeCom Reports

SafeCom Reports is an optional program that enables viewing of main tracking statistics, user statistics, device statistics, client billing statistics and job list. For additional information refer to *SafeCom Reports Administrator's Guide*.

Install SafeCom Reports

1. Download the software from the link supplied to you.
2. When the SafeCom Reports Setup Wizard appears click **Next**.
3. Choose the destination folder for the SafeCom Report files. Optionally click **Disk Cost...** to check the available disk drives for required disk space. Check **Everyone** to install SafeCom Reports so everyone who uses the computer can use it. Click **Next**.
4. Click **Next** to start the installation. A progress bar appears.
5. Click **Close** when the installation has completed.

The default installation folder is:

```
C:\Program Files\SafeCom\SafeCom Reports
```

Start SafeCom Reports

1. Click the **SafeCom Reports** icon on the desktop.
2. Enter **SafeCom Server** (IP address or hostname or) or click the SafeCom Server button to broadcast for available SafeCom servers. Enter **User** (default is ADMIN), **Password** (default is nimda).

Note If the user belongs to a domain the domain followed by a backslash (\) must be specified in front of the user's logon. Example: MYDOMAIN\JS.

3. You must have SafeCom Report rights ([Rights](#)) to log in. Click **Login**.

Make a report

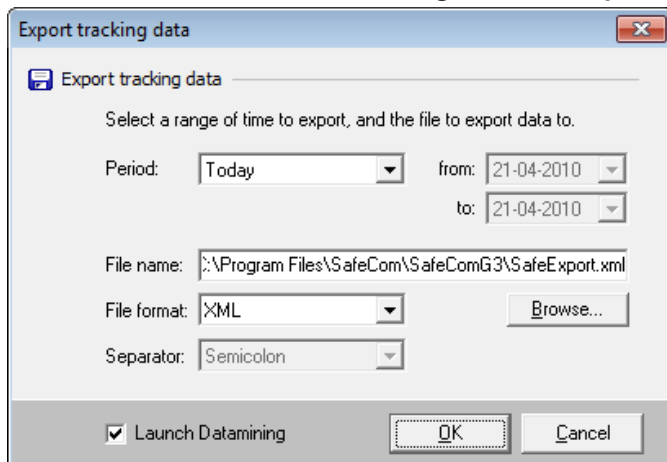
1. Once you are logged into **SafeCom Reports** you will be able to generate a report. Select a report of in the **Report** column, for example **Application Usage** or **Largest Print Users**.
2. Click **Extract New Data for Report**.
3. In most reports you need to specify the period in the form of **Date of first record** and **Date of last record**.
4. Click **OK** to generate the report. In the **Exporting Records** dialog you can monitor the progress as records are being exported.

It is possible to schedule one or more reports using the supplied SafeCom Reports command line interface. Refer to *SafeCom Reports Administrator's Guide*.

Work with the tracking data

Export tracking data

1. On the **Servers** menu, click **Tracking data** and **Export tracking data...**



2. Select the period. A number of predefined periods are available ranging from **Today** to **1 year back**. Choose **Specify period** to freely specify the beginning (from) and finish (to) of the period.
3. Enter the path and **File name** of the export file.
4. You can click **Browse...** to specify the location of the export file.
5. Select **File format** (XML, TXT or CSV).
6. Select **Separator** (not needed when using XML). The default value for separator is taken as the **List separator** setting on the **Numbers** tab of the **Regional settings** dialog. Use the default setting if you intend to use Microsoft Excel, since Excel takes its default separator from the same place and the separators need to match.
7. Check **Launch Datamining** if you want to analyze the data right away.
8. Click **OK**.

Note When you export to txt format, two files are created. One is a ***.txt** (or ***.csv**) file, the other is a ***.sch** file. They are automatically placed in the same directory when they are created. The ***.sch** file is used by Administrator's Data mining function as a reference file; it tells Administrator how to interpret each field in the ***.txt** file. For this reason, you must keep them together in the same directory when using the files for Data mining.

Hide job names in tracking data

You have the option to mask job names with asterisks (*) in the tracking database for users on specified home servers, while leaving the rest of the job names readable. The option is available for both online and offline tracking, and in multi-server environments, you can designate if a given server uses this function or not.

To use the function, you need to create a list of servers via either creating a list in the registry or via a text file.

To configure via registry list:

1. Log on to the SafeCom Administrator on the primary server.
2. Use the **Server properties** ([Server properties](#)) to locate the IDs of the servers you want to use with this function.
3. Create a registry key named **Tracking** under HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafeComG4.
4. Create a String (REG_SZ) registry value named **ServerIds**.
5. Enter the IDs of all servers into the value field using ',' or ';' as the separator characters.
6. Ensure that the total length of the value does not exceed 255 characters.

To configure via text file:

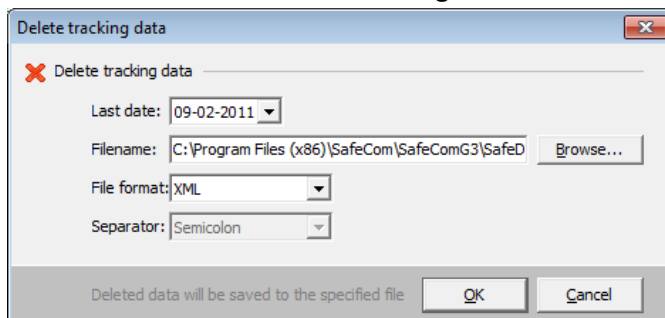
1. Log on to the SafeCom Administrator on the primary server.
2. Use the **Server properties** ([Server properties](#)) to locate the IDs of the servers you want to use with this function.
3. Create an Unicode text file listing all server IDs. The first line of the file must be "Servers" without quotation marks; the server IDs must be added starting from line 2, with each ID in a separate line.
4. Create a registry key named **Tracking** under HKEY_LOCAL_MACHINE\SOFTWARE\SafeCom\SafeComG4
5. Create a String (REG_SZ) registry value named **ServerIdsFile**.
6. Enter the full path of the text file created under Step 3.

Note For each server, only one of the options outlined above should exist in your SafeCom installation.

Delete tracking data

You can delete data prior to a given date from the Tracking database. This can be used to increase the speed of your SafeCom solution; too much data can slow it down.

1. On the **Servers** menu, click **Tracking data** and **Delete tracking data...**



2. All data before **Last date** is exported to a file and deleted from the tracking database.

3. Enter the path and **File name** of the delete file.
4. You can click **Browse...** to specify the location of the export file.
5. Select **File format** (XML, TXT or CSV). Do not select CSV if you intend to **Launch Datamining**.
6. Select **Separator** (not needed when using XML). The default value for separator is taken as the **List separator** setting on the **Numbers** tab of the **Regional settings** dialog. Use the default setting if you intend to use Microsoft Excel, since Excel takes its default separator from the same place and the separators need to match. In chapter [Format of tracking data](#) there is a complete description of the exported tracking data.
7. Click **OK**.

SafeCom Data Mining

SafeCom Data Mining enables you to see main tracking statistics, user statistics, device statistics, billing statistics and job list.

Note SafeCom Data Mining is designed to handle up to 50,000 tracking records. Use **SafeCom Reports** ([SafeCom Reports](#)) to work with more tracking records. The optional SafeCom Administrator API can be used to export selected fields from the tracking records. This allows optimized data post processing by third party applications that can work on the CSV or XML file exported from the SafeCom solution.

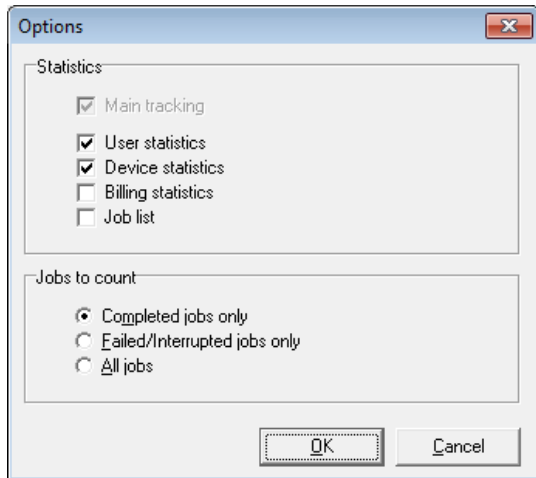
To start **SafeCom Data Mining**:

1. Check **Launch Datamining** when you export tracking data ([Export tracking data](#)) or delete tracking data ([Hide job names in tracking data](#)).
2. The **SafeCom Datamining** window is displayed ([Main tracking](#)).

Using **SafeCom Data Mining**:

1. On the **File** menu click **Open**.
2. Find the SafeCom Data Mining File (*.xml or *.txt) containing the data you want to view. Click **Open**.
3. Choose either to view **All** data or **Selecta Period** (click **Refresh** if you change **Period**).
4. Click **User Statistics**, **Device Statistics** or **Billing statistics** tab, according to the data you want to view.

5. If you click **Options** and select **Setup...**, you can change the following:

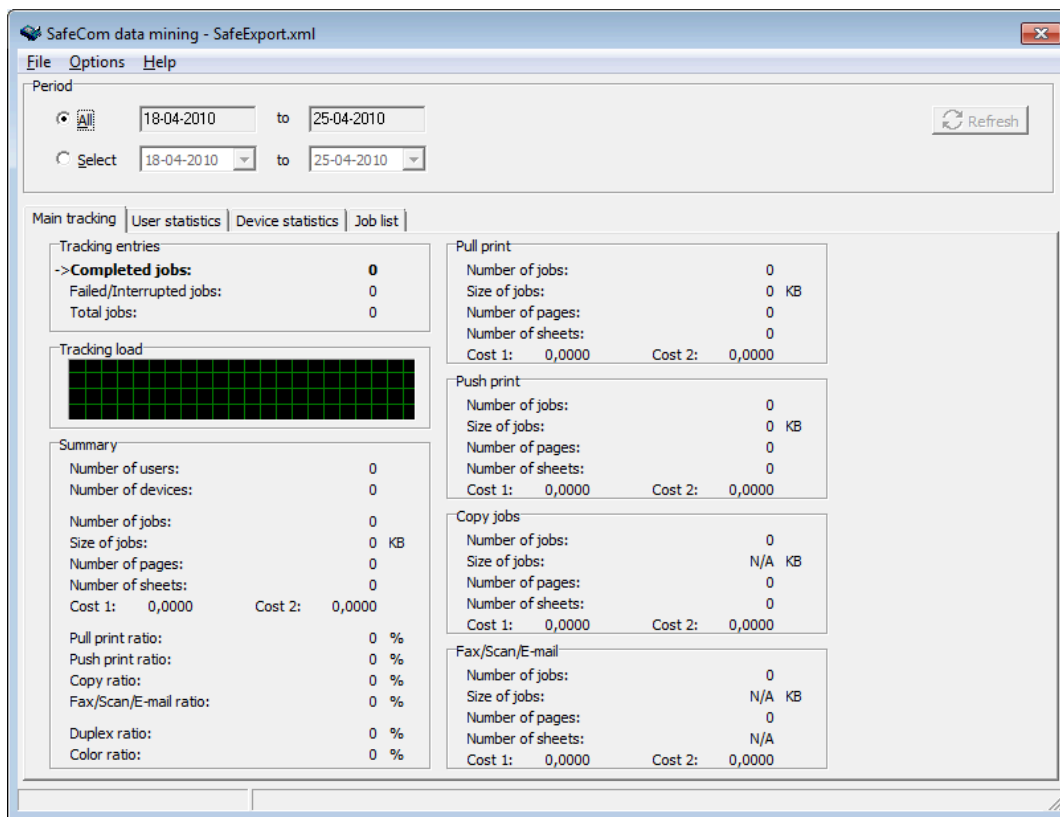


You can select whether **Completed jobs only**, **Failed/Interrupted jobs only** or **All jobs** should be included in the statistics.

Click **Refresh** to update the view of the exported statistics according to the changed options.

Main tracking

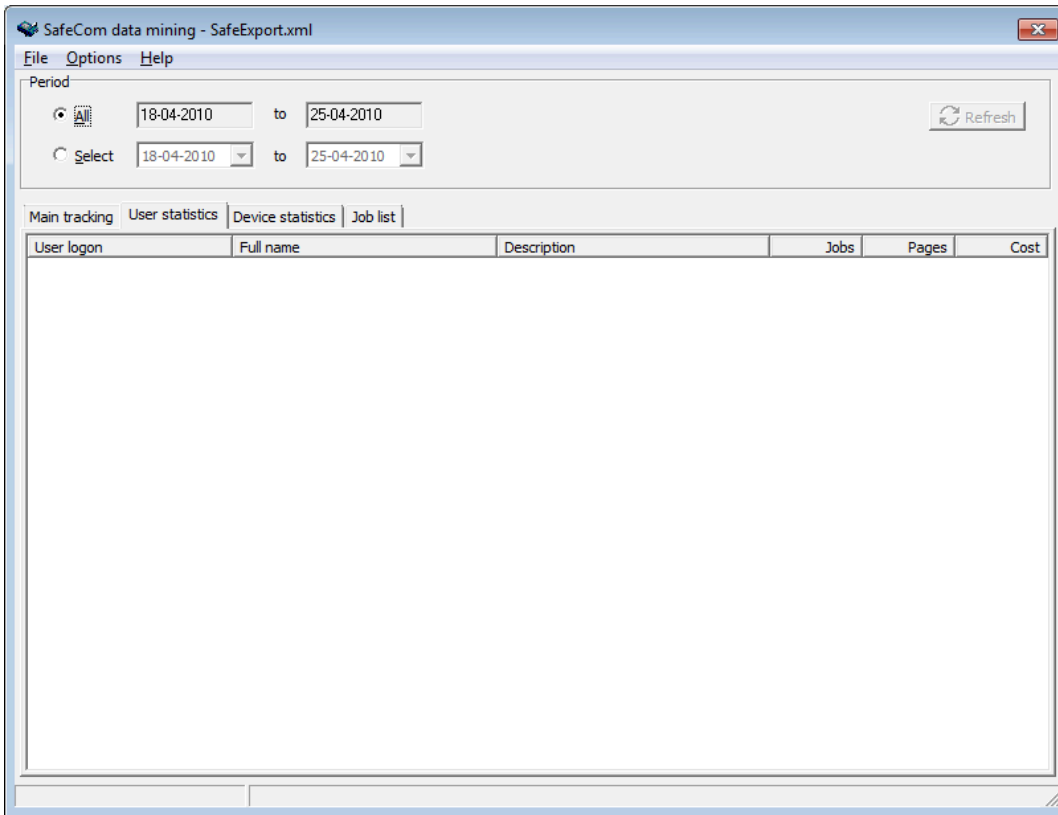
The **Main tracking** tab gives an overview of the tracking data, including the ratio between the different job types and use of color and duplex.



- **Tracking entries** shows the number of **Completed jobs**, **Failed/Interrupted jobs** and **Total jobs**.
- **Tracking load** shows a graphic representation of the number of tracking jobs as a function of time (the selected period).
- **Summary** lists the **Number of jobs**, **Size of jobs**, **Number of pages** and the resulting costs as calculated using the primary and secondary charging scheme. The **Pull print ratio**, **Push print ratio**, **Copy ratio** and **Fax/Send/E-mail ratio** are also listed. The **Duplex ratio** and **Color ratio** are also shown.
- **Pull print** lists the **Number of jobs**, **Size of jobs**, **Number of pages** and the resulting costs as calculated using the primary and secondary charging scheme.
- **Push print** lists the **Number of jobs**, **Size of jobs**, **Number of pages** and the resulting costs as calculated using the primary and secondary charging scheme.
- **Copy jobs** lists the **Number of jobs**, **Size of jobs**, **Number of pages** and the resulting costs as calculated using the primary and secondary charging scheme.
- **Fax/Scan/E-mail** lists the **Number of jobs**, **Size of jobs**, **Number of pages** and the resulting costs as calculated using the primary and secondary charging scheme. You can track Fax, Scan and E-mail on devices with SafeCom Go installed.

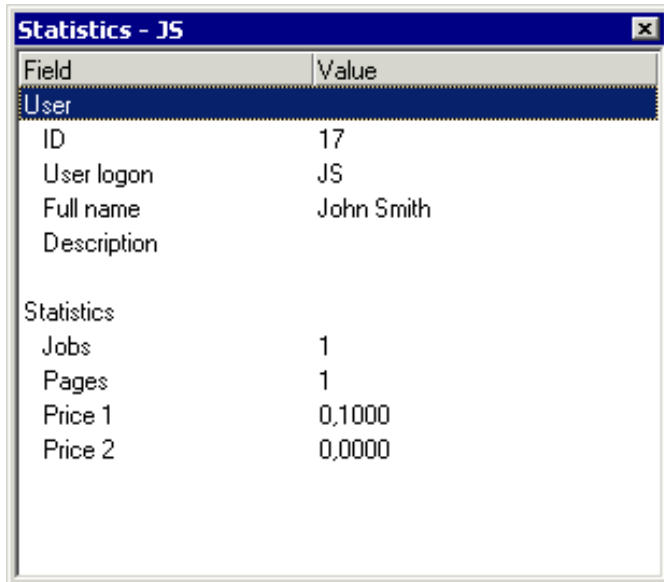
User statistics

The **User statistics** tab lists the recorded tracking data summarized on a per-user basis. The following columns are available: **User logon**, **Full name**, **Description**, **Jobs**, **Pages** and **Cost**.



- Click on the **Pages** header to sort and find who has been producing most pages using the printers and MFPs for the specified period.
- Click on the **Cost** header to sort and find who has been spending most credits using the printers and MFPs for the specified period. The listed cost is the cost calculated using the primary charging scheme.

- Click the selected user to open the **Statistics** dialog with more detailed statistics, including cost calculated using the secondary charging scheme.

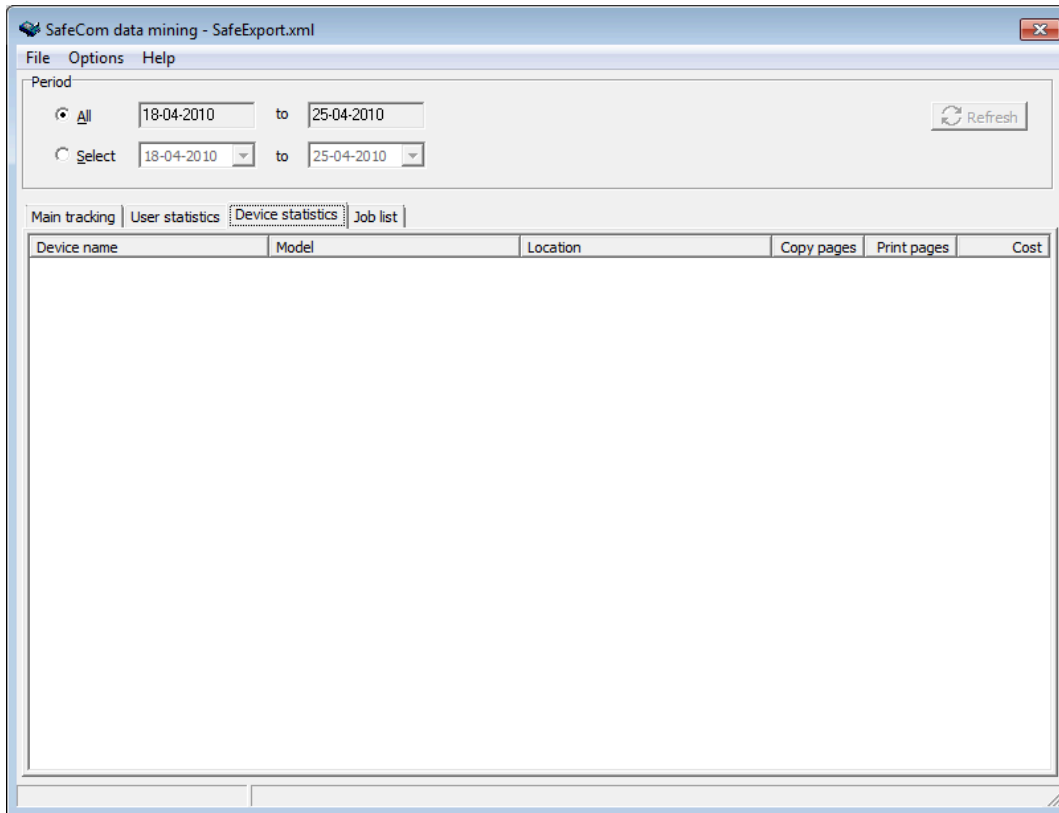


The screenshot shows a dialog box titled "Statistics - JS" with a close button (X) in the top right corner. The dialog contains a table with two columns: "Field" and "Value". The table is divided into two sections: "User" and "Statistics".

Field	Value
User	
ID	17
User logon	JS
Full name	John Smith
Description	
Statistics	
Jobs	1
Pages	1
Price 1	0,1000
Price 2	0,0000

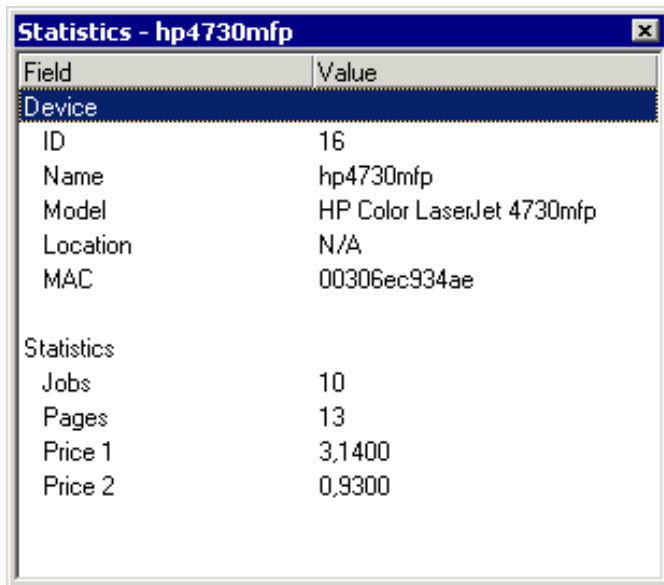
Device statistics

The **Devices statistics** tab lists the recorded tracking data summarized on a per-device basis. The following columns are available: **Device name**, **Model**, **Location**, **Copy pages**, **Print pages** and **Cost**.



- Click on the **Print pages** header to sort and find which device has been printing most pages for the specified period.
- Click on the **Copy pages** header to sort and find which device has been copying most pages for the specified period.
- Click on the **Cost** header to sort and find which device has been producing most for the specified period. The listed cost is the cost calculated using the primary charging scheme.

- Click the selected device to open the **Statistics** dialog with more detailed statistics, including cost calculated using the secondary charging scheme.

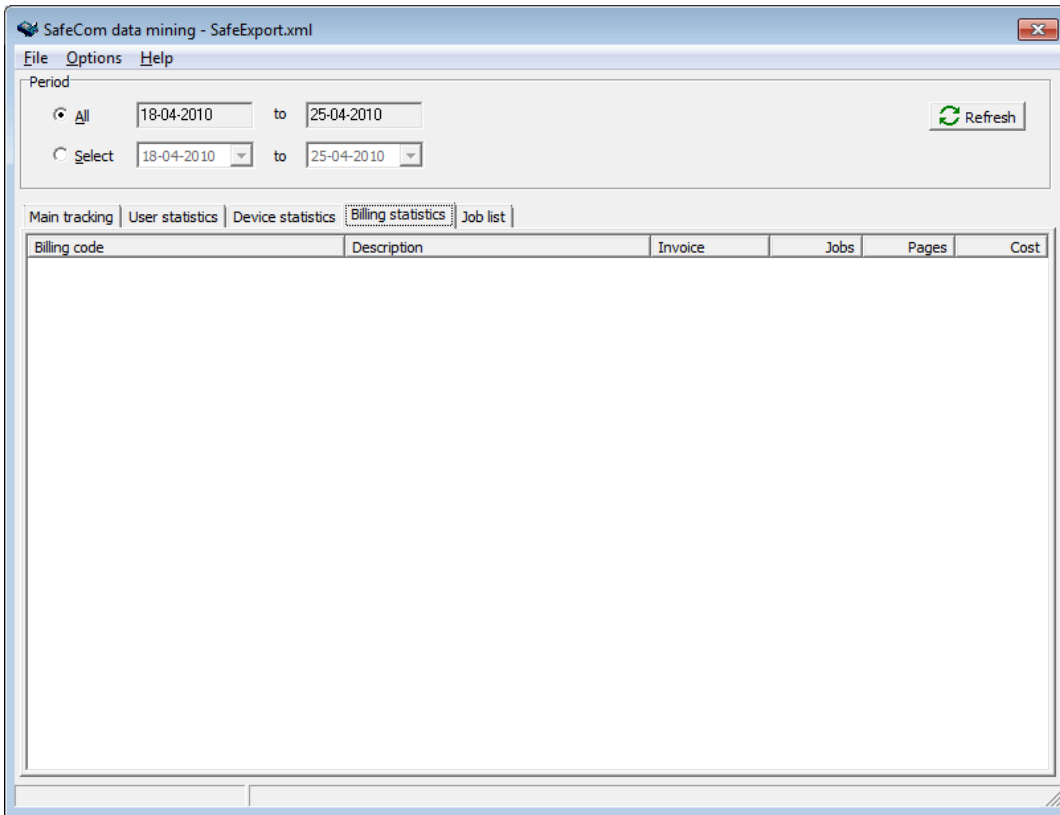


The screenshot shows a dialog box titled "Statistics - hp4730mfp". It contains a table with two columns: "Field" and "Value". The table is divided into two sections: "Device" and "Statistics".

Field	Value
Device	
ID	16
Name	hp4730mfp
Model	HP Color LaserJet 4730mfp
Location	N/A
MAC	00306ec934ae
Statistics	
Jobs	10
Pages	13
Price 1	3,1400
Price 2	0,9300

Billing statistics

The **Billing statistics** tab lists the recorded tracking data summarized on a per-billing code basis. The following columns are available: **Billing code**, **Description**, **Invoice**, **Jobs**, **Pages** and **Cost**.

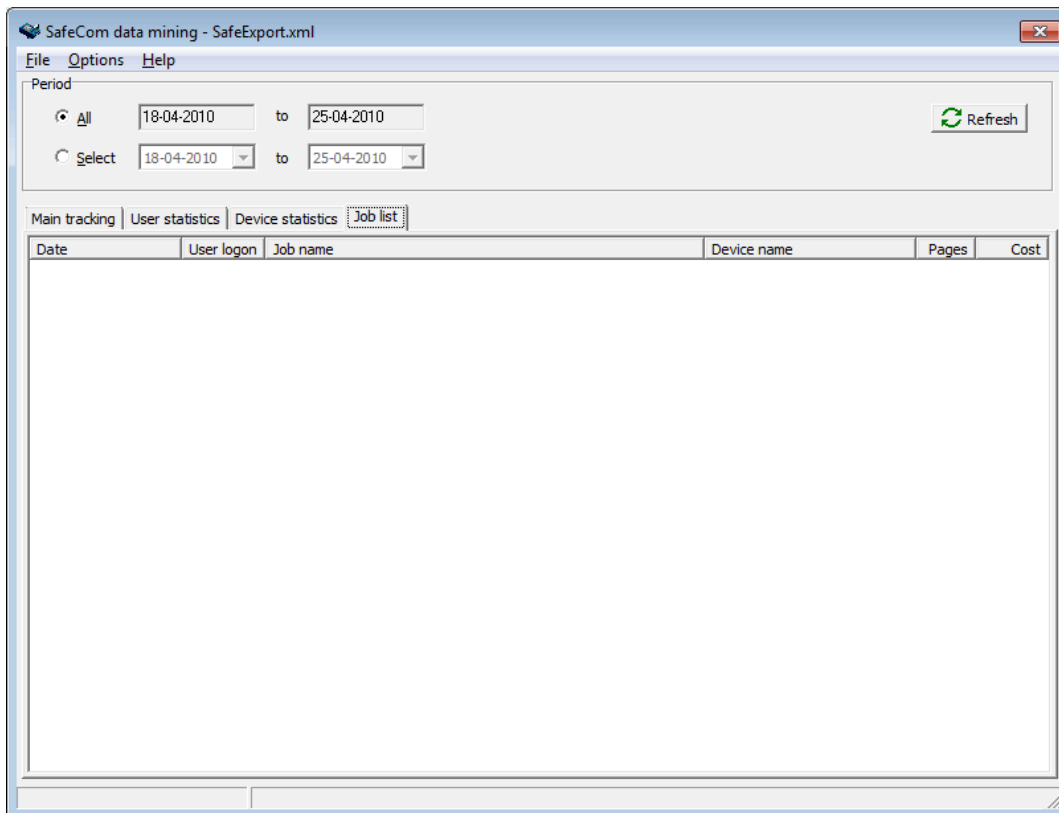


- Click on the **Pages** header to sort and find who has been producing most pages using the printers and MFPs for the specified period.
- Click on the **Cost** header to sort and find who has been spending most credits using the printers and MFPs for the specified period. The listed cost is the cost calculated using the primary charging scheme.
- Click the selected billing code to open the **Statistics** dialog with more detailed statistics, including cost calculated using the secondary charging scheme.

Field	Value
Billing code	
Name	45
Description	Denmark
Invoice	NO
Statistics	
Jobs	1
Pages	1
Price 1	0,1000
Price 2	0,0500

Job list

The **Job list** tab lists the recorded tracking data on a per-job basis. The following columns are available: **Date**, **User logon**, **Job name**, **Device name**, **Pages** and **Cost**.



- Click on the **User logon** header to sort and find the jobs produced by user for the specified period.
- Click on the **Device name** header to sort and find the jobs produced by device for the specified period.
- Click on the **Cost** header to sort and find which job is the most expensive for the specified period. The listed cost is the cost calculated using the primary charging scheme.
- Click the selected job to open the **Tracking record** dialog ([Tracking record dialog](#)) with more detailed information, including cost calculated using the secondary charging scheme.

Tracking record dialog

The Tracking record dialog appears when you click on a job in the job list ([Job list](#)).

Tracking record



Field	Value
Job	
Name	Wordpad-Duplex
Generated	5/18/2017 9:17:04 AM
Size	41 KB
Paper	A4
Duplex	Yes
Color	Yes
Driver	HP Universal Printing PCL 6 (v6.3
Type	PULL
Destination	
User	
ID	3
User logon	SP
Full name	
Description	
Cost code	N/A
Device	
ID	1
Name	HPDF0047
Model	HP PageWide Pro 552 Printer
Location	N/A
Duplex	Yes
Color	Yes
MAC	5820b1df0047
Page count	
Tracking state	COMPLETED
Tracking pages	8
Driver pages	0
Parser pages	8
Color pages	8
Sheets	4
Cost	
Price 1	0.0000
Price 2	0.0000
Billing	
Primary code	N/A
Primary description	N/A
Secondary code	N/A
Secondary description	N/A
Invoice	NO
Miscellaneous	
Start time	5/18/2017 9:34:08 AM
End time	5/18/2017 9:34:08 AM
Print queue	HP Universal Printing PCL 6 (v6.3
Print computer	WIN2016-SP
RBP force duplex	No
RBP force mono	No
RBP force toner save	No

The tables in the following lists the subset of tracking record fields displayed in the **Tracking record** dialog. The records are grouped around:

- Job
- User
- Device
- Page count
- Cost
- Miscellaneous

The corresponding XML tag is also listed and can be used to reference the tracking format as described with all fields in section [Format](#). A '+' indicates the field is relevant for the listed job. A '-' indicates the field is not relevant for the listed job.

Job	PUSH	PULL	COPY	SCAN	EMAIL	FAX
Name <JobName>	+	+	+	+	+	+
Generated <JobDate>	+	+	+	+	+	+
Size <JobSize>	+	+	-	+	+	+
Paper <JobPageFormat>	+	+	+	+	+	+
Duplex <JobsDuplex>	+	+	+	+	+	+
Color <JobsColor>	+	+	+	+	+	+
Driver <DriverName>	+	+	-	-	-	-
Type <JobType>	+	+	+	+	+	+
Destination <JobDestination>	-	-	-	+	+	+

User	PUSH	PULL	COPY	SCAN	EMAIL	FAX
ID <UserID>	+	+	+	+	+	+
User logon <UserLogon>	+	+	+	+	+	+
Full name <FullName>	+	+	+	+	+	+
Description <Description>	+	+	+	+	+	+
Cost code <UserCostCode>	+	+	+	+	+	+

Device	PUSH	PULL	COPY	SCAN	EMAIL	FAX
ID <DeviceID>	+	+	+	+	+	+
Name <DeviceName>	+	+	+	+	+	+
Model <DeviceModel>	+	+	+	+	+	+
Location <DeviceLocation>	+	+	+	+	+	+
Duplex <DeviceSupportsDuplex>	+	+	+	+	+	+
Color <DeviceSupportsColor>	+	+	+	+	+	+
MAC <DeviceMac>	+	+	+	+	+	+

Page count	PUSH	PULL	COPY	SCAN	EMAIL	FAX
Tracking state <TrackingState>	+	+	+	+	+	+
Tracking pages <TrackingPageCount>	+	+	+	+	+	+
Driver pages <DriverPageCount>	+	+	-	-	-	-
Parser pages <ParserPageCount>	+	+	-	-	-	-
Color pages <TrackingColorPageCount>	+	+	+	+	+	+
Sheets <JobSheetCount>	+	+	+	-	-	-

Cost	PUSH	PULL	COPY	SCAN	EMAIL	FAX
Price 1 <JobPrice>	+	+	+	+	+	+
Price 2 <JobPrice2>	+	+	+	+	+	+

Miscellaneous	PUSH	PULL	COPY	SCAN	EMAIL	FAX
Start time <StartDate>	+	+	+	+	+	+
End time <StopDate>	+	+	+	+	+	+
Print queue <PMQueueName>	+	+	-	-	-	-
Print computer <PMComputerName>	+	+	-	-	-	-

Update scParser.dll

The component scParser.dll is responsible for parsing the print data stream. If a new version is made available to you, you should follow the steps below to update.

Note On Windows 64-bit the file is named scParser64.dll.

1. Backup the existing file `scParser.dll` from the SafeCom installation folder. The default is:

```
C:\Program Files\SafeCom\SafeComG4\
```

2. Stop the **SafeCom Service** and the **Print Spooler**.

3. Copy `scParser.dll` to the SafeCom installation folder. Default is:

```
C:\Program Files\SafeCom\SafeComG4\
```

4. Start the **SafeCom Service** and **Print Spooler**.

Chapter 10

SafeCom Rule Based Printing (RBP)

Introduction

The Rule Based Printing module makes it possible to gain cost savings by offering management a method of enforcing policies for printing.

The policies are formulated as one or more rules. Rules are assigned to groups of users. It is possible to construct rules like:

- Only color jobs can be printed on color devices.
- Print e-mail as b/w and with toner save.
- Color print is not allowed.
- Allow color print, but warn that color printing is more expensive.

Disclaimer:

- SafeCom Rule Based Printing needs to modify the print data stream to control: Duplex on/off, Toner save on/off and Force job to b/w. SafeCom does NOT guarantee that these modifications will work and cannot be held responsible if they do not work as expected. SafeCom Rule Based Printing has been tested against PCL5, PCL5c, PCL5e, PCL6, PCL XL and PostScript level 2 and 3 printer drivers from HP using a broad range of HP LaserJets.

Planning your SafeCom RBP solution

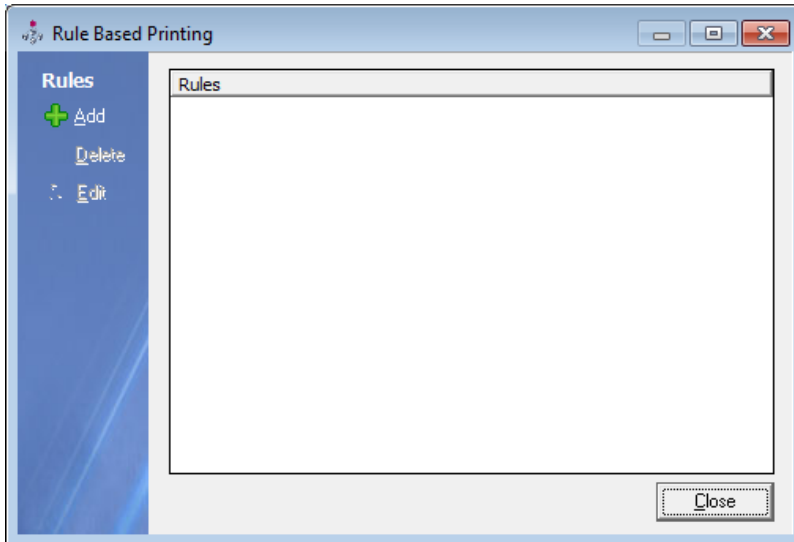
When planning your SafeCom Rule Based Printing solution you need to:

- Organize users into groups, as rules apply to groups rather than individual users. A user can be a member of multiple groups and is subject to all rules of the groups he is a member of.
- Create the rules enforcing the policies ([Creating the rules](#)).
- Run the scPopUp.exe program on the user's computer if the rule to notify the user runs on the user's computer ([Add a SafeCom Push Port](#)).
- Test all new rules using the available printer drivers and printers to ensure that the outcome is as expected before applying the rules on a large scale. Section [What if the rule does not work?](#) includes some troubleshooting hints.
- Select the rules to use on the different groups ([Select rules to be used on group](#)).
- Make sure your license covers tracking ([Device license and user settings dependencies](#)) and that relevant users' cost control is set to either Tracking or Pay ([Settings](#)).

Creating the rules

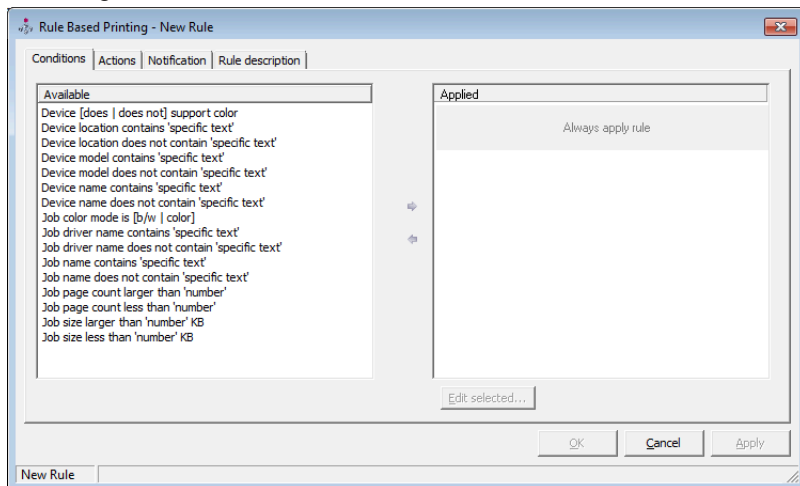
Select the conditions, actions and notification to make up and create a rule.

1. On the **Servers** menu click **Rule Based Printing...** to open the **Rule Based Printing** dialog.



2. Click **Add** to create a new rule.

3. On the **Conditions** tab double-click a condition to apply it. If no conditions are applied the rule will always apply (unconditional). Multiple conditions can be applied. Remove an applied condition by selecting it and then click the left arrow.



Available Conditions:

- **Device [does | does not] support color** Allows you to choose if the rule should apply when printing on a device with color capabilities.
- **Device location contains “specific text” Device location does not contain “specific text”** Allows you to specify a text that will be used for case insensitive matching based on the device location.
- **Device model contains “specific text” Device model does not contain “specific text”** Allows you to specify a text that will be used for case insensitive matching based on the device model.
- **Device name contains “specific text” Device name does not contain “specific text”** Allows you to specify a text that will be used for case insensitive matching based on the device name.
- **Job color mode is [b/w | color]** Allows you to choose if the rule should apply to a b/w or color job.
- **Job driver name contains “specific text” Job driver name does not contain “specific text”** Allows you to specify a text that will be used for case insensitive matching based on the job driver name.
- **Job name contains “specific text” Job name does not contain “specific text”** Allows you to specify a text that will be used for case insensitive matching based on the job name. Jobs printed from Microsoft Internet Explorer and other browsers typically include the text string “http”. Section

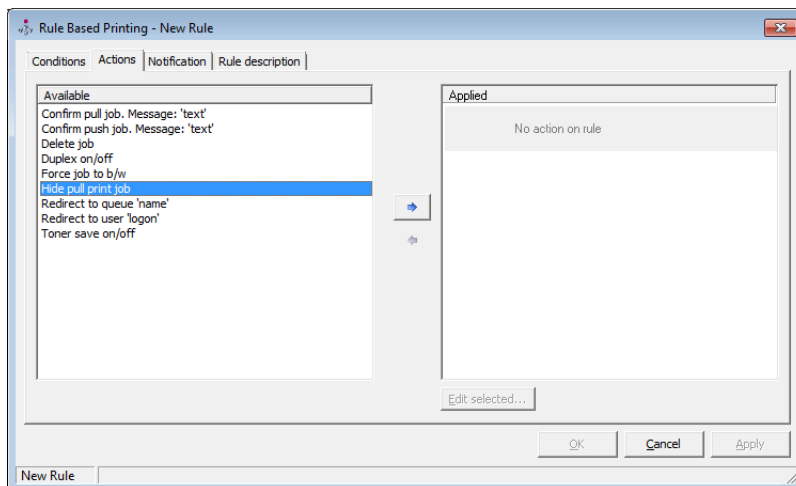
[How to determine the application](#) gives more examples on how the job name can be used to determine the application.

- **Job page count larger than “number”** Allows you to specify a larger than page count.
- **Job page count less than “number”** Allows you to specify a less than page count.
- **Job size larger than “number” KB** Allows you to specify a larger than job size in kilobytes.
- **Job size less than “number” KB** Allows you to specify a less than page job size in kilobytes.

Note

- The “specific text” is used for case insensitive matching. There is NO support for wildcard syntax, such as use of * and ?.
- The “specific text” can take multiple strings delimited by a | as the filter character; this acts as an OR operator. The filter characters can be escaped by a preceding \ (backslash), so they also may be present in the condition texts.

4. On the **Actions** tab double-click an action to apply it. If no actions are applied there is no action to the rule. Multiple actions can be applied. Remove an applied action by selecting it and then click the left arrow.



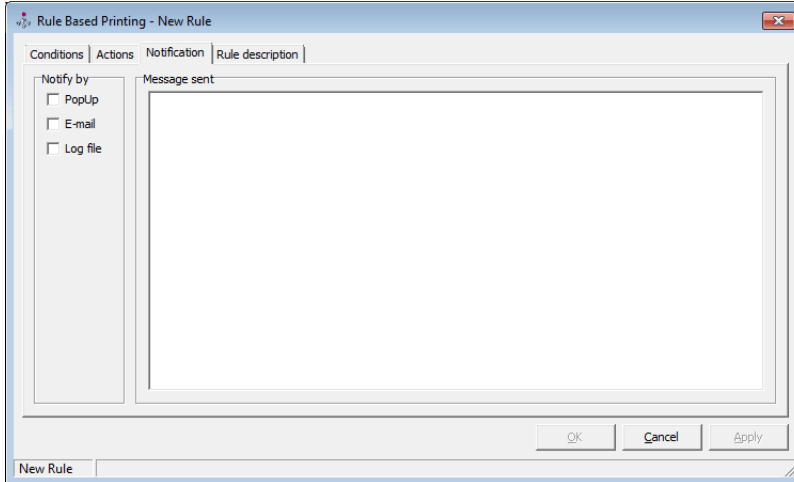
Available actions:

- **Confirm pull job. Message: “text”** When Pull Printing, a popup dialog will appear with the configured message text (max 100 characters). The user can click **OK** to print or **Cancel**. One `<%pages%>` and one `<%price%>` tag can be included in the text and will be replaced with the number of pages and the price of the job. Requires use of SafeCom PopUp ([Add a SafeCom Push Port](#)). Details about the calculation of the price based on charging scheme are in section [Defining print costs via charging schemes](#).
- **Confirm push job. Message: “text”** When Push Printing, a popup dialog will appear with the configured message text (max 100 characters). The user can click **OK** to print or **Cancel**. One `<%pages%>` and one `<%price%>` tag can be included in the text and will be replaced with the

number of pages and the price of the job. Requires use of SafeCom PopUp ([Add a SafeCom Push Port](#)).

- **Delete job** The job is deleted.
- **Duplex on/off** The print data is modified to get double-sided print. To avoid 1-page documents from using the duplexer it is recommended to combine include the condition: Job page count larger than 1.
- **Force job to b/w** The print data is modified to force job to b/w.
- **Hide pull print job** The job will not appear on the Pull Print list of documents. Typically combined with the conditions **Device supports color** and **Job color mode is color** to ensure that only color jobs can be Pull printed on color devices. If the job is Push Print it is deleted.
- **Redirect to queue “name”** This action applies to Push Print only. The print job will be redirected to the specified destination. Normally the destination is in the form of a printer’s **IP address** or **hostname**. However, it is also possible to redirect to another print queue by for example entering the share name: Example **\\SERVER\Printer**. If you redirect to a print queue that uses the SafeCom Push Port the print job is tracked again.
- **Redirect to user “logon”** This action applies to Pull Print only. The print job is redirected and stored under the specified user logon. Redirecting to a Group name is not supported.
- **Toner save on/off** The print data stream is modified to enable toner save (Economode on b/w HP LaserJets).

5. On the **Notification** tab check the notification method you want to use and enter the notification message. It is possible to refrain from selecting any of the notification methods to have the rule execute behind the scenes (silently).



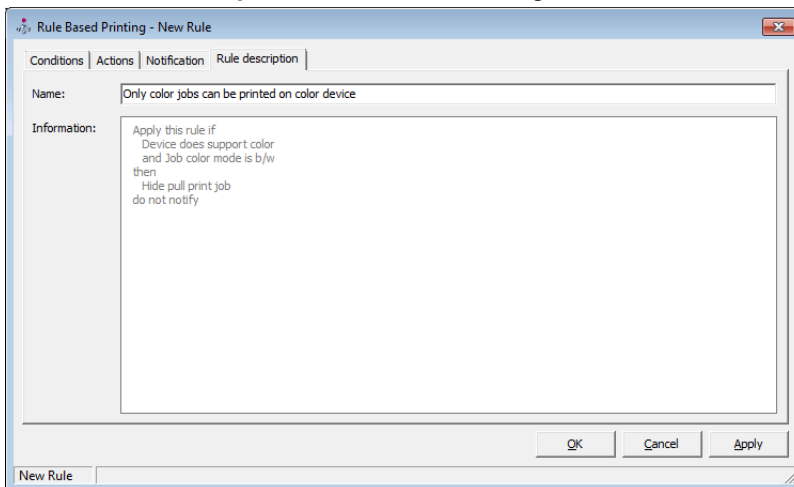
The notification message text does not support use of tags like <%pages%> and <%price%>. If you require use of these tags then please use the Action: Confirm Pull job or Confirm Push job.

The notification will only occur if a notification message text is specified.


Notify by:

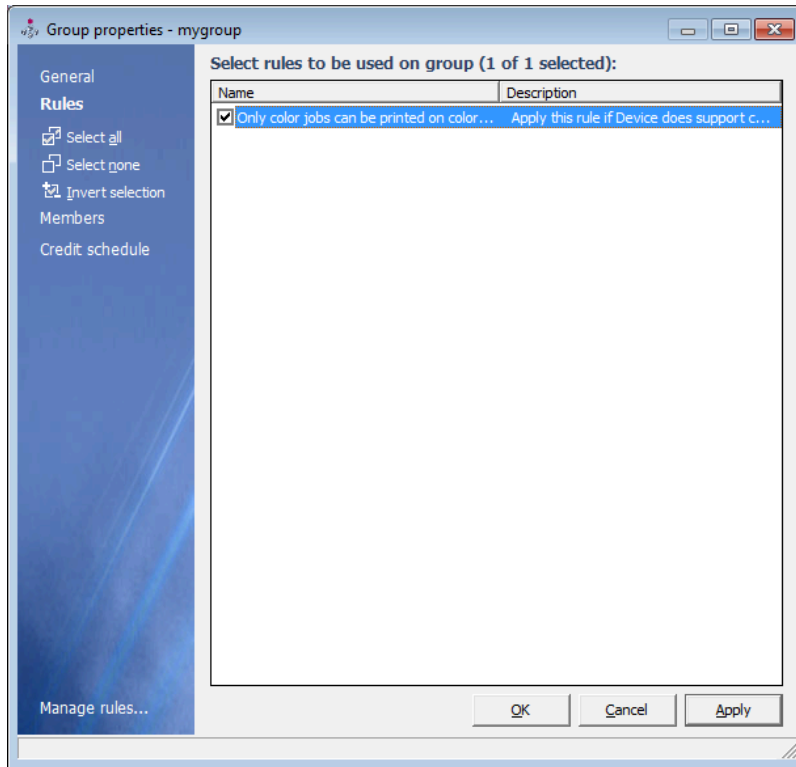
- **PopUp** A popup dialog with a configurable message will appear on the user's computer explaining that the rule has been executed. No client installation is required ([Add a SafeCom Push Port](#)).
- **E-mail** The user receives an e-mail with a configurable message explaining that the rule has been executed.
- **Log file** This should only be used during testing. The SafeCom event log will list that the rule was applied. Refer to information about the event log in [Event log and e-mail notification](#).

6. On the **Rule description** tab enter a meaningful **Rule name** to identify the rule. Click **OK**.



Select rules to be used on group

1. Click on the **Groups** icon  in the **Server groups** pane.
2. Click on a group in the **Group list** to open the **Group properties** dialog.
3. Click on the **Rules** tab.



4. Check the rules you want to be used on the group.
5. Click **Apply** and then **Close**.

What if the rule does not work?

Go through the below troubleshooting hints if the rule does not work:

- **Identify the rules** Verify that the rule is indeed to be executed. You can do this by looking at the **Member of** tab in the **User properties** dialog to determine which groups the user is a member of. Next you should look at the **Rules** tab in the respective **Group properties** dialog to see which rules are selected.
- **Print data stream compatibility** If the rule requires customization of the print data stream it may be that the print data stream is not PCL5, PCL5c, PCL5e, PCL6, PCL XL or PostScript level 2 or 3.

- **Printer driver compatibility** Even if the print data stream is indeed supported it may be driver/printer specific to a level that is not supported by the current SafeCom Rule Based Printing. In this case you should refrain from using the rule.

How to determine the application

Many customers want to define rules based on the application. The application can in most cases be determined by using the condition: **Job name contains “specific text”**

The table below contains suggested texts to use for popular applications.

Application	Specific text
Adobe	.pdf
Microsoft Excel	.xls
Microsoft Outlook	Microsoft Outlook
	outbind://
Microsoft PowerPoint	Microsoft PowerPoint
Microsoft Word	Microsoft Word
Notepad	Notepad
Plain text files	.txt
Windows Internet Explorer	http
Windows Test Page	Test Page

Note E-mails printed from Lotus Notes will have the same job name as the subject of the e-mail. It is not possible to use the job name to determine that it's the Lotus Notes application.

Update scRuleExecuter.dll

The component scRuleExecuter.dll is responsible for modifying the print data stream. If a new version is made available to you, you should follow the steps below to update.

Note On Windows 64-bit the file is named `scRuleExecuter64.dll`.

1. Back up the existing file scRuleExecuter.dll from the SafeCom installation folder. The default is:

```
C:\Program Files\SafeCom\SafeComG4\
```

2. Stop the **SafeCom Service** and the **Print Spooler**.

3. Copy scRuleExecuter.dll to the SafeCom installation folder. Default is:

```
C:\Program Files\SafeCom\SafeComG4\
```

4. Start the **SafeCom Service** and **Print Spooler**.

Chapter 11

SafeCom Client Billing

Introduction

The Client Billing module makes it possible to register billing codes with any job that is tracked by the SafeCom solution. The billing data can be exported and used for further analysis.

Users can specify billing codes in the following three ways:

- **At print submission** A billing code can be specified when submitting a job for either Pull or Push print. When a billing code is added at print submission for a Pull print it is preserved and cannot be overridden by a new billing code selected at the device. **Note:** *For billing codes to be selectable at print submission time SafeCom PopUp (SafeCom PopUp – scPopUp.exe) must be running on the user's computer.*
- **At the device** On selected SafeCom-enabled MFPs a billing code can be selected with any job that is tracked by SafeCom. The user can select from a list of specified, favorite billing codes and the last used 10 billing codes.
- **Via web interface** Via SafeCom G4 Web Interface users can specify billing codes on their print jobs, if this is done before the elapsed time. Also, the users can change billing codes specified earlier.

How users perform typical tasks related to client billing is covered in *SafeCom G4 Client Billing User's Guide*.

Manage billing codes

Managing billing codes involves these administrator tasks:

- **Import billing codes into the SafeCom solution** Billing codes can be imported either on a scheduled basis or added manually through the SafeCom Administrator or SafeCom API. Refer to *SafeCom G4 Administrator API Reference Manual*.
- **Assign favorite billing codes to users and/or user groups** To control which billing codes a user can choose from on print jobs, the administrator can create a predefined list, Favorite billing codes, for each user.

The administrator can create these predefined lists of billing codes either through the SafeCom Administrator or the SafeCom API. Using the SafeCom API enables system integration and limits the manual labor involved in managing billing codes.

Utilizing the SafeCom G4 Web Interface, users can be allowed to build and manage their own list of favorite billing codes. This reduces the administrative overhead, but it requires that the administrator can rely on user's honesty and ability to select the appropriate billing code for the jobs they perform.

Plan your SafeCom Client Billing solution

When planning your SafeCom Client Billing solution you need to:

- Plan and configure SafeCom Tracking as SafeCom Client Billing relies on that. Consult chapter [SafeCom Tracking](#) on how to plan ([Planning your SafeCom Tracking solution](#)) and configure ([Configuration overview](#)) SafeCom Tracking.
- Decide where to install the SafeCom G4 Web Interface and how users should authenticate themselves to see the SafeCom Client Billing web page. Refer to *SafeCom G4 Web Interface Administrator's Manual*.
- Decide if client billing should be done using one- or two-level codes. For two-level codes the billing code consists of a primary (Client) code and a secondary (Matter) code.
- Decide if billing codes should be imported on a scheduled basis.
- Decide the elapse time before billing codes are committed to tracking data. During this period of time users can select and change billing codes on the SafeCom Client Billing web page.
- Schedule and prepare training of users on how to select billing codes for jobs.

Configuration overview

Prerequisites:

- **Configure SafeCom Tracking.** Refer to section [Planning your SafeCom Tracking solution](#), [Multiple servers: Online or offline tracking](#) and [Configuration overview](#).
- **Install the SafeCom G4 Web Interface.** Refer to *SafeCom G4 Web Interface Administrator's Manual D60651*.

Before proceeding to the configuration of the SafeCom Client Billing solution you should get an overview of the steps involved:

1. **Configure SafeCom Client Billing** ([Configure SafeCom Client Billing](#))
2. **Add the billing codes into the SafeCom solution.** Import billing codes automatically ([Import billing codes](#)). Add one-level billing codes ([Manage 1-level billing code](#)) and two-level billing codes ([Manage 2-level billing code](#)) manually.
3. **Assign favorite billing codes to users and/or user groups.**
 - a. Select favorite billing codes for a user ([Billing](#)).
 - b. Select favorite billing codes for a group ([Select favorite billing codes for a group](#)).
4. **Allow users to select billing codes** on print jobs ([Set up users to use billing codes](#)).
5. **Edit the reminder template** so it references the SafeCom G4 Web Interface, that is, the Billing web page ([Edit the template for billing reminder](#)).
6. **Work with the tracking data.** Use the Data Mining tool to view the tracking data ([SafeCom Data Mining](#)).

Configure SafeCom Client Billing

In this section the following setups are described:

- Configure the billing codes and how they are displayed for the users
- Set the elapse time before billing codes are committed to tracking

To configure the billing codes in SafeCom Client Billing:

1. In the SafeCom Administrator, click on the **Servers** menu and choose **Server properties**.
2. Click on the **Billing** tab.

The screenshot shows the 'Server properties - WSLEJ3' dialog box with the 'Billing' tab selected. The dialog has a title bar with a close button. Below the title bar are tabs for 'Server', 'Users', 'Devices', 'E-mail', 'Tracking', 'Billing', and 'Encryption'. The 'Billing' tab is active and contains three sections:

- Billing codes:** This section has three columns: 'Primary code', 'Display format', and 'Size'.
 - Under 'Primary code', there is a text box containing 'Client code'.
 - Under 'Display format', there is a dropdown menu set to 'Primary code'.
 - Under 'Size', there is a spinner box set to '0'.
 - Below these, there is a checkbox for 'Secondary code' which is unchecked.
 - Under 'Display format' for the secondary code, there is a dropdown menu set to 'Primary description'.
 - Under 'Size' for the secondary code, there is a spinner box set to '0'.
- Billing window:** This section has a checked checkbox for 'Store tracking data temporarily to allow users commit billing after:'. Below this are three spinner boxes: '1' day, '0' hours, and '0' minutes.
- Commit billing records:** This section has a sub-section 'Move billing records to tracking data'.
 - There are two radio buttons: 'Move once at:' (unchecked) and 'Move every:' (checked).
 - Next to 'Move once at:' is a time dropdown set to '00:00'.
 - Next to 'Move every:' is a time dropdown set to '6 hours'.
 - Next to 'Starting at:' is a time dropdown set to '00:00'.
 - Under 'on days:', there is a list of days from Monday to Sunday, each with a checked checkbox.

At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Apply'.

3. If you are working with one-level billing codes, enter a Primary code that coincides with terms use within your organization.
- Or
- Check **Secondary code** in order to use 2-level billing codes, composed of a primary (Client) code and secondary (Matter) code. Enter the codes (Client code and Matter code) to match the terms used within your organization.

The screenshot shows the 'Billing codes' configuration window. It has tabs for Server, Users, Devices, E-mail, Tracking, Billing (selected), and Encryption. Under 'Billing codes', there are three input fields: 'Primary code' (containing 'Client code'), 'Secondary code' (checked), and 'Matter code'. To the right, there are two columns: 'Display format' and 'Size'. The 'Display format' column has four dropdown menus: 'Primary code', 'Primary description', 'Secondary code', and 'Secondary description'. The 'Size' column has four spinners, each set to '0', and a separator character dropdown set to a comma (',').

4. Configure how the codes should be displayed to the user at the printer, or on the SafeCom Web Interface.
- Under **Display format**, specify the field order of Primary code and Primary description, and of the Secondary code and Secondary description. You can choose not to display all by choosing **<None>**. For example, select **Primary code** in the first drop-down, and then **Secondary code** in the second drop-down. In the third drop-down, you can choose **<None>** and nothing else will be displayed.
 - Under **Size**, set the field abbreviation value to a number between 0 and 50. The number indicates the number of characters (including the separators) that will be displayed of the text. 0 indicates that the text should not be abbreviated.
 - Specify the type of separator you want to use. Three periods (...) are added to the displayed text to indicate that it is abbreviated. See the following examples.

- Example 1: Two-level code with default order of fields, comma as separator and an abbreviation of descriptions to 12 characters.

```
0123,Ajax Interna...,4567,Project Mana...
```

- Example 2: Two-level without separator and without abbreviation, but with primary code and secondary code first followed by the corresponding descriptions:

```
01234567Ajax InternationalProject Management
```

5. Check **Store tracking data temporarily to allow users to apply billing codes**. Specify the period where the users can still modify billing codes to a job already sent. After this period of time has passed, the billing data is committed and moved to the tracking data.

Note In a multiserver environment, tracking data within the billing window will not be collected by the primary server.

6. Specify under **Commit billing records** how often you want to move billing records to tracking data.

- Click **OK**. Once this is done you will see the tracking records and selected billing codes when you export tracking data ([Work with the tracking data](#)).

Import billing codes

In this chapter the import of billing codes is covered. The import is completed via a wizard that takes you through the necessary steps.

The import file with billing codes must be a CSV file, saved as a *.txt file.

The following are examples of a one-level and two-level CSV file, where the first line is a header. The billable field can be 0 (not billable) or 1 (billable). The billing code and the billing code description can each consist of maximum 50 characters.

Note: *You do not get a notification if the billing code or description exceeds the allowed number of characters.*

One-level billing code example

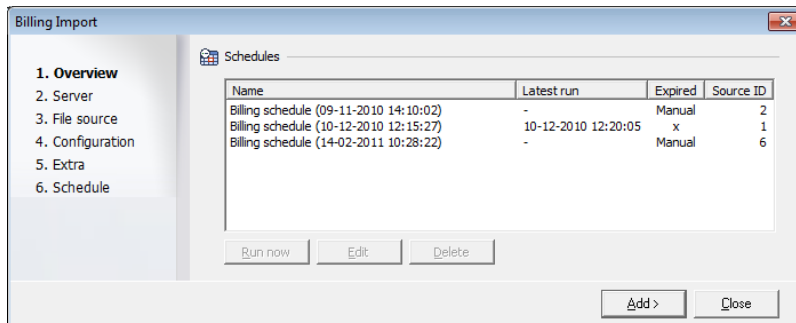
```
Code;Description;Billable
10102;Human Resources;0
10103;Acme Project;1
```

Two-level billing code example

```
Code1;Description1;Code2;Description2;Billable
1;United States;002;Athletics;1
1;United States;004;Basketball;1
1;United States;011;Modern pentathlon;0
44;United Kingdom;002;Athletics;1
44;United Kingdom;008;Football;1
44;United Kingdom;011;Modern pentathlon;0
45;Denmark;008;Football;1
45;Denmark;011;Modern pentathlon;0
46;Sweden;002;Athletics;1
46;Sweden;008;Football;1
```

To open the **Billing codes import configuration wizard** follow these steps:

- On the **Servers** menu, click **Client Billing** and **Import billing codes...**



- To schedule a new import of billing codes, click **Add**.

3. Enter **Server address** (hostname or IP address), **User logon** with administrator rights and **Password**. In a multiserver installation you should specify the primary server for best performance. Click **Next**.

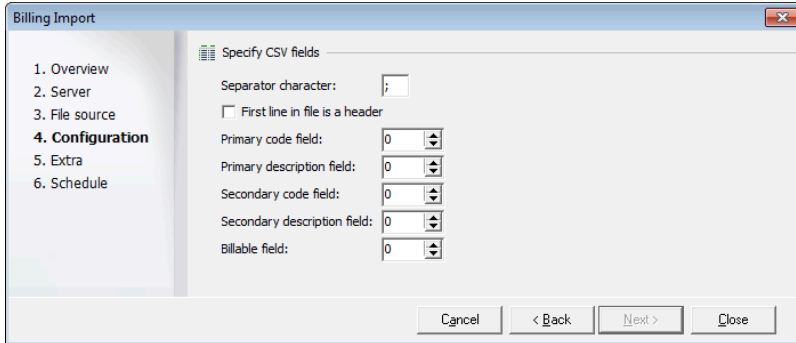
The screenshot shows the 'Billing Import' dialog box with the 'Server' step selected. The 'Server address' field contains 'localhost', 'User logon' is 'ADMIN', and both 'Password' and 'Confirm password' fields are masked with asterisks. The 'Next >' button is highlighted.

4. Click **Next** to select the CVS file you want to import billing codes from. The content of the file has to be structured as a CSV file. (See examples [Import billing codes](#))
- **When run by SafeCom Server:** Specify the path to the file to import billing codes from in a scheduled import. The file name must be specified with full path as seen from the SafeCom server and the account that runs the SafeCom Service (normally the **Local System** account) must have read access to the CSV file.
 - **Same as server filename:** Clear if you want to use a different CSV file for an immediate billing code import (Run now functionality). Specify the path to the file to import billing codes from in the **When run locally from SafeCom Administrator**.

The screenshot shows the 'Billing Import' dialog box with the 'File source' step selected. Both the 'When run by SafeCom Server' and 'When run locally from SafeCom Administrator' fields contain the path 'C:\Users\vt.SC\Desktop\onelevel.txt'. The 'Same as server filename' checkbox is checked. The 'Next >' button is highlighted.

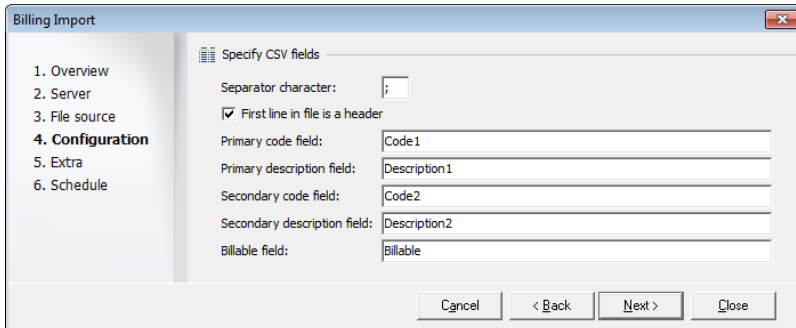
Note The CSV file must be a *.txt file. When browsing remember to select **All files**, so that the *.txt files are visible.

- Click **Next** to specify the format of the CSV file that you want to import from. Indicate with numbers from which location in the CSV file the values should be retrieved. Leave a field value of 0 to avoid import from the specific location. If you are working with two-level billing codes you will need to specify the location for primary code and primary description, as well as secondary code and secondary description.



If the first line in the CSV file is a header, you need to check **First line in file is a header**. Then the specific name of the location rather than the number needs to be specified.

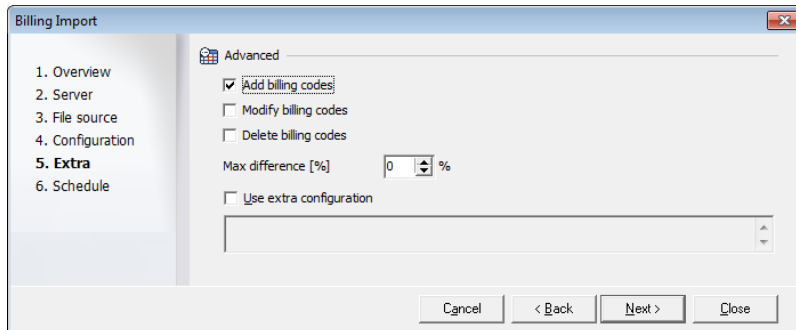
If two-level billing codes are used the dialog will look like the following:



Note The field names are case insensitive.

- Now specify in the field **Separator character** the separator used in the CSV file (default is semicolon.) Click **Next**.

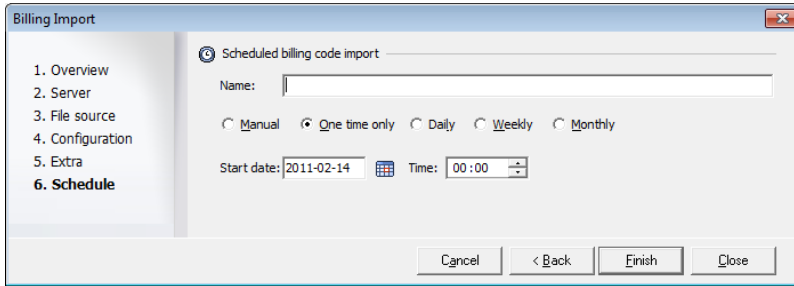
7. Check the options as required according to descriptions below.



- **Add billing codes:** This will import all billing codes in the file.
- **Modify billing codes:** This will modify any existing billing codes according to the imported values.
- **Delete billing codes:** This deletes existing billing codes that do not appear in the import file.
- **Max difference:** Use this to control if an import should be cancelled if the difference between the imported file and the existing billing codes are too big. A value of 0 (zero percent) will cause the import to take place regardless to the difference in percentage.
- **Use extra configuration:** If a special billing code import module has been supplied you should check this check box and enter the configuration according to the supplied instructions.

8. Click **Next**.

- In the **Scheduled billing code import** dialog, select the schedule option according to descriptions below.



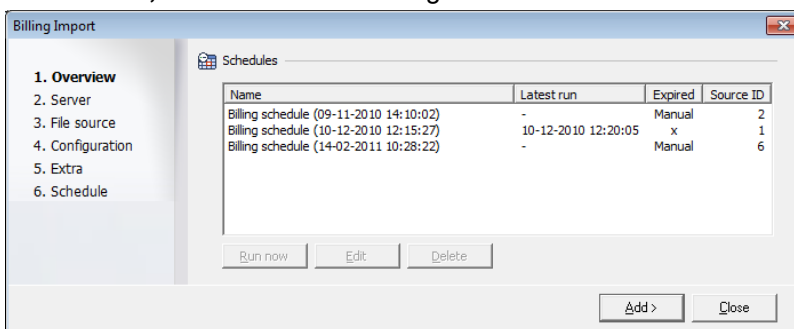
- **Name:** Specify a name for the import.
- **Manual:** The import must be run manually.
- **One time only:** Specify the **Start date** and **Time** for the import and it is run only once at that specific time.
- **Daily:** Specify the **Start date** and **Time** for the import and how often you want to perform this task.
 - **Every 1, 2, 4, 6, 12, or 24 hour.** The import will start running from the specified start time.
 - **Weekdays.** The import will run once a day, Monday through Friday, at the specified time.
 - **Every 1, 2, 3 etc. day.** The import will start running at the specified time.

If needed, specify the **End date** as well.

- **Weekly:** Specify the **Start date** and **Time** for the import and how often you want to perform this task on a weekly basis. Also select the days of the week, where you want the import to run, and if needed the **End date**.
- **Monthly:** Specify the **Start date** and **Time** for the import and how often you want to perform this task on a monthly basis. Also select the specific months of the year, where you want to import to run, and if needed the **End date**.

Note If an **End date** is specified, the import task will be deactivated by midnight on the date specified.

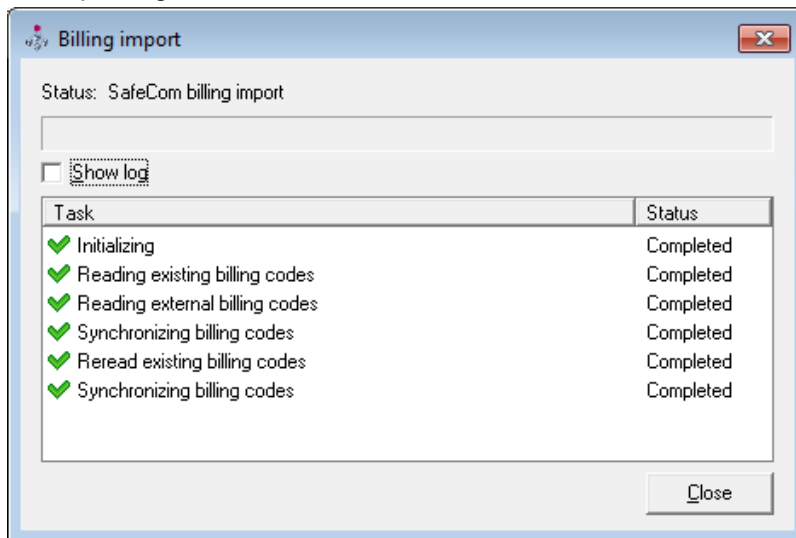
- Click **Finish** and the billing schedule now appear in the **Billing Import** dialog from where you can choose **Edit**, **Delete** or run the billing code schedule now.



To run the billing import immediately:

- Select the billing code schedule in the list.

2. Click **Run now**.
3. When the import has finished successfully, the following dialog opens. Click **Show log** in order to see the import log.

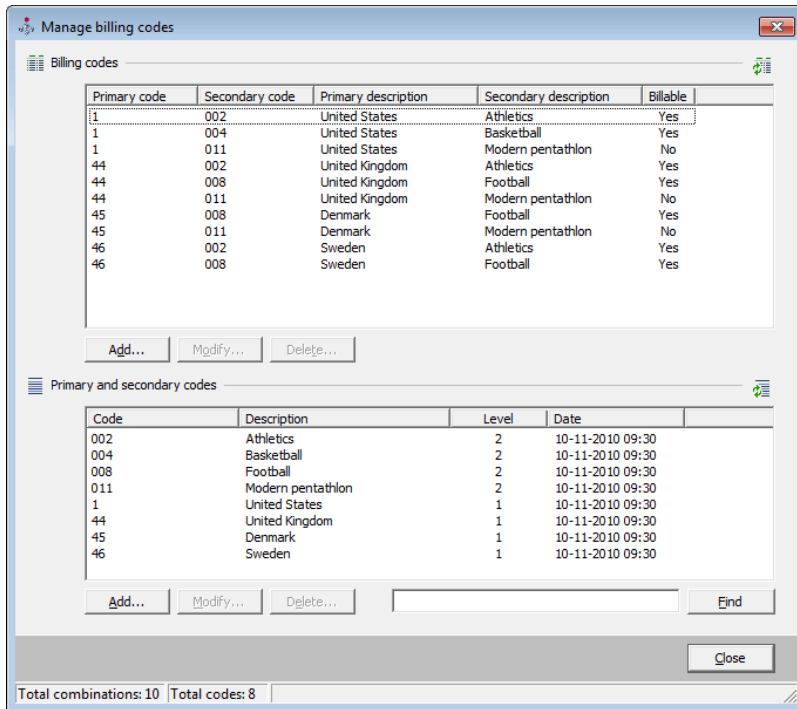


Once the import is run and the billing codes imported, they can be viewed in the **Manage billing codes** dialog (see [Manage 1-level billing code](#)), and also be added as favorites for specific users in the **User properties (Billing)**.

To see the billing codes in the **Manage billing codes** dialog:

1. Click **Servers**, **Client billing** and then **Manage billing codes**.
2. To refresh the dialog, click the green refresh button in the top right corner or click **Find** and then **Yes** to retrieve all billing codes.

The following screenshot shows the **Manage billing codes** dialog, when working with two-level billing codes.



Billing code import log file

During the import, a log file is created with information about the input parameters, RunTime messages, and the statistics for the import of billing codes. The statistics include the number of billing codes added, modified, and deleted during the import.

The log file is named **<Billingyyyymmddhhmmss.log>**:

- yyyy specifies the year
- mm specifies the month
- dd specifies the day
- hh specifies the hour
- mm specifies the minutes
- ss specifies the seconds

The log file is stored in the **logfiles** folder below the SafeCom G4 installation folder. The default folder is:

```
C:\Program Files\ SafeCom\SafeComG4\logfiles
```

On **Windows 64-bit**:

```
C:\Program Files (x86)\ SafeCom\SafeComG4\logfiles
```

If the same billing code exists twice in the same import file, the following RunTime message appears.

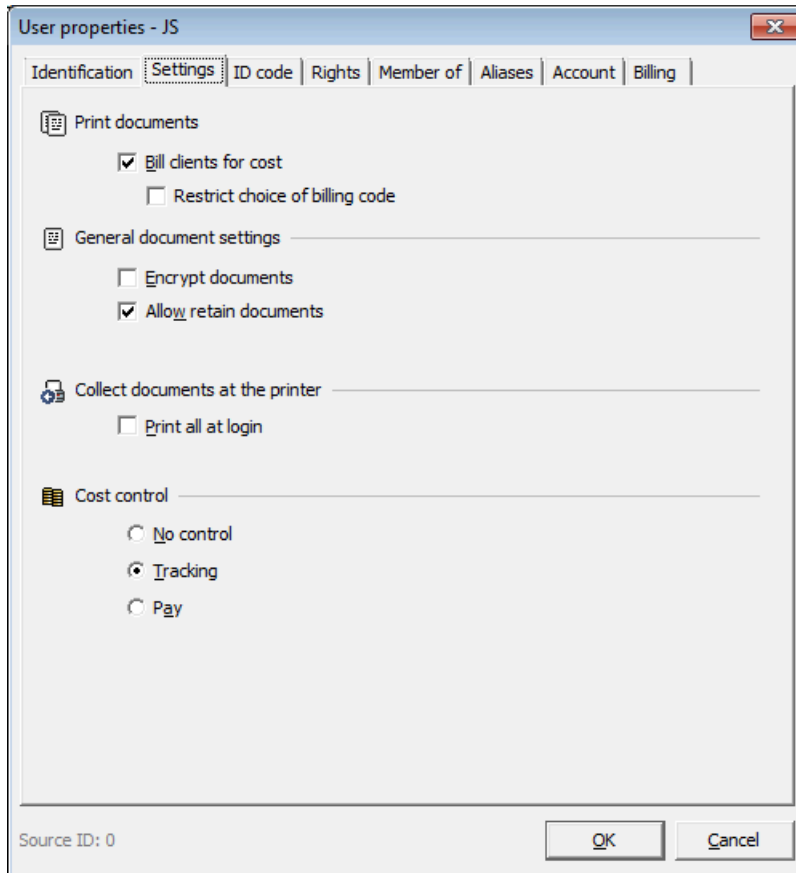
- Not able to add Billing code <BillingCode>. cc = 131

This means that the billing code is added, but only once.

Set up users to use billing codes

For users to be able to use billing codes, this must be set up on the **User properties**.

1. Open the **User properties** by double-click on a specific user in SafeCom Administrator.
2. Click the **Settings** tab.



3. Make sure that either **Tracking** or **Pay**²⁷ is selected under **Cost control**.
4. Check the **Bill clients for cost** under **Print documents**.
5. Check **Restrict choice of billing codes** if the user only should be able to select from the billing codes on the predefined list of Favorite billing codes. If **Restrict choice of billing codes** is not checked, then the user can use the SafeCom G4 Web Interface to add and delete billing codes to the list of Favorite billing codes.
6. Click **OK**.

²⁷ A Pay user is not charged for the job if a billing code is selected.

Note When importing users, you can specify that the settings from the Default user should be applied to the imported users. This could for example be the **Bill clients for cost** parameter if this is set up on the Default user.

The following describes how **Tracking** and **Pay** affects billing:

- If the user is set to **Tracking** and **Bill clients for cost** and only has one **Favorite** billing code, then that one billing code will be used when printing. In order not to use that billing code the user must access the **Account** icon on the printer and press **No billing**.
- If the user is set to **Tracking** and **Bill clients for cost** and if the user has more than one **Favorite** billing code, then the user must choose the specific billing code by pressing the **Account** icon on the printer. Otherwise the print job is not billed.
- If the user is set to **Pay** and **Bill clients for cost** then the user must choose a billing code at the printer by pressing the **Account** icon. Otherwise the print job is not billed and the user is charged for the job.
- If a billing code is added at print submission time it is preserved and not overridden by for example a billing code selected at the device.

To change the **Bill clients for cost** property of multiple users:

1. Use **Find users** ([Find users](#)) to get a list of relevant users.
2. Do one of the following:
 - To select consecutive users, click the first user, press and hold down **SHIFT**, and then click the last user.
 - To select nonconsecutive users, press and hold down **CTRL**, and then click each user.
 - To select all the users in the window, press **CTRL+A**.
3. Open the **User properties** by pressing **ALT+ENTER** or right-click the selected user(s) and select **User properties**.
4. Click the **Settings** tab and make the changes as described above.

Add favorite billing codes for a user

When a user selects a billing code to a print job, the user can choose a billing code from a list of 10 last used billing codes or from the Favorite billing codes list.

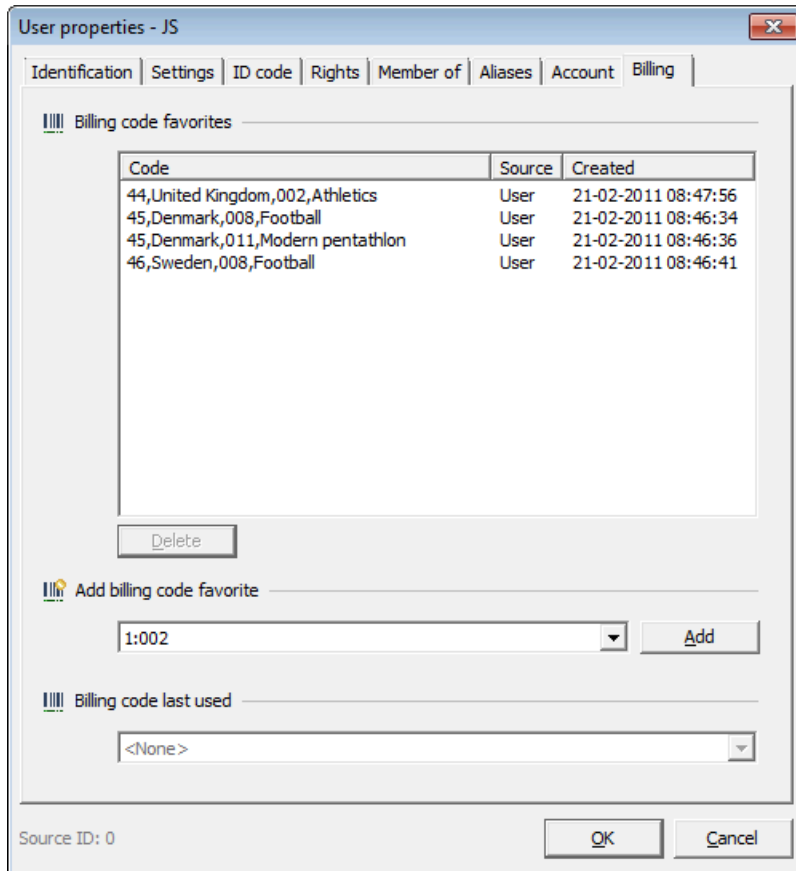
The list of Favorite billing codes is a list of the billing codes that are relevant to a specific user or group. This is set up in the SafeCom Administrator, but in some cases users can select the favorite billing codes themselves via the SafeCom Web Interface.

In the SafeCom Administrator, favorite billing codes can be applied to a specific user or user group.

To add favorite billing codes to a user:

1. Open the **User properties** for on a specific user in **SafeCom Administrator**.

2. Click the **Billing** tab.



3. In the menu under **Add billing code favorite** select the billing code that you want to add and click **Add**.

The billing code is now listed under **Billing code favorites**, with the **Source** column specified as **User**. The list also shows the billing code favorites that are added to groups that the user is a member of. These are specified with **Group** in the **Source** column.

Note A user's billing code favorites are replicated to all secondary servers which means, that a user is still able to view and use the favorite billing codes even if the home server is changed. This does not apply to **Last used** billing codes. (To see what elements are replicated between secondary servers, see [Check that the replication is working.](#))

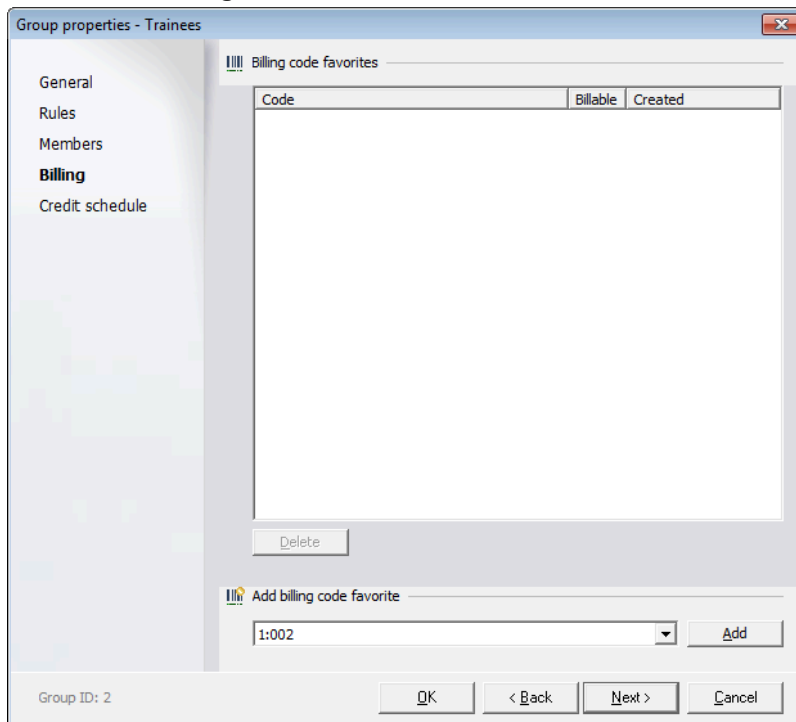
A favorite billing code can be removed again from the list if you select it and then click **Delete**.

Note On the **User properties** dialog it is not possible to delete group favorite billing codes. This must be done from the **Group properties** dialog ([Select favorite billing codes for a group](#)).

Select favorite billing codes for a group

Favorite billing codes can also be added to groups.

1. Open the **Group properties** dialog ([Group properties dialog](#)).
2. Click on the **Billing** menu.



3. Select a billing code under **Add billing code favorite** and click **Add**.
4. Click **OK**.

The group billing code favorite can be removed from the list if you select it and click **Delete**.

Edit the template for billing reminder

If the user has enabled the **Reminder** on the SafeCom web interface, an e-mail is sent to remind the user about selected billing codes to the print job. The user can set up the e-mail to be sent either:

1. As soon as a job completes
2. When the specified number of jobs has been completed.

This is set up in the SafeCom web interface as well.

The e-mail is based on the EmailBilling.txt template which is located in the %SafeCom%\Templates folder. The %SafeCom% indicates the SafeCom installation folder, normally:

```
C:\Program Files\ SafeCom\SafeComG4
```

On Windows 64-bit:

```
C:\Program Files (x86)\ SafeCom\SafeComG4
```

The e-mail template looks as follows:

EmailBilling.txt

```
<%SUBJECT="[SafeCom] Billing notification"%>
This mail is to inform you that
you now have <%BILLINGJOBS%> jobs that require
your choice of billing code.
Click the link below to go to the billing web page:
<%BILLINGLINK HOST="http://safecomserver/safecom/"%>
www.safecom.eu.
```

To use the e-mail template the following steps must be completed:

1. Open the EmailBilling.txt file in an editor such as **Notepad**.
2. Replace the `http://safecomserver/safecom/` link with the link to the server that hosts the SafeCom G4 web interface. Refer to *SafeCom G4 Web Interface Administrator's Manual*.
3. Customize or translate the message to accommodate the users.
4. Save the file into the %SafeCom% folder. If you leave it in the %SafeCom%\Templates folder it will not take effect.

Manage 1-level billing code

In the following section it is covered how to manage one-level billing codes. In the **Manage billing codes** dialog it is possible to:

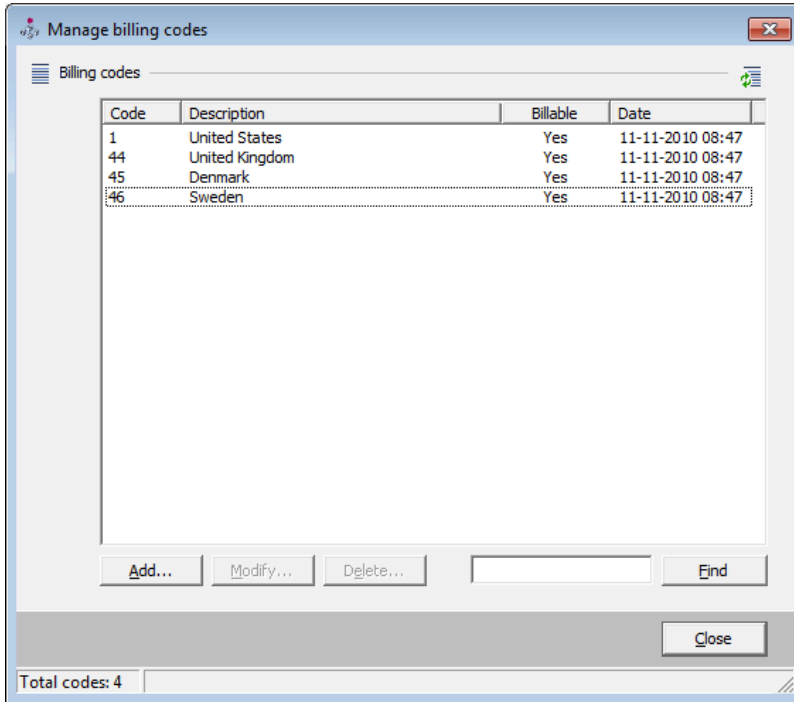
- **Add** billing codes
- **Find** billing codes
- **Delete** billing codes
- **Modify** billing codes

Note To manage one-level billing codes, it must be configured on the **Server properties, Billing** tab. The **Secondary code** check box must be cleared.

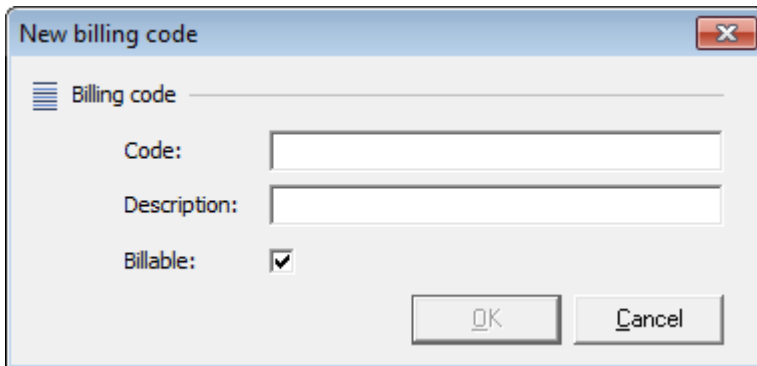
Add billing code

To add billing codes manually from the **SafeCom Administrator**:

1. Click the **Servers** menu, click **Client billing**, and then open the **Manage billing codes**.



2. Click **Add...** to add a new billing code.



3. Enter **Code** and **Description** in the **New billing code** dialog.
4. The new billing code is billable by default, so clear **Billable** if you do not want it to be billable.
5. Click **OK**, and the billing code can now be viewed in the **Manage billing codes** dialog.

Find billing codes

1. Open the **Manage billing code** dialog
2. Enter the search text in the **Find** field and click **Find**. If the search field is left empty all billing codes are retrieved.

Note The find function is using case insensitive free text search across both the code and description fields.

Delete billing codes

1. In the **Manage billing code** dialog use the **Find** function to retrieve all relevant billing codes.
2. Select the billing codes and click **Delete...**
3. Click **Yes** in the **Confirm** dialog to delete the billing code.

Note If a user selects a billing code for a print job at the computer, and if then the billing code is deleted from SafeCom before the user collects the print job the printer, the billing code for the print job is not remembered. The billing information is then replaced by N/A.

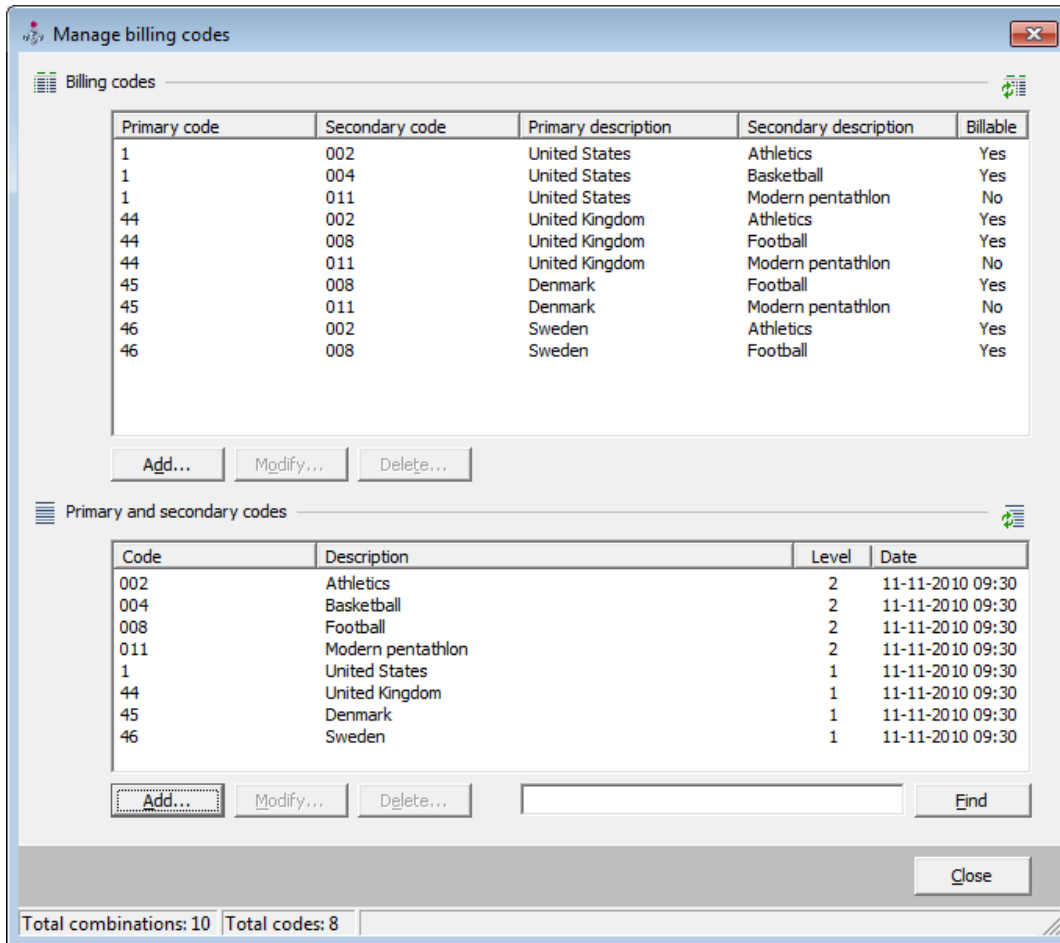
Modify billing codes

1. In the **Manage billing code** dialog use the **Find** function to retrieve the relevant billing codes.
2. Select the billing code you want to modify and click **Modify...**
3. Modify **Description** and **Billable** as required.
4. Click **OK**.

Note You cannot modify the **Code** for the billing code, only the **Description** and whether it needs to be billable or not. This applies to both imported and manually created billing codes.

Manage 2-level billing code

In the following section it is covered how to manage two-level billing codes. In the **Manage billing codes** dialog it is possible to manage both billing codes and primary and secondary codes.



Under **Primary and secondary codes** the available primary and secondary codes are listed. In the **Level** column it is specified if the code is level 1, or level 2.

Under **Billing codes** the available combinations of the primary and secondary codes are listed. Both primary and secondary codes and descriptions are specified, and also if the code is billable or not.

Note Because the billing codes are combinations of the primary and secondary codes, it is advised to add the primary and secondary codes first and then the billing codes.

The following is covered in this section.

Primary and secondary codes:

- Add primary or secondary codes
- Find primary or secondary codes
- Delete primary or secondary codes
- Modify primary or secondary codes

Billing codes:

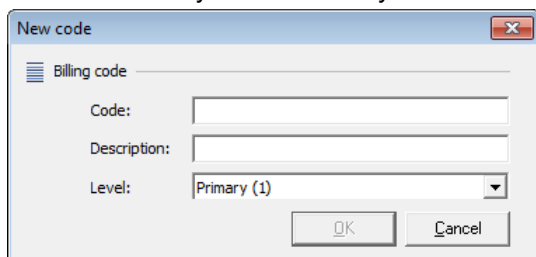
- Add billing codes
- Delete billing codes
- Modify billing codes

Note To manage two-level billing codes, it must be configured on the **Server properties, Billing** tab. The **Secondary code** check box must be checked.

Add primary or secondary code

Follow these steps to add primary and secondary codes:

1. Click the **Servers** menu, click **Client billing**, and then open the **Manage billing codes** dialog.
2. Under Primary and secondary codes click **Add...**



3. Enter **Code** and **Description**.
4. Select the **Level**(Primary 1, Secondary 2), and click **OK**.

Find primary or secondary codes

1. Open the **Manage billing code** dialog.
2. In **Primary and secondary codes** field enter the search text and click **Find**. If the search field is left empty all billing codes are retrieved.

Note The find function is using case insensitive free text search across both the code and description fields.

Delete primary or secondary codes

1. Open the **Manage billing code** dialog.
2. In **Primary and secondary codes** use the **Find** function to retrieve the relevant billing codes.
3. Select the codes and click **Delete...**
4. Click **Yes** in the **Confirm** dialog to delete the code.

Note

- When you delete primary or secondary codes, the billing codes that contain the specific primary or secondary codes are also deleted.
- If a user selects a billing code for a print job at the computer, and if then the billing code is deleted from SafeCom before the user collects the print job the printer, the billing code for the print job is not remembered. The billing information is then replaced by N/A.

Modify primary or secondary codes

1. Open the **Manage billing code** dialog.
2. Use the **Find** function to retrieve the relevant billing codes.
3. Select a code and click **Modify...**
4. Modify **Description** and **Billable** as required. Click **OK**.

Note You can only modify the **Description** of a primary or secondary code.

Add billing code

You must have at least one primary and one secondary code before you can add 2-level billing code.

1. Open the **Manage billing code** dialog.

2. Under **Billing codes** click **Add...**
3. Select **Primary code** and **Secondary code**.
4. Clear **Billable** if you do not want the billing code to be billable.
5. Click **OK** to add the new billing code.

Note Click the **Add new primary code** or **Add new secondary code** to add codes that are not already available from the menus.

Delete billing codes

1. Open the **Manage billing code** dialog.
2. In **Billing codes** find and select the billing codes you want to delete and click **Delete...**
3. Click **Yes** in the **Confirm** dialog to delete the billing code.

Modify billing codes

1. Open the **Manage billing code** dialog.
2. Under **Billing codes** find and select the billing code you want to modify and click **Modify...**
3. Change the choice of **Primary code** and/or **Secondary code**.
4. Click **Modify**.

Work with Tracking data

Use the **Data Mining** tool to view and work with the tracking data created with relations to billing codes. See more at [SafeCom Data Mining](#).

Note If a print job is sent to the printer with an assigned billing code and before printing the job the billing code is deleted from the server, then once the job is printed it is tracked without a billing code.

Chapter 12

SafeCom Pay

Introduction

The SafeCom Pay module provides total print cost management. In addition to the SafeCom Tracking module described in chapter [SafeCom Tracking](#) the module can be used to prevent a user from printing if the account balance falls below a specified limit (default zero credits).

The **SafeCom Administrator** ([Cashier – How to](#)) can be used to add (deposit) or subtract (withdraw) credits from the user's account. Credits are equivalent to money.

Planning your SafeCom Pay solution

When planning your SafeCom Pay solution you need to:

- Define what the cost of printing should be. This is accomplished via a charging scheme ([Charging scheme](#)).
- Plan how you will secure the data stored in the tracking server and money server databases ([Backup and restore](#)).
- Control what happens if the money server is unavailable ([Tracking](#)).
- Choose accounting policy ([Accounting policy](#)).
- Ensure that users pay ([Ensure users pay](#)).
- Investigate if a cashless solution is required ([Cashless solution](#)).
- Change the user property Cost control to Pay ([Change cost control to pay](#)).

Accounting policy

There are three different accounting policies:

- **Full cost recovery** The user has to pay for all prints (and copies). This policy is popular in libraries. Involves account 1 only.
- **Partial cost recovery** The user is given a certain amount of credits on their account 2. When the credits run out the user can choose to add money to their account 1. This policy is popular at universities.
- **Quota control** The user is given a certain amount of credits and can print until they run out (quota is used). This policy is popular in schools that do not allow fee-based printing. Involves using account 2 only.

In addition you need to decide if **Post track** ([Post track](#)) should be enabled, in which case, pay users may be charged a different (lower) price compared to the price they were given when they collected their document.

Ensure users pay

The introduction of a fee-based printing solution may tempt some users to try to avoid having to pay for their prints (and copies). To make these attempts in vain you can apply a number of counter measures:

- **Make all printing go through the SafeCom solution** Refer to [Make all printing go through the SafeCom](#).
- **View list of unfinished jobs** The SafeCom Tracking database record information about unfinished print (and copy) jobs. An unfinished job may be caused by legitimate network or printer failure. However, the cause may also be purposely tampering with the printer and SafeCom hardware. The list of unfinished (failed/interrupted) jobs can be viewed in **SafeCom Data Mining** ([SafeCom Data Mining](#)).
- **Notify administrator by e-mail** You can configure your SafeCom solution to send an e-mail to the administrator whenever a job does not finish. By looking at and perhaps sorting the list of received e-mails, the administrator can quickly spot if someone is trying to avoid having to pay. If required the administrator can prevent the user from logging into the SafeCom solution.
- **Do not release credits reserved on error** When the user prints the SafeCom solution reserves credits corresponding to the cost of the print job. When the user copies the SafeCom solution will reserve all the user's credits. On the **Users** tab in the **Server properties** dialog ([Users](#)) you can request that the reserved credits are not released in case of error. The reserved credits can be released manually from SafeCom Administrator ([Free reserved credits](#)).
- **Awareness through information** By making users aware that the SafeCom Pay solution includes counter measures to prevent repeated attempts to avoid paying will probably reduce the number of attempts.

Educational institutions in particular should inform their users about these counter measures. This will help them limit the number of unfinished jobs that are likely to happen at the start of semester when new students enroll.

Cashless solution

Your SafeCom solution can be enhanced to support methods where users can make deposits to their account via the Internet using **SafeCom ePay**.

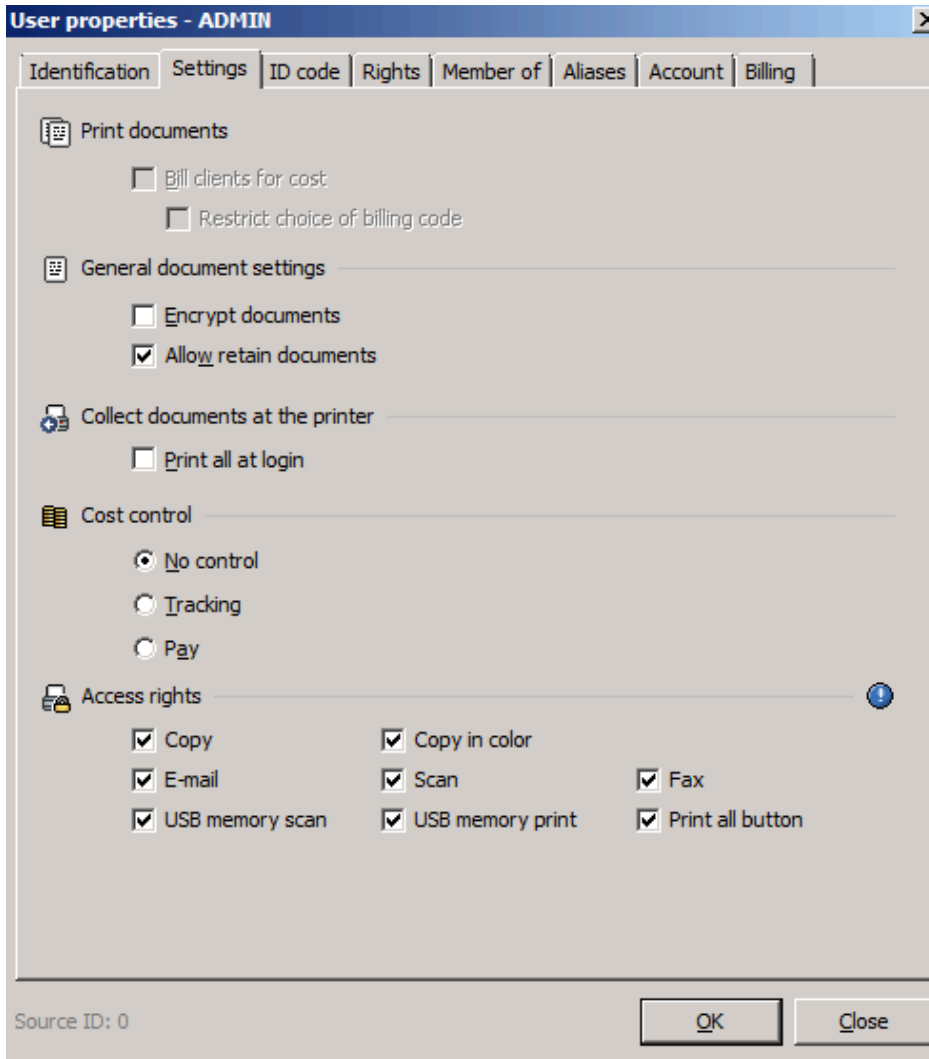
SafeCom Pay solutions also support the use of smart cards. If the user's SafeCom account is empty, the user can use a smart pay to finance their print activity.

Change cost control to pay

For existing users you must enable Pay for each user. This is achieved by checking **Pay** on the **Settings** tab in the **User properties** dialog.

It is possible to change the property of multiple users ([Hide ID codes](#)).

By selecting a Pay user as the default user you can make any future imported user, user created at first print and manually added user a Pay user.



Credit schedule

1. Open the **Group properties** dialog ([Group properties dialog](#)).

2. Click on the **Credit schedule** tab.

Group properties - mygroup

General
Rules
Members
Billing
Credit schedule
Enable

Schedule

Description:

Transaction

Amount: + Add - Subtract = Set Account: 1 2

Comment:

Run at

Schedule is disabled, [enable?](#)

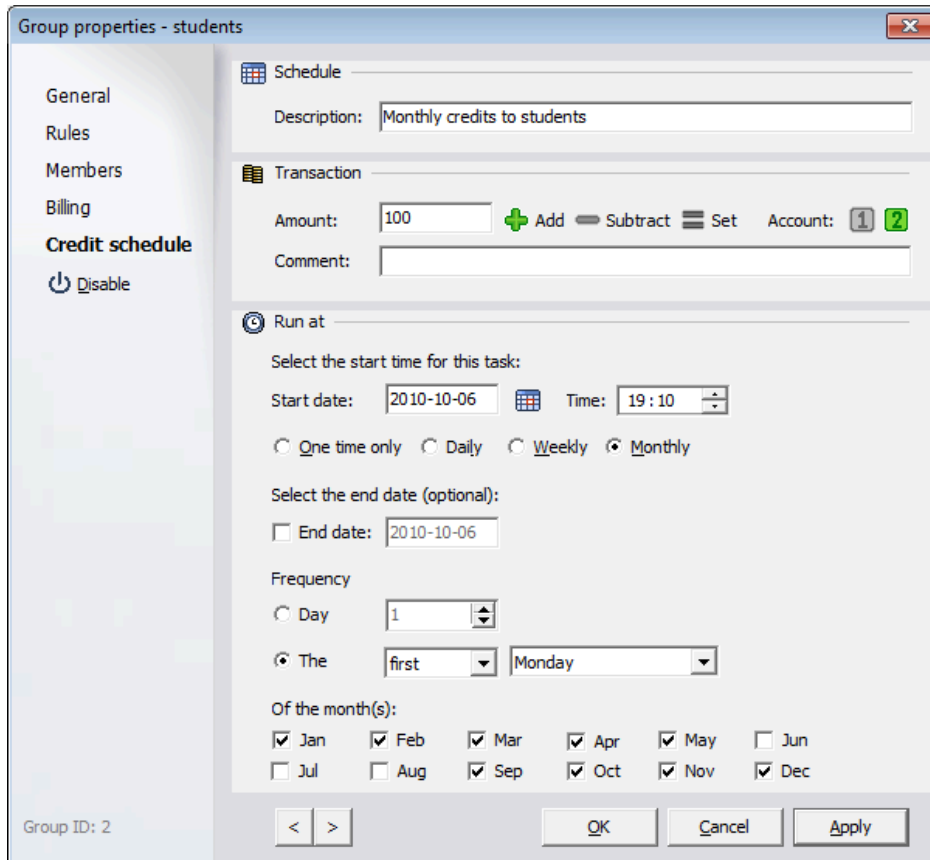
Group ID: 1

< > OK Cancel Apply

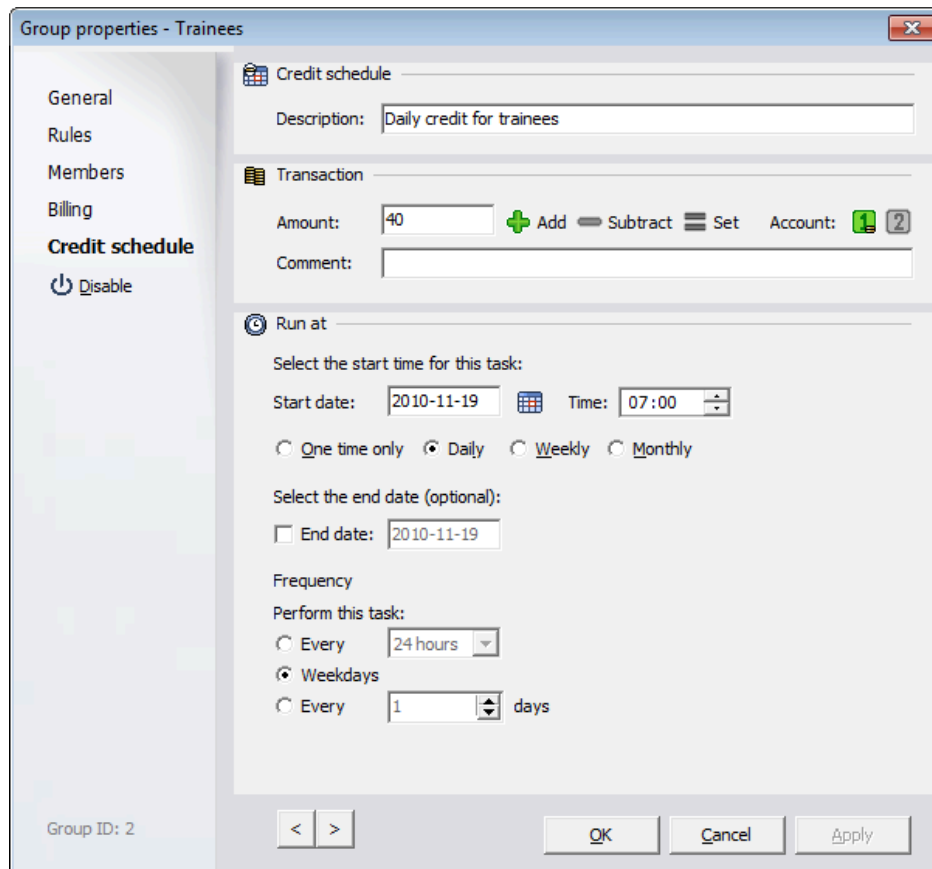
3. Enter a meaningful **Description**.
4. In **Transaction** select if the member's **Account 1** or **Account 2** should be **Set** to the specified **Amount** or changed with the specified amount (**Add** or **Subtract**). An optional **Comment** can be entered.
5. Provided the schedule is **Enabled** it is possible to schedule credits **One time only**, **Daily**, **Weekly** and **Monthly**. Check **End date** and specify a date for when the periodic schedule should end. Please

ensure that the end date does not conflict with the selected frequency options. Otherwise you may risk that the credit schedule will not run.

- In the following example members of the STUDENTS group are having their account 2 set to 100 credits on the first Monday at midnight of each month, except for the three summer months.



- In the following example members of the TRAINEES group have their account 1 set to 40 credits each weekday at 07:00 am.



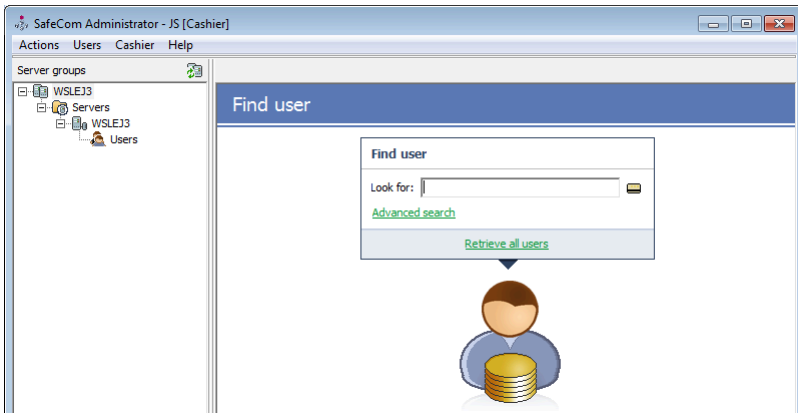
Cashier – How to

The following subsections assume that you are logged into **SafeCom Administrator** as a user with **Cashier** rights ([Rights](#)).

Log in to SafeCom Administrator in Cashier mode

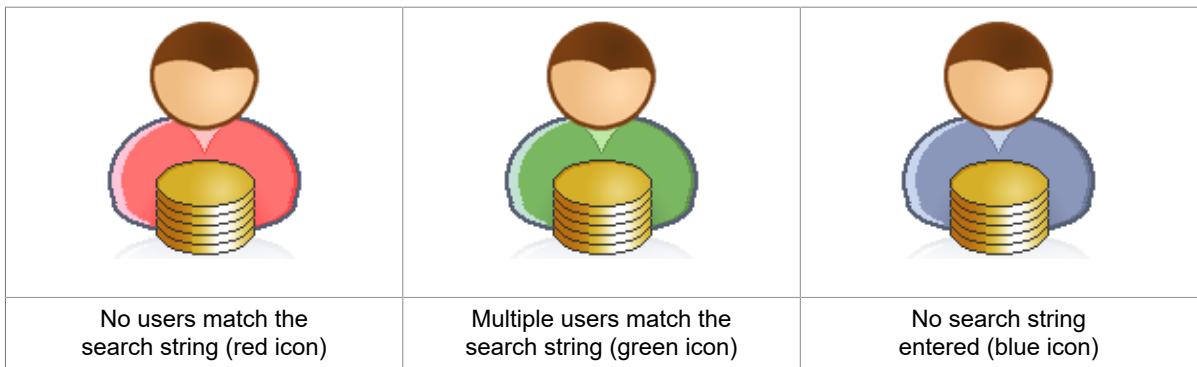
1. Click **Start**, point to **All Programs**, **SafeCom G4** and click **SafeCom Administrator**.
2. In **SafeCom Administrator** click on the server to log in.
3. Enter **User logon** and **Password**. Click **Login**.

Note If you belong to a domain the domain followed by a slash (/) or a backslash (\) must be specified in front of the user's logon. Example: MYDOMAIN\JS. Alternatively you can specify user logon followed by (@) and the domain, like this JS@MYDOMAIN.



Find user

1. Enter the search string in **Look for** and press Enter. If a card reader is installed on the computer ([Install a card reader on a computer](#)) then present the card.
2. Or Click **Advanced search** to open the **Find users** dialog ([Find users](#)). Enter your find criteria and click **Find**. The find function is using field based case insensitive free text search, with the exception of ID codes. To find a particular ID code enter the complete **ID code** in the right case or click **Listen for card** if a card reader is installed on the computer ([Install a card reader on a computer](#)).



3. If only one user is found the **User properties** dialog ([User properties dialog](#)) appears. Otherwise double-click a user on the appearing list of users.

User properties dialog

User properties - JS

Identification | Settings | ID code | Rights | Member of | Aliases | **Account** | Billing

Information

Full name: John Smith
User logon: JS
PIN code: *****
Prevent login: Not locked

Account info


Account 1:	0,00
Account 2:	0,00
Low limit:	0,00 <input checked="" type="checkbox"/>
Reserved:	0,00
Disposable:	0,00

Transaction

Amount: do on
Comment:


Source ID: 0

- **Account 1** shows the current amount of money available with the user. **Account 2** shows the current available quota available for the user.

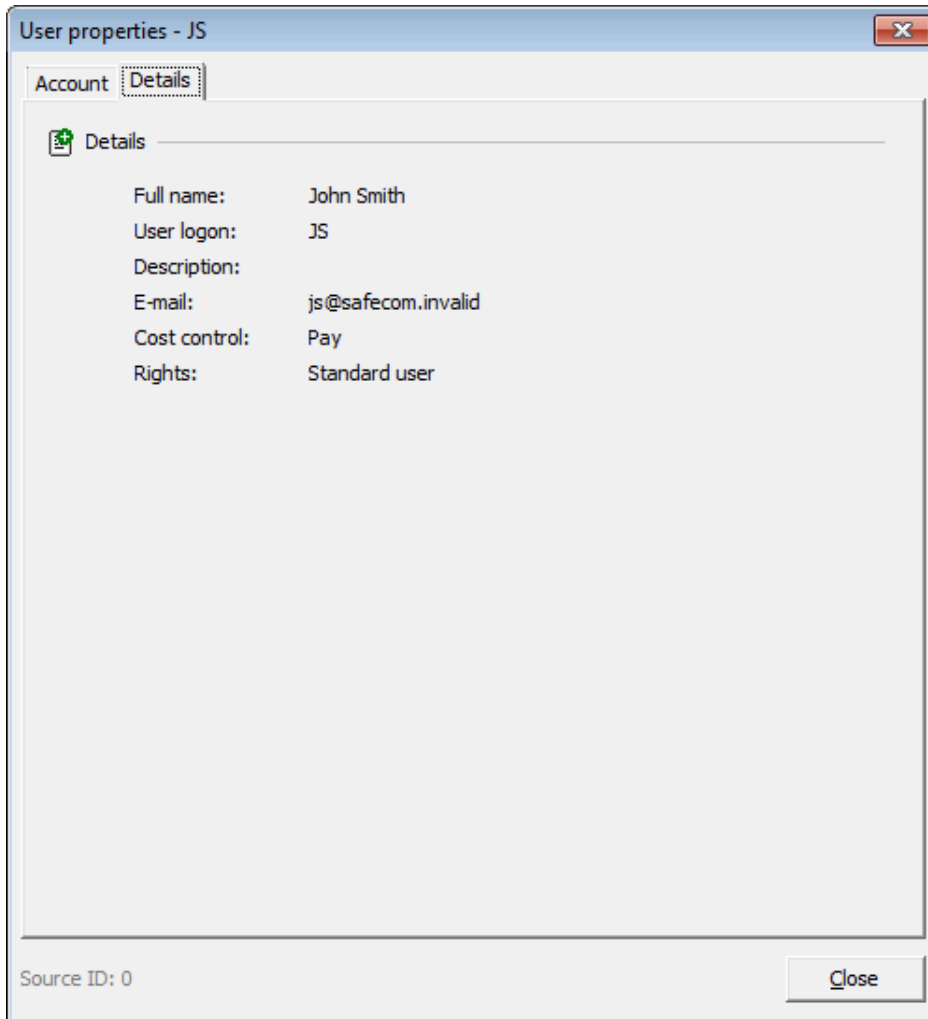
- **Low limit** is the lowest amount that should be available in order to print (Allows negative figures). Click  to edit the Low limit.

Note The user account balance needs to exceed the Low limit value in order to successfully log in on the device.

Note In some cases, the user may not be able to print or copy, even if the account balance exceeds the lower limit by more than the expected printing or copying cost. The user estimate may be lower than the preliminary calculation, which may include not only the price per page, but the job start-up cost also, and considers using at least one color impression. In copy job pre-calculations the size of the document not yet known, so SafeCom takes the Other paper size into account, which may not have the required balance.

- **Reserved** is the amount of credits reserved due to a print or copy job that finished in error. It should be 0.00 (zero) most of the time. If the system has reserved any credits you see a positive amount printed in red color. Click  to edit Reserved. The amount must be between 0.00 (zero) and the currently reserved amount of credits.
- **Disposable** is equal to **Balance** minus **Low limit** and **Reserved**.
- **Amount** Type in amount to **add** to, **subtract** from or **set** account to – select appropriate action from the drop-down list. Select appropriate account and click **Record** to carry out the transaction.
- **Comment** allows you to add any description (optional).
- **Transactions:** View a list of user account transactions.

Select the **Details** tab to see additional information about the user.



View user transactions

1. Open the **User properties** dialog ([User properties dialog](#)).
2. On the **Account** tab click **Transactions...** to open the **User transactions** dialog ([User transactions dialog](#)).
3. Look at the transactions. To look at transaction from a different period, make your **Selection** and click **Refresh**.
4. Click **Print...** to make a printout of the transactions.
5. When done click **Close**.

Issue a new PIN code

1. Open the **User properties** dialog ([User properties dialog](#)).
2. On the **Account** tab click **Generate random PIN**.

3. A new random 4-digit PIN code is displayed.
4. Click **Close**.

Unlock user

1. Open the **User properties** dialog ([User properties dialog](#)).
2. On the **Account** tab click **Unlock user**.
3. Click **Close**.

Deposit credits


1. Open the **User properties** dialog ([User properties dialog](#)).
2. On the **Account** tab select **Account 1** (money) or select **Account 2** (quota).
3. Enter the **Amount** and select **add amount** from the drop-down list.
4. Enter an optional **Comment** and click **Record**.
5. Click **Close**.

Withdraw credits

1. Open the **User properties** dialog ([User properties dialog](#)).
2. On the **Account** tab select **Account 1** (money) or select **Account 2** (quota).
3. Type in the **Amount** and select **subtract amount** from the drop-down list.
4. Type in an optional **Comment** and click **Record**.
5. Click **Close**.

Set low limit

Low limit is the amount of credits that must be available in order to print (and copy).


1. Open the **User properties** dialog ([User properties dialog](#)).
2. On the **Account** tab click  and enter **Low limit** amount and click **OK**. The amount is normally 0.00, but it can be both positive and negative.
3. Press **Enter**.

Free reserved credits

If the system has reserved any credits you see a positive amount printed in red color in the **User account** dialog. Refer to section [Prevent cheating](#) for a discussion of reserved credits.

To free the reserved credits:

1. Open the **User properties** dialog ([User properties dialog](#)).

2. On the **Account** tab click  next to the reserved amount and enter the amount that must be released. To free up the whole amount enter 0 and the maximum is the currently reserved amount.
3. Press **Enter**.

Reset cash cards

This section is only relevant if the SafeCom Pay solution stores money on a Smart Card. The dialog will display **Temporary card: <amount>** in red color when the user has had the specified amount transferred from the cash card to the SafeCom account on the SafeCom server.

Note If you click Reset the money will not be transferred back to the user's cash card the next time the cash card is used at one of the SafeCom-enabled printers.

1. Open the **User properties** dialog ([User properties dialog](#)).
2. On the **Account** tab click **Reset**.
3. Click **Close**.

Detect attempt to avoid paying

The SafeCom Pay solution can be configured to send an e-mail to the administrator whenever a SafeCom session does not terminate appropriately.

1. Log in to **SafeCom Administrator** as an administrator.
2. Log in and open the **Server properties** dialog.
3. Click on the **E-mail** tab.
4. Check **E-mail notification on credits reserved**.

For additional information please refer to section [Prevent cheating](#).

Print reports

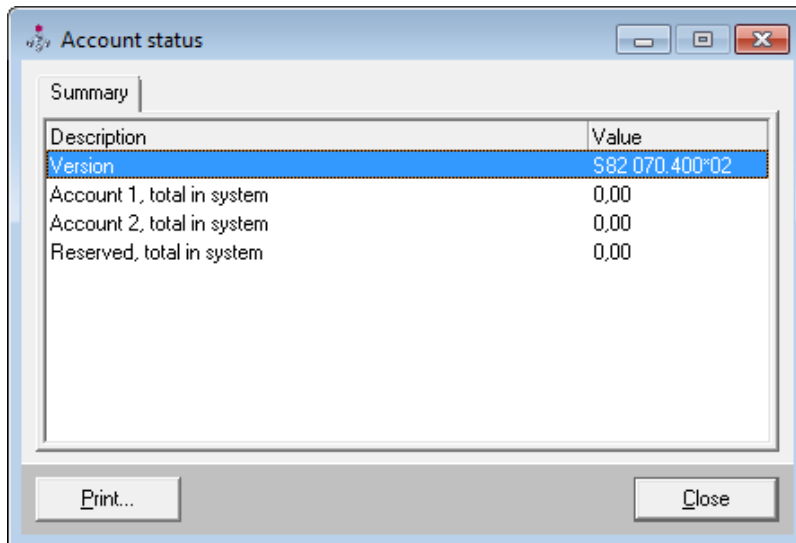
It is possible to print a number of reports, including:

- Account status ([Account status](#))
- Cash flow report ([Cash flow report](#))
- Transactions ([User transactions dialog](#))

Refer to the relevant sections for additional information.

Account status

1. On the **Cashier** menu click **Account status** to view and print the credit status, including:
 - Total credits in the system
 - Total reserved in the system
 - Total temporary cash card²⁸



The screenshot shows a window titled "Account status" with a "Summary" tab selected. The window contains a table with two columns: "Description" and "Value". The "Version" row is highlighted in blue. Below the table are two buttons: "Print..." and "Close".

Description	Value
Version	\$82 070.400*02
Account 1, total in system	0,00
Account 2, total in system	0,00
Reserved, total in system	0,00

The **Cash card** tab is only available if the SafeCom Pay solution stores money on a Smart Card. On the **Cash card** tab it is possible to see a list of the users who temporarily has had money transferred from their cash card to their SafeCom account on the SafeCom server. This money will be transferred back to the user's cash card the next time the cash card is used at one of the SafeCom-enabled printers.

2. Click **Print...** to print a hardcopy of the reports.

²⁸ sSafeCom Pay solution with money stored on a Smart Card.

Cash flow report

1. On the **Cashier** menu click **Cash flow report** to view and print a cash flow report for a specified period.

ID	Date/Time	Type	Account	Value	Comment
7	20-05-2010 22:13:20	Cashier	JS	100,00	
8	20-05-2010 22:18:31	Cashier	JAE	100,00	

Summary:
 Cashier, Account 2 transactions. User: JD
 From 20-05-2010 00:00:00 to 21-05-2010 00:00:00
 Total transactions: 2
 Credits: 200,00 Debits: 0,00 Total: 200,00

The cash flow report can be of the type:

- Cashier, Account 1
 - Cashier, Account 2
 - ePay
2. Select the period. A number of predefined periods are available ranging from today to 1 year back. Choose **Specify period** to freely specify the beginning (from) and finish (to) of the period.
 3. Click **Refresh** to view the transactions for the selected period.
 4. Click **Print...** to print the cash flow report.

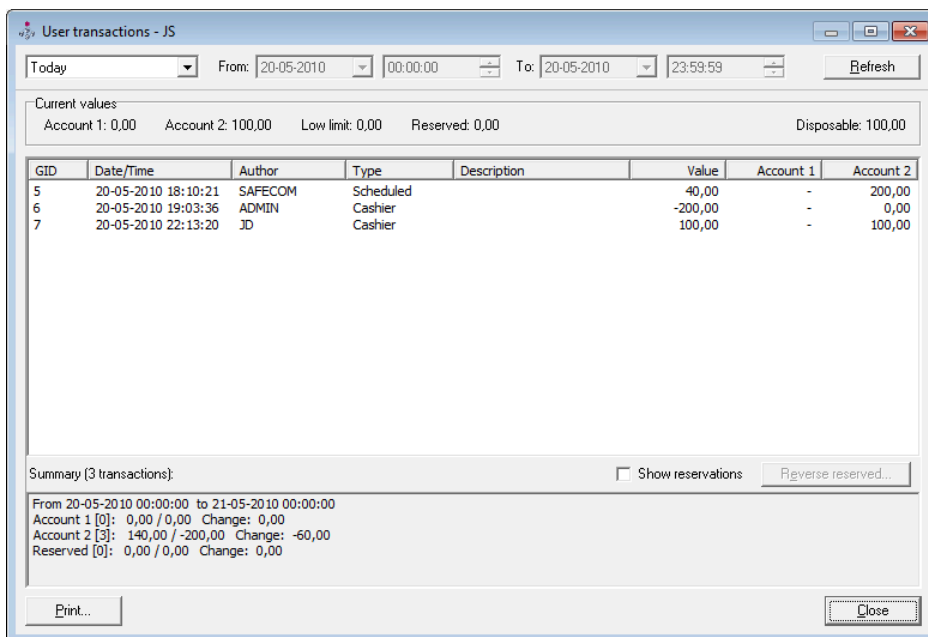
The cash flow report contains a list of the transactions, detailing the **ID**, **Date/Time**, **Type** (Cashier, or ePay), **Account**, **Value**, and **Comment**. In case of ePay the comment column contains the ePay order number.

Check **Personalize** if the report should only include transactions conducted by the user that is currently logged into **SafeCom Administrator**.

User transactions dialog

1. In the **User properties** dialog on the **Account** tab ([User properties dialog](#)) click **Transactions**.

2. Select to see the 20, 50 or 100 last transactions, choose among the predefined periods. Choose **Specify period** to freely specify the beginning (from) and finish (to) of the period.
3. Click **Refresh** to view the transactions for the selected period.
4. Click **Print...** to print the report.



- **Current values** show the **Balance**, **Low limit**, **Reserved** and **Disposable**.
- **GID** is an identification number for the transaction(s).
- **Date/Time** indicates the date and time of the transaction.
- **Author** is the User logon of the user who did the transaction.
- **Type** indicates the type of transaction.
- **Description** shows the description (if any) of the transaction.
- **Value** indicates the amount that has been added/subtracted from the account.
- **Account 1** shows the balance on the account with real money. **Account 2** shows the balance on the account with quota.
- **Card** is only present if the SafeCom Pay solution stores money on a Smart Card. It shows the amount that has been transferred from the cash card to the SafeCom account on the SafeCom server. Check the **Merge Cash Card** if you want to see the transactions that involves the cash card.
- Check **Show reservations** if you want to see reservations as well.

Prevent cheating

To ensure user payment and prevent cheating, the SafeCom solution can reserve all or some user credits whenever a Pay user logs in to SafeCom to copy or print.

E-mail template for an unfinished job

If the SafeCom session does not terminate correctly, an e-mail is sent to the administrator based on the **UnfinishedJob.txt** e-mail template. The reserved credits are freed as soon as the e-mail has been sent.

This functionality is controlled via **Server properties** dialog:

- Check **E-mail notification on credits reserved** on the **E-mail** tab in the **Server properties** dialog.
- Check **Release credits reserved on error** on the **Users** tab in the **Server properties** dialog.

UnfinishedJob.txt

```
<%SUBJECT="[SafeCom Unfinished Job] <%USERLOGON%>"%>
This mail is to inform you about an unfinished job.
Credits
-----
Reserved: <%RESERVEDCREDITS%>
Job properties
-----
Job name: <%DOCUMENTNAME%>
Pages: <%PAGES%>
Date: <%STARTDATE%>
Device properties
-----
Device name: <%DEVICENAME%>
IP address: <%DEVICEIPADDR%>
MAC address: <%DEVICEMAC%>
Model: <%DEVICEMODEL%>
Location: <%DEVICELOCATION%>
User properties
-----
User logon: <%USERLOGON%>
Full name: <%FULLNAME%>
E-mail: <%EMAIL%>
```

Difference between print and copy

When a user prints, the SafeCom solution reserves credits corresponding to the cost of the print job or document. When a user copies, the SafeCom solution reserves all their credits.

The below table describes how the print and copy values differ in an unfinished job e-mail.

Tag	Pull print	Copy
<%RESERVEDCREDITS%>	Cost of the document.	Calculated sum of user credits, from start of copy job minus cost of pages copied and tracked.
<%DOCUMENTNAME%>	Name of the document.	Always "Copy job"
<%PAGES%>	Number of document pages. Number of pages actually printed not possible to calculate.	Number of tracked copy pages. Additional pages may have been copied.

Job name pricing

Job name pricing allows you to impose print charges based on the print job name. This was originally developed for libraries to allow borrowers to print search results and electronic articles for free or for a fixed amount.

The name of the print job is compared against a list of conditions (filters). If one of the conditions is met the document is priced according to the specified price. If none of the conditions are met the document's price is calculated according to the defined charging scheme.

To enable job name pricing for a printer you have to perform the following steps:

1. Check **Enable job name pricing** on the charging scheme that is used by the printer in question ([Charging scheme properties](#)).
2. Modify the JobNamePricing.txt ([JobNamePricing.txt](#)) file to match your requirements.
3. Restart the **SafeCom Service** ([How to start and stop the SafeCom Service](#)).

JobNamePricing.txt

The pricing based on job names is controlled from the text file JobNamePricing.txt located in the SafeCom Templates folder located in the SafeCom installation folder, default is:

```
C:\Program Files\SafeCom\SafeComG4
```

1. Copy the **JobNamePricing.txt** file from the **Templates** folder to the SafeCom installation folder.
2. Modify the **JobNamePricing.txt** file in the SafeCom installation folder to match your requirements.
3. Restart the **SafeCom Service** ([How to start and stop the SafeCom Service](#)).

Note

- Subsequent modifications to the file in the SafeCom installation folder will take immediate effect.
- In multi-server environments, ensure that you have the modified JobNamePricing.txt file present on all primary and secondary servers in the correct location.

You can add as many filters/prices as you want. You can use a maximum of 4 wildcards (*) in a filter. The filters are case sensitive. The price must be specified with a decimal point ('.').

```

;-----
; This file specifies print jobs to be given a
; special price if job name is matching a
; certain filter.
;
; The '*' character is used as wild card.
; Maximum 4 '*' (wild cards) is allowed per filter.
;
; (c) 2003 SafeCom A/S
;-----
Version="1"
Price1="0.00"
Filter1="Test Page"
Price2="0.10"

```

```
Filter2="http*safecom.eu*"
Filter2="safecom*.PDF*"
```

Chapter 13

SafeCom Device Utility

Introduction

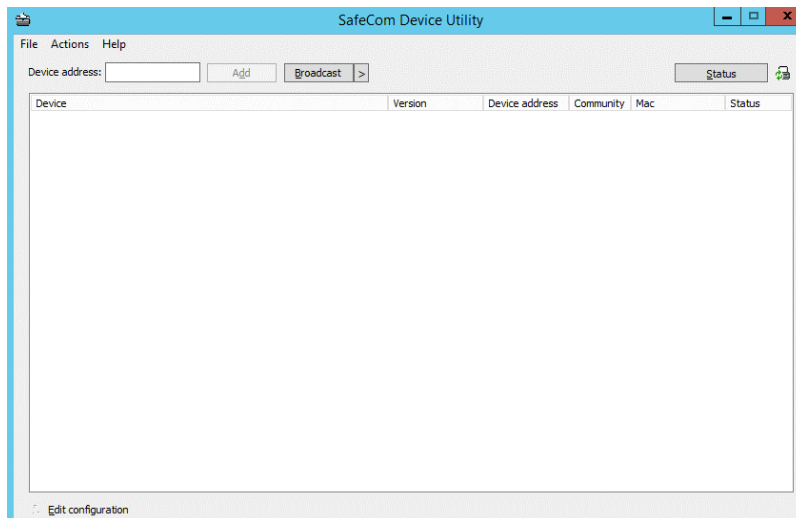
SafeCom Device Utility is an application used to load SafeCom device software onto devices in preparation for a staged rollout. It does not require SafeCom server software and databases to be running and it will not register devices. It is possible to load and save lists of device addresses as (*.dip).

SafeCom Device Utility can also be used to upload, edit, save and download configuration files from SafeCom Controllers and devices that have SafeCom software inside.

SafeCom Device Utility is part of the SafeCom G4 software and is started by clicking scDevUtil.exe. It requires the presence of the files: scDevUtilLib.dll, scSNMPLib.dll, scSecureLib.dll and scUtilLib.dll

Starting SafeCom Device Utility

1. Double-click scDevUtil.exe in the SafeCom installation folder.



Details on how to populate the list of devices are in section [Populate list of devices](#). **Edit configuration** is covered in section [Working with configurations](#).

Click **Status** to enable status updates from the listed devices every 30 seconds. Click **Refresh** to update the list of devices and their status.

Menus and commands

This table lists the menus and commands for the SafeCom Device Utility.

Menu	Action	Description
File	Load device list from file...	Load the devices from a plain text file.
	Save device list to file...	Save the list of devices as a *.dip file.
	Options	Specify a default configuration file for the devices.
	Exit	Exit the SafeCom Device Utility.
Action	Send Go Loader...	Send the Go Loader software to the selected devices.
	Update software...	Send the SafeCom Go file to the selected devices.
	Configuration	Modify and work with the device configuration options, including editing, saving, loading, and loading from a default configuration file.
	Get serial number	Display the serial number of the selected device.
	Restart device...	Restart the device.
	Remove device from list	Remove the device from the list.
	Open in web browser...	Open the device in a web browser.
Help	About...	View the version number for SafeCom Device Utility.

Populate list of devices

With **SafeCom Device Utility** there are three ways to add devices to the list of devices:

- **Load from file** Create a plain text file with one address (IP address or hostname) per line and save it with the extension dip (Device IP file). On the **File** menu click **Load device list from file...**
- **Add device** Enter the **Device address**, click the > button next to the **Broadcast** button, enter the SNMP community name into the **Community** field and click **Add**.
- **Broadcast for devices** Click the > button next to the **Broadcast** button, enter the SNMP community name into the **Community** field and click **Broadcast** to broadcast for devices.

Working with configurations

Edit configuration:

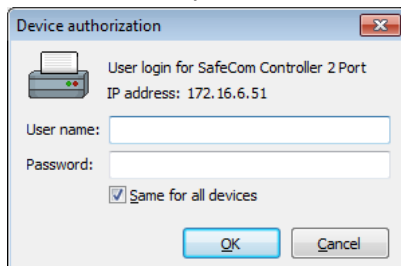
1. Select a device and click **Edit configuration** to retrieve the configuration from the selected device. The configuration file opens in the editor. Configuration files are human readable. Configuration files from SafeCom Go devices are in XML format. Configuration files from SafeCom Controllers are in a special format with BEGIN_CONFIGURATION and END constructions.

2. Click **Update** when done editing (or viewing), or click **Cancel** if you do not want to modify the configuration file.
3. On the **Action > Configuration** menu click **Save configuration to folder...** to optionally save the file for subsequent use.

Set configuration:

The configuration that is currently uploaded can be loaded to one or more selected device(s), if they are the same device type. This can be used to clone entire configurations from one device to other devices.

1. Click **Edit configuration** then **Update** to load the current configuration to the selected device(s) of the same type.
2. Enter **User name** and **Password** of the device to authorize the download of the configuration. Check **Same for all devices** if you are updating multiple devices and they are configured with same the user name and password. A SafeCom Controller has **adm** as default **User name** and **Password**.



3. A dialog will appear saying either **Set configuration succeeded!** or **Set configuration failed!**
4. Click **OK**.

Chapter 14

Format of tracking data

Introduction

This chapter describes the format of the exported tracking data.

Format history

SafeCom G3 S82 070.410*01

- New client billing, with primary and secondary code.

SafeCom G3 S82 070.400*01

- Introduced Unicode support.

Format

Parameter	Description	Default value
TrackingID	A unique ID for this tracking record.	
ComputerName	Name of the computer	
ExportTrackingID	Contains the value of the ApplyExportTrackingID that was supplied the first time this tracking record was exported. Otherwise it is blank. Maximum 20 characters.	
TransactionID	A unique ID that can be used to link to corresponding transaction (change of credits).	
AccountingModelUsed	The type of cost control the user was set to when copies were made or the document was printed (collected at the printer).	NONE PAY_AND_PRINT PRINT_AND_PAY
StartDate	The date when the user started collecting the document at the printer.	

Parameter	Description	Default value
StopDate	The date when the user's document was printed.	
TrackingState	The state of the tracking. If the state is interrupted it could indicate that an attempt was made to disconnect or otherwise tamper with the SafeCom equipment to bypass tracking.	TRACKING_STATE_COMPLETED TRACKING_STATE_INTERRUPTED
TrackingPageCount	Number of pages to use for tracking purpose of both print and copy jobs. In case of a print job (see JobType) the number of pages is normally the same as reported by ParserPageCount. However, if TrackingState is INTERRUPTED then TrackingPageCount can be less than ParserPageCount.	
ParserPageCount	Number of pages as counted by the used SafeCom Pull Port and SafeCom Push Port. This is 0 in case of a copy job (see JobType). The status of the parsing can be seen from PageCountStatus.	
DriverPageCount	Number of pages as reported by the Windows printer driver (see DriverName). This is 0 in case of a copy job (see JobType).	
JobSubmitLogon	The UserLogon of the user who submitted the document for printing. In case of distribution (P-mail) this will differ from UserLogon.	
JobName	Name of the document. Always 'Copy job' in case of copies.	
JobDate	The date when the document was submitted for printing, that is when it arrived in the SafeCom job database.	
JobSize	Number of bytes	
UserID	The ID (internal) of the user.	
UserDomainID	The ID (internal) of the domain.	
UserLogon	The user's logon name	
Domain	The user's domain	
FullName	The user's full name	
Description	Description field	
Email	The user's e-mail	

Parameter	Description	Default value
DeviceMac	The MAC address of the device.	
DeviceID	The ID (internal) of the device.	
DeviceName	The name of the device.	
DeviceLocation	The location of the device.	
DeviceIpAddr	The IP address of the device.	
DeviceSupportsDuplex	Whether or not double-sided print is supported.	
DeviceSupportsColor	Whether or not color is supported.	
DeviceModel	The Model name listed in the SafeCom Administrator's Device properties dialog.	
DriverName	This is the driver name. It is identical to the Model name listed in the Windows printer properties dialog.	
JobPageFormat	The paper size. Typically, A4, A3 or Letter.	
JobsDuplex	Is the job set up for double-sided print?	YES NO
JobsColor	Is the job a color job?	YES NO
BillingCode	The primary billing code. Maximum of 50 characters.	
BillingDescription	The primary code description. Maximum of 50 characters.	
BillingInvoice	If YES the billing code can be used to invoice clients.	NO YES
JobPrice	The cost of the job. Calculated based on charging scheme and job/device attributes.	
JobType	The type of job: Pull print, Push print, Copy, Fax, Scan, or E-mail.	JOB_TYPE_PULL JOB_TYPE_PUSH JOB_TYPE_COPY JOB_TYPE_FAX JOB_TYPE_SCAN JOB_TYPE_EMAIL
PageCountStatus	Indicates the status of the parsing done with the SafeCom Pull Port and SafeCom Push Port.	PAGECOUNT_STATUS_OK PAGECOUNT_STATUS_UNDEFINED PAGECOUNT_STATUS_FAILURE
UserNodeID	The internal ID of the Organizational unit the user belongs to. The ID can be seen in the Org. unit properties dialog in SafeCom Administrator.	0

Parameter	Description	Default value
DeviceNodeID	The internal ID of the Organizational unit the device belongs to. The ID can be seen in the Org. unit properties dialog in SafeCom Administrator.	0
PageCountModel	If pages were counted by software(0) or hardware(1). Pull and Push print jobs are always counted using software method.	0
TrackingColorPageCount	Number of pages with color.	
JobDestination	Empty in case of a print or copy job. If a Fax job this is the phone number of the receiver. In a Scan job this is the name of the folder. If an E-mail job this is the e-mail address of the receiver.	
TonerSave	Whether or not toner save was invoked. Reserved for future use.	YES NO
JobPrice2	The cost of the job. Calculated based on the secondary charging scheme and job/device attributes.	
PMQueueName	The name of the Windows print queue that was used to print the document via the SafeCom Push Port or SafeCom Pull Port.	
PMPortName	The name of the SafeCom Push Port or SafeCom Pull Port that was used to print.	
PMComputerName	The computer name of the computer with the Windows print queue using either the SafeCom Push Port or SafeCom Pull Port.	
DocComputerName	The computer name of the client from where the document was formatted.	
TonerCyan	The toner coverage is recorded as 100 times the coverage in percent. Example: A toner coverage of 2.5% is recorded as the 250. A toner coverage of 10000 is equal to 100%. Toner coverage is tracked for Copy, Scan, E-mail and Fax jobs on selected HP LaserJet MFPs with SafeCom Go.	0
TonerMagenta	See TonerCyan.	0
TonerYellow	See TonerCyan.	0
TonerBlack	See TonerCyan.	0
UserCostCode	User's cost code.	
JobSheetCount	Number of sheets.	

Parameter	Description	Default value
BillingCode2	The secondary code. Maximum of 50 characters.	
BillingDescription2	The secondary code description. Maximum of 50 characters.	

Chapter 15

SafeCom ID Devices

Introduction

SafeCom ID devices come with ID Device Licenses, whereas ID device licenses for 3rd party ID devices must be purchased separately. SafeCom offers the following stand-alone card readers.

ID devices	USB	Serial	Section
SafeCom AWID Reader	USB	Serial	SafeCom AWID Reader
SafeCom Barcode Reader	USB	Serial	SafeCom Barcode Reader
SafeCom Casi-Rusco Reader	USB	Serial	SafeCom Casi-Rusco Reader
SafeCom EM Reader	USB	Serial	SafeCom EM Reader
SafeCom HID Prox Reader	USB	Serial	SafeCom HID Prox Reader
SafeCom HID Prox Reader 37 bit (custom)	USB	Serial	SafeCom HID Prox Reader
SafeCom iCLASS Reader	USB	Serial	SafeCom iCLASS Reader
SafeCom Indala Reader 26bit	USB	Serial	SafeCom Indala Reader
SafeCom Indala Reader 29bit	USB	Serial	SafeCom Indala Reader
SafeCom Keypad	USB	Serial	SafeCom Keypad
SafeCom Legic Reader	USB	Serial	SafeCom Legic Reader
SafeCom Magnetic Card Reader (Tr 1)		Serial	SafeCom Magnetic Card Reader

SafeCom Magnetic Card Reader (Tr 2)		Serial	SafeCom Magnetic Card Reader
SafeCom Magnetic Card Reader (Tr 3)		Serial	SafeCom Magnetic Card Reader
SafeCom Magnetic Card Reader DD (Tr 1)	USB		SafeCom Magnetic Card Reader DD
SafeCom Magnetic Card Reader DD (Tr 2)	USB		SafeCom Magnetic Card Reader DD
SafeCom Magnetic Card Reader DD (Tr 3)	USB		SafeCom Magnetic Card Reader DD
SafeCom Mifare Reader	USB	Serial	SafeCom Mifare Reader
SafeCom Nedap Reader	USB	Serial	

SafeCom AWID Reader

Dimensions: 6.4 x 10.6 x 2.2 cm. Color is black. Cable length: 1.8 m. When a proximity card is presented to the reader, the red light flashes green.

SafeCom Barcode Reader

Dimensions: 5.2 x 12.7 x 3.5 cm. Color is black. Cable length: 1.8 m.

Barcode centerline length: 1.25 cm from bottom of slot to reading window center. Supported barcode formats: UPC-A, UPC-E, EAN-8, EAN-13, Code 39, Telepen, Interleaved 2 of 5, Industrial 2 of 5, Code 128, MSI/Plessey, Codabar.

SafeCom Casi-Rusco Reader

Dimensions: 6.4 x 10.6 x 2.2 cm. Color is black. Cable length: 1.8 m. When a proximity card is presented to the reader, the red light flashes green.

SafeCom EM Reader

Dimensions: 5.5 x 9.0 x 2.0 cm. Color is black. Cable length: 2.0 m. Supports the following card technologies: EM41xx, UNIQUE, TITAN, Hitag 1/2/S and Paxton. The card reader can signal status via lights and beeps when used with SafeCom Go:

Status	Lights	Beeps
Nobody is logged in	Solid red	Off
Card is presented	Flashing green	One
User is logged in	Solid green	Off

SafeCom HID Prox Reader

Dimensions: 5.5 x 9.0 x 2.0 cm. Color is black. Cable length: 2.0 m. The reader is available in a 35 bit (most common) and a 37 bit version. The card reader can signal status via lights and beeps when used with SafeCom Go:

Status	Lights	Beeps
Nobody is logged in	Solid red	Off
Card is presented	Flashing green	One
User is logged in	Solid green	Off

SafeCom iCLASS Reader

Dimensions: 5.5 x 9.0 x 2.0 cm. Color is black. Cable length: 2.0 m. The card reader can signal status via lights and beeps when used with SafeCom Go:

Status	Lights	Beeps
Nobody is logged in	Solid red	Off
Card is presented	Flashing green	One
User is logged in	Solid green	Off

SafeCom Indala Reader

Dimensions: 6.4 x 10.6 x 2.2 cm. Color is black. Cable length: 1.8 m. The card reader is available in a 26 bit version (most common) and a 29 bit version. When a proximity card is presented to the reader, the red light flashes green.

SafeCom Keypad

The SafeCom Keypad USB (p/n 699010) can be used with SafeCom Go HP on the HP Color LaserJet 3000, 3800 and 4700. The SafeCom Keypad is powered from the printer's USB port. Dimension: 10.7 x 15.8 x 3.8 cm. Color is black. Cable length: 1.5 m.

The SafeCom Keypad Serial (p/n 974010) can be used with SafeCom Go HP on the HP LaserJet 4250, 4350, 4650 and 5550. The SafeCom Keypad is powered from the supplied switch mode power supply (Input: 230V~, 50Hz/145mA, Output: 12V, 1.3A). Dimension: 10.7 x 15.8 x 3.8 cm. Color is black. Cable length: 1.5 m.

SafeCom Legic Reader

Dimensions: 5.5 x 9.0 x 2.0 cm. Color is black. Cable length: 2.0 m. The card reader can signal status via lights and beeps when used with SafeCom Go:

Status	Lights	Beeps
Nobody is logged in	Solid red	Off
Card is presented	Flashing green	One
User is logged in	Solid green	Off

SafeCom Magnetic Card Reader

Dimensions: 3.0 x 9.0 x 2.8 cm. Color is black. Cable length: 2.0 m. The card reader should be mounted on a plain clean surface. The card reader can signal status via its two lights and beeper when used with SafeCom Controller:

Status	Lights	Beeps
Standby	Off	Off
Card is read	Green is on	One
Documents	Green and red are flashing once	One
No documents	Green and red are flashing twice	Two
Prevent login	Off	Off
Card read failed	Green and red are flashing six times	Six
Unknown card	Green and red are flashing six times	Six
Other errors	Green and red are flashing six times	Six

SafeCom Magnetic Card Reader DD

Dimensions: 3.13 x 10.0 x 3.25 cm. Color is black. Cable length: 1.8 m. Connector USB Type A plug. The card reader should be mounted on a plain clean surface.

SafeCom Mifare Reader

Dimensions: 5.5 x 9.0 x 2.0 cm. Color is black. Cable length: 2.0 m. The card reader can signal status via lights and beeps when used with SafeCom Go:

Status	Lights	Beeps
Nobody is logged in	Solid red	Off
Card is presented	Flashing green	One
User is logged in	Solid green	Off

Chapter 16

Troubleshooting

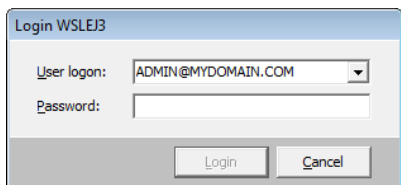
SafeCom Help Desk Assistant

We want your SafeCom solution to be one that reduces not only print costs, but is also easy to support. In the following you will find useful troubleshoot hints.

SafeCom Administrator: Login failed

When you try to log in to a group with **SafeCom Administrator** it reports: Login failed. Check your user logon, password and that you have Administrator rights ([Rights](#)). Remember that if you belong to a domain ([Identification](#)) you must specify the domain followed by a backslash (\) in front of the user logon, for example, as <MYDOMAIN>\ADMIN.

Alternatively you can specify user logon followed by (@) and the domain, for example, ADMIN@<MYDOMAIN>.



SafeCom Administrator: Unable to locate all SafeCom servers

The **SafeCom Administrator** uses broadcasts to locate the SafeCom servers. If your network is a VLAN (Virtual Local Area Network) then it may prevent the SafeCom Administrator from locating SafeCom servers.

Enter the SafeCom servers' IP addresses manually directly in the list of individual **Broadcast addresses** on the **Network** tab in the **Options** dialog ([Network](#)).

If the server group appears with a question mark



it is either because the SafeCom server is not running or because it is not referencing the IP addresses of the SafeCom server.

1. Start **SafeCom Administrator** ([Log in to SafeCom Administrator](#)) and right-click the group in the **Server groups** pane and click **Server group properties** ([License](#)).
2. In **IP address of entry point** you should enter the IP address of the SafeCom server. Click **OK**.
3. Log in to the group and open the **Server properties** dialog ([Server](#)). In **IP address** you should enter the IP address of the SafeCom server. Click **OK**.

The IP address of the SafeCom server can be obtained by logging into the SafeCom server, start a **Command Prompt** and type `ipconfig -all`

SafeCom Administrator: Unable to locate all SafeCom devices

A device will only appear in the SafeCom Administrator after it was added through the SafeCom Administrator or after a user with either Technician or Administrator rights ([Rights](#)) has logged in.

If you are attempting to **Broadcast** ([Broadcast for devices](#)) for SafeCom Controllers:

1. In **SafeCom Administrator** click on the **Actions** menu, **Options** and verify that the list of **Broadcasts addresses** on the **Network** tab is correct.
2. Contact a network administrator that has access to the DHCP server. The network administrator can log in to the DHCP server and see the IP address that is assigned to the device.

SafeCom Administrator: Users are missing

Users are either not associated to a server or they belong to another server than the one you are looking at. Click on the **Find** tool button and then click **Retrieve all** ([Find users](#)).

SafeCom Administrator: Add user failed and Add alias failed

This is because either a user with the specified user logon or alias ([Aliases](#)) exists already. Consult the SafeCom server event log ([Event log](#)) to see which user is causing the conflict.

SafeCom Administrator: License does not take effect

If nothing happens when you try to apply a new license key code ([Install the SafeCom license key code](#)), close **SafeCom Administrator** and start it again by right-clicking **SafeCom Administrator** and selecting **Run as administrator**.

SafeCom Administrator: Controls in dialog are not visible

The menus and controls in SafeCom Administrator adapt to reflect the SafeCom license key code and the rights with which you are logged into SafeCom Administrator. However, if certain control in the dialog displayed by the SafeCom Administrator is not completely visible it may be because the resolution of the screen is configured for different value than 96 dpi. Change the resolution to 96 dpi.

SafeCom Administrator: device is recognized as SafeCom Controller

When adding a new device, if is displayed with a **SafeCom type: SafeCom Controller** on the **Add Device Wizard**, it may have an incorrect SNMP community name. Check that the SNMP community name on the device matches the SNMP community name you entered when adding the device to SafeCom Administrator. Also, if the SNMP community name is not public, you have to edit the `scDevMonSettings.ini` file. For more information, see [Add device](#)

SafeCom Administrator: device cannot be added as a Push printer

Devices that do not have **public** as their SNMP community name cannot be added to SafeCom Administrator as Push printers.

SafeCom Administrator: device is “Not responding” when the community name has been changed from “public”

Ensure that you are running SafeCom Administrator with as an administrator (**Run as administrator** option or equivalent).

User is not created at first print

First verify that **Create users at first print** is checked ([Users](#)). If the user is printing from a workgroup computer to a shared SafeCom Pull Printer the user must be known on the server under the exact same logon and password as used on the client. If this is not the case the print job is stored under the server account that owns the printer, typically the Administrator or Guest account. If the server and the client belong to the same domain there is no problem.

Device web interface: Displayed incorrectly or settings not saved

Your web browser must allow use of JavaScript (Active Scripting). The steps below apply to **Internet Explorer**.

1. Start **Internet Explorer**.
2. On the **Tools** menu click **Internet Options...**
3. Click on the **Security** tab in the **Internet Options** dialog.
4. Click on **Custom Level...** to open the **Security Settings** dialog.
5. Scroll down to Scripting, Active scripting and click Enable.
6. Click **OK**.
7. Click **OK**.

At the printer: Out of order

This message is displayed when communication with the SafeCom server is lost. Check the following:

- Does the web page of the SafeCom device reference a SafeCom server and is the IP address and Group name correct?
- Is the SafeCom Service running on the SafeCom server ([How to start and stop the SafeCom Service](#))?
- Is the network down?
- Is there a firewall blocking communication ([Windows Firewall](#))?
- Is the SafeCom Controller connected to the network via the **MDI/MDI-X** port? If the network is up and running the port's green light should be on and its yellow light should be flashing.
- Is the printer connected to the network?

The message is cleared and the device returns to normal operation a couple of minutes after communication has been restored.

At the printer: User unknown

The used card (or entered ID code) is unknown. The user needs a PUK code from the administrator. Refer to [Add users manually](#) and [Customize the format of ID codes](#).

At the printer: Login denied

- Wrong PIN code.

- The device is not registered. For SafeCom Controller refer to the *SafeCom Controller Administrator's Manual* and for SafeCom Go refer to the How to chapter in the appropriate *SafeCom Go Administrator's Manual* (See list in [Available documentation](#)).
- Too many consecutive failed login attempts has caused **Prevent login** to be checked on the **Identification** tab in the **User properties** dialog ([Identification](#)).

If none of the above, it could be because the Windows system on the SafeCom server does not allow any more connections. If you also get a "Connection error. Login failed" when you try to log in to **SafeCom Administrator**, then you should restart the computer.

At the printer: Restricted access

- The user is not allowed to use the device.
- A Pay user is trying to log in and **Pay** is not checked on the **License** tab in the **Device properties** dialog.

At the printer: Error printing document

- **Pull Print** is cleared on the **License** tab in the **Device properties** dialog ([License](#)).
- **Pull Print** is cleared on the **Settings** tab in the **Device properties** dialog ([Settings](#)).

At the printer: Question mark before the document name

The list of supported printer drivers does not include an entry matching the driver you used. Use the web browser to add the driver name to the list ([Devices](#)).

At the printer: Printer busy, retry later

The 'Print busy, retry later' message on the device's control panel indicates that SafeCom does not have exclusive access control of the device. Exclusive SafeCom access control ensures that it is only the user currently logged in can print or copy documents. If there is no apparent reason for this message, check whether SNMP is disabled on the printer and enable it.

At the printer: Printer keeps rebooting

Please check that the printer's formatter board is properly in place.

At the printer: Copy not allowed

Please check that **MFP** is checked in the **Device properties** dialog ([Settings](#)).

At the printer: Login error <number>

- Is the SafeCom Service running on the SafeCom server?
- Is the SafeCom device registered at the SafeCom server?

At the printer: Error printing: General Failure

The document you are trying to print is no longer on the SafeCom server. This may happen if you log in at two or more devices and try to perform a simultaneous print all.

At the printer: Card reader not working

- Is the card reader powered and firmly connected?
- Is the card compatible with the reader?
- Try to move the card reader away from the printer to check that if it is electrical interference that prevents the reader from working.

Document not printed

- Is the print queue paused?
- Is the printer powered on and connected?
- Is the printer online?
- Is intervention required? Check for:
 1. Wrong paper size
 2. Manual feed
 3. Out of paper
 4. Paper jam
 5. Toner low

Some documents are missing

- The user may be trying to collect documents that have not yet been transferred to the SafeCom solution. Allow sufficient time for the document to be processed and spooled. Try to log in again.
- The user may previously have attempted to print the documents on another device, but did not collect all of the documents. (Perhaps because the printer required intervention or needed to warm up?) Consult SafeCom Tracking data (if available) to confirm whether this is the case.
- The **Filter document list** ([Devices](#)) should be enabled, to control that only documents generated by certain drivers are available for printing on a particular printer.
- The printer may have discarded the document due to driver compatibility problems. Try to print the same document directly to the printer to verify that this has nothing to do with SafeCom.

Document printed incorrectly

- Is there a paper jam?
- Is the toner low?
- Does the driver support the printer? If PostScript or PCL data is sent to a printer that does not support it, the result may be garbage print. Change to a printer driver that supports the printer.

Nothing is copied

- Is the MFP powered on and is the SafeCom MFP Cable connected?
- Is the MFP online?
- Is the MFP out of paper, low on toner or is there a paper jam?

Driver names are missing

During the installation of the SafeCom Front-end you are presented with a list of driver names. The list of driver names is provided and maintained by the SafeCom server.

New driver names are automatically added to the list when a document is printed from a printer that uses the **SafeCom Pull Port**. If there are driver names missing from the list it is because you have not printed a document with that driver.

Add Printer Wizard: Specified port cannot be added

When you try to configure a Windows printer to use the SafeCom Pull Port or Push Port and you receive the message:

Specified port cannot be added. The request is not supported.

It is because you tried to create a shared SafeCom printer on a clustered server computer other than the two nodes.

Local SafeCom Pull Printer is unable to print

Use the **SafeCom Administrator** to check if the document is on the user's **Job list**. If this is the case, then it could be because the **SafeCom Pull Port** used by the local SafeCom Pull Printer cannot connect to the SafeCom server.

Open the **Configure Pull Port** dialog ([Configure the SafeCom Pull Port](#)) and enter the **Address** of the SafeCom server.

How to start and stop the SafeCom Service

1. Click **Start**, type **services.msc** into the Search box and press ENTER.
2. Locate the **SafeCom Service**. Check the **Status** field. Click **Start** or **Stop SafeCom Service** as needed.
3. To restart, right-click the **SafeCom Service** and click **Restart**.

How to start and stop the Print Spooler

1. Click **Start**, type **services.msc** into the Search box and press ENTER.
2. Locate the **Print Spooler**. Check the **Status** field. Click **Start** or **Stop** as needed.
3. To restart, right-click the **Print Spooler** and click **Restart**.

Note If other services, such as Fax, depend on the Print Spooler these must also be stopped.

User's computer: Unable to connect to SafeCom server

Either the SafeCom server is not running or the **SafeCom Pull Port** cannot broadcast to the SafeCom server.

1. Open the **Configure Pull Port** dialog ([Configure the SafeCom Pull Port](#)).
2. Test the connection to the configured SafeCom server(s).

User's computer: Please contact your administrator!

If a user can not print documents via SafeCom, the **Messenger Service** dialog displays one of the following error messages:

- Unable to connect to SafeCom server ([User's computer: Unable to connect to SafeCom server](#)).
- There is not enough disk space on the SafeCom server.
- Unable to logon to the SafeCom database.
- SafeCom license violation.
- You are unknown to the SafeCom solution.

These SafeCom generated messages appear after print notification messages sent by the Windows print subsystem. For this reason we recommend that you disable notification messages from the Windows print subsystem. On the Windows server open the **Printers** folder. On the **File** menu, click **Server Properties** and click the **Advanced** tab. Refer to online Windows help.

Import users: No users imported

If the **Import user** function (see [Import users](#)) fails or yields only incomplete results, check whether:

- The separator specified in the CSV import ([Configuration \(CSV\)](#)) matches the actual separator used in the CSV file. Use Notepad or another editor to verify the separator in the CSV file.
- The specified field name is the correct one or if it was typed incorrectly.
- The specified import file exists, is empty or is formatted incorrectly. Make sure to specify the name of the file to import from (with full path) as seen from the SafeCom server. The account that runs the SafeCom Service (normally the **Local System** account) must have read access to the file.
- The difference between the existing users and the users in the import file exceeds the percentage specified in **Max user deletion**.
- In a multiserver installation, the users have a home server assigned. Use **Find users** ([Find users](#)) to see the imported users. If users are not assigned a home server then they will not appear in the import list.

For additional troubleshooting, consult the log file produced during the attempted import ([User import log file](#)).

Import billing codes: No codes imported

If the **Import billing codes** function (see [Import billing codes](#)) fails or yields incomplete results Check whether:

- The separator specified in the CSV import ([Import billing codes](#)) matches the actual separator used in the CSV file. Use Notepad or another editor to verify the separator in the CSV file.
- The specified field name is the correct one or if it was typed incorrectly.

- The specified import file is non-existing, empty, or formatted incorrectly. Make sure to specify the name of the file to import from (with full path) as seen from the SafeCom server. The account that runs the SafeCom Service (normally the **Local System** account) must have read access to the file.
- The difference between the existing billing codes and the billing codes in the import file exceeds the percentage specified in the **Max difference [%]** field.

For additional troubleshooting consult the log file produced during the attempted import ([User import log file](#)).

Multiserver installation: replication issues

- **User is unknown when logging in on some devices** Occurs if the replication from the primary server to the secondary servers does not work. Refer to section [Check that the replication is working](#) and verify that the replication is working. Remember to set SQLSERVERAGENT to automatic startup ([Set SQL Server Agent to automatic startup](#)).
- **Unknown state** Occurs if the SQL Agent does not have proper access rights to the DATA folder. Ensure that the relevant rights are set as outlined in [Multiserver installation](#).
- **Failed state** Occurs if the user does not have the explicit **Connect SQL** right. Check the user properties on the SQL server, and ensure that the **Connect SQL** is checked under **Login properties > Securables > Permissions > Explicit** tab. Check if the user is listed under **Replication Monitor > My Publishers > <server\instance> > [score]:scoreTrans > Properties > Publication Access List**. If the user is not listed, add the user.

Note If you performed any of the above instructions, wait for a few minutes to the replication to restart. If the replication does not restart automatically, force a refresh from SafeCom Administrator.

scPopUp: The publisher could not be verified

If you run scPopUp.exe ([Setup SafeCom PopUp](#)) from a file share and Windows presents a **Security Warning** stating **The publisher could not be verified** you need to:

1. Click **Start**, type **inetcpl.cpl** into the Search box and press ENTER.
2. The **Internet Properties** dialog appears. Click on the **Security** tab.
3. Select **Local intranet** as **Zone**. Click **Sites**.
4. Ensure that **Include all local (intranet) sites not listed in other zones** is checked. Click **Advanced**.
5. Enter the website (`\\share`) and click **Add**. Click **Close**.
6. Click **OK**. Click **OK**.

Smart Printer Driver: reduced performance

If performance suffers, it might be because one or more printer drivers are leaking resources. One solution is to restart of the **SafeCom XPS Print Service** or maybe it is necessary to find and use another printer driver that does not have that problem.

Smart Printer Driver: error codes at the device

If error codes in the 400-499 range appear on the device, it is related to the **SafeCom XPS Print Service**.

Example:

“Cannot print to printer queue "SafeCom-<DeviceID>". Printing is not supported when EMF spooling is enabled.”

This relates to the setting **Print directly to printer** under **Printer properties**.

Example:

“Could not open printer queue " SafeCom-<DeviceID>”.

or

“Failed to lookup Windows Queue name for Device ID "3000". Failed to open Windows Queue "SafeCom-<DeviceID>”.

This relates to the Windows queue that does not work properly or it may not exist at all.

For details on error logs, open **Event viewer** > **Applications Services Logs** > **SafeCom** > **SafeCom XPS Print Service** .

Remote SQL server cannot login

If your SafeCom primary server cannot login to your external SQL server, and you cannot detect any connection issues, the external server instance may be hidden. In such cases, check the following:

1. In **SQL Server Configuration Manager**, expand **SQL Server Network Configuration**, right-click **Protocols for <server instance>**, and select **Properties**.
2. On the **Flags** tab, check the **Hide Instance** box, and ensure that it is set to **No**.

SafeCom server can not login using the safecominstall user

In cases the SafeCom server cannot login with the safecominstall user to an SQL server instance named <servername>\<SQLINSTANCE>, do the following:

1. Verify that the safecominstall user is created correctly (use **Microsoft SQL Server Management Studio** to remotely connect to the server instance in question). If you cannot connect, proceed with the steps below.
2. Verify that the SQL server instance is setup to run in mixed authentication mode.
3. Verify if the SQL browser service is running on the SQL server. In a multi-server environment, verify that the SQL agent is also running.
4. Use the **SQL Server Configuration Manager** to enable the TCP protocol for the SQL server instance.
5. Ensure that the firewall exceptions for the SQL server are set up properly, or stop and disable the firewall. If using Microsoft firewall, you can use the SafeCom firewall script.
6. Ensure that the network discovery policy is enabled on both the SQL server and the SafeCom server (if you can ping the SQL server by servername from the primary server and vice versa then it is working properly).
7. Restart the SafeCom service on the primary server.
8. Verify that all four SafeCom databases are created.

Spooler crash when the Print System Asynchronous Notification message is not handled by the user

In such cases, a message is displayed that notifies the user about the SafeCom PopUp not running, and provides a prompt for starting the SafeCom PopUp. If the user does not take action in 4 minutes, on some operating systems the print spooler may crash, requiring restart.

Certificate of the SafeCom G4 primary server is lost

In such cases, ensure that you perform a factory reset on the Ethernet Card Readers, and then you can re-add the readers to your SafeCom G4 installation.

Communication failure between SafeCom components

SafeCom G4 uses TLS 1.2 by default for encryption. If your system is not set to use TLS 1.2 or uses older versions of TLS, ensure that the following registry entries are created and set:

- [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols\TLS 1.2]

- [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols\TLS 1.2\Client]
- "DisabledByDefault"=dword:00000000
- [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols\TLS 1.2\Server]
- "DisabledByDefault"=dword:00000000

Note Be aware that modifying the TLS version may cause issues for any other applications you are using with an older TLS version.

User Import from Unix that does not contain Domain Info

If you are planning to import users from Unix, but your Unix system does not have domain information, you must do the following:

1. Under **User import configuration > Extra**, check the **Use extra configuration** check box.
2. Add the following lines:

```
[SPECIAL_IMPORT_SETTINGS]
ExDomainField=DoNotUse
```

SafeCom secondary server is not reachable from the SafeCom primary server

This symptom can be confirmed by running the **netstat -an** command from the command line on an unreachable SafeCom secondary server. If the port 7700 is not in the list of open ports, but the SafeCom Service is running, the following procedure can be used to recover the SafeCom secondary server.

Note This process should only be used as a last measure. In some cases (for example, when offline tracking is enabled), this process could result in loss of data that has not been propagated to the SafeCom primary server yet.

A last emergency repair measure for this symptom is to delete all local databases on affected secondary servers, so they can be recreated by SafeCom, and valid data from the primary SQL database can be replicated. To do this, follow the steps below:

1. Stop the **SafeCom Service** on the affected **SafeCom secondary** server.
2. Delete all four SafeCom databases from the **SafeCom secondary** server's SQL Express database instance.
3. Delete any replication subscriptions from the **SafeCom secondary** server's SQL Express database.
4. Restart the **SafeCom secondary** computer.
5. Repair replication from **SafeCom Administrator** on the affected **SafeCom secondary** server.

Replication subscription for the old SQL primary server appears under the SafeCom secondary server's SQL Express instance

In cases when the old and the new SQL primary servers are online at the same time, replication subscriptions may appear for both servers at the SafeCom secondary server's SQL Express instance. As long as SafeCom databases on the old SQL primary server are offline, this symptom should not cause any functional problems, as no replication will take place from the old SQL primary server. To clean up this setup, follow these steps:

1. On the old SQL primary server, delete any replication publications for SafeCom.
2. On the affected SafeCom secondary servers, delete replication subscriptions pointing to the old SQL primary server.

Services using GMSA accounts do not start automatically after reboot

Services that run from under a GMSA account may not be able to start up after a computer reboot, if the following registry value is not configured properly.

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\<>service_name>  
\ServiceAccountManaged
```

If you experience startup problems after reboot for any service run by a GMSA account, confirm that this registry value is set to "01 00 00 00".

Chapter 17

Error codes

This chapter contains SafeCom G4 error codes and their meaning; these codes may appear as supplementary information in end-user messages as well as event logs and trace files.

SafeCom Server error codes

The following table contains the error codes for the SafeCom G4 Server.

-1	[Internal] Action failed
0	Action completed successfully
1	General failure.
2	General database failure.
3	A handle was not valid.
4	By default all status fields are initialized to this
5	A connection was lost
6	Received request is known but version is not supported
7	Received request is unknown
8	When a session gets different versions
9	User cancelled a print job
10	Plug-in failure
11	General Money Server failure
12	Server is busy
14	Name is not valid
15	Unknown user name or bad password
16	User did not respond to dialog
17	Database connection down or in error
20	Receive operation completed successfully
21	Send operation completed successfully
22	Connection lost during transfer
23	Connection never opened or wrong type
24	Connection is in error

25	The cryptation method can't be used
26	The cryptation couldn't be performed
27	UDP receive time out
28	Connection time out
31	General replication failure
32	Replication is slow or may be down
45	Job is locked. Fx. because of Print Once
46	User is not allowed access to object
47	Specified user properties are not unique
48	Redirection to server failed.
49	[Internal] Special error code to signal redir
50	General access violation. Bad password etc.
51	Account is locked
52	Job could not be found
53	User is not logged in
54	Specified user could not be found
55	Job marked for deletion. Will be automatically deleted when released
56	Card number does not exists
57	User already exists
58	User logon already exists
59	PUK code already exists
60	Card number already exists
61	Device is locked. Push print must wait.
63	Billing code ID not valid
64	Distribution group already exists
65	Device type is not allowed operation
66	Device ID not valid
67	Device not able to control copy sessions
69	Device is not allowed copy
70	Specified name already exists
71	Specified export label already exists
72	Specified home server is invalid
73	Specified alias already exists
80	Credits too low
81	Device could not be found

82	Server could not be found
83	Server contains working objects
84	Primary Server cannot be deleted
85	Multi server not supported when running WIN auth in DB
86	Server already exists
90	Domain could not be found
91	Domain already exists
92	Domain contains working objects
95	User has too many cards
101	File not found
102	Could not open file
103	Could not read file
104	Could not write to file
105	Reading file not finish
106	Error reading file
107	No more disk space
108	Invalid file handle
109	File path could not be found
110	File already exists
111	File is empty
112	Error reading file
113	Error reading registry
-101	Registry access violation
120	OU could not be found
121	OU already exists
122	Specified OU parent is invalid
123	OU contains other OU's
124	OU contains users
125	OU contains devices
126	OU contains servers
130	Billing code not found
131	Billing code already exists
132	Billing is not enabled
140	Group could not be found
141	Group already exists

142	Group print is disabled
150	General license error
152	License violation, Encryption not allowed
157	License violation, Tracking
158	License violation, Pay
159	License violation, license is expired
160	No license installed
161	License is valid
162	License violation, license is expired
163	License is not valid
165	License could not be verified
170	[Internal] License library error code
171	[Internal] License library error code
172	[Internal] License library error code
173	[Internal] License library error code
174	[Internal] License library error code
175	[Internal] License library error code
176	[Internal] License library error code
177	[Internal] License library error code
178	[Internal] License library error code
179	[Internal] License library error code
180	[Internal] License library error code
186	License violation, too many Devices
187	License violation, SCClient
188	License violation, AdmClient
189	License violation, Multi Server
191	License violation, Billing
192	License violation, ePay
193	License violation, RBP
194	License violation, PULL
195	License violation, ID device
196	License violation, Smart scan
200	Cannot connect to specified IpAddr, PortNumber
201	Invalid socket handle
202	Invalid memory handle

203	An error occurred while transmitting/receiving
204	Data export failure
205	Data Field not found
206	Result too big
220	Cannot find user account
221	Default error code
222	General database failure in the Money Server
223	No data to export
224	Reservation failure
225	User is not pay user
230	Schedule not found
240	Charging scheme not found
250	RBP rule not found
260	BOPC could not be found
261	BOPC already exists
270	Branch could not be found
271	Branch already exists
280	Configuration could not be found
281	Configuration already exists
282	Configuration data too large
290	Version of database not supported
300	Connection to secondary server is in error
301	Login to secondary server is in error
310	User has too many delegates
311	Such a delegate relation already exists
312	DelegatID does not exist in DB
313	Delegate is not enabled on the primary server
314	Delegate relation has end date/time before
320	Device Server Group name already exists in DB
321	Device Server Group ID does not exist in DB
323	Trying to delete a group that is not empty in DB
400	General XpsPrint failure
401	Failed to create XpsPrint job
402	Failed to write data to XpsPrint service
403	Failed to commit XpsPrint job

410	HighSpeed printing must be enabled for XpsPrint jobs
420	Failed to register device with XpsPrint service
421	Failed to unregister device with XpsPrint service
422	No driver available to serve device
423	Device is not available
9999	[Internal] Special error code to signal restart

Chapter 18

Administrator's installation notes

Introduction

This chapter contains forms that allow you to record relevant information about the SafeCom solution. The information is relevant when multiple people are involved in the solution over time in connection with for example maintenance and support.

Servers

If the solution is a multiserver solution, we recommend creating an overview diagram (using Microsoft Visio or a similar tool). The diagram should visually illustrate the different servers and ports used in your solution.

This section contains several types of tables:

- SafeCom primary server
- SQL primary server
- SafeCom secondary server
- Failover servers

The right-most column in the tables contains one or more letters. Use the letters with the legend below:

Legend:

A	If the SafeCom server is clustered all other SafeCom components (devices, port monitors, and so on) must reference Virtual Server and not the nodes. Otherwise failover will not function properly.
B	The SafeCom license key code is based on the Computer Name (Determine the Computer Name), unless the primary server is clustered in which case it is based on the Cluster Name
C	A SafeCom multiserver solution requires the SafeCom primary server to use Microsoft SQL Server. If the SQL server resides on another server then added the word Remote and fill-in the SQL primary server table.
D	Enter the SafeCom G4 version. Example: S82 070.410*07.
E	Enter the Windows OS information. Example: Windows Server 2012 64-bit.
F	Normally a cluster has two nodes. Add more rows if required.

G	If the SQL server is clustered the reference to the SQL server should be <i>NetworkName\instancename</i> , otherwise it should be <i>computername\instancename</i> . The instance name is case sensitive.
H	Normal practice is to install and use Microsoft SQL Express 2014 SP1 on SafeCom secondary servers.

SafeCom primary server

SafeCom primary server			
	Server address		A
	Computer Name		B
	SQL Server		C
	SafeCom G4 version	S82 070.	D
	Windows OS		E
Cluster information			
Cluster Group	Server address		B
	Cluster Name		
	Disk Resource (Q)		
Virtual Server 1	Server address		A
	Network Name		A
	Disk Resource		
	Spool folder		
	SC print job folder		
Virtual Server 2	Server address		A
	Network Name		A
	Disk Resource		
	Spool folder		
Node 1	Server address		F
	Heartbeat address		F
	Network Name		F
Node 2	Server address		F
	Heartbeat address		F
	Network Name		F

SQL primary server

SQL primary server

	Server address		
	Port		
	Computer Name		G
	SQL		
	SQL instancename		
	Windows OS		
Cluster information			
Cluster Group	Server address		
	Cluster Name		
	Disk Resource (Q)		
Virtual Server	Server address		
	Network Name		G
	Disk Resource		
Node 1	Server address		F
	Heartbeat address		F
	Network Name		F
Node 2	Server address		F
	Heartbeat address		F
	Network Name		F
Folder	SQL		

SafeCom secondary server

SafeCom secondary server			
	Server address		A
	Computer Name		B
	SQL / Express		
	SafeCom G4 version	S82 070.	D
	Windows OS		E
Cluster information			
Cluster Group	Server address		
	Cluster Name		
	Disk Resource (Q)		
Virtual Server 1	Server address		A
	Network Name		A
	Disk Resource		

	Spool folder		
	SC print job folder		
	SQL folder		
Virtual Server 2	Server address		A
	Network Name		A
	Disk Resource		
	Spool folder		
Node 1	Server address		F
	Heartbeat address		F
	Network Name		F
Node 2	Server address		F
	Heartbeat address		F
	Network Name		F

Failover servers

In case you intend to increase resilience by specifying failover servers ([Failover servers](#)) you can use the table below to record the priorities.

Failover servers	
Server address	Prioritized failover servers
1	
2	
3	
4	
5	
6	
7	
8	
...	

User authentication

How are users identified at the devices?

	Authentication Method
	ID code

	SafeCom Casi-Rusco Reader	
	SafeCom Cotag Reader	
	SafeCom Deister Reader	
	SafeCom EM Reader	
	SafeCom Felica Reader	
	SafeCom HID Reader 35 bit	
	SafeCom HID Reader 37 bit	
	SafeCom iCLASS Reader	
	SafeCom Indala Reader 26bit	
	SafeCom Indala Reader 29bit	
	SafeCom IoProx	
	SafeCom Legic Reader	
	SafeCom Magnetic Card Reader, Track 1	
	SafeCom Magnetic Card Reader, Track 2	
	SafeCom Magnetic Card Reader, Track 3	
	SafeCom Magnetic Card Reader DD, Tr 1	
	SafeCom Magnetic Card Reader DD, Tr 2	
	SafeCom Magnetic Card Reader DD, Tr 3	
	SafeCom Mifare Reader	
	SafeCom NEDAP Reader	
	SafeCom NexWatch Reader	

Devices

Devices can be SafeCom-enabled by means of:

- **SafeCom Controller**(Type = EC) Involves the SafeCom Controller and a SafeCom ID Device (normally the SafeCom Front-end). This solution is pretty independent of the printer firmware version.
- **SafeCom Go in the device**(Type = GO) SafeCom software is installed on the device's hard disk or on a memory module. Attaching a SafeCom ID Device (card reader) may require a SafeCom ID Kit. Always check if there are any dependencies of the printer firmware version.
- **SafeCom Go / SafeCom Device Server**(Type = GS) User interaction is via the device's touch-screen control panel, but SafeCom communication happens via the SafeCom Device Server. Always check if there are any dependencies of the printer firmware version.
- **SafeCom Go / SafeCom Controller**(Type = GC) User interaction is via the device's touch-screen control panel, but SafeCom communication happens via the SafeCom Controller. Always check if there are any dependencies of the printer firmware version.

Use the table below to record the SafeCom device and printer firmware level.

Device		SafeCom	
Model	Firmware	Type	Version
HP Color LaserJet CM4730 MFP	50.011.6	GO	S89 110.030*42
Xerox WorkCentre Pro 255	14.60.22.000	GC	S80 508.770*42
...			
...			
...			
...			
...			
...			
...			
...			
...			
...			

Printer drivers

Printer driver	Version
HP Color LaserJet 4730mfp PS	60.52.262.32
...	
...	
...	
...	

Chapter 19

scPortUtility operations and exit codes

Push Port Creation

Push Port Creation will create a new SafeCom Push Port and a related Tracking Device on the target machine, provided the port does not already exist.

Command Line usage

```
scPortUtility --create-push-  
port  
--port <port  
name>  
--output-address <output device  
address>  
--sc-server-addresses <SafeCom server address  
list>  
--sc-user <SafeCom administrator  
username>  
--sc-password <SafeCom administrator password>  
--target-machine <target machine address>  
--output-port <output device port>  
--tracking-address <tracking device>  
--tracking-name <tracking device name>  
--tracking-location <tracking device location>  
--snmp  
--show-price  
--driver-name <driver name>  
--model <model name>  
--duplex  
--color  
--charging-scheme-id1 <numerical scheme id>  
--charging-scheme-id2 <numerical scheme id>  
--hide-jobs
```

Options and Parameters

--create-push-port

Required

This switch specifies that the *Push Port Creation* command should be executed.

--port <port name>

Required

The parameter specifies the name of the port to be created.

--output-address <output device address>

Required

This is the address or name of the device the print output will be forwarded to.

--sc-server-addresses <SafeCom server address list>

Required

The parameter provides a semicolon separated list of SafeCom Servers to which the new port should connect, in order of priority. They can be specified either as IP or fully qualified hostnames.

The SafeCom Port Utility will also use this list.

--sc-user <SafeCom administrator user name>

Required

This is the SafeCom administrator user name.

--sc-password <SafeCom administrator password>

Required

This is the SafeCom administrator user password.

--target-machine <target machine address>

Hostname or address of the machine on which to create the new port. Default is the local machine.

--output-port <output device port>

TCP/IP port of the target device. The default is 9100, which is the standard RAW / JetDirect port.

--tracking-address <tracking device>

This is the address of the SafeCom Server tracking device.

If this option is not specified, the specified **output device** will be used instead.

--tracking-name <tracking device name>

This is the name of the tracking device.

If this is not specified, the tracking device will be named the same as the SafeCom Push port.

--tracking-location <tracking device location>

This option specifies the location of the tracking device as it will appear in scAdministrator.

If this is not specified the location field in scAdministrator will be empty.

--snmp

This switch enables SNMP for the newly created port. If the option is not specified, the default value is OFF.

--show-price

Show job price before printing. If the option is not specified, the default value is OFF.

--driver-name <driver name>

Override driver name with the specified name, when committing jobs to SafeCom Server.

--model <model name>

Tracking device model. The model name will be displayed in SafeCom Administrator Console.

--duplex

Specifies that this is a duplex capable tracking device.

--color

Specifies that this is a color tracking device.

--charging-scheme-id1 <numerical scheme id>

Primary charging scheme used for price calculation.

--charging-scheme-id2 <numerical scheme id>

Secondary charging scheme used for price calculation.

--hide-jobs

This switch enables the hide jobs feature which hide the job names in the print queue. If the option is not specified, the default value is OFF.

If the switch is specified and the SafeCom Push Port monitor does not support the feature, port creation will fail.

Note The option works with G4-520 (or later) SafeCom Push Port monitors.

Exit Codes

0—SCPORTUTIL_ERROR_SUCCESS

The operation completed successfully.

1—SCPORTUTIL_ERROR_GENERAL_FAILURE

The operation could not be completed due to a general failure.

2—SCPORTUTIL_ERROR_ACCESS_DENIED

Access is denied by target machine (Windows Print Spooler) or the SafeCom server.

3—SCPORTUTIL_ERROR_INVALID_PARAMETER

One of the command line parameters is incorrect.

4—SCPORTUTIL_ERROR_CAN_NOT_CONNECT_TO_SC

A connection attempt to a SafeCom Server failed.

5—SCPORTUTIL_ERROR_SC_MONITORS_NOT_INSTALLED

The SafeCom print monitor is not installed on the target machine.

6—SCPORTUTIL_ERROR_INVALID_PORT_NAME

The specified port name is invalid.

9—SCPORTUTIL_ERROR_CAN_NOT_CREATE_TRACKING_DEVICE

The tracking device cannot be created.

12—SCPORTUTIL_ERROR_PORT_ALREADY_EXISTS

The specified port already exists.

13—SCPORTUTIL_ERROR_SPOOLER_CALL_FAILED

A call to the Windows Print Spooler failed.

15—SCPORTUTIL_ERROR_INVALID_QUEUE_NAME

The queue name or target machine is invalid.

Remarks

SafeCom User Authentication

The newly created port will use the default user authentication scheme, which is “Use network logon”.

SafeCom Server performance considerations

When running the tool during user logon or rollout scenarios, take into consideration that this command contacts the SafeCom Server and might create new tracking devices.

You might want to limit the number of concurrent calls.

Tracking Devices

If a tracking device with the same name already exists, the existing tracking device will be used, and no new tracking device will be created.

If more than one tracking device with the same name already exists, an arbitrary device with the same name will be selected.

Existing tracking devices will not be updated with any settings provided to this command.

The automatically created tracking device will have the **same name as the port**, if no other name is specified.

Attach Port

The `Attach Port` command, will attach an already existing port to an already existing queue.

Command Line usage

```
scPortUtility --attach-  
port  
--port <port  
name>  
--queue <queue name>  
--target-machine <target machine address>
```

Options and Parameters

`--attach-port`

Required

This switch specifies that the *Attach Port* command should be executed.

`--port <port name>`

Required

The parameter specifies the name of the port to be created.

`--queue <queue name>`

Required

The name of the Windows Spooler print queue, which to attach to the specified port.

`--target-machine <target machine address>`

Hostname or address of the machine on which the queue and port are located. Default is the local machine.

Exit Codes

0—SCPORTUTIL_ERROR_SUCCESS

The operation completed successfully.

1—SCPORTUTIL_ERROR_GENERAL_FAILURE

The operation could not be completed due to a general failure.

3—SCPORTUTIL_ERROR_INVALID_PARAMETER

One of the command line parameters is incorrect.

6—SCPORTUTIL_ERROR_INVALID_PORT_NAME

The specified port name is invalid.

13—SCPORTUTIL_ERROR_SPOOLER_CALL_FAILED

A call to the Windows Print Spooler failed.

15—SCPORTUTIL_ERROR_INVALID_QUEUE_NAME

The queue name or target machine is invalid.

16—SCPORTUTIL_ERROR_QUEUE_NOT_SUPPORTED

The specified queue is not supported.

- RDP queue
- remote queue / share

17—SCPORTUTIL_ERROR_WIN32_FAILURE

A call to the Windows API is failed.

Queue Migration – Push Print

Migration of Windows printer queue from using **Standard TCP/IP Monitor** ports to **SafeCom Push Port Monitor** ports.

It uses the available information from the attached Standard TCP/IP Port to create a new SafeCom Push Port, and changes the queue to use this new port.

Command Line usage

```
scPortUtility --migrate-to-  
push  
--queue <queue  
name>  
--port <port  
name>  
--sc-server-addresses <SafeCom Server address  
list>  
--sc-user <SafeCom administrator  
username>  
--sc-password <SafeCom administrator password>  
--target-machine <target machine address>  
--tracking-address <tracking device>  
--tracking-name <tracking device name>  
--tracking-location <tracking device location>  
--driver-name <driver name>  
--model <model name>  
--show-price  
--duplex  
--color  
--charging-scheme-id1 <numerical scheme id>
```

```
--charging-scheme-id2 <numerical scheme id>
```

Parameters

--migrate-to-push

Required

This switch specifies that the *Migrate* command should be executed.

--queue <queue name>

Required

The name of the Windows Spooler print queue which should be migrated.

--port <port name>

Required

The parameter specifies the name of the port to be created.

--sc-server-addresses <SafeCom server address list>

Required

The parameter provides a semicolon separated list of SafeCom Servers to which the new port should connect, in order of priority. They can be specified either as IP or fully qualified hostnames.

The SafeCom Port Utility will also use this list.

--sc-user <SafeCom administrator user name>

Required

This is the SafeCom administrator user name.

--sc-password <SafeCom administrator password>

Required

This is the SafeCom administrator user password.

--target-machine <target machine address>

Hostname or address of the machine on which to create the new port. Default is the local machine.

--tracking-address <tracking device>

This is the address of the SafeCom Server tracking device.

If this option is not specified, the specified **output device** will be used instead.

--tracking-name <tracking device name>

This is the name of the tracking device.

If this is not specified, the tracking device will be named the same as the SafeCom Push port.

--tracking-location <tracking device location>

This option specifies the location of the tracking device as it will appear in scAdministrator.

If this is not specified the location field in scAdministrator will be empty.

--driver-name <driver name>

Override driver name with the specified name, when committing jobs to SafeCom Server.

--model <model name>

Tracking device model. Will be displayed in SafeCom Administrator Console.

--show-price

Show job price before printing.

--duplex

Specifies that this is a duplex capable tracking device.

--color

Specifies that this is a color tracking device.

--charging-scheme-id1 <numerical scheme id>

Primary charging scheme used for price calculation.

--charging-scheme-id2 <numerical scheme id>

Secondary charging scheme used for price calculation.

Exit Codes

0—SCPORTUTIL_ERROR_SUCCESS

The operation completed successfully.

1—SCPORTUTIL_ERROR_GENERAL_FAILURE

The operation could not be completed due to a general failure.

2—SCPORTUTIL_ERROR_ACCESS_DENIED

Access is denied.

3—SCPORTUTIL_ERROR_INVALID_PARAMETER

The command line parameter is incorrect.

4—SCPORTUTIL_ERROR_CAN_NOT_CONNECT_TO_SC

A connection attempt to a SafeCom Server failed.

5—SCPORTUTIL_ERROR_SC_MONITORS_NOT_INSTALLED

The SafeCom print monitor is not installed.

6—SCPORTUTIL_ERROR_INVALID_PORT_NAME

The specified port name is invalid.

9—SCPORTUTIL_ERROR_CAN_NOT_CREATE_TRACKING_DEVICE

The tracking device cannot be created.

12—SCPORTUTIL_ERROR_PORT_ALREADY_EXISTS

The specified port already exists.

13—SCPORTUTIL_ERROR_SPOOLER_CALL_FAILED

A call to the Windows Print Spooler failed.

15—SCPORTUTIL_ERROR_INVALID_QUEUE_NAME

The queue name or target machine is invalid.

16—SCPORTUTIL_ERROR_QUEUE_NOT_SUPPORTED

The queue name is invalid. The specified queue is not supported, could be due to:

- Port pooling
- No Port attached
- RDP queue
- Remote queue / share

17—SCPORTUTIL_ERROR_WIN32_FAILURE

A call to the Windows API is failed.

Remarks

Supported queue types

Only queues that use any of the supported port types are supported for migration.

Unsupported queue types

The tool does not support migration of the following queue types:

- Remote queues not local to the target machine. Queues that are attached using shares.
- Queues with no port attached
- Remote Desktop queues
- Queues that have Printer Pooling enabled

Supported port types

Only queues that are attached to **Standard TCP/IP Ports** using the **RAW protocol** are supported for migration. The LPR protocol is not supported.

Existing ports and queues

The existing Standard TCP/IP port will not be deleted or altered in any way.

Other queues attached to the same Standard TCP/IP port will not be affected.

SafeCom User Authentication

The newly created port will use the default user authentication scheme, which is "Use network logon".

SafeCom Server performance considerations

When running the tool during user logon or rollout scenarios, take into consideration that this command contacts the SafeCom Server and might create new tracking devices.

You might want to limit the number of concurrent calls.

Tracking Devices

If a tracking device with the same name already exists, the existing tracking device will be used, and no new tracking device will be created.

If more than one tracking device with the same name already exists, an arbitrary device with the same name will be selected.

Existing tracking devices will not be updated with any settings provided to this command.

The automatically created tracking device will have the **same name as the queue**, if no other name is specified.

List Print Queues

This operation outputs a list of print queues, their attached port, port types and port descriptions.

It can be restricted to only output queues that are eligible for migration by the SafeCom Port Utility.

Command Line usage

```
scPortUtility --list-print-queues  
--only-migratable  
--target-machine <target machine address>
```

Options and Parameters

--list-print-queues

Required

This switch specifies that the *List Print Queues* command should be executed.

--only-migratable

List only queues that are eligible for migration by the SafeCom Port Utility.

--target-machine <target machine address>

Hostname or address of the machine on which the queue and port are located. Default is the local machine.

Exit Codes

0—SCPORTUTIL_ERROR_SUCCESS

The operation completed successfully.

1—SCPORTUTIL_ERROR_GENERAL_FAILURE

The operation could not be completed due to a general failure.

3—SCPORTUTIL_ERROR_INVALID_PARAMETER

The command line parameter is incorrect.

13—SCPORTUTIL_ERROR_SPOOLER_CALL_FAILED

A call to the Windows Print Spooler failed.

15—SCPORTUTIL_ERROR_INVALID_QUEUE_NAME

The target machine is invalid.

17—SCPORTUTIL_ERROR_WIN32_FAILURE

A call to the Windows API is failed.

Disclaimer

SafeCom software features interact with non-proprietary information areas of printer drivers. Printer drivers withholding print job information in proprietary information areas may hinder correct SafeCom behavior. SafeCom does NOT guarantee that each and all SafeCom software features will work with all printer drivers and cannot be held responsible if they do not work as expected.

The following sections contain known issues with proprietary printer driver information causing incorrect SafeCom behavior:

Rule Based Printing rules have no effect

SafeCom Rule Based Printing needs to modify the print data stream to control: Duplex on/off, Toner save on/off and Force job to b/w. SafeCom Rule Based Printing has been tested against PCL5, PCL5c, PCL5e, PCL6, PCL XL and PostScript level 2 and 3 printer drivers from HP using a broad range of HP LaserJets.

Incorrect copy page count and job price in SafeCom PopUp

Some printer drivers sending print jobs in Enhanced Metafile (EMF) format may provide the SafeCom PopUp dialog with an incorrect page count when printing multiple copies of a document causing the popup dialog to show an incorrect page count and job price. However, once the print job is completed **the SafeCom database holds the correct page count and job price.**

In most cases the issue is caused by the printer driver not setting the **dmCopies** value of the DEVMODE data structure correctly. Typically the printer driver will set a value of 1 in **dmCopies** instead of the actual number of copies.

For print jobs in PCL and PostScript the SafeCom Parser compensates for this flaw in the printer driver and obtains the correct page count value by parsing the print job and then reporting the page count to SafeCom PopUp.

When the print job is in EMF format, it is not parsed and hence the only available information is that which is made available by the print driver in the DEVMODE data structure. It may be that the print driver has embedded the page count information into the driver specific (proprietary) part of the DEVMODE data structure, but SafeCom solution does not this information, because it is not only printer driver specific, but also printer driver version specific.

If you experience the issue, try any of the following:

- Switch the printer driver to one that correctly sets the dmCopies value, for example HP Universal Print Driver PCL6 or Xerox Global Print Driver PCL6.
- Enable **Client Side Rendering** in the printer driver, provided the printer driver supports this. This way print data is sent in RAW format (PCL or PostScript) and not in EMF format.
- Clear (disable) **Enable advanced printing features** in the printer driver, provided the printer driver supports this. This way print data is sent in RAW format (PCL or PostScript) and not in EMF format.