

Kofax Communication Server

TCOSS Configuration Manual

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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 modern, clean design.

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Preface

The Kofax Communication Server and its components formerly used the TOPCALL product name. Some screen images and texts in this manual may still use the former name.

Release Update

The Kofax Communication Server TCOSS does not support configuration downgrade. Therefore, we recommend that you back up the current configuration before update.

If TCOSS is updated, select both TCOSS and MAKETCOSS during Setup.

Update from TCOSS 8.9.0 (KCS 10.2)

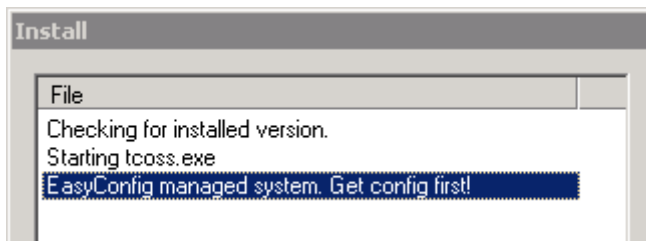
No special actions are required.

Update from TCOSS 8.6.0.xx (KCS 10.1.1) or lower

TCTI transport mode “native” is not supported anymore since KCS 10.2. RPC is always used after update even if RPC mode is set in the configuration.

Additional notes for update from TCOSS 7.96.xx (KCS 10.1.0) or lower

Installation of the new release will fail as shown below if bit 4 (value 0x10) in position 4 in line 13 of the current common configuration file (+TECH/ASYSCONFCCCC) is set:



In such a case, it is recommended to delete the “+TECH/ASYSCONFCCCC” file using one of the following options:

- Delete the file in the system folder with TCfW.
- Delete the file with TCUAS channel using the “. . 2E, R=+TECH/ASYSCONFCCCC” command.
- If TCOSS is not running, you can delete the file by entering
“tcdel +TECH/ASYSCONFCCCC”
in the C:\TCOSS\SYSTEM directory.

Note After you have deleted the common configuration file, you must install a configuration with WCONFIG. Otherwise, TCOSS will fail to start (see bug 971772 for details).

Additional hints for update from TCOSS 7.95.xx (Kofax Communication Server 10.0.1) or lower

To increase the TCOSS security level after update, add the Message Folder read/write and Inbox permissions to the login users used by TC/LINK-xx as shown in the following screen shot.

User Profile - TCLINK

Queue Length/Age/Pages alerting | Queue Length/Age/Pages logging | TC/WEB | TC/WEB Identity Rights

General | Address | Event | Rights | Manual Fax | Distributor | Authorize/Sign

Read **Write**

☒ ☐ FIS Folder

☒ ☒ Message Folder

☐ ☐ System Folder

☒ ☐ System Address Book

☒ ☐ User Address Book

☐ ☐ All Priv.Address Books

☐ ☐ Group Address Book

☐ ☐ Group User Profiles

☒ ☒ System User Profiles

FIS prefix:

☐ Tech user

☐ Server

☒ Services

☐ Registration/licence

☐ Change sender

☐ Reporting

☒ May mark complete

☐ Meta-Mail

☐ LAN login

☐ Terminate incoming

☐ Change cost center

☐ Extended folder view

☐ Preferences

☒ Save as Cover Sheet

	Group members			All users		
	List	Correct	Open	List	Correct	Open
Inbox	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Outbox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Message Folder	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Enter number directly ☐ Always ☐ Correct

Restricted use of services ☐

OK Save Cancel

See [TCOSS Specific Registry Entry](#) for more details on `SecurityLevel` registry value.

Additional notes for update from TCOSS 7.94.xx (Kofax Communication Server 10.0.0) or lower

TCOSS 7.95.xx (KCS 10.0.1) includes security improvements that can be controlled by the `SecurityLevel` registry value.

By default, insecure features are still allowed for compatibility reasons, but event log entries (ID range: 16100 - 16199) are generated if any such feature is actually used. Administrators should use these event log entries to improve the configuration, so that the security level can be increased after all compatibility issues are fixed.

The following configuration improvements are expected:

- If you are using TCTECH as it was installed with prior releases, the "LAN Login" right should be removed.
- Migrate clients that uses LAN login with as a domain user and the depreciated short user ID option (must be enabled with registry value "Common/UseOldUserID=1") to use the user's principal name.

Additional notes for update from TCOSS 7.84.xx (Kofax Communication Server 8.1) or lower

When you update to 7.85.00 or later and configure a channel beyond the first 360 channels, the channel number of this channel is in the range '0A'...'0Z', '1A'...'1Z', ..., '9A'...'9Z', 'AA'...'AZ', 'BA'...'BZ', ..., 'OA'...'OZ' and it may be identical to an existing user. Please make sure that user IDs and channel numbers do not overlap and remove the user if necessary.

See TCOSS Configuration Manual from KCS 10.0 for additional update hints of TCOSS release before KCS 8.0.

Release Downgrade

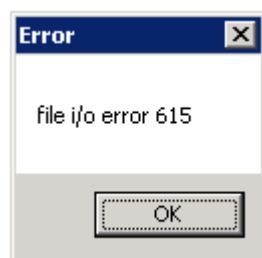
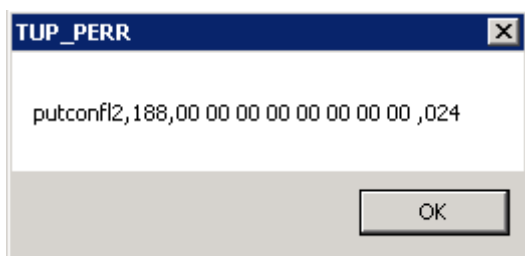
A release downgrade is only recommended immediate after a release upgrade if you get serious problems with the new release that cannot be solved. As a general rules features that have been added with a new release are no more available after downgrade. Additional hints can be found below.

Downgrade to TCOSS 8.9.0 (Kofax Communication Server 10.2) or TCOSS 8.6.0.xx (Kofax Communication Server 10.1.1)

No special actions are required.

Downgrade to release 7.96.xx (Kofax Communication Server 10.1) or older

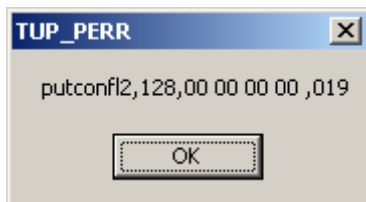
If downgrade TCOSS, you will get the following message boxes when WCONFIG readd the current installed version during installation.



Both messages can be ignored.

Additional notes for downgrade to release 7.94.xx (Kofax Communication Server 10.0) or older

If you want to downgrade TCOSS, you will get the following error message during installation of the old release:



This error can be avoided by deleting the common configuration file (+TECH/ASYSCONFCCCC) before installation of the old release with WCONFIG.

You can choose one of the following methods to delete file "+TECH/ASYSCONFCCCC"

- Delete the file in the system folder with TCfW
- Delete the file with TCUAS channel using the command "..2E,R=+TECH/ASYSCONFCCCC"
- If TCOSS is not running, you can delete the file by entering "tcdel +TECH/ASYSCONFCCCC" in directory C:\TCOSS\SYSTEM.

Note After you have deleted the common configuration file, you must install a configuration with WCONFIG. Otherwise, TCOSS will fail to start. (See bug 551344 for details)

Additional notes for downgrade to release 7.91.xx (KCS 9.2) or older

Downgrade to Kofax Communication Server 9.2 or older is not supported if TCOSS was running with a Unicode configuration. Note that Unicode support is not used by default. It must be explicitly enabled in position 4 of SYCONF line 21.

Changes Between Model/x5 and Model/1xx,2XX

Direct links to Kofax Communication Server via FASTLINK (UCF) or Asynchronous (UCA) are not supported. These clients must be connected via network protocol (TCP/IP or NETBIOS) to KCS. Remote services can be performed by installation of a RAS server in the network.

Since routing functionality is integrated into TCOSS, an extra LCU and the UCL (User module for client server link via transputer link) are not supported anymore. The routing function is implemented in the TCTI32.DLL, which is directly used by TCOSS. A client/server connection requires only UC0 channels. The actual type of link connection must be set within C:\TCOSS\SYSTEM\TOPCALL1.INI. See *TCT/Configuration Manual*.

Network protocol IPX/SPX with native transport is not supported! The supported protocols are TCP/IP and NETBIOS with native transport. One of these or both can be used for client connections and least cost routing networks.

With RPC transport IPX/SPX, TCP/IP and NETBIOS are supported.

If a fatal error occurs during boot time, the system does not start blinking with the green LED. Instead an event log entry in the application event log is made.

The messages on the LCD are initialized at the moment when the slave TS0d is booted. Before the confusing message "Cannot boot from local disk or Slv" is shown.

If TCOSS is stopped manually, all slaves remain in their current state. This means, the green LED on the slave remains on even if TCOSS is stopped.

The UAS module at the model 1xx master is almost fully compatible to the UAS at the slave, with respect to configuration and functionality. However, there are a few minor differences:

- Multiplexer and FAX selection is not supported
- Pause characters are not supported. Pause characters are treated as normal characters.
- Script language does not support control of handshake lines such as DTR.
Setting the corresponding variables has no effect. Reading the variables results in random values.
- Different semantics for COM (SIO) port specification in configuration line 52. See [Configuration Parameters of the Asynchronous Module](#).
- SIO write register 5 is unused, configuration line 54 has to be 00.

The UAS configuration on the slave remains unchanged.

Related Documentation

The following TCOSS manuals are available in the Kofax Communication Server document set:

- *TCOSS System Manual*: System Overview. Basic functionality.
- *TCOSS Configuration Manual*: Configuration parameters of all modules (channel types) and the system.
- *TCOSS Application Module Manual* (formerly 2 Manuals: DotDot- and Directories-Manual): Description of the “..”-interface commands and TCOSS directory structure.
- *TCOSS ISDN Technical Manual*
: Description of the ISDN configuration and operation.
- *ASP Installation Manual*: Installation guide for Application Service Providers.
- *Line Server Model 305*: Manual of the Model 305 Line Server (LS1).
- *Fax over IP Technical Manual*: Manual of the KCS T.38 Fax over IP with H.323 CAPI Driver Integration.

In addition to the TCOSS manuals, this document refers to the following documents:

- *Branch Box Hardware Documentation*
- *Client Applications Administrator's Manual*
- *Environment Guide - Platform System Manual*
- *Kofax Communication Server Model/2xx Manual*
- *Tandem Server Technical Manual*
- *Service User Manual*
- *Monitor User Manual*
- *TC/TC15.EXE Manual*
- *TC/LANPrt Technical Manual*
- *TC/SNMP Technical Manual*
- *TC/SNMP Integration Manual*

The full documentation set for Kofax Communication Server is available at the following location:

https://docshield.kofax.com/Portal/Products/en_US/KCS/10.3.0-SihMvq5oti/KCS.htm

Chapter 1

Installation of TCOSS

This section describes the installation of TCOSS.

General

This section contains general information about installing TCOSS.

Prerequisites

Please refer to *Platform System Manual* for information about supported hardware and software.

Network Requirements

- For monitoring with TCMON32, the NETBIOS or TCP/IP network protocols are required.
- For server models/22x (or 165), TCP/IP is required on the network connection between primary and secondary master.
- If SNMP is used TCP/IP is required.

KCS supports to following TCTI protocols.

Transport	TCP/IP	NETBIOS	IPX/SPX
native	√	√	Not supported
RPC	√	√	√

It is possible to use more than one LAN cards for TCTI. Refer to the *TCTI Configuration Manual* for more details.

Hard Disk

The following hard disk requirements are valid:

- The minimum size of partition C: is 10 GB; or more, if required by the operating system.
- The size of the partition for the KCS file structure must be at least 100 MB for a minimal configuration.

Note To successfully upgrade to a model 1xx without losing data the TCOSS partition (drive D:) must be at least as large as the hard disk for the previous model. The required disk size can be checked with TCDISK (use drive information menu item).

- It is not allowed to compress the KCS file structure. File compression is supported for backup purposes only. This means that the compressed file is not accessed by TCOSS.

Note If a compressed file is changed, the required disk space for this file may be changed even if the size of the file is not changed. If there is no free disk space available, this means that a write access may fail.

The sum of both drive sizes represents the total hard disk size.

Link Adapter Cards

There may be only one old TP80 V1.x adapter card in a mod. 1xx. This TP80 must be jumpered to occupy base address 0x150.

If more than one link is required, the link adapter cards must occupy a contiguous address range from 0x140 to 0x17F. This is possible only if TP80 V2.x adapter cards are used.

By default, link 0 and link 1 have swapped base addresses. This allows existing hardware with one TP80 V1.x to access its slave as slave 1 (see the description of Registry entries).

Link NR	Base Address	Slave NR
0	0x150	1
1	0x140	2
2	0x160	3
3	0x170	4

A TC9x (System Attendant) may be connected to any TP80 V2.x (for TC90) or to any printer port (for TC91, the port cannot be used for printing).

Installation of Windows

Please refer to the operating system documentation for information about installing Windows.

TCOSS and MAKETCOSS Installation

This section describes the installation of TCOSS and MAKETOCSS.

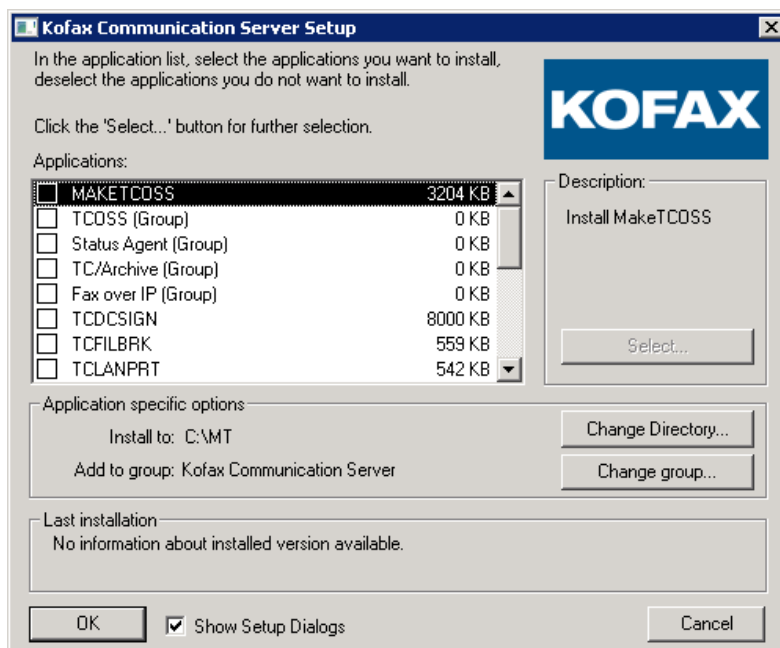
KCS Setup

KCS setup contains:

- the server application TCOSS,
- the configuration program MakeTCOSS,
- the Status Agent (TC/STATUS) and
- additional server components, such as TCFILBRK (file API / Break messages) and TCLANPRT (LAN Print), TC/ARCHIVE)

To install the KCS, download the zip file and extract the content to a local drive.

Start the installation by launching the setup.exe.



- The TCOSS option allows to initialize Windows for use with TCOSS on it. When this option is enabled, you will be asked for the KCS Model to be installed, for the TCTI configuration of the server (TCOSS), the file name and location of the KCS File Structure and whether want to format it or not.
- Option TCOSS and MAKETCOSS is required both for Release update and initial installation.
- With option MAKETCOSS (without TCOSS), only configuration changes are possible.
- For installation procedure for Tandem server, see [Model 165 22x](#).
- Refer to appropriate manuals for installation of other server applications.

During the setup procedure you will be asked for the client's (MakeTCOSS) and the server's (TCOSS) network protocol settings.

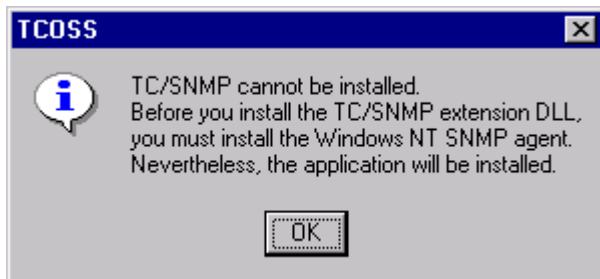
Note A local client (MakeTCOSS) can connect to the started TCOSS only via a network protocol. No other local connection is possible. If TCOSS is not running, MakeTCOSS may install and get the configuration files directly from the TCOSS partition (Install/Get Configuration Local).

The Windows computer name of the KCS server should be a valid NETBIOS name for all client PC platforms. It should be no longer than 15 characters with no blanks and special characters for most client platforms. Very old implementations may restrict the length to even fewer characters.

It is recommended to set the OwnNetbiosName in the server TOPCALL1.ini to the same value as the Computer name.

If the KCS server's NetBIOS name is not a valid NetBIOS name for the client, the client will not be able to connect especially if the new RPC transport is used. The valid NetBIOS names are different on different platforms thus the most restrictive definition (see above) should be used.

If you want to use SNMP Maintenance, take care that Windows SNMP agent is installed before the KCS setup is started. Otherwise, you will get a message box as shown below.



If you do not want to use SNMP, this message box can be ignored.

Details about SNMP are described in the *KCS SNMP Manual* [6].

Note Recent KCS releases use the `C:\topcall\shared` directory for all KCS specific shared files. These files were formerly located in `C:\tcoss\system` and `C:\tcoss\tclink`.

Setup automatically deletes shared files from `C:\tcoss\system` and `C:\tcoss\tclink` and defines a (system) path to `C:\topcall\shared`. Due to these changes some things have to be kept in mind.

- A system reboot is mandatory after update from KCS 7.20.00 or lower.
- Using old link and server applications (that do not use the shared directory) together with newer Kofax Communication Server applications is not recommended.

Processes started via TCSRVR are not starting if their user account is not valid (wrong userID or password). With prior releases the process started with the system account in that case.

TC/LINK-FI (1.08.xx) is installed on the KCS server with a wrong password. The old version of TCSRVR starts TC/LINK-FI with its own user account as defined in the control panel for TCSRVR (Note: It is recommended to use the system account for TCSRVR).

After TCOSS update, the new TCSRVR is installed. As a result, TC/LINK-FI fails to start.

Reinstall the link in order to enter the correct user ID, domain and password.

First Installation of TCOSS

To install TCOSS you must be logged in as a user with Administrator privileges.

Install both TCOSS and MAKETCOSS from the Kofax Communication Server setup as described above.

When installing TCOSS, do the following:

1. Specify the filename.
2. Specify the location of the KCS File Structure. This file structure contains all TCOSS files (default "`C:\TCOSS\Data\KCS File Structure.tcss`").
3. Specify if you want to format it.

4. Click Yes for initial install.
TCDISK will be started for configuration of the KCS File structure.
5. Enter the values (directory size, directory entries, folder sizes, and more) as appropriate. The calculated default size suggested by TCDISK will be 50% percent of the free disk space on the selected drive minus 50 MB.
6. After the setup program finishes reboot Windows in order to activate all changes to the system. Rebooting the system does not automatically start TCOSS or any other modules.

Release Update

1. Install TCOSS and MAKETCOSS.
2. Update the configuration as described in this guide.
3. Install the configuration and program files.
4. Reboot the system.

Additional notes for Tandem Servers (model/165,22x):

The procedure described above only applies to the primary master. MAKETCOSS is not required on the secondary master. All files required for update of the secondary server are installed by setup program. See [TCOSS](#) for more details.

Configuration

If the MakeTCOSS option is enabled during setup, a program item Wconfig is created in the Kofax Communication Server program group. Start this local copy of the configuration program to configure TCOSS.

The main menu shows two new options:

1. Get configuration local
2. Install configuration local

These options allow you to access the TCOSS file system directly without TCOSS being started. If TCOSS is started, these options do not work.

TC Transport Interface (TCTI) Configuration

TCTI supports two types of transport mechanisms.

1. Native: This transport type represents the mechanism used in the past and is provided for compatibility reasons. It may be discontinued in one of the future releases.
The native transport only supports the network protocols NETBIOS and TCP/IP. Any other protocols such as IPX/SPX are not supported.
2. RPC: This transport type supports the protocols NETBIOS, TCP/IP, IPX/SPX and LOCAL (for clients running locally on a Model 1xx server).
Use this transport type for new installations. We recommend that you migrate older installations to RPC.

All setup options have appropriately changed TCTI parameters.

The configuration program (WCONFIG) supports both transport types (RPC is recommended). The setup-program asks for the appropriate parameters.

Note When collecting messages from the TCOSS server, TC/ARCHIVE acts like a normal client application. Hence, it uses the same configuration file for its client functions like other client applications.

The server (TCOSS) uses two different configurations.

- Configuration 0 (refer to Registry value `TCTIIniFile`) is used for native transport by default.
- Configuration 1 (refer to Registry value `TCTIIniFile2`) is used for RPC transport by default.

Note All UC0 channels within TCOSS may be configured to use either configuration 0 (native) or configuration 1 (RPC).

The server reads its configurations from the `<TCOSS-systemdirectory>\topcall1.ini` file.

For compatibility reasons, if a TCOSS installation prior to 7.03.00 gets updated to release 7.04.00, all UC0 channels are set to configuration 0. All new UC0 channels have configuration 1 by default. The TCTI configuration of an UC0 channel can be change via config line 5.

ULL and UASTCTI channel always use configuration 1 (RPC).

The TC/ARCHIVE server application reads the TCTI configuration for its server part from the `<TCOSS-systemdirectory>\topcall1.ini` file and the `TCTI_ARC` section (can be changed in the registry).

The INI-files and sections containing the TCTI configuration for different modules are listed in the following table. For most modules there is a registry value to change the default.

Note Changing the default INI-file or section for TCLANPRT or TCFILBRK using the registry value listed below affects the TCTI parameters only. Any standard parameters remain in the default file and section.

Module	INI File	Section	Registry Value
WCONFIG	<code><Windows>\topcall1.ini</code>	TCTI	
TCLANPRT	<code><Windows>\topcall1.ini</code>	TCLANPRT	<code>TCLANPRT\TCTIIniFile</code>
TCFILBRK	<code><Windows>\topcall1.ini</code>	TCFILBRK	<code>TCFILBRK\TCTIIniFile</code>
UC0 (cnfl. 5 = '0')	<code><TCOSS-Sys>\topcall1.ini</code>	TCTI	<code>TCOSS\TCTIIniFile</code>
UC0 (cnfl. 5 = '1')	<code><TCOSS-Sys>\topcall1.ini</code>	TCTI_RPC	<code>TCOSS\TCTIIniFile2</code>
ULL, UASTCTI	<code><TCOSS-Sys>\topcall1.ini</code>	TCTI_RPC	<code>TCOSS\TCTIIniFile2</code>
TC/ARCHIVE	<code><TCOSS-Sys>\topcall1.ini</code>	TCTI_ARC	<code>TCARCH\TCTIIniFile</code>

Registry values are relative to `HKEY_LOCAL_MACHINE\Software\TOPCALL`.

Refer to the *TCTI release description* for a more detailed configuration description.

Note Do not change any settings manually unless absolutely necessary. The setup program of future releases may not recognize any manual changes. Also, if IPX/SPX is used with TCOSS, the service “SAP Agent” must be installed via Control panel – network.

Activating TCOSS

For testing purposes, TCOSS may be activated manually. When activated manually, TCOSS displays any trace information within the current command window (if tracing and output to screen is enabled for TCOSS, see Registry).

Enter the following command to start TCOSS:

```
TCOSS /N
```

To stop TCOSS, press ^C.

For productive use, TCOSS must be started via TCSRVR Service to ensure automatic reboot after power failure. This service is installed by the setup program but is passive after installation. It must be activated using the control panel. See [Network Protocols for Control Channels](#) for more details.

TCOSS command line parameters

/n	normal operation
/m:<sec.server>	Model 165 Primary Server mode, <sec. server> is the workstation name of the secondary server
/s:<prim.server>	<prim. server> is the workstation name of the primary server
/t	TOS Server mode (must not be used)
/i	installation mode (see below)
/k	(must not be used)
/tcp:<TCP path>	enables TCP for Mod. 165 data link and specifies path
/tcsrv:{on|off}	for debugging (must not be used)

The TCOSS installation mode (option /i) is used during initial installation to install system files on the file structure. It may be used later by advanced administrators (when TCOSS is not running) to perform the following restore operations:

- TCTECH user is re-installed with its default password (that must be changed at the time of first login) and permissions. All changes in the user profile of TCTECH will be overwritten without warning.
- The following files are created with its default content, if they do not exist:
 - File +MAIL5V/Arr99 (routing number directory)
 - File +MAIL5V/App99 (System account policy directory)

Error Logging and TCOSS Supervision

- Severe system errors are always written to the system’s application log. You can view this log using Windows event viewer. From the **Log** menu, select **Application** to display all KCS events and more.
- By means of Registry settings trace options can be set for TCOSS. See [6](#).

- To check if TCOSS is started use TCMON32. See KCS Monitor Manual [6].

Network interruptions to LS1 and FoIP

The network connection between TCOSS and LS1/FoIP delivers real-time fax data and is therefore subject to some realtime requirements as defined in the LS1 and FoIP manual. By default, single network interrupts of up to 2s are handled without significant impact to fax communication and a single interrupts of up to 10s is supported without node restart.

An enhanced network down time of up to 90s may be configured by using the registry values (type REG_DWORD) shown:

Registry value	Default	Enhanced time-out
HKLM\System\CurrentControlSet\Services\Tcpip\Parameters\TcpMaxDataRetransmissions	5	9
HKLM\Software\TOPCALL\TCOSS\trpLinkInactivityTimeout	40	240
HKLM\Software\TOPCALL\TCOSS\trpLinkResyncTimeout	30	180
Supported network interrupts	10s	90s

Note

- The value TcpMaxDataRetransmissions increases the retry duration of Windows TCP/IP stack. It also increases the TCP/IP data packet retry behavior for other applications on the same machine. If you modify this value, restart Windows.
- The enhanced time-out configuration improves the availability in most cases but it may also expose some issues related to large network delays that would be recovered by a node reload in the current implementation.
- The active fax transmission may be affected even by very short interruptions of about 2s. This behavior is not improved by this configuration.
- Recovery time for some other error case may be increased when using the enhanced time-out configuration.
- The enhanced time-out configuration is ignored by connections to Model 202 (Telex branch-box)

TCOSS Specific Registry Entry

Key: HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS

Value: CompatibilityFlags

Type	Default	Description
REG_DWORD	0	This value may be used to disable some features or changes that unexpectedly break backward compatibility with older versions. None-default values may be used only if requested by technical support team.

Value: PriorityClass

Type	Default	Description
REG_SZ	High	Runtime priority class of process.

Value: RPCServer

Type	Default	Description
REG_DWORD	1	Boolean value Specifies if TCOSS includes the server-side of a KCS-specific RPC mechanism and if this RPC server is working. The supervisor service - as the client - calls different functions within TCOSS using this mechanism. One of these functions is used to determine if TCOSS is started properly and to restart it if necessary.

Value: SboxBaseAddress

Type	Default	Description
REG_DWORD	2f8h (COM2)	Address of COM port connected to TS85.

Value: TCTIIniFile

Type	Default	Description
REG_SZ	<RootDir>\System\TOPCAL L1.INI	Path/filename Specifies a fully qualified filename for the initialization file of TCOSS' native TCTI interface.

Value: TCTIIniFile2

Type	Default	Description
REG_SZ	<RootDir>\System\TOPCAL L1.INI[TCTI_RPC]	Path/filename[section] Specifies a fully qualified filename for the initialization file of TCOSS' RPC TCTI interface.

Value: TmoWaitForMaster

Type	Default	Description
REG_DWORD	100	Time in seconds to wait for primary master.

Value: TmoWaitForSlave

Type	Default	Description
REG_DWORD	90	Time in seconds to wait for secondary master.

Value: TmoWaitForSlaveFast

Type	Default	Description
REG_DWORD	20	Time in seconds to wait for secondary master between boot operation of other nodes. This value may be lower than TmoWaitForSlave in order the speed up the boot operation of nodes if the primary master starts without secondary master.

Value: EnablePerformanceCounters

Type	Default	Description
REG_DWORD	0	Boolean value Enables counter for Windows Performance Monitor.

Value: MapLink3ToTCRPC

Type	Default	Description
REG_DWORD	0: For model/21x 1: For model/22x	Boolean value Set to 0 if mod/165,22x with optical lin 3 is required.

Value: TerminationCause

Type	Default	Description
REG_SZ		Error string This value is written by TCOSS. It represents the last PERROR occurred. Changing this value has no effect. It automatically gets deleted at TCOSS startup.

Value: tmoWaitForMaster

Type	Default	Description
REG_DWORD	Default: 100 Max: 2000000 (=23 days) Min: 10	Boolean value The registry value can be used to set the time the secondary master waits for the primary master to become available, before it starts standalone. The time is specified in seconds. The registry value is located at the secondary master (Model/22x). Note This value is not checked for plausibility. Invalid values may lead to erratic behavior. There is no way to interrupt the secondary master waiting for the primary master, and forcing it into standalone mode. The secondary master can only be forced into standalone mode by changing the timeout and restarting it.

Value: tmoWaitForSlave

Type	Default	Description
REG_DWORD	90	Integer value The registry value can be used to set the time the primary master waits to start up with the secondary master. Since TCOSS 7.33.00 the default was increased from 30 seconds to 90 seconds, which avoids a desynchronized condition if the secondary master and the status agent should fail (for example, due to power failure). For older releases it is recommended to set the time-out to 90 seconds by adding the registry value described above.

Value: trpLinkInactivityTimeout

Type	Default	Description
REG_DWORD	40	Integer value This value defines the maximum overdue time (in seconds), when any remote node (LS1 or FoIP) expects a heartbeat message from the master. If this time-out expires, the remote node assumes that the connection to its master is lost and it enters a reset state (all active fax calls are closed).

Value: `trpLinkResyncTimeoutTimeout`

Type	Default	Description																					
REG_DWORD	30	<p>Integer value This value defines the maximum duration (in seconds) while TCOSS and a remote node (LS1 or FoIP) tries to recovery their network connection. This value is ingored for connections to model 202 (Telex Branch-Box).</p> <p>Note that this recovery procedure is also aborted (before this time-out expires) if the TCP/IP connection to the remote side is lost. This happens if the connection is closed by the remote side or after some retries. The number of retries (and indirectly the period) can by changed by the <code>HKLM\System\CurrentControlSet\Services\Tcpip\Parameters\TcpMaxDataRetransmissions</code> [REG_DWORD] registry value. Some typical values are shown below.</p> <table border="1"> <thead> <tr> <th>TcpMaxDataRetransmissions</th><th>Retry duration</th><th>Close connection after</th></tr> </thead> <tbody> <tr> <td>3</td><td>5s</td><td>7s</td></tr> <tr> <td>5 (default)</td><td>9s</td><td>18s</td></tr> <tr> <td>6</td><td>18s</td><td>40s</td></tr> <tr> <td>7</td><td>43s</td><td>81s</td></tr> <tr> <td>8</td><td>70s</td><td>115s</td></tr> <tr> <td>9</td><td>130s</td><td>195s</td></tr> </tbody> </table> <p>See http://technet.microsoft.com/en-us/network/bb545475.aspx for more details.</p>	TcpMaxDataRetransmissions	Retry duration	Close connection after	3	5s	7s	5 (default)	9s	18s	6	18s	40s	7	43s	81s	8	70s	115s	9	130s	195s
TcpMaxDataRetransmissions	Retry duration	Close connection after																					
3	5s	7s																					
5 (default)	9s	18s																					
6	18s	40s																					
7	43s	81s																					
8	70s	115s																					
9	130s	195s																					

Value: `NetworkPackageSizeoutTimeout`

Type	Default	Description
REG_DWORD	Default: 1460 Max: 2048 Min: 0	Integer value The data transfer via TCP/IP on the dedicated LAN between primary and secondary master has been optimized by adapting to the network package size. A value of 0 or 1 would disable the optimization. Usually it is not necessary to enter this registry key.

Value: `SecurityLevel`

Type	Default	Description																																																		
REG_DWORD		<div><div>Integer value</div><div>Several security improvements are added with KCS 10.0.1. These improvements are implemented as compatible as possible with previous releases but there is always a certain compatibility risk with the improved security. This value should be used as a simple slider between highest compatibility (lowest level) and highest security (highest level). The following levels are currently defined.</div><table><thead><tr><th>Level</th><th>Description</th><th>Remarks</th></tr></thead><tbody><tr><td>10</td><td>New security features are not used. If any feature that would be denied with level 40 is used, no compatibility event log entries are created.</td><td>Most compatible with KCS 10.0 but does not provide any security improvements.</td></tr><tr><td>20</td><td>New security features are supported. Insecure features are allowed but a compatibility event log entry will be created to inform about potential compatibility issues.</td><td>Default for upgrades from prior releases.</td></tr><tr><td>40</td><td>New security features are supported and insecure features are denied.</td><td>Default for new installations</td></tr><tr><td>60</td><td>Like level 40 but additionally enforces security features introduced with KCS 10.1.</td><td>Not used by default.</td></tr></tbody></table><div><div>Remarks:</div><ul style="list-style-type: none">• This registry value is created by KCS setup with level 20 or 40 depending on whether the TCOSS file structure should be formatted. If the value already exists, it remains unchanged.• If you change these values while TCOSS is running, the new values are automatically used after a delay of about 1 minute without a need to restart TCOSS.• For more advanced security settings, see the following table for the default security settings of the sub-keys within a security level.<table><thead><tr><th>Values</th><th>Level 10</th><th>Level 20</th><th>Level 40</th><th>Level 60</th></tr></thead><tbody><tr><td>DeniedAuthentications</td><td>0x60</td><td>0x00</td><td>0x06</td><td>0x06</td></tr><tr><td>DeniedAuthenticationsPreview</td><td>0x00</td><td>0x06</td><td>0x00</td><td>0x00</td></tr><tr><td>RightsCheck</td><td>0x00</td><td>0x00</td><td>0x11</td><td>0x31</td></tr><tr><td>RightsCheckPreview</td><td>0x00</td><td>0x31</td><td>0x20</td><td>0x00</td></tr><tr><td>DeniedSessions</td><td>0x02</td><td>0x00</td><td>0x00</td><td>0x01</td></tr><tr><td>DeniedSessionsLog</td><td>0x00</td><td>0x00</td><td>0x01</td><td>0x01</td></tr></tbody></table></div></div>	Level	Description	Remarks	10	New security features are not used. If any feature that would be denied with level 40 is used, no compatibility event log entries are created.	Most compatible with KCS 10.0 but does not provide any security improvements.	20	New security features are supported. Insecure features are allowed but a compatibility event log entry will be created to inform about potential compatibility issues.	Default for upgrades from prior releases.	40	New security features are supported and insecure features are denied.	Default for new installations	60	Like level 40 but additionally enforces security features introduced with KCS 10.1.	Not used by default.	Values	Level 10	Level 20	Level 40	Level 60	DeniedAuthentications	0x60	0x00	0x06	0x06	DeniedAuthenticationsPreview	0x00	0x06	0x00	0x00	RightsCheck	0x00	0x00	0x11	0x31	RightsCheckPreview	0x00	0x31	0x20	0x00	DeniedSessions	0x02	0x00	0x00	0x01	DeniedSessionsLog	0x00	0x00	0x01	0x01
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DeniedSessions	0x02	0x00	0x00	0x01																																																
DeniedSessionsLog	0x00	0x00	0x01	0x01																																																

Value: SecurityLogging

Type	Default	Description										
REG_DWORD	1	<p>Integer value</p> <p>This registry value defines the type of data logged in case of successful or failed security checks. It does not have any functional impact and available in addition to the following logging features:</p> <p>Audit logs as described in Common Configuration Files (SYSCONFCCCC) line 21.</p> <p>Compatibility warnings as described by registry value SecurityLevel.</p> <table><tr><th>Value</th><th>Description</th></tr><tr><td>0x00</td><td>Security logging is disabled.</td></tr><tr><td>0x01</td><td>Generates a trace if any function is blocked due to security checks.</td></tr><tr><td>0x02</td><td>A missing right after login (described by the <code>Security\RightsCheck</code> registry value) causes a Level 2 System error message, such as compatibility warnings. Denied logins are handled similar to value 0x01. This means that they do not generate an event log and TCOSS error message, but such errors may already be logged by the audit log feature.</td></tr><tr><td>0x11 or 0x12</td><td>Similar to 0x01 / 0x02, but there is also a trace line for succeeded security checks. Note These values may produce a huge amount of trace data, therefore, it should only be used for troubleshooting.</td></tr></table>	Value	Description	0x00	Security logging is disabled.	0x01	Generates a trace if any function is blocked due to security checks.	0x02	A missing right after login (described by the <code>Security\RightsCheck</code> registry value) causes a Level 2 System error message, such as compatibility warnings. Denied logins are handled similar to value 0x01. This means that they do not generate an event log and TCOSS error message, but such errors may already be logged by the audit log feature.	0x11 or 0x12	Similar to 0x01 / 0x02, but there is also a trace line for succeeded security checks. Note These values may produce a huge amount of trace data, therefore, it should only be used for troubleshooting.
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0x11 or 0x12	Similar to 0x01 / 0x02, but there is also a trace line for succeeded security checks. Note These values may produce a huge amount of trace data, therefore, it should only be used for troubleshooting.											

Sub-Key Drive0

Drive0 is the TCOSS working drive. The settings within this sub-key determine what drive or TCOSS' file system is actually accessed.

HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\Drive0

Value: FileName

Type	Default	Description
REG_SZ	For single TCOSS instance: C:\TCOSS\Data\KCS File Structure.tcss	<p>Fully qualified path and filename</p> <p>This value must be a valid Windows file name which TCOSS can use internally in WIN32 calls to access a file. This file contains the entire file structure and represents a virtual drive for TCOSS. The structure is compatible to the physical SCSI drives used with KCS models below 1xx.</p>

Value: TargetId

Type	Default	Description
REG_DWORD	0	ID of SCSI hard disk device If FileName is an empty string, the SCSI device with the specified ID at port ScsiPort is used as TCOSS drive. TCOSS accesses this disk in a sector wise manner exactly like KCS models 1xx do. Hence, existing TCOSS SCSI disks may be connected. Windows treats such disks as RAW (no file system, not partitioned). Do not access such disk space with Windows DiskManager. Either TargetId or ScsiPort must be specified and FileName must be an empty string to enable access to a physical drive.

Value: RemoteDiskAccessTimeout

Type	Default	Description
REG_DWORD	5	Remote disk access time-out in seconds The remote disk access time-out is used during tandem operation for all write operations to the disk on the secondary master. If it expires, then the secondary master process will be restarted and the primary master continues without fault tolerant disk operation in order to minimize impact to real-time critical operations (like fax reception or transmission). Tandem operation is usually re-established after the secondary master is restarted.

Value: RemoteDiskQueryTimeout

Type	Default	Description
REG_DWORD	10	Remote disk query time-out in seconds This time-out is used to the monitor opening operation of the TCOSS file structure on the secondary master.

Value: ScsiPort

Type	Default	Description
REG_DWORD	0	SCSI Adapter Number Specifies the SCSI adapter where the TCOSS disk with TargetId is connected to. See TargetId for a detailed description.

Value: DirCacheSize

Type	Default	Description
REG_DWORD	2048	Directory cache size in KB Specifies the size of the directory cache pool in kB.

Value: DocCacheSize

Type	Default	Description
REG_DWORD	40960	Document cache size in KB Specifies the size of the document cache pool in kB.

Value: DatabaseCacheSize

Type	Default	Description
REG_DWORD	5120	Database cache size in KB Specifies the size of the database cache pool in kB.

Value: CacheAweEnable

Type	Default	Description
REG_DWORD	0	AWE cache option enable Specifies whether the three cache pools (directory, document, and database cache) are located in conventional memory (value = 0) or in AWE memory (value = 1). AWE or “Address Windowing Extensions” is a set of Windows extensions that allow a 32-bit application to quickly manipulate physical memory more than 4GB.

Note The Dir-, Doc- and DatabaseCacheSize values must be changed on Model 23x configurations. See *Model 23x* in the *TCOSS System Manual [2]* for further information.

Sub Key DocumentClass

An additional Document Class Flag (XVOICE) has been defined. This flag is set by TCOSS if the document to be stored or posted contains a voice attachment. An attachment is detected as voice attachment if it has a binary content and if its (MIME-) type is part of the list defined by registry. If the attachment type is not set, the file name is taken instead. Alternative contents are not considered.

The wildcard ‘*’ may be used in the configured list, in the formats “start*” (match beginning of string), “*end” (match end of string), “*part*” (match part of string at any position) or “*” (match always). For example *.doc” will filter all file names with “*.doc” extension. All compares are case insensitive. Trailing blanks are ignored in the actual MIME type or file name of an attachment, but not in the registry settings.

Voice	MULTI_STRINGD Mime-Type and file extension
Setup default	audio/wav *.wav *.tcs

- The document class will be defined upon posting or saving documents. If the configuration is changed, the document class of existing documents is not updated.
- Binary attachments of files stored/posted with prior releases are handled as binary attachment.
- Changes of the registry key described above are accepted after restart of TCOSS only!

Sub-Key LINK

TCOSS is a distributed system that may consist of multiple nodes that communicate via Topcall Routing Protocol (TRP) with the current system master. These connections are called “TRP-Link” in the context of this manual. These must not be considered as TC/Link-xx applications.

The settings within the following sub-key are valid for all TRP-Links.

HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\LINK

Note The following additional TRP-Link configuration values can be found in the TCOSS main key described above: trpLinkInactivityTimeout, trpLinkResyncTimeout.

Value: EncryptionFlags

Type	Default	Description
REG_DWORD	2	TRP-Link encryption mode The following values are supported: <ul style="list-style-type: none"> • 0: Do not use encryption. • 2: Use AES-256 encryption, if supported by remote side. Else, an event log entry (ID 16110) is generated and none-encrypted mode is used. • 3: Force AES-256 encryption. If the remote node does not support AES-256 encryption, startup of this node will fail with an event log entry (ID 16111.)

This configuration value is used for all TRP-Links that does not have a link specific EncryptionFlags value in their TRP-Link specific sub-key.

Following table provides detailed description of all flags:

Flag	Description
0x01	Force encryption. It may be used in addition to flag 0x02 in order to prevent a fallback to none-encrypted mode, if encryption is not supported by remote side.
0x02	Use AES-256 encryption.
Other	All other flags are reserved for future encryption modes and options.

Note

- Encryption does not have any impact on network and CPU requirements.
- Encryption is supported by TCOSS, LS1 and FoIP from KCS 10.1.
- The Telex branch box (model 202) does not support encryption.

Sub-Key LINK/003

This key defines the properties of the Link connection between primary and secondary master with a fault tolerant system.

HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\LINK\003

Value: EncryptionFlags

Type	Default	Description
REG_DWORD	TCOSS\LINK\EncryptionFlags	TRP-Link encryption mode Defines the TRP-Link encryption flags as described by registry value TCOSS\LINK\EncryptionFlags which also defines the default value.

Sub-Key LINK/LANxxx

This key is used to define the properties of the Link connection between TCOSS master and LS1 or FoIP where xxx must be replaced by the Lan-link number (for example, 001 for L.1 and so forth.)

HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\LINK\LANxxx

Value: EncryptionFlags

Type	Default	Description
REG_DWORD	TCOSS\LINK\EncryptionFlags	TRP-Link encryption mode Defines the TRP-Link encryption flags as described by TCOSS\LINK\EncryptionFlags registry value. For more detailed configuration values, see BranchBox Configuration .

Sub-Key Security

Basic security settings should be done with values SecurityLevel as described above.

This sub key defines advanced setting for experienced users. If you change these settings while TCOSS is running, the values are automatically used without need to restart TCOSS after a delay of about 1 minute.

HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\Security

Value: EncryptNumericalPassword

Type	Default	Description
REG_DWORD	0	Encryption mode A user's numerical password, which is used by fax commands and voice mail, is visible in an ASCII backup of the user profiles and in the TCOSS system file, "Auu99", unless it's encrypted by the server. <ul style="list-style-type: none">0: No action on voice password: passed on unchanged, encrypted or plain text (no encryption, compatible to previous releases).1: Encrypt voice password unless already encrypted.

Password encryption requires TC/VMail 3.01.01 (from KCS release 7.49.02) or higher.

Note After the numerical password encryption has been activated a release downgrade of TCOSS or TC/VMail requires a restore of user profiles with unencrypted numerical passwords. It is therefore recommended to back up user profiles before switching on the password encryption.

Value: DeniedAuthentications

Type	Default	Description		
REG_DWORD	See SecurityLevel registry value	Disabled login authentication modes It can be used to disable any combination from the following possible authentication methods		
		Flag	Description	Remarks
		0x01	Native (UserId/Password) login with a KCS user	This is the standard KCS user login.
		0x02	Active directory LAN login with clients (before KCS 10.0.1). The KCS user name must match with the user's principal name (for example, "user@mydomain.com").	This option should be enabled only for compatibility reasons, if active directory login is required with old clients.
		0x04	LAN Login with no domain user. The KCS user name must match with the SAM-Compatible-Name excluding the domain part (for example, "localuser" for user "mydomain\localuser").	This option should be allowed only if LAN ID login is required for none domain users.
		0x20	Improved active directory LAN login. Like mode 0x02, but the client user is checked by impersonation of the domain user at the server.	Supported from KCS 10.0.1. This method works only if TCOSS is running on a computer that is added to a trusted domain.
		0x40	Improved LAN login with local (none-domain) user. Like mode 0x04, but the client user is checked by impersonation of the local user at the server.	Supported from KCS 10.0.1. This works only if there is a windows user with the same name and password as used on the client exists on the KCS server. In other words, authentication works like access to a file share on a remote computer with none-domain user.

Note

- It is not required to run TCOSS with a specific user account in order to use any authentication method.
- Mode 0x04 is also used if the deprecated short user ID option (must be enabled on client with "Common/UseOldUserID=1" registry value) is used with a domain user.

Value: EncryptNumericalPasswordDeniedAuthenticationsPreview

Type	Default	Description
REG_DWORD		Combination of flags as defined for value DeniedAuthentications. If a specific authentication method is not denied but its flag is set in this value, each successful login with this method generates an event log entry. This value should be used to detect possible compatibility problems before any deprecated authentication method are disabled by DeniedAuthentications.

Value: DeniedSessions

Type	Default	Description																																																																								
REG_DWORD	See SecurityLevel registry value	<div>Disabled TCSI session token</div> <div>This value can be used to disable one of the following TCSI session token formats.</div> <table><tr><th>Flag</th><th>Description</th><th>Remarks</th></tr><tr><td>0x01</td><td>Disable old (64bit) session token</td><td>64 bit session tokens may be allowed for compatibility with clients before KCS 10.1</td></tr><tr><td>0x02</td><td>Disable enhanced (128 bit) session token.</td><td>128 bit session tokens are supported from KCS 10.1. They improve protection against any session hijack and also prevent replay attacks.</td></tr></table> <div>The behavior dependent on the client version and valid configurations is shown in the table below:</div> <table><tr><th>Client</th><th colspan="2">DeniedSessions Flags</th><th>Denied Sessions Flags</th><th>Session token length</th><th>Event Log ID</th><th>Remark</th></tr><tr><td></td><td>0x2</td><td>0x1</td><td>0x1</td><td></td><td></td><td></td></tr><tr><td>New</td><td>#</td><td>-</td><td>-</td><td>128 bits</td><td>No</td><td>Recommended option</td></tr><tr><td>#</td><td>#</td><td>#</td><td>64 bits</td><td>No</td><td>Force fallback to old token length</td><td></td></tr><tr><td>#</td><td>#</td><td>#</td><td>64 bits</td><td>16108</td><td></td><td></td></tr><tr><td>Old</td><td>-</td><td>#</td><td>#</td><td>64 bits</td><td>No</td><td>Allow login with old clients</td></tr><tr><td>-</td><td>#</td><td>#</td><td>64 bits</td><td>16108</td><td></td><td></td></tr><tr><td>-</td><td>#</td><td>#</td><td>n/a</td><td>No</td><td>Deny login with old client</td><td></td></tr><tr><td>-</td><td>#</td><td>#</td><td>n/a</td><td>16109</td><td></td><td></td></tr></table> <div>Note<ul style="list-style-type: none">• “-” denotes that the value is not relevant.• “Old” denotes that the client is a KCS 10.0.1 or older version (in particular any TCSI32.dll version older than 2.81.02) client.</div>	Flag	Description	Remarks	0x01	Disable old (64bit) session token	64 bit session tokens may be allowed for compatibility with clients before KCS 10.1	0x02	Disable enhanced (128 bit) session token.	128 bit session tokens are supported from KCS 10.1. They improve protection against any session hijack and also prevent replay attacks.	Client	DeniedSessions Flags		Denied Sessions Flags	Session token length	Event Log ID	Remark		0x2	0x1	0x1				New	#	-	-	128 bits	No	Recommended option	#	#	#	64 bits	No	Force fallback to old token length		#	#	#	64 bits	16108			Old	-	#	#	64 bits	No	Allow login with old clients	-	#	#	64 bits	16108			-	#	#	n/a	No	Deny login with old client		-	#	#	n/a	16109		
Flag	Description	Remarks																																																																								
0x01	Disable old (64bit) session token	64 bit session tokens may be allowed for compatibility with clients before KCS 10.1																																																																								
0x02	Disable enhanced (128 bit) session token.	128 bit session tokens are supported from KCS 10.1. They improve protection against any session hijack and also prevent replay attacks.																																																																								
Client	DeniedSessions Flags		Denied Sessions Flags	Session token length	Event Log ID	Remark																																																																				
	0x2	0x1	0x1																																																																							
New	#	-	-	128 bits	No	Recommended option																																																																				
#	#	#	64 bits	No	Force fallback to old token length																																																																					
#	#	#	64 bits	16108																																																																						
Old	-	#	#	64 bits	No	Allow login with old clients																																																																				
-	#	#	64 bits	16108																																																																						
-	#	#	n/a	No	Deny login with old client																																																																					
-	#	#	n/a	16109																																																																						

Value: DeniedSessionsLog

Type	Default	Description						
REG_DWORD	See SecurityLevel registry value	TCSI session token event logs						
		This value can be used to generate an event log entry if old clients (before KCS 10.1) access the server.						
		<table><tr><th>Flag</th><th>Description</th><th>Remarks</th></tr><tr><td>0x01</td><td>Generate an event log if an old client (wants to) access the server</td><td>A warning event log entry with ID 16108 is generated during login with an old client if 64 bit session tokens are allowed by configuration value DeniedSessions. An error event log entry with ID 16109 is generated if login with an old client is denied because flag 0x01 is set in configuration value DeniedSessions.</td></tr></table>	Flag	Description	Remarks	0x01	Generate an event log if an old client (wants to) access the server	A warning event log entry with ID 16108 is generated during login with an old client if 64 bit session tokens are allowed by configuration value DeniedSessions. An error event log entry with ID 16109 is generated if login with an old client is denied because flag 0x01 is set in configuration value DeniedSessions.
Flag	Description	Remarks						
0x01	Generate an event log if an old client (wants to) access the server	A warning event log entry with ID 16108 is generated during login with an old client if 64 bit session tokens are allowed by configuration value DeniedSessions. An error event log entry with ID 16109 is generated if login with an old client is denied because flag 0x01 is set in configuration value DeniedSessions.						

Value: RightsCheck

Type	Default	Description															
REG_DWORD	See SecurityLevel registry value	<p>Enable server based rights check</p> <p>Defines individual flags to enable additional rights that are not used by default up to KCS 10.0. Each flag improves the security but there is also a minor risk to get compatibility issues due to more strict rights checks.</p> <table> <tr> <th>Flag</th><th>Description</th><th>Remarks</th></tr> <tr> <td>0x01</td><td>Enable rights checks for all application</td><td>This flag activates the server based rights check for TCfW, TCARCHIVE¹ and all TC/LINK processes. The rights check for all other applications (TFC application, IpPrinter, TWS, KCC, and TC/Web) licenses is always enabled.</td></tr> <tr> <td>0x02</td><td>Enable rights checks for rich client (TCfW)</td><td>Rights are always by TCfW on the client side but this server based check provides additional security. This flag is not relevant if flag 0x01 is set.</td></tr> <tr> <td>0x10</td><td>Deny native login (with KCS user / password) for users with LAN login permission.</td><td> <p>Should be used to prevent a security risk if users with the LAN Login permission are using insecure KCS passwords (for example, if the password is created using directory synchronization).</p> <p>If you activate this flag it is no more possible to use the same user-id both with LAN login and native login. This means that the LAN login right must be used from all users that want to use native login.</p> <p>If user TCTECH was installed before KCS 10.0.1, it was created with the LAN login right. This rights should be removed (either via users administration or reinstallation with "TCOSS /i") in order to support this flag.</p> </td></tr> <tr> <td>0x20</td><td>Check queue with open for transfer operation.</td><td>Additional security check if a queue is polled. Introduced with KCS 10.1.</td></tr> </table>	Flag	Description	Remarks	0x01	Enable rights checks for all application	This flag activates the server based rights check for TCfW, TCARCHIVE ¹ and all TC/LINK processes. The rights check for all other applications (TFC application, IpPrinter, TWS, KCC, and TC/Web) licenses is always enabled.	0x02	Enable rights checks for rich client (TCfW)	Rights are always by TCfW on the client side but this server based check provides additional security. This flag is not relevant if flag 0x01 is set.	0x10	Deny native login (with KCS user / password) for users with LAN login permission.	<p>Should be used to prevent a security risk if users with the LAN Login permission are using insecure KCS passwords (for example, if the password is created using directory synchronization).</p> <p>If you activate this flag it is no more possible to use the same user-id both with LAN login and native login. This means that the LAN login right must be used from all users that want to use native login.</p> <p>If user TCTECH was installed before KCS 10.0.1, it was created with the LAN login right. This rights should be removed (either via users administration or reinstallation with "TCOSS /i") in order to support this flag.</p>	0x20	Check queue with open for transfer operation.	Additional security check if a queue is polled. Introduced with KCS 10.1.
Flag	Description	Remarks															
0x01	Enable rights checks for all application	This flag activates the server based rights check for TCfW, TCARCHIVE ¹ and all TC/LINK processes. The rights check for all other applications (TFC application, IpPrinter, TWS, KCC, and TC/Web) licenses is always enabled.															
0x02	Enable rights checks for rich client (TCfW)	Rights are always by TCfW on the client side but this server based check provides additional security. This flag is not relevant if flag 0x01 is set.															
0x10	Deny native login (with KCS user / password) for users with LAN login permission.	<p>Should be used to prevent a security risk if users with the LAN Login permission are using insecure KCS passwords (for example, if the password is created using directory synchronization).</p> <p>If you activate this flag it is no more possible to use the same user-id both with LAN login and native login. This means that the LAN login right must be used from all users that want to use native login.</p> <p>If user TCTECH was installed before KCS 10.0.1, it was created with the LAN login right. This rights should be removed (either via users administration or reinstallation with "TCOSS /i") in order to support this flag.</p>															
0x20	Check queue with open for transfer operation.	Additional security check if a queue is polled. Introduced with KCS 10.1.															

Value: RightsCheckPreview

Type	Default	Description
REG_DWORD		Combination of flags as defined for value RightsCheck. If any flag is active, an event log entry will be created if an operation was allowed that would be denied if the corresponding check in RightsCheck were enabled. This value should be used to detect possible compatibility problems before additional right checks are enabled by RightsCheck.

¹ Flag 0x01 enables the TCOSS rights check for the archivation of messages from TCOSS by TCARCHIVE. The security checks for search/open of messages in TCARCHIVE by any client is not influenced by the flag.

Copying Kofax Communication Server File Structure with TCDisk

The Kofax Communication Server file structure can be copied as any other files on Windows operating systems. However, TCDisk provides additional options while copying, such as modifying the total size of the file structure.

Before copying, prepare the following registry entries. The TCDisk program needs them to recognize the source and destination disks (partitions).

```
Subkey:HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TCOSS\Drive1
Value:FileName Type: REG_SZ Data:D:\TCOSS File Structure
Subkey:HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TCOSS\Drive0
Value:FileName Type: REG_SZ Data:F:\TCOSS File Structure
```

Make sure that the destination file (such as F:\TCOSS File Structure) does not exist.

Continue with the following steps:

1. Start TCDisk from the Kofax Communication Server program group.
2. Select option “3) Disk Copy”.
3. Select the source disk. Since the second file does not exist only one disk should be selectable.
4. Select the target disk. Only one disk should be selectable.
5. Choose the copy mode. If your destination disk is very small you may save disk space by using the second copy mode. This mode does not copy short-term archive entries. But, typically you will use the first copy mode that copies all data.
6. Exit TCDisk after the copy operation is completed.
7. Delete one of the registry values Drive0 or Drive1 from the Windows Registry.

Note For older Kofax Communication Server releases (up to Kofax Communication Server 8.1 / TC/SP 7.84.00), use different registry keys:

```
HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TOOLS\Drive0
HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TOOLS\Drive1
```

Model 165/22x

This section describes Model 165/22x.

Installation of Windows

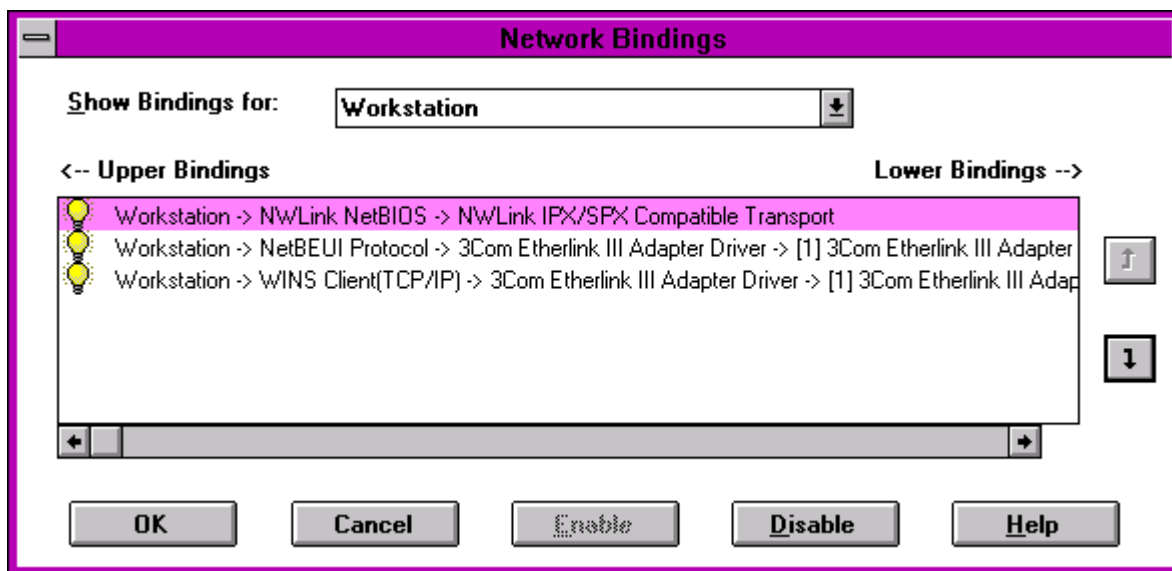
The Model 165 uses a network connection between both servers with either NetBIOS via IPX (NwlnkNb) or TCP/IP as transport protocol. Install all protocols before you running KCS setup.

When using NetBIOS, the order of the network bindings determines which underlying protocol Windows uses. In order to ensure IPX (NwlnkNb) is used, the binding must be checked and rearranged if necessary.

The *NWLink NetBIOS* protocol must always be first in the network search order.

To verify and change the network bindings, perform the following steps:

1. Open **Network** from the **Control Panel**.
2. From the **Network Settings** window open **Bindings**.
3. On the **Show Bindings for** list, select **Workstation**.
4. Move the binding with **NWLink NetBIOS** to the topmost position using the arrow buttons on the right.
5. On the **Show Bindings for** list, select **Server** and move the binding with **NWLink NetBIOS** to the topmost position.
6. On the **Show Bindings for** list, select **NetBIOS Interface** and move the binding with **NWLink NetBIOS** to the topmost position.



The same also applies if there is a second network adapter card for a dedicated LAN connection between both servers. The entry with "NWLink NetBIOS" bound to the dedicated LAN adapter must always be at the topmost position in the list of bindings.

To ensure this, it might be necessary to rearrange the order of the adapters bound to "NWLink IPX/SPX Compatible Transport" as well.

Note In some cases it is possible that changing the order of the adapters bound to Nwlink does not have the desired effect or disables "NWLink NetBIOS" at all. In such cases, removing all adapters and reinstalling the network adapters with the dedicated link adapter first helps (reboot between each step).

For TCP/IP, there is nothing special to take care of. Do not use DHCP for the adapters connecting both Model 165 servers. To install TCOSS, you must know the IP addresses of both. If there is a dedicated network link installed its sufficient to know the IP addresses of these adapters.

At startup, TCOSS on the primary server measures the time a packet takes to be sent to the secondary server and back again. This value is written to the trace file (if the trace level is non-zero) as message '*x ms link roundtrip time!*'. Typical values are below 5ms (may vary slightly). A much higher value indicates a wrong binding.

To offer maximum performance the LAN connection between both servers must provide a bandwidth of at least 500kB/sec and a link roundtrip time below 5ms. If bandwidth is less (remaining bandwidth is LAN is used for other purposes) high, message throughput cannot be guaranteed.

Note In Ethernet networks, you cannot necessarily deduce the amount of free bandwidth from the percentage of network utilization (measured with, for example, a network analyzer). For example, a network utilization of 50% in 10Mbps Ethernet network does mean there's 500kB/s free bandwidth.

In fact, 50% network load is the maximum most Ethernet networks can achieve. The maximum possible network load heavily depends on the number of workstations in a network segment. The more workstations try to access the network the higher the probability of network collisions (refer to appropriate *Ethernet - CSMA/CD documentation*).

TCOSS

Both Model 155/21x servers of a Model 165/22x system must be installed separately using the setup-program.

To install Kofax Communication Server or to update the release, shut down both servers by stopping the service TCSRVR on both servers.

Note To stop the entire Model 165 system it is not enough to stop the primary server (either by stopping TCSRVR or the process TCOSS). Because the secondary server stops and restarts as standalone server, as if there were a primary server failure.

Therefore, always stop the primary server and then the secondary server if you want to shutdown the entire system.

Select the **TCOSS** option in the setup program to install the server. Additionally select the **MAKETCOSS** option for the primary server.

Configure TCOSS on the primary server only. The secondary server gets automatically updated after system startup. In general, it is best to change the configuration while TCOSS is active but this is not possible in case of initial installation or release update.

If the TCOSS configuration is installed both on the primary and the secondary master (via install configuration local), this causes a desynchronized condition.

For proper operation of the Model 165, it is important that one server is installed as primary server and the other as secondary server. In addition, be sure to use the correct workstation name for the other server.

The setup program asks for the type of protocol used for the data link connection between both servers. If you select **TCP/IP**, you have to additionally enter the TCP/IP path to the other server.

In a single LAN environment, the TCP/IP path is the IP address of the other server to connect to in dotted notation. If there is an additional dedicated LAN you have to enter both the IP address of the other server at the dedicated LAN and your own IP address at the dedicated LAN separated by a slash character '/'.

Syntax: <destination IP address>/<own IP address>

Example: 193.81.166.77/193.81.166.76

Store the server configuration for TCTI appropriately on both the primary server and the secondary server. Normally, only the primary server's TCTI configuration is used. The secondary server's TCTI configuration is used in case the primary server fails and the secondary server is started standalone. Since both servers have different TCTI paths, the clients connected to a Model 22x (applies to TC/LINK, TCLANPRT, TCFILBRK as well) should use TCTI's alternate path feature (refer to *TCTI Configuration Manual*).

Similar to Model 65 installations, make sure that the size of the **KCS file structure** on the secondary server is not less than the one used on the primary server.

Note The behavior of TCDISK has been changed with release 7.05.00. TCDISK of release 7.04.00 uses the complete partition and the current version of TCDISK uses multiples of 1MByte as size of the **KCS file structure** during format. This is very important to know for an upgrade from a Model 155 to a Model 165.

If a Model 155 that has been initially installed with TCOSS 7.04.00 or older will be upgraded to a Model 165, the D-partition of the secondary master must be at least 1Mbyte bigger as that used on the primary master. If a Model 165 is installed completely new, both masters can use the same D-partition size.

Status Box and Status Agent

It is possible to use a Status Agent or the TS85 status box to avoid a possible desynchronized condition.

If the primary and secondary master are located at different locations, the Status Agent should be installed close to the primary master in order to minimize the risk to loose the connection to the primary master.

Consider the following behavior if the registry value `RunWithoutStatusAgent=0` (default) and the System is running in normal state (both disks are mirrored): If the connection to the secondary master is lost (for any reason) and the primary master cannot access the status agent, the primary master stops in order to avoid a possible desynchronisation state.

Status Agent

With the status agent it is possible to install for instance both servers in different buildings within a company area. The distance between both primary and secondary server is only restricted by the used LAN connection in that case. See *KCS Model/2xx Manual [4]* for more details.

The status agent (TC/STATUS) has to run on an independent computer. It must not run on the primary or secondary master. Otherwise, desynchronized condition could not be prevented in all cases of single errors.

Status Box (TS85)

By default the status box is connected to COM2 (COM1 is reserved for the mouse). This port cannot be used for other purposes.

The Model 165/22x does not work with a status box release below TS85.0b. The TS85.0b has a slightly modified hardware than the TS85.0a (shipped with Model 65). A Model 65 can use a TS85.0b with TCOSS releases above 7.04.00 only.

The status box requires a set of serial cables with male/female connectors (different to Model 65). In addition, the standard Model 155s must be modified to support the status box.

An upgrade kit is available.

Network Protocols for Control Channels (TCRPC)

In a tandem environment (Model 22x), both master servers communicate with each other via two different network connections.

- The data link that can be either TCP/IP or NETBEUI (Named Pipes).
- The control connection that always used Named Pipes in previous releases. Now, it can use TCP/IP as well. This allows to operate a Model 22x in a non-NetBIOS network environment.

The same kind of communication is used between TCMON32.exe and the KCS supervisor.

See *Kofax Communication Server Monitor Manual [7]* and *Kofax Communication Server Model/2xx Manual [4]* for more details.

Configuration of Control Channel for Tandem Servers

The command-line options for TCOSS were slightly changed to allow to specify additional options.

As with previous releases, the TCP/IP path for the data link connection is specified using the following switch at the TCOSS command line.

```
/TCP:<TCP/IP path>
```

This path additionally is the default path for the control connection between the master servers.

To override this default, specify the new switch:

```
/TCP1:<TCP/IP path>
```

Note If the data link uses TCP/IP by specifying /TCP: it is not possible to use Named pipes for the control connection.

If <TCP/IP path> is not specified at the /TCP1: switch, TCOSS reads the value from the following registry:

```
HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\TCPLinkPath1 = REG_SZ
```

The control connection is used between one master's TCOSS and the other master's TCSR.V. The appropriate protocol type for the corresponding TCSR.V is set automatically during setup.

For TCP/IP: (default new installations)

```
HKEY_LOCAL_MACHINE\Software\TOPCALL\Boot\TCRPCServerModel = REG_DWORD = 1
```

For Named Pipes (Default): (for update)

```
HKEY_LOCAL_MACHINE\Software\TOPCALL\Boot\TCRPCServerModel = REG_DWORD = 3
```

Queue Length Log Agent & NT Performance Counters

A queue length log agent writes log entries in regular intervals to the short term archive to be later processed by TC/Report. NT performance counters allow a live view of TCOSS queue lengths.

All messages waiting to be sent immediately and messages waiting for a retry after a failed send attempt are counted for the total queue length. Not counted are messages with a specific send time, if this time has not yet passed. Also not counted are messages that are currently being sent, messages already routed to another node (state “at next node”) and messages in state “Inactive – Problems” (not sent, no more send attempts).

The queue length log agent and the creation of NT performance counters is controlled by setting a log agent entry in the queue’s user profile, for example, for user “F” to monitor the fax sending queue.

The following parameters may be set for a log agent:

- **Performance counter name**
- **Log interval in seconds:** A value of zero activates an NT performance counter, any non-zero value activates the queue length log agent plus an NT performance counter. The value itself sets the log interval in seconds; the actual log interval is rounded up to multiples of the alert check interval set in the system configuration.
- **Priority filter:** Restricting the queue length counting to messages of a given priority. This means it is possible to have, for example, counters for the queue lengths of each priority level.

The NT performance counters use the following setup:

- **Performance counter object:** “TCOSS queues” (or “TCOSSn queues” in an ASP environment)
- **Performance counter instance:** Empty
- **Performance counter name:** As defined in log agent entry.
- The Queue Length performance counters are not supported via SNMP.

A TCOSS system config position, introduced with TCOSS 7.46.10, controls the alert check cycle (before fixed 1 minute), which is also the update interval for the queue length performance counters and log agent entries.

System configuration, line 18, 3rd position: queue length check cycle in seconds

01 ...FF	Queue length check cycle is 01 to 255 seconds.
00	Program default check cycle is 60 seconds (default)

The maximum number of alerts and log agents handled by TCOSS is 10.000.

Restriction: The total number of TCOSS alerts is limited, this limit also restricts the number of queue length log agents and NT performance counters. The alert scan interval set in the system configuration limits the resolution of the log interval.

Note The queue length log entries are stored in the **TCOSS short term archive** together with message send attempts occupying archive file space. The size of the short term archive should be increased if necessary. Calculate with an internal size of 150 Bytes for a queue length log entry containing one counter with a descriptive string of 16 Bytes, for each additional counter logged at the same time add 28 Bytes plus the length of the name string.

Default user profiles “F” and “X” for the fax and telex channel groups with default queue length monitoring are created automatically for new TCOSS installations. The field names for the queue length log agent and the NT performance counter are “Fax Messages” and “Telex Messages” respectively. The log interval is set to 10 minutes.

With the default setting of the fax and telex queue length agents about 30 KB of the short term archive file space is used per day for the log entries.

TCOSS Release Downgrade

If a TCOSS release downgrade (to a release lower 7.46.10) is done after user-defined log-entries, such as queue length log entries, have been written, these entries will appear in the out-box of the log user (“QUEUELEN” for queue length log entries) and in the in-box of user “+++++++”. All fields of these entries, except recipient, originator and archiving time, will be empty in the case of strings or have default values in the case of integer fields.

Auto Start of Windows Applications

The supervisor service (TCSR) is responsible for automatically starting and stopping TCOSS processes and modules. This service is installed by the setup program but is passive after installation. Its operation is fully controlled by registry keys and the control panel (Service).

It starts all applications listed in the value Startup of the following registry key:

```
HKEY_LOCAL_MACHINE\Software\TOPCALL\Boot.
```

Registry Entries Used by TCSR

Key: HKEY_LOCAL_MACHINE\Software\TOPCALL\Boot.

Value: Startup

Type	Default	Description
REG_MULTI_SZ		Process names Contains the names of all processes to be started at Windows startup. The names specified are used as key for the actual values for each process.

Key: HKEY_LOCAL_MACHINE\Software\TOPCALL\<ProcessName>

Value: RootDir

Type	Default	Description
REG_SZ	"C:\TCOSS"	Root directory of TCOSS The root directory of TCOSS where all other directories are relative to. This string must be a fully qualified path.

Value: EnableBoot

Type	Default	Description
REG_DWORD	0	Zero or nonzero value At Windows startup, TCSRVR does not try to start the processes specified with Startup if this value is zero. During normal operation this value is non-zero.

Key: HKEY_LOCAL_MACHINE\Software\TOPCALL\<ProcessName>

Value: CommandLine

Type	Default	Description
REG_SZ	No default	Complete command line to be used in a call to CreateProcess(). If no full path or a relative path is given, the current directory is always <RootDir>\System. This value is used by the supervisor service to start TCOSS. This value is mandatory.

Value: UserId

Type	Default	Description
REG_SZ		Start the application using the specified user account. If this value is not present, the application is started using the user account of TCSRVR.

Value: Password

Type	Default	Description
REG_SZ		Required if the UserId value is used to specify a password. This value is optional.

Value: DependOn

Type	Default	Description												
REG_MULTI_SZ		<p>Can be used to ensure a proper start-up sequence. Starting of the application will delay if all three conditions listed below are true:</p> <ol style="list-style-type: none">1. The specified application name is not the own application.2. The specified application name is in the list specified by Startup value.3. The specified application is not running. <p>Example:</p> <p>The common part of all registry key (HKEY_LOCAL_MACHINE\Software\TOPCALL) is not shown in this example.</p> <p>Registry values:</p> <table><tr><td>Boot\Startup</td><td>TCOSS TCLANPRT TCFILBRK</td></tr><tr><td>TCOSS\CommandLine</td><td>TCOSS /n</td></tr><tr><td>TCLANPRT\CommandLine</td><td>TCLANPRT</td></tr><tr><td>TCFILBRK\CommandLine</td><td>TCFILBRK -g05 -eC:\API</td></tr><tr><td>TCFILBRK\UserId</td><td>DEMOTC</td></tr><tr><td>TCFILBRK>Password</td><td>ABCD</td></tr></table> <ul style="list-style-type: none">• TCSRVR executes C:\TCOSS\SYSTEM\TCOSS /n <p>This program will be started with user account for TCSRVR. Since default value of key DependOn is TCOSS, the applications TCFILBRK and TCLANPRT are waiting until TCOSS is running.</p> <ul style="list-style-type: none">• TCSRVR executes C:\TCOSS\SYSTEM\TCLANPRT (using TCSRVR user account)• TCSRVR executes C:\TCOSS\SYSTEM\TCFILBRK -g05 -eC:\API (using DEMOTC user account)	Boot\Startup	TCOSS TCLANPRT TCFILBRK	TCOSS\CommandLine	TCOSS /n	TCLANPRT\CommandLine	TCLANPRT	TCFILBRK\CommandLine	TCFILBRK -g05 -eC:\API	TCFILBRK\UserId	DEMOTC	TCFILBRK>Password	ABCD
Boot\Startup	TCOSS TCLANPRT TCFILBRK													
TCOSS\CommandLine	TCOSS /n													
TCLANPRT\CommandLine	TCLANPRT													
TCFILBRK\CommandLine	TCFILBRK -g05 -eC:\API													
TCFILBRK\UserId	DEMOTC													
TCFILBRK>Password	ABCD													

User Accounts

As mentioned above applications started via TCSRVR can use the user account of TCSRVR (default) or any other user account. The TCSRVR can be started with system account (default) or any other user account.

If you want to access a file server (such as Novell), the specified user must exist both on the local machine and on the file server with the same password!

Application	Required account
TCOSS	System account or Administrator User

Application	Required account
TCLANPRT	Any user account with the appropriate printer setup and rights. <div> <p>Note If TCLANPRT is used for printing on Netware printer, the printer settings for banner and notifications are always taken from the current interactive logged-in user. If no user has logged in (for example, after system boot), the following default settings are used:</p> <ul style="list-style-type: none"> • print banner: yes • notify when printed: yes <p>This is a known error of Windows NT 3.51 and Windows NT 4.0.</p> <p>Workaround: Use the auto login of Windows NT.</p> </div>
TCFILBRK	Any user account with the appropriate file access rights

System Attendant TC90/91/95

The System Attendant can be connected to any KCS mod./1xx via TP80.2x (TC90/95) or via printer port (TC91 or TC92+TC90/95). It will be controlled by TCSRVR and can reset the system, if a fatal system hung up within TCSRVR occurs. Furthermore it has a built in unique CPU number that required for Licensing.

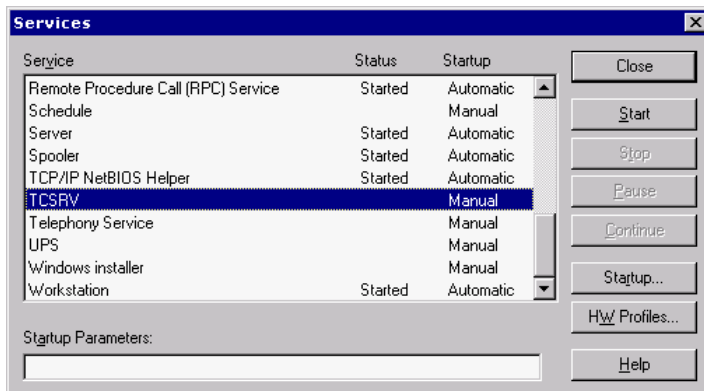
Note

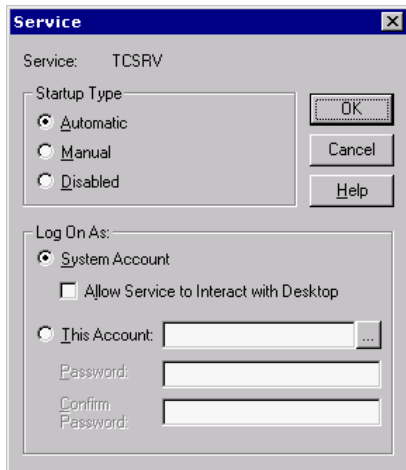
- The watch dog must be disabled during installation (Press button during PowerOn Reset).
- If TCSRVR is stopped the watch-dog time-out will be set to 3.8 hours.

Since CPU number function is part of the system attendant it is mandatory for TCOSS. If no TC90/91/95 could be found, TCOSS does not start

Auto Activation of TCSRVR

To enable or disable automatic TCOSS start after power on, use the control panel for services.





To stop or restart all processes started by the service, the service itself has to be stopped or started.

Note If the supervisor service controls multiple processes (TCOSS, TCLANPRT, TCFILBRK, TC/LINK, and more), all of them are stopped or started together with the service.

If processes are started by the supervisor service, they do NOT interact with the user interface. Hence, there is no trace output to screen and no input from keyboard or mouse.

Chapter 2

Config Program (WConfig)

This section describes the config program, that is, WCONFIG.

Overview

The config parameters control many functions of the TCOSS system. These system parameters are permanent once they are determined at the generation of a specific system of the client. In order to change the config-parameters the system has to be "re configured".

The config parameters are listed in so called config files and are loaded only once at the start of the system. Therefore, modifications of the config-files become effective only after a restart of the system.

The config files are not visible to the user, they do not appear in the contents listing and can be modified only with the config-program.

The config parameters can be divided into three groups:

- Parameters which apply to the whole system.
- Parameters which apply to one channel and affect TAM.
- Parameters which apply to one channel and affect the user module.

There are two different possibilities with different levels of complexity for configuring a system:

- Configuration by using a menu controlled help program (config program). This method is much simpler. It enables you to set the most important parameters so you can configure different "standard systems".
- Configuration by direct modification of the config-files (with a line editor also contained in the config program). This method can be used for "special systems"; however, it should be applied only by a software specialist.

Configuration with PC

With the MAKETCOSS for Windows software, it is possible to create and maintain configurations and to create TCOSS - disks on an IBM-PC or 100% compatible. Up to three 3,5" / 1,44MB (use HD - floppies) are required to install the operating system.

The concept of MAKETCOSS is that images of TCOSS-floppies for all customer installations are kept on this PC or even directly at the customer. This makes it unnecessary to store a lot of master disks. You can perform configurations or release updates on such an image. Utilities to transfer this image to or from TCOSS-floppies are included in MAKETCOSS.

Note The images on your hard disk contain no information about send orders.

Features of the MAKETCOSS for Windows software:

- The Config program runs under MS-Windows and supports direct installation of new TCOSS releases via the TCSI-network interface.
- Multiple program disks are supported for installation via floppy disk.
- The configuration can be downloaded to KCS or uploaded from KCS via TCSI interface during operation. Downloaded config files (via TCSI) can be viewed with TCfW.
- A configuration report can be generated.
- Envelopes with all kind of TCSI objects can be transferred via floppy disks now. There is restriction for the used file and folder name.
- Reading of the configuration from a floppy (former GETTCOS) is possible within the config program.

Installation of MAKETCOSS for Windows

MAKETCOS must be installed with the KCS setup.

1. Start **setup.exe**.
2. Select "MAKETCOSS".
3. Change the application directory if required (supported for MAKETCOSS only).
4. Click **Install**.
5. Follow the instructions of the setup program.

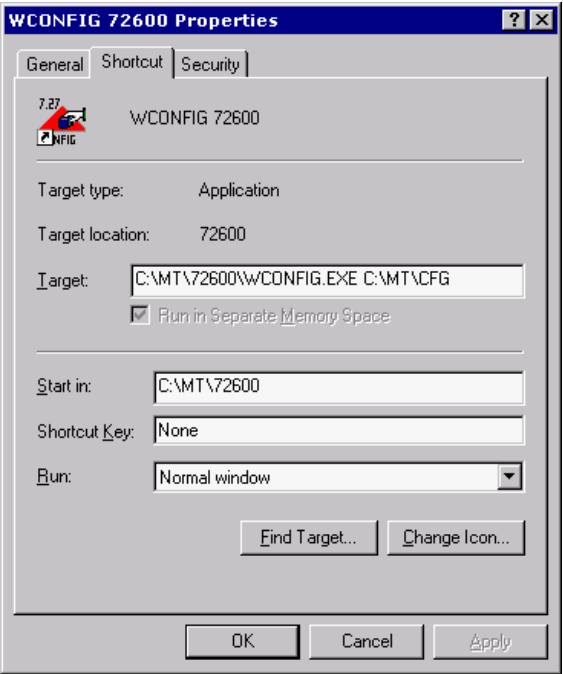
If a model/1xx or 2xx is installed or updated, you additionally have to select TCOSS during setup.

The new MAKETCOSS for Windows release is installed to the hard disk of your system, and a C:\MT directory is created. All information about customer installations as well as information about new TCOSS releases is stored in this directory. For example, the C:\MT\60500 sub directory contains all information about release 6.05.00).

If you have already installed a previous MAKETCOSS for Windows release only, a new sub directory (such as \70102) will be created.

6. Start your Windows and add the WConfig.exe file to a group on your windows desktop. If you use some installations very often you can create a special icon for configuration of this installation by copying the WConfig.exe icon (hold the CTRL-Key and drag the icon with your mouse) then edit the command line in that way that you specify an installation directory after the program name. Change

the name of the program icon to distinguish between different installations. The working directory definition will not be used. See the following figure for example.



WCONFIG.INI

This file must be located in your windows directory. If it does not exist, it is created with default values. It contains the following setup information.

```
[ ]
TCOSFLOPPY=TCSI/A:/A:
TEMPDIR=C:\WINDOWS\TEMP\
BACKUPDIR=C:\MT\BACKUP
TOPCALL=TCSI/YourServername/YourServerpath
```

Where

TCOSFLOPPY	Defines the used floppy drive for working with TCOS floppy disks.
TEMPDIR	Defines a directory for temporary stored files.
BACKUPDIR	Defines a directory where the TCSI (TC Client Server Interface) stores some backup files.

TOPCALL	<p>Defines the default KCS for installing a new configuration/release via the TCSI-network interface.</p> <ul style="list-style-type: none">• YourServername: This field is ignored.• YourServerpath: Specifies the path to KCS in the same way is PATH variable in the SERVER1 section of TOPCALL1.ini (such as "NETBIOS,KCS"). <div>Note This syntax does not allow to specify a path with link type "IPX/SPX" or "TCP/IP" as default path.</div>
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Folders and Naming Conventions

Within the config program TCSI folders are denoted in the following way:

TCSI/<name of the server>/<path to the server>/<foldername>

Example: TCSI/CONFIG/c:\mt\maier/PRIVAT

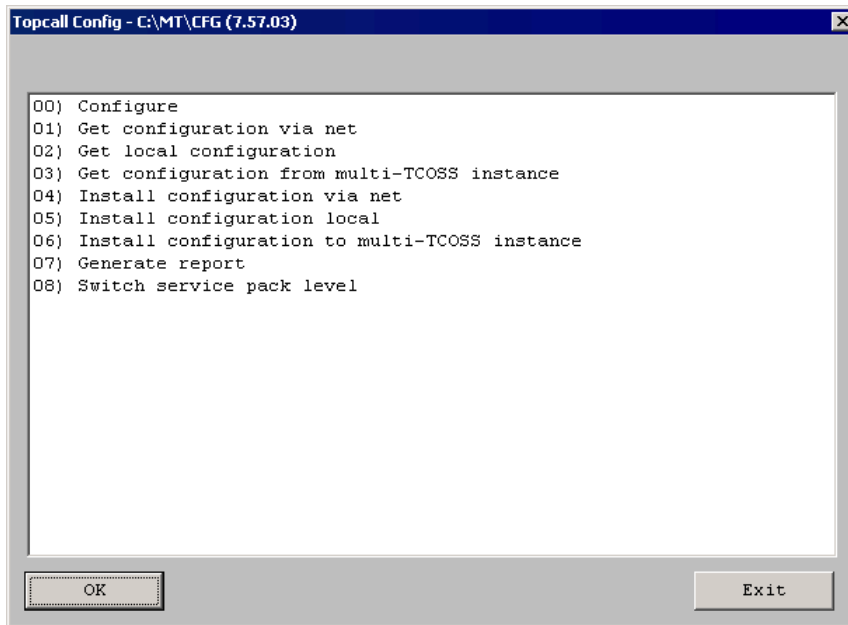
If only a DOS path is given, such as "c:\mt\maier folder" +TECH is used by default. It is assumed that the name of the server is equal to the name of the last subdirectory in uppercase letters and with no alphanumeric characters substituted by underlines. For example, c:\mt\abc\$d33 will contain the server ABC_D33.

Creating a New Installation Folder

When you use the WCONFIG program with a folder or subdirectory which does not exist, it asks you if it should create a new one. It uses the TCfW directory NEW which is located in the same directory which contains your WConfig.exe as a default.

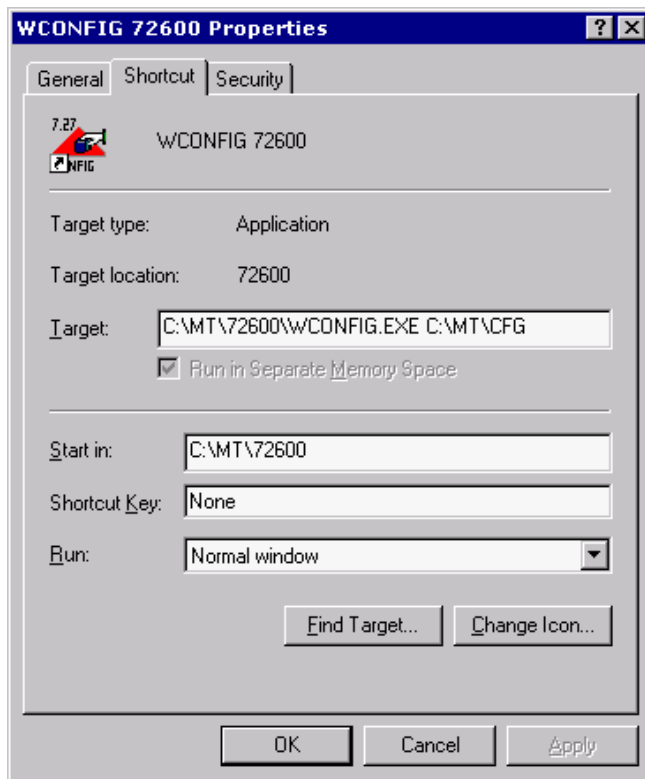
Get Configuration

You can get the configuration direct from KCS via TCSI by choosing the **"01) get configuration via net"** menu item from the main menu.



Release Update

A release update of an existing MT/WIN installation on hard disk is performed by changing the path to WConfig.exe as shown below. During the next start of WConfig.exe it compares its own release with the release number defined in file "+TECH\ASYSCONFCCC" of the used installation folder and updates the configuration if required.



Change release number here.

A configuration downgrade is not supported. We recommend that you back up the current configuration before update. During KCS setup, you must select both MAKETCOSS and TCOSS.

Updating an Existing MT/DOS Configuration

An existing MT/DOS installation (release 6.00 to 6.03) can be updated by reading the configuration from an installation disk or direct from KCS (via TCSI).

Updating existing configurations on the hard disk

1. Create an installation disk from the old version with, for example, "make -fuc a" (programs are not required).
2. Create a new installation with MT/WIN.
3. Read the configuration from floppy with menu item "get configuration from floppy".
4. If required, copy the user files from floppy to the installation folder with TCfW (requires KCS Client Applications 2.00.06 or higher).

Updating existing System via TCSI

1. Create a new installation with MT/WIN.
2. Read the configuration from KCS with menu item “get configuration via net”.
3. If required, copy the user files from floppy to the installation folder with TCfW.

User Files and Masks

The installation directory of a MT/WIN configuration has the same format as a local TCfW folder. To view or modify these files with TCfW you must do the following:

1. In the “create / add folder” dialog box, specify the installation directory. An additional entry is available in the folder menu. (folder name = directory name)
2. Open this folder and clear the selection criteria for the User ID.

All configuration files are available in the “+TECH” (shown as User ID) folder. You can view or print these files with TCfW. It is possible but not recommended to change it with TCfW (except “+TECH/ALOADERTABLE” for trace purposes).

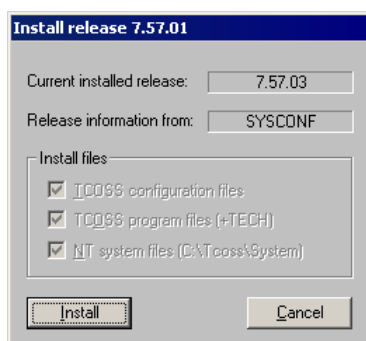
Note If a bad config file will be installed, KCS may stop with an internal error message.

User files and masks are available in the “+MAIL5V” folder. These files can be handled with TCfW. New files can only be created with TCfW release 1.08 or higher.

Restriction: Do not create files with User ID “+TECH” or “+USER”

Installing Configuration Local

The main menu of the WCONFIG program contains the “05) Install configuration local” line. If you select this line, the following dialog box is displayed.



If the installed release matches with the release of WConfig, you can select which files to install. If the releases are different, you always have to install all files.

Installing Configuration via Net

The main menu of the WCONFIG program contains the “**04) Install configuration via net**” line. The WCONFIG program may prompt you for KCS path, user name and password. This user must have write permission to the system folder.

If login is successful, you will get the same dialog box as described for [Installing Configuration Local](#). You may choose to copy the configuration, or both configuration and program files. But, Windows NT files are never copied. This means that release update must be done with "Install Configuration Local".

Note Windows program files (located in `C:\tcoss\system`) are not copied if Install configuration via net is selected.

If configuration changes are installed via net, the down time of the TCOSS server for configuration changes will be reduced.

If there are no changes both in common configuration parameters (SYSCONFCCCC) and in hard/software assignment, the affected channel and nodes can be reloaded by TCMON. In that case, the system is available without interruption during configuration changes. Refer to the *Kofax Communication Server Monitor Manual [7]* for further details.

How to Transfer User Files?

In addition to the config-files stored in the TCSI Folder for that installation, other files can be stored there. (Use TCfW to create a file, MYFILE in folder, FIS, in the DOS directory `C:\MT\TESTX`.)

The user files are all files stored in folders other than +TECH and +MAIL5V and all files in the folder +MAIL5V with less than 12 characters.

You can install these files as follows:

1. Use the **Write User Files to disk** menu item to copy these files to an existing configuration disk.
2. Install the user files a KCS with **Initial install to hard disk, delete all files on hard disk** or **Copy file(s) to hard disk**. You can do this manually or with an auto installation script.

User files on a floppy disk can be copied to a configuration folder with TCfW if the new TCSI, TOS and IP06 DLLs are used (provided with KCS Client Applications 2.00.06 or this TCOS release).

Working with MAKETCOSS for Windows

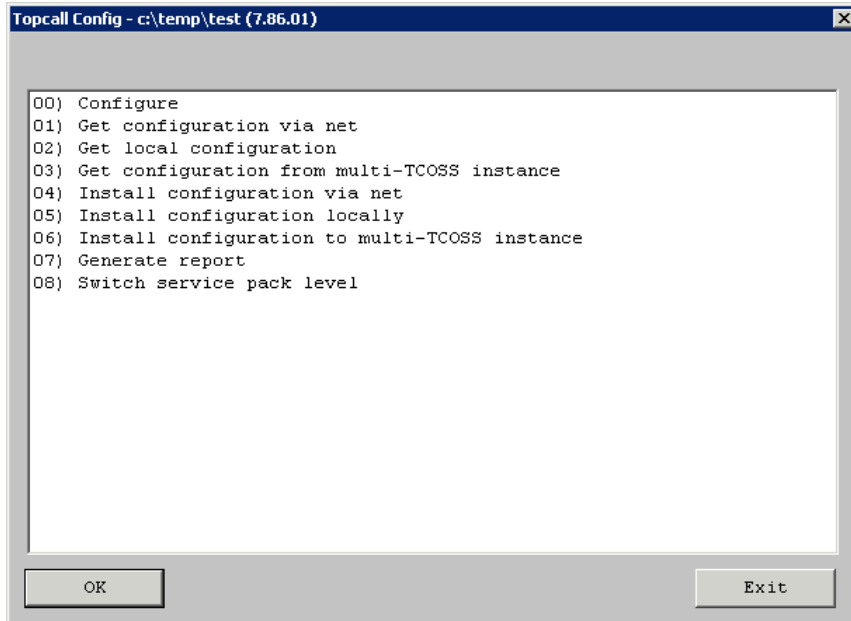
You can work with an installation by using one of the following programs:

- [WCONFIG](#) starts the config program under MS-Windows
- [CTC](#) copies files from/to TCfW Folder format.

WCONFIG

This section describes how to use WCONFIG.

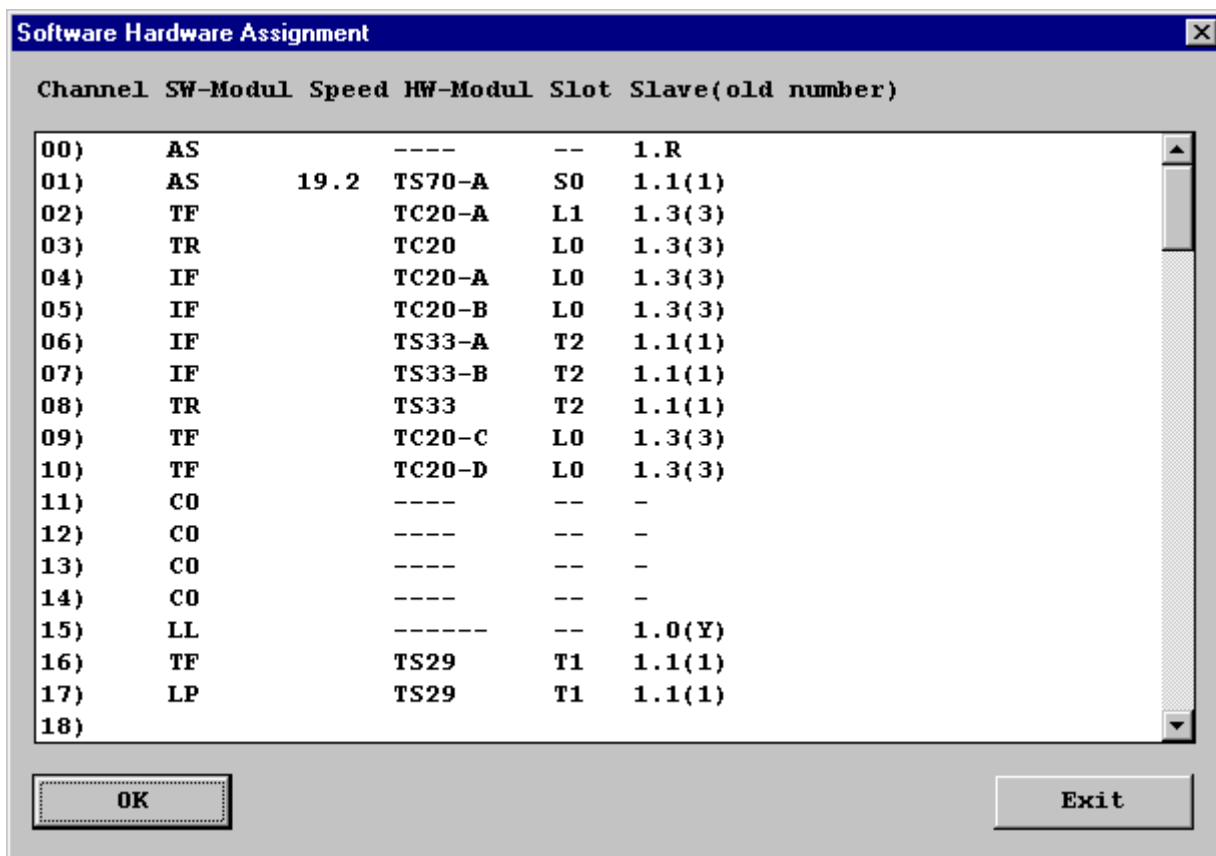
Main Menu



Software Hardware Allocation

The arrangement between the channel number, software module, hardware module, slot, speed and slave is indicated in menu branch 00.

See the following picture for example.

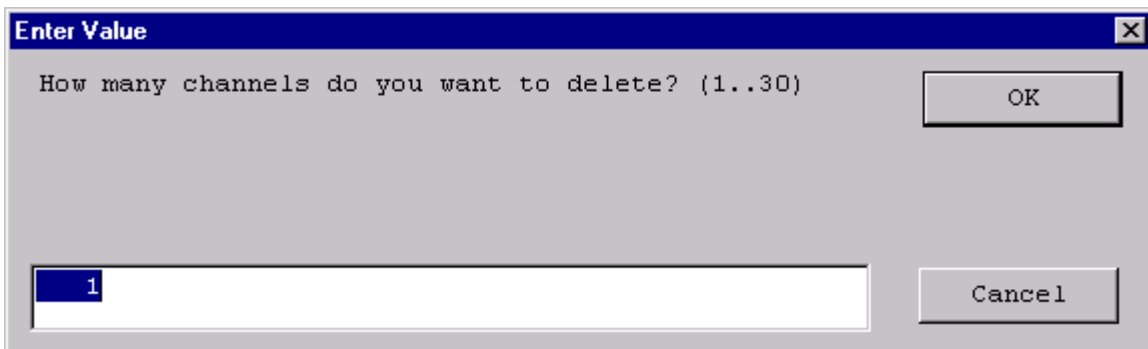
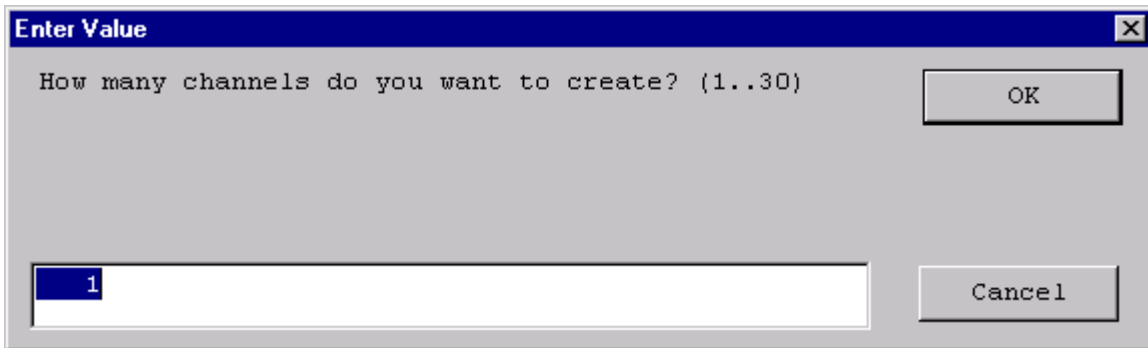
**Note**

- Modifying an existing configuration by assigning a software module to a channel erases the existing configuration even when the software module is the same one as before.
- For proper working of TCOSS, at least one non-client server channel (UC0) is required. Otherwise all send orders will stay in state of waiting.

Bulk Channel Creation/Deletion

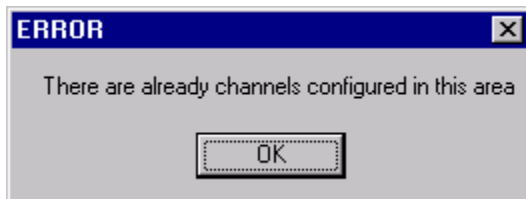
You can create or delete channels using the software hardware assignment.

Type how many channels to create or delete. The valid range is from 1 to 30. The default number is 1 even if you entered a different number in a prior operation.



The following semantics apply:

- These windows appear for creation or deletion of all types of channels. They are not limited to specific channel types.
- There must be enough consecutive free rows to create all channels. Otherwise, nothing will be created.



This limitation does not apply to delete operation. Delete just erases all channels in the specified area.

- When you create more than one channel at once using this dialog, all these channels will have exactly the same configuration.
- The first channel is not automatically set as the reference channel. If you want to configure a set of channels with a reference channel, first create the reference channel and then a number of channels at once with the specified reference channel.

Slave Numbering Scheme

Slaves numbers are denoted as `<m>.<s>`

`<m>` represents the number of the master server. Possible values are:

0	Primary server in normal system or standalone secondary server if primary server fails.
1	Primary server
2	Secondary server
L	See BranchBox configuration for details.

<s> represents the number of the slave. Possible values are:

1-4	1 represents the first possible slave (Model 15 Line Server) connected to the link with the lowest possible number (link 0 for Model 1xx, link1 for Model xx). Higher slave numbers mean higher link numbers.
T	This is a special slave number that denotes a TCTI connection of a channel and not a link connection.
0	A channel with slave number 0 runs on the master server and not on a slave.

Only a restricted amount of combinations of <m> and <s> are valid. For example:

0.T	Only valid configuration with <m> = 0 and <s> = T
1.4	<s> = 4 is valid only for a Model 155 (with <m> = 1)
2.<s>	Valid only for a Model 165 or a Model 65
<m>.0	Valid for UAS only
L.1	References a LanLink configured with the number 001

For further model specific restrictions refer to the description of the models in the *KCS Model/2xx Manual* [4].

Note For a Model 65/12 (a system with 2 TS0D boards), the 2 boxes are numbered '1.1' and '1.2', although they are a kind of primary/secondary master. This is to make the upgrade of the model easier and follows the rule that TS0D boards are always slaves.

For slaves connected to master 1 (numbers '1.<s>'), the leading master specifier ('1.') is optional and can be omitted. For example, '2' is equal to '1.2'.

If only 'T' is specified, the number is substituted to '0.T'.

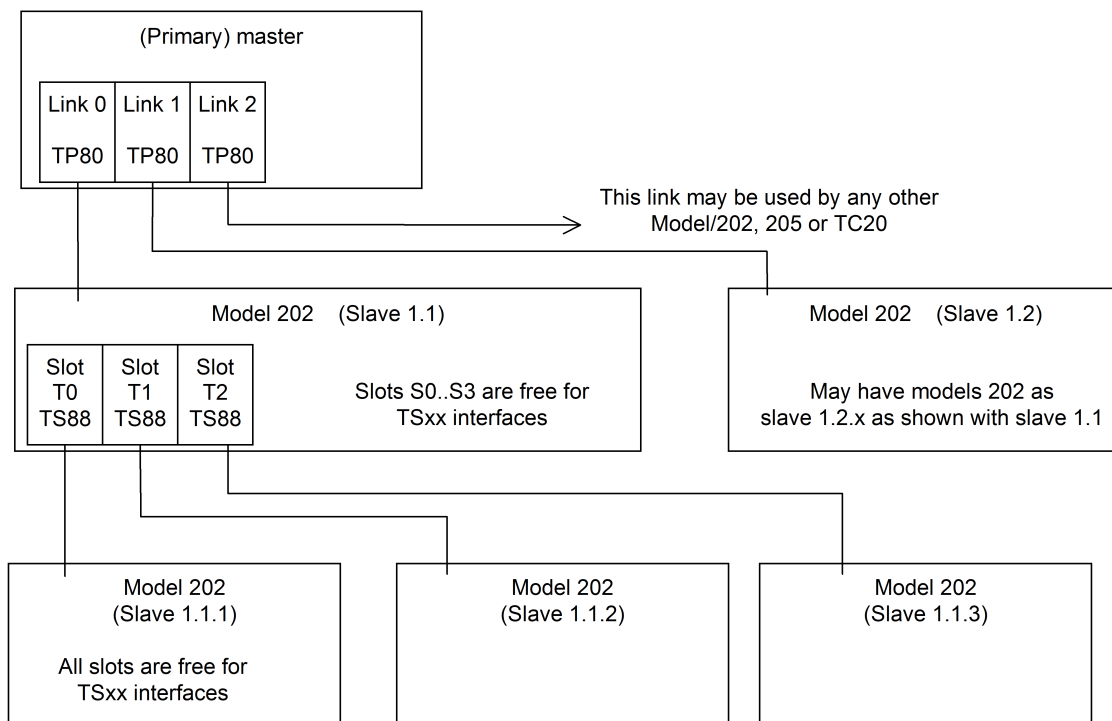
The slave number 0 is used for the UAS module only which runs on a master server and connects to one of its COM ports. The configuration of this UAS module (COM port number, ...) applies to only one specific master server, hence, only 1 or 2 should be specified as master server. With 0 the channel normally runs on the primary server and would switch to the standalone secondary server if the primary server fails. In this case the proper configuration for the primary master may be inappropriate on the secondary server and lead to unwanted results.

On the other hand, channels not bound to any special hardware, such as UASTCTI or UC0, may run on any master server (<m> = 0). In case the primary server fails, these channels switch to the standalone secondary server.

Note With a Model 165 or Model 65 the clients must use the alternate path feature of TCTI, because the path to the server changes after the primary server fails. This applies to TCLANPRT, TC/LINK, and others as well.

Chaining of Model 202

To increase the maximum number of Model 202 line servers additional models 202 can be connected to a model 202 via TS88 interface as shown below.



Sub-slaves are numbered using a path notation x,y,z, where:

- x is the master number (1=primary master, 2=secondary master)
- y is link used number (1=Link 0, 2=Link 1, and so on.)
- z is the used T-Slot number of the TS86 interface that connects the sub-slave with the slave. (1=T0, 2=T1, 3=T2)

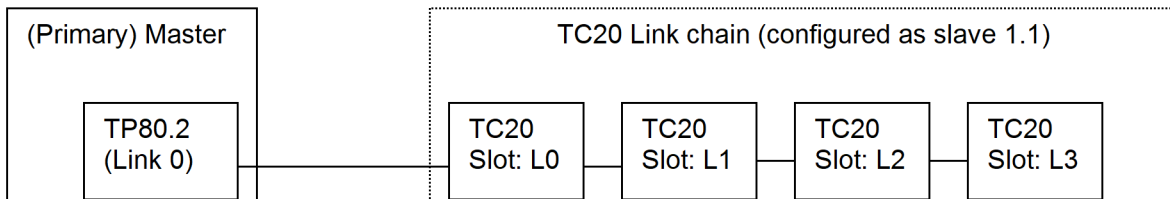
With the architecture shown above a theoretical limit of 24 models 202 (with a maximum of 150 S-Slot interfaces) can be used with model 22x. But, the maximum number of channels and licenses restricts this value to 176.

Each configured sub-slave occupies a T-Slot in the corresponding parent slave. All other slots in the parent slave can be used for interfaces. Even T-Slot interfaces are possible if the corresponding link chain is not used for a sub-slave. T-Slot interfaces in Sub-slaves are not supported.

TC20 Interfaces Numbering Scheme

The TC20 must be connected to a TP80.2 interface via transputer link cable. Up to five TC20 interfaces can be connected in a chain using only one TP80 interface. The interfaces are referenced as “L-Slots” depending on their position within the link chain as shown in the following example.

Since any TC20 chain replaces a whole KCS slave (TS0D) the link chain is labeled with the notation as used for slaves.



The interface modules (TC3x) which are put on each TC20 interface are not explicitly configured. You just have to choose the appropriate software module (UTF or UIF).

Hardware	Supported fax software module
TC31 (E&M interface)	UTF with E&M configuration
TC32 (analogue interface)	UTF with a/b configuration
TC33 (ISDN interface)	UIF

Since one TC20 supports up to two TC3x modules there are 4 channels that can be used in the hardware/software assignment.

Hardware	Location
TC20-A	First channel on first module
TC20-B	Second channel on first module
TC20-C	First channel on second module
TC20-D	Second channel on second module

All other modules (ULL, UAS) can be used on TC20 in the same way as with TS29/32/33.

BranchBox Configuration

A BranchBox is basically a line server where the optical link connection TP80/TC81 to TC81 is replaced by an Ethernet network connection. Therefore, one or more TC15 interfaces are installed in the BranchBox.

A permanent TCP connection between TCOSS and TC15s of a BranchBox must be available. TC15 acts as a TCP server; TCOSS connects as a TCP client to TC15. If there are any routers, gateways, firewalls, and more, they must be configured accordingly.

Note A minimum network-performance of the TCP-connection must be guaranteed. The maximum one time 'Round Trip Time' of the connection between TCOSS and TC15 must not exceed 1000 msec at any time. The available bandwidth must be at least 30kBits/s for each configured channel. For example, 60kBit/s for 2 channels.

Available LAN performance can be assessed using KCS tcpMeter (see BranchBox Product Description) before installation. For simple tests, ping can be used to get a first impression.

To connect a BranchBox, the following actions are necessary in TCOSS:

1. With WCONFIG, configure the modems located in the BranchBox as usual (UTF or UIF SW-Modules), but with a separate Lan - Link number for each TC15 (L.1...L.176).
2. Create the following registry keys in primary and secondary server of a Tandem System to give TCOSS the possibility to access the BranchBoxes via network:
 - HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\LINK\LAN001 (=L.1)
 - HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\LINK\LAN012 (=L.12)
 - HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\LINK\LAN023 (=L.23)
 - HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\LINK\LAN176 (=L.176)

Value: IPtoConnect

Type	Default	Description
REG_SZ		IP Address of BranchBox (xxx.xxx.xxx.xxx).

Value: IPorttoConnect

Type	Default	Description
REG_DWORD	0x1388 (=5000)	IP Port of BranchBox.

Value: Password

Type	Default	Description
REG_SZ	No default	Each BranchBox has a password to verify if the user has a right to send to it. Type the password here. After the first run of TCOSS it will be encrypted.

Value: Priority

Type	Default	Description
REG_DWORD	1: For secondary server and single server 2: For primary server of Tandem System	Priority level to connect to TC15. Set to 2 for primary server of a Tandem System. (Priority of TC15tool is always 0). A BranchBox always accepts a connection attempt with a higher priority than the current. Only the first connection attempt with the same priority setting will be accepted.

Value: MaxBootBandwidth

Type	Default	Description
REG_DWORD	0	<p>Defines the maximum bandwidth in bytes per second that is used during loading program code (TC20.rsc file) to branch box.</p> <ul style="list-style-type: none"> • If set to 0, the boot bandwidth is unlimited. • If the bandwidth limit is used, the value must be between 100 (100Bytes/s) and 1000000 (1MByte/s). <p>Usually you do not need to specify this registry value. Change only in case of issues, such as to boot a BranchBox to 6000.</p>

Value: TxOptimization

Type	Default	Description
REG_DWORD	1	<p>Defines how TCOSS optimizes the transmission of data on the TCP/IP connection. The following three values are supported since TCOSS 7.85.03:</p> <ul style="list-style-type: none"> • 0: Use Nagle's algorithm which tries to avoid small network packets. Take care that this mode may cause addition transmission delays. • 1: Transmit the data without delay whenever the sending queue gets empty. This mode provides the same performance as mode 2, but avoids series of very small network packets. It is the default mode. • 2: Transmit all data packets without delay. <p>Remark: TCOSS 7.85.02 or older do always use mode 2.</p>

Tandem Systems: Branch Box registry keys must be configured in primary and secondary server of Tandem Systems with a higher priority level at the primary server. Thus during normal operation and in case of a desync condition, a BranchBox will connect to the primary server. Only in case that the primary server cannot connect to the BranchBox the connection of the secondary server will be accepted by the BranchBox.

WAN connections to LS1: If you want to use many channels over a WAN connection, you should check the TCP/IP window size of your system with the following registry value:

Key: HKLM\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\

Value: TcpWindowSize

Type: REG_DWORD

It is recommended to set this value to 0xfaf0 if the turn-around trip time exceeds 40ms. See Microsoft knowledge base article 224829 for more details about this value.

Model 202-LAN (TS15) Installation and Configuration

A TS15 is basically a line server where the optical link connection TP80/TC81 to TC81 is replaced by an Ethernet Network connection. It is comparable to a usual BranchBox with the difference that only TS interfaces for Telex or Asynchronous lines, such as TS20, TS22, TS70, and more, can be configured.

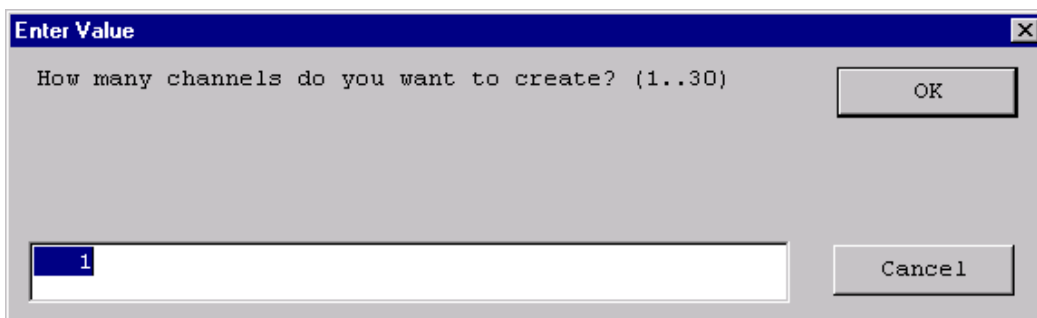
Configuration in WConfig

With WCONFIG, configure the channels located in the TS interfaces as usual (UTX or UAS SW-Modules), but with a separate Lan - Link number for each TS15 (L.1...L.176).

Important In WConfig, you can enter a Remote Control Type for UIF, UTX and UTF modules. Enter 00 for BranchBox or TS15 Support. All other values are for ASP Support.

If you have a TS15 in the LAN with the IP address in the LAN001 registry key, then you can refer to this TS15 as L.1 in TCOSS and WConfig. If you have a TS20 in the TS15 L.1, you create a Telex channel as follows.

1. Enter the Software – Hardware assignment, select an empty channel number and then choose TX.



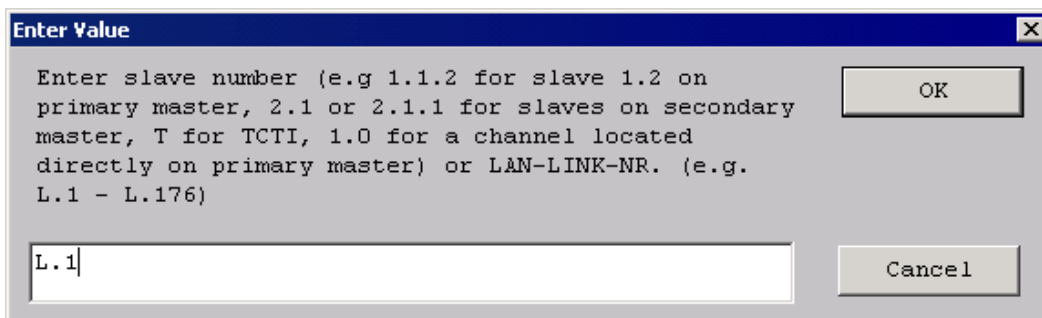
Enter Value

How many channels do you want to create? (1..30)

1

OK Cancel

2. Enter the number of channels to create. See [Software Hardware Allocation – Bulk Channel Creation/Deletion](#) for details.



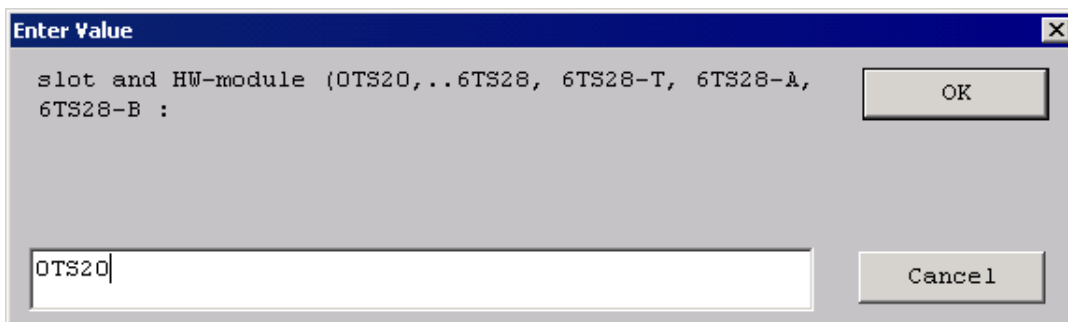
Enter Value

Enter slave number (e.g 1.1.2 for slave 1.2 on primary master, 2.1 or 2.1.1 for slaves on secondary master, T for TCTI, 1.0 for a channel located directly on primary master) or LAN-LINK-NR. (e.g. L.1 - L.176)

L.1

OK Cancel

3. Enter the Lanlink associated to your TS15 (that is, L.1).



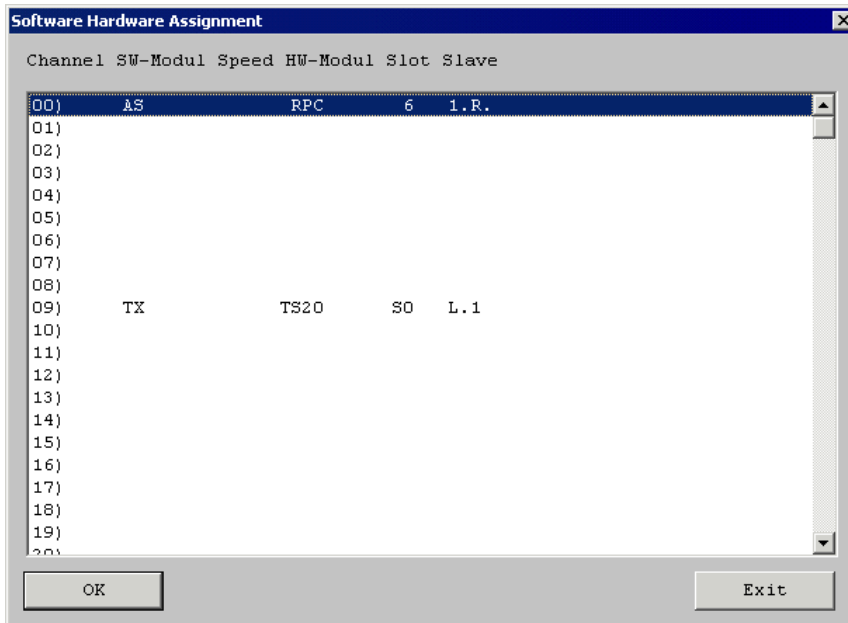
Enter Value

slot and HW-module (0TS20,..6TS28, 6TS28-T, 6TS28-A, 6TS28-B :

0TS20

OK Cancel

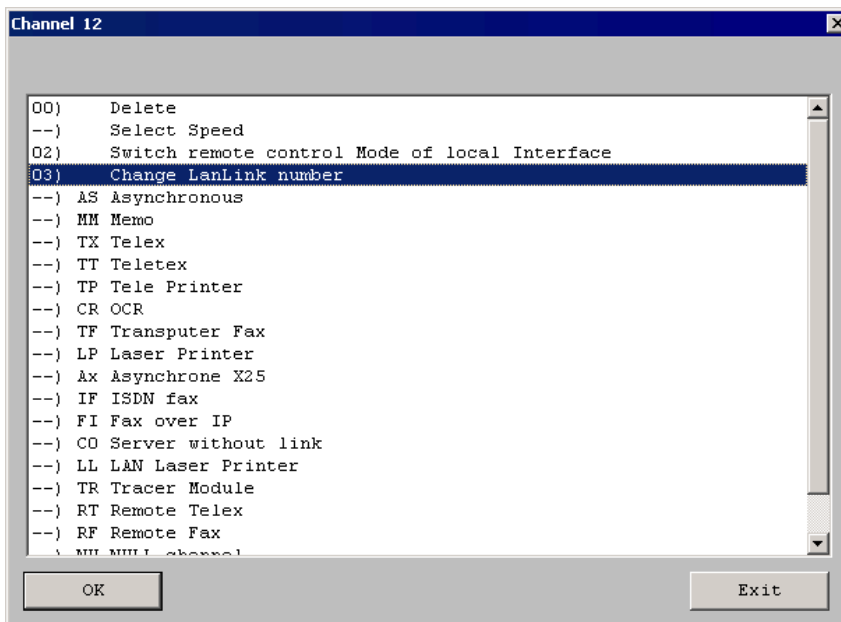
4. Enter the type of hardware (TS20) and the slot where it is located (0). TS20 interface gets configured on an L-path.



Changing Lanlink Number of Existing Channels

You can change the Lanlink number of existing channels configured on L-paths.

1. Enter the Software – Hardware assignment and select the channel to change (OK or double-click). The following menu appears.



2. When you select **03) Change LanLink number**, you are prompted for the new number.

Refer to *BranchBox Product description*, *TC15 Hardware documentation* and *Model 305 LineServer Manual* for further details.

Handling of Lost Connections Between Interface and TCOSS Server

If the interface detects that the connection to its master is not available, it falls into an error state that initializes its hardware as described below:

1. Layer 1 (and above) of BRI and PRI are deactivated.
2. Analog fax lines goes on-hook.
3. E&M lines goes inactive (like power-off).

The detection uses keep-alive messages that were send from the TCOSS master to each Interface in a regular interval (registry value `trpKeepAliveInterval`). If any interface does not receive a keep-alive message within an specified time (registry value `trpKeepAliveTimeout`), it expects that the connection to its master is missing and falls into an error state.

The keep-alive parameters can be changed with the following registry values:

Value: `trpKeepAliveInterval`

Type	Default	Description
REG_DWORD	0x1e (=30s)	Time between Keep Alive Messages in seconds. If this value is set to 0, no keep alive messages are send

Value: `trpKeepAliveTimeout`

Type	Default	Description
REG_DWORD	00x64 (=100s)	This is the maximum time between consecutive keep-alive frames. If this time is exceeded at any interface, the appropriate interface falls into an error state. The difference between <code>trpKeepAliveInterval</code> and <code>trpKeepAliveTimeout</code> defines the maximum excepted delay between keep-alive frames from the master to any interface. If the a interface is disconnected it may take up to <code>trpKeepAliveTimeout</code> seconds until this problem is detected.

Copy Configuration

If you want to expand your system with an additional interface and you have used such an interface previously, you can use this feature to the configuration of the existing channel to the new one.

1. Assign a hardware channel to the new interface using the 'Software-Hardware assignment'.
2. Select the **copy configuration** item from the main menu.
3. Specify a channel you want to copy from and the channel you want to copy to.

Note It is not possible to use the 'copy configuration' item between incompatible modules.

Standard Configurations

In some menus, standard configurations exist (such as for TS 72 or TC/PC).

If you call up a "standard configuration" and you are not configuring from a new installation, delete that channel first and create it new in the menu software-hardware allocation.

This will make sure that the "device standard configuration" is based on the overall standard configuration of that channel.

Line Editor

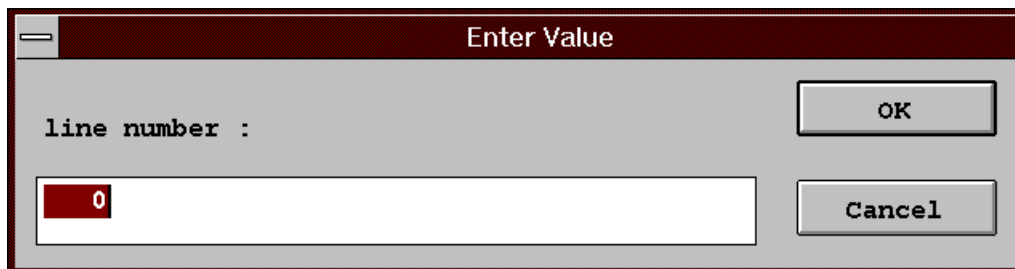
Each sub menu for module configuration and the menu for system configuration contain the choice "line editor". With this choice, you can edit the config-files line by line.

The line editor in the menu "operating system, system parameters" is used to select the file "A:SYSCONFCCC"; the line editor in the sub menus for module configuration is used to select the files "A:TAMCONFxxC" (xx - channel number and reference are set automatically).

The behavior of the line editor in conjunction with the all channels feature has been changed. Only the positions which are changed in the line editor will be changed on all other channels. Attention: This may lead to the following, possibly unwanted effect:

Note If a line in one channel contains, for example, ":AA" and in another, for example, ":BB", and the line in the first channel is changed to ":1A", the line in the second channel is only changed to ":1B".

1. Select the choice 'line editor'. The following message appears on the screen.



2. Select a line by entering the line number (1...3 positions). The line is then displayed on the screen.
3. The line can now be retyped. If the new line is shorter than the original one, the last positions remain unchanged (such as return only = no change). Lines being too long are automatically shortened. The line may be entered with ASCII (first character ') or hex format (first character :). For example, inputs '0, and :30 are equivalent.
4. If you do not want to change the left-hand positions in a line you can pass over with the arrow keys.
5. Click **Cancel** to exit the line edit mode.

Note If the line editor has been reached via choices 5..9 of the main menu (all telex channels), all corresponding TAMCONF files are edited simultaneously.

In this case, it is not possible to change channel specific config parameters (SIO addresses, line 51 of telex module configuration, line 52 of asynchronous module configuration). (To change these parameters, call up the line editor via choice 3 (single channel) of the main menu). In addition, all config-files of the corresponding channels are newly created; this means specially configured files are lost.

Configuration of Channels

The menu branches 3) - 11) enable you to configure the channels; the most important values for the respective config-file are requested with menu control. Exiting a menu branch automatically creates the corresponding config-files.

When selecting items *"all xxxxx channels"* in the main menu, the module with the lowest channel number is configured as in single channel mode. Values entered are set in all modules of the same type. Items for which no value is entered remain unchanged, and may be set to different values. (Only the setting of the first channel is shown).

Configuring Asynchronous Channels

The maximum speed of an asynchronous channel can be configured in the software/hardware assignment menu. Possible values are:

- 1,2kbaud
- 2,4kbaud
- 4,8kbaud
- 9,6kbaud
- 19,2kbaud
- 38,4kbaud

Note You can configure a maximum speed of 60kbaud on a TS0C/TS0D main board.
The config program does not allow any configuration with a maximum speed over 60kbaud.

Example of a configuration:

- 1 AS channel with 19, 2kbaud
- 3 AS channels with 9,6kbaud
- 2 AS channels with 4,8kbaud

Tip For optimum performance of the system, the configured speed should be the same as the jumper settings on the TS70. If the configured speed is too low, an internal error may occur.

Various standard code tables are provided which allow a conversion to the following national ASCII character sets:

- USA
- Austria / FRG

- Switzerland (IBM)
- Switzerland (Olivetti)

In addition, you can select a 1-to-1 table so that no conversion is carried out.

The indicated selection applies to the output code table as well as the input code table.

An overview of the conversions is given below in the standard code tables. For this purpose we have diagrammed the allocation between national the different by ASCII code characters in the TCOSS code. This allocation is unambiguous; in other words it applies to the input as well as to the output.

All characters not shown below are converted in all standard output code tables as follows.

TCOSS - code	ASCII - code
Hex 00 - 1F 20 - 7F 80 - FF	are not used in the TCOSS-code, cause no output no conversion cause the output of a '.' (hex 2E)

The standard input tables are set up so that the 8th bit of the read-in character is not relevant (2 identical partial tables within the area 00-7F and 80-FF). The conversion of the characters within the area 00-1F or 80-8F serves to control the conversion of the character stream to TCOSS-lines.

ASCII-code control char.	TCOSS control char.	Designation
Hex 08, 88 0D, 8D 7F, FF	Hex 0F 12 0F	destructive backspace LF2 destructive backspace

Allocation of national ASCII characters to TCOSS characters with standard code tables.

ASCII Code	TCOSS Codes							
	USA		Austria Germany		Switzerland (IBM)		Switzerland (Olivetti)	
	Hex	Char.	Hex	Char.	Hex	Char.	Hex	Char.
23	23	#	23	#	9C	£	9C	£
40	40	@	C1	§	C1	§	87	ç
5B	5B	[	8E	Ä	85	à	85	à
5C	5C	\	99	Ö	87	ç	82	é
5D	5D	]	9A	Ü	8A	è	8A	è
7B	7B	{	84	ä	84	ä	84	ä
7C	7C	:	94	ö	94	ö	94	ö
7D	7D	}	81	ü	81	ü	81	ü
7E	7E	~	E1	ß	82	é	7E	~

Restrictions for Numbering of Channels

- The channel number of a teletex printer must be greater than the channel number(s) of the teletex channel(s) which are connected to the same TS24 (TS25) interface.
- The Transputer slot number of a transputer link adapter (laser printer, fast asynchronous link) must be one of the last three configured transputer slots. This restriction is only valid during configuration. For example, order of configuring channels is important.

TF	T0
TF	T1
TF	T2
TF	T3
TF	T4
LP	Can only be connected to T2, T3 or T4

TF	T0
LP	T0
TF	T1
AS	T1
TF	T2
TF	T3 (is no more possible (LP in T0!))

- The number of transputer link adapters is limited to three (3) units.

Memory Requirement Analysis

A memory requirement analysis is performed during exiting the CONFIG program. All transputer based hardware modules (T-Slot cards, such as TS80, TS0D or TS0C) which occupy by the software more than a limited memory capacity will be displayed (including the memory requirement).

These limits are set for the memory test to the following values.

TS0D/0C	800k
TS29	970k
TS80	1600k
TS82	3880k

Note Displaying of a module is only a warning because the hardware memory on board is larger than the value used for the memory test.

If the displayed required memory is larger than the memory on board, you must reduce the number of channels configured for this slave or slot, or upgrade the RAM.

Note The memory calculation done by MT/WIN is designed to give a rough value about the needed memory. Installations should be configured with a minimum reserved memory of about 100k. This is useful to avoid problems occurred by an inaccurate calculation or after an update if the new release needs more memory.

A typical output could look like this.

Memory Usage			
TYPE	SLOT	SLAVE	MEMORY (k)
TS80			3445
TS0D		1	1125
TS0D		2	1005

Note TS0D will be displayed although a TS0C will be used.

Remark: Add 70 Kbytes to the value of TS0D memory requirement for each loaded script program.

Example: Output of memory requirements analysis:

TYPE	SLOT	SLAVE	MEMORY (k)
TS0D		1	3950

This means that memory of 3950 Kbytes will be occupied. This warning is displayed because the value is larger than the test value (800 Kbytes). No correction need to be done because a TS0D has a 4MB RAM on board (=4096 Kbytes). The shown value should not exceed 3950 Kbytes.

In case you configured one asynchronous channel to load a script program add 70 Kbytes to the displayed the memory requirements what results in 4020 Kbytes memory. In this case you must change your configuration.

Tip The most efficient way to save RAM is to keep the configured number of mail entries (send orders) and number of files as less as possible.

CTC

If CTC is started with parameter "!", (for example, "C:\mt\70809\ctc.exe!") a window opens. With this window, single files can be copied to or from a local TCfW folder or direct to or from KCS via network.

Copy to Local TCfW Folder Example

1. Copy a new TS0d.RUN file into the program folder of Maketccoss 7.08.09. Assume that the file is located at: C:\temp.

The screenshot shows the 'CopyTCTI' dialog box with the following fields and options:

- TCSI/SERVER/PATH/FOLDER:** IG/C:\MT\78400\PRG\+TECH
- TCSI Filename:** MAINPROGRAM
- TC to DOS:** ☐ (unchecked)
- Binary:** ☒ (checked)
- DOS Path and Filename:** c:\temp\ts0d.run
- Buttons:** OK, Cancel

2. Change the TCSI/SERVER/PATH/FOLDER field to TCSI/CONFIG/c:\MT\70809\prg\+TECH
3. The **TCSI Filename** field contains the filename without first character (drive letter). The first character is always "A".
 - Select Binary, if you want to copy program files. Text mode supports only pure ASCII text, such as Configuration files. Images or all other ++ control lines are not supported.
 - If TC to DOS is selected, the file is copied from the local TCfW folder to the specified file name (C:\temp\ts0d.run in the example above).

You can use WConfig (install local, select "configuration and program files") to copy the new file to KCS.

Copy via Network Example

1. Copy a new TS0d.RUN file to KCS via network to KCS via network. Assume that the file is located at: C:\temp.

The screenshot shows the 'CopyTCTI' dialog box with the following fields and options:

- TCSI/SERVER/PATH/FOLDER:** ONFIG/NETBIOS,KCS/+TECH
- TCSI Filename:** MAINPROGRAM
- TC to DOS:** ☐ (unchecked)
- Binary:** ☒ (checked)
- DOS Path and Filename:** c:\temp\ts0d.run
- Buttons:** OK, Cancel

2. Change the TCSI/SERVER/PATH/FOLDER field to TCSI/CONFIG/NETBIOS, KCS/+TECH

3. The TCTI protocols and transport types are taken from TOPCALL1.ini in the windows directory.
 - Select Binary, if you want to copy program files. Text mode supports only pure ASCII text, such as Configuration files. Images or all other ++ control lines are not supported.
 - If TC to DOS is selected, the file is copied from the local TCfW folder to the specified file name (C:\temp\ts0d.run in the example above).
 - If only one protocol is defined in TOPCALL1.ini, the protocol, such as "NETBIOS," is optional.
 - If TCP/IP or IPX/SPX protocol is required, you have to define only this protocol in TOPCALL1.ini and specify the path without protocol name.
For example, TCSI/CONFIG/KCS/+TECH

Note "/" is used as delimiter between path and folder name => it must be part of the path,

- User "CTC" with password "CTC" must exist on KCS.

Chapter 3

Config Files

This section describes the config files.

Setup of Config Files

A config file consists of a sequence of config-lines. Every config-line defines a config parameter; one config parameter can consist of several config-positions. A config position is the smallest unit and is either an ASCII character or a binary value between 0 and 255 represented in hexadecimal notation.

Setup of a config line

The 1st character contains the format information:

'	Line in the ASCII format, such as 'X01AB, Every character defines a config-position.
:	Line in hex format, such as :01 02 03 1F, Two characters are transformed into a byte that defines the config-position; they must be separated by a blank. Note The line is closed with ';' and any text after this character is ignored and can be used as comment.

Special line

'TUM'	All subsequent lines are config lines for the user module of the channel, all preceding lines for TAM.
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The next sections give a detailed description of all config parameters. For each parameter, we have indicated the line number in the config file where it has to be set, its number of config positions, its meaning and its possible values.

Common Config Parameters (SYSCONF)

Config line	No. of positions	Meaning
1	0	Reserved
2	5	Receiver for automatic log file printout

Config line	No. of positions	Meaning	
3	1	Erasability of the send order for the log file printout	
		'0'	Send order created with 'automatic log file printout' cannot be erased
		'1'	All send orders for log files printout can be erased

Config line	No. of positions	Meaning	
4	1	Outgoing fax number conversion options	
		'0,	Never remove any digit
		'1,	Remove digit '0' in special cases (Default; compatible to TCOSS 7.47.06 and lower)
		If the "remove digit zero in special cases" option is enabled, the digit zero is removed if it is found immediately after an opening parenthesis, if there are digits before this opening parenthesis and if the closing parenthesis is not at the very end of the number string.	

Config line	No. of positions	Meaning	
5	24	TCOSS Version number, such as 'Version 7.96.13' The version will be changed by WCONFIG. It is used as TCOSS Version info in, for example, TCMON and +STATUS.	

Config line	No. of positions	Meaning		
6	1	Acceptance of the command '..CMDON', Log all send attempts if recipient user does not exist.		
		Value	Acceptance of the command '..CMDON'	Log all send attempts if recipient user does not exist
		'0'	No	Yes
		'1'	Yes	Yes
		'2'	No	No (compatible with TCOSS < 7.41.00)
		'3'	Yes	No (compatible with TCOSS < 7.41.00)

Config line	No. of positions	Meaning	
7	1	Own node	
		'A,...'Z, and '0,...'9,	Own node for all channels (overrides setting in channel configuration)
		' ', (space)	Take node setting from channel configuration
		'A,	Node 'A'= default

Config line	No. of positions	Meaning	
8	2	pos 1	Number of days for cyclical erasure of log files
		00	No cyclical log file erasure
		01	Keep only log files of the current day
		02...FF	Keep log files for 2.....255 days
		pos 2	Advanced end of chain detection in short-term archive
		01 (=def.)	No
		03	Yes
<p>Advanced end of chain detection: If the last entry of a chain is found, the system continues the search operation with the standard algorithm. This is slower but guarantees that all existing entries are found even if their chained list does not exist. (workaround for error #4262) If a matching older entry is found, all further entries are again searched with the optimized chained list.</p> <p>Note If this feature is enabled, the short-term archive always searches from the oldest entry in the users out-box until the oldest entry in the whole short-term archive. This means, when opening the out-box of users with less entries, you may get several times the message box "Continue Search" after the last archived entry. Also, the description above is applicable to selection with field "to" of all terminated messages in inbox.</p>			

Config line	No. of positions	Meaning	
9	2	Drive and reference for system error messages	
		pos 1	Partition drive for error messages (A or B)
		pos 2	Reference for error messages (number series A to Z)

Config line	No. of positions	Meaning	
10	4	Description of configuration tool, TCOSS model and codepage	
		pos 1	Shows which tool is used to manage TCOSS configuration
		0D	WConfig
		1D	EasyConfig
		Note Only the first digit is relevant (0/1).	
		pos 2	TCOSS model
		05	For model 125 or 145
		06	For model 155 or 21x (default)
		07	For model 165 or 22x or 32x

Config line	No. of positions	Meaning	
		pos 3 & 4	
		00 00	TCOSS 0 (default; western European languages)
		00 01	TCOSS 1 (eastern European languages)
		03 A4	Japanese (decimal 932)
		04 E3	Russian (decimal 1251)
		03 A8	Chinese (decimal 936)
			It is recommended to use code pages 0 or 1 whenever possible for a language. Using Windows code pages other than those listed is possible. This code page applies to all TCSI fields except text in text blocks (Text blocks without code page information are always threaded as TCOSS 0 or TCOSS 1 according to the channel configuration).

Config line	No. of positions	Meaning
11	5	UCR memory file format, such as: '500, it contains the release of the first release that uses this format

Config line	No. of positions	Meaning
12	4	Reserved, do not edit this line. It was used in old TCOSS versions to calculate disk space. This functionality is not used anymore.

Config line	No. of positions	Meaning	
13	16	Permanent store capacities (16-bit unsigned values, MSB = most significant byte = first)	
		pos 1,2	Maximum number of mail entries / 1000 entries
		00 00	Automatically set to 5% of entries of Mail area, minimum 3000, maximum 50 000 entries
		00 01 .. 07 D0	1000 .. 2 000 000 entries Default 00 00 = auto-set
		pos 3,4	Size of log file (short-term archive)
		00 00	Automatically set size to: 5MByte + 4% of Mail area, (Size is limited to 2047MByte)
		00 01 .. 0F A0	Size in Mbyte
		pos 5,6	Maximum number of user entries / 1000 entries

Config line	No. of positions	Meaning		
			00 00	Automatically set to number of entries of user area where 50% of entries above 100000 are considered.
			00 01 .. 00 FA	1000 .. 250 000 user entries Default 00 00 = auto-set
		pos 7,8	Maximum number of address book entries / 1000	
			00 00	Automatically set to max. number of user entries plus 10%
			00 01 .. 0F A0	1000 .. 4 000 000 entries Default 00 00 = auto-set
		pos 9,10	Maximum number of registrations / 1000	
			00 00	Automatically set to max. number of user entries plus 2000 or disk space in GB * 5000, but not more than 500000, whatever is larger.
			00 05 .. 40 00	5000 .. 16 384 000 entries Default 00 00 = auto-set
		pos 11..16	Reserved	
			Note If value 00 00 = auto-set is used in any of these positions, any change of the disk partitioning with the TC/Disk tool may result in automatic changes to the maximum number of mail entries, users or address book entries. This may cause problems if the maximum numbers are decreased below the actually used numbers and TCOSS may fail to start-up.	

Config line	No. of positions	Meaning
14	40	Possible TCSI releases which are allowed to communicate with KCS. A "+" in front of a release number means that all higher versions/releases are supported. Example: 1.04.02 +1.05.00

Config line	No. of positions	Meaning
15	40	Possible TCfW releases which are allowed to communicate with KCS. A "+" in front of a release number means that all higher versions/releases are supported. Example: +1.08.03

Config line	No. of positions	Meaning
16	1	Separation character between node and userID in KCS address. 00= node of KCS address not included (default) For example, 2D= node included, node and user ID separated by "-" Model: ts_tc_node + sep. char. + ts_tc_userid + ":"

Config line	No. of positions	Meaning	
17	1	Document converter level flags	
		00	No document conversion (default)
		04	Digital signature insertion
		08	Root XML detection

Config line	No. of positions	Meaning	
18	8	pos 1	Year with 2 or 4 digits in Log File Header
		00	Year with 2 digits in log file header (as with previous releases, standard configuration)
		01	Year with 4 digits in log file header
		pos 2	cost center table format
		00	10 positions cost center (compatible to versions before TCOSS 7.40.00)
		01	42 positions cost center (last 30 positions unused, filled with spaces) Note This position is not automatically changed from 00 to 01, if a release update from a version previous to TCOSS 7.40.00 to TCOSS 7.40.00 or higher is done, but it is 01 by default on new installations with TCOSS 7.40.00 or higher.
		pos 3	queue monitoring check cycle
		01 ...FF	Check cycle 01 ...255 seconds
		00	Program default check cycle 60 seconds
		pos 4	flags for subject / group filter in mail folder
		00	Subject of received messages suppressed in mail folder (compatible to versions before TCOSS 7.46.10); strict filtering and rights check on groups
		01	Subject of received messages always visible
		02	Add wildcard to group filter in mail folder, e.g. filtering on "group1" works like "group1*"
		04	Extend list rights to all subgroups e.g. rights to "group1" allow access to "group1*"
		pos 5-8	reserved

Config line	No. of positions	Meaning	
19	8	pos 1	Dial-by-name flags

Config line	No. of positions	Meaning	
		00	Use program default (selects full name only, default)
		01	Take full name for dial-by-name search
		02	Take recipient ID for dial-by-name search
		03	Take both full name and recipient ID for dial-by-name search
		pos 2	Write log entries for TC/MA
		00	No (default)
		01	Write SUBMIT log entries
		02	Write ACTION log entries
		03	Write SUBMIT and ACTION log entries
		pos 3	Cost center option flags (hex values, to be added up)
		00	No (default)
		01	Set cost center from recipient's user profile as default
		02	Set cost center from recipient's user profile as first choice
		04	Suppress cost center default from subject field
		08	Suppress cost center default from document reference
		10	Do not set cost center of in-events
		pos 4	Least cost routing options
		00	LCR messages not archived on exit node (default)
		01	Archive LCR messages on exit node (set this option in the exit node TCOSS configuration)
		pos 5-8	Reserved

Config line	No. of positions	Meaning	
20	8	Default mapping of mail entry custom fields from message header	
		pos 1	Default mapping of custom field 1, default 00 = no
		pos 2	Default mapping of custom field 2, default 00 = no
		pos 3	Default mapping of custom field 3, default 00 = no
		pos 4	Default mapping of custom field 4, default 00 = no
		pos 5-8	Reserved

Config line	No. of positions	Meaning	
The following hexadecimal values may be used on any of the 4 positions:			
Value	Default mapping of custom field to	Parent object	Child ID
00	No default mapping	-	-
01	Originator recipient ID	Originator	TS_RECIP_ID
02	Originator company	Originator	TS_COMPANY
03	Originator department	Originator	TS_DEPTM
04	Originator full name	Originator	TS_FULLNAME
05	Originator salutation	Originator	TS_SALUTE
06	Originator free text	Originator	TS_FREETEXT
07	Originator correlation 1	Originator	TS_CORREL_1
08	Originator correlation 2	Originator	TS_CORREL_2
09	Originator correlation 3	Originator	TS_CORREL_3
0A	Originator correlation 4	Originator	TS_CORREL_4
0B	Originator correlation 5	Originator	TS_CORREL_5
0C	Originator correlation 6	Originator	TS_CORREL_6
21	Recipient ID	Recipient	TS_RECIP_ID
22	Recipient company	Recipient	TS_COMPANY
23	Recipient department	Recipient	TS_DEPTM
24	Recipient full name	Recipient	TS_FULLNAME
25	Recipient salutation	Recipient	TS_SALUTE
26	Recipient free text	Recipient	TS_FREETEXT
27	Recipient correlation 1	Recipient	TS_CORREL_1
28	Recipient correlation 2	Recipient	TS_CORREL_2
29	Recipient correlation 3	Recipient	TS_CORREL_3
2A	Recipient correlation 4	Recipient	TS_CORREL_4
2B	Recipient correlation 5	Recipient	TS_CORREL_5
2C	Recipient correlation 6	Recipient	TS_CORREL_6
Identical default mapping of two or more custom fields is not supported, that is, all non-zero values may not be used more than once in all four positions of system configuration line 20. (It makes no sense anyway to fill several custom fields with the same value).			
Config line	No. of positions	Meaning	
21	8	pos 1	Mail auditing flags (hex values, to be added up)

Config line	No. of positions	Meaning		
			00	No auditing (default)
			01	Open message
			02	Update mail entry, such as reactivate, change priority and mark read.
			04	Terminate mail entry, such as cancel and reject.
			08	Mark mail entry completed
			10	Resubmit message, such as correct and distribute.
			20	Update job, such as reactivate and change priority.
			40	Terminate job, such as cancel.
			80	Mark job completed
		pos 2	Login and user auditing flags (hex values, to be added up)	
			00	No auditing (default)
			01	Successful login
			02	Failed login
			04	Logout by user
			10	Create user profile
			20	Delete user profile
			40	Change rights settings in user profile
			80	Change password / account locked
		pos 3	Short term archive, user and address book auditing flags (hex values, to be added up)	
			00	No auditing (default)
			01	Open message
			02	Annotate short term archive entry
			04	audit changes in user and group address books
			08	Audit changes in the system address book
			10	Audit recipient fields on user profile creation
			20	Audit user recipient fields on change
			40	Audit user events of a specific category if this category changed (depreciated option)
			80	Audit user events of all categories if events of any category changed (depreciated option)
			C0	Audit all user events with any user profile rights or events change (depreciated option)
		pos 4	Unicode	
			00	No

Config line	No. of positions	Meaning	
		01	Yes
		pos 5	Advanced user profile/address book audit options (hex values, to be added up)
		01	Include old values (with suffix “_OLD”) for all changed fields
		02	Audit deleted details (user profile, events, user recipient, private address book – according to positions 2 and 3) when a user is deleted. If this bit is not set a USER_DELETE entry with the deleted user ID (without additional details) is created.
		10	Advanced user events audit. This option is recommended to track changes of events in the user profile. If also depends on basic user profile auditing configuration in position 2 but it can be used independent from to older depreciated event log audit level in bits 6 and 7 of position 3.
		pos 6	Distribution list recipient audit level
		00	None: Ignore all changes in the DL recipients
		01	Compact: Changes in the DL recipients are indicated by the CHANGED_FIELDS flag “RecipientList”. Details about the added/removed recipients are not added.
		02	Single: Changes in the DL recipients are indicated by the CHANGED_FIELDS flag “RecipientList” a list of added/removed recipients using “AddRecip” / “RemRecip” fields. All recipients are represented by owning user name + “/” + recipient ID. E.g: “Adam/Bob” refers to recipient Bob from Adam's address book. If changes exceeds the available log entry space additional changes are silently ignored. Under typical conditions, each audit log may contain up to about 50 recipient changes with an average recipient length of 50 bytes. The actual limit is variable and mainly depends on the average recipient length.
		03	Multi: Like level 2 but large distribution list changes are split into multiple audit logs with the same cumulated result. It guarantees that all changes are logged but generates many audit logs if you are working with huge distribution lists.
		pos 7-8	Reserved

Config line	No. of positions	Meaning	
22	8	pos 1&2	Maximum age of short-term archive entries
		00 00	Storage duration is limited by size of short-term archive (position pos 3&4 in line 13) only (default)
		00 01	Hide all short-term archives

Config line	No. of positions	Meaning	
		00 02 ... 7F FF	Hide short-term archive if they are older than 1.. 32766 hours.
		pos 3&4	Maximum age of short-term archive messages
		00 00	Storage duration is limited by size of available size of TCOSS file structure only (default)
		00 01	All short-term archive messages are hidden
		00 02 ... 7F FF	Hide short-term archive messages if they are older than 1..32766 hours.
		80 01 ... FF FF	Like 0001..7FFF, but in addition the hidden messages are permanently removed.
		pos 5-8	Reserved

Config line	No. of positions	Meaning	Comment
23	-	-	-

Config line	No. of positions	Meaning	Comment
24	8	pos 1-8	Reserved

Config line	No. of positions	Meaning	Comment
25	8	pos 1-8	Reserved

Config Parameters of the Application Module (TAM)

Config line	No. of positions	Meaning	
1	1	Initial state for sending	
		'0'	Closed (as after ..WAIT)
		'1'	Active (as after ..CONT)
		'2'	Query
		'3'	Client server channel

Config line	No. of positions	Meaning	
2	26	pos 1	Main channel group
		pos 2 - 26	Additional channel groups, left to right unused positions set to spaces, Channel group (blank, 'A'..'Z', '+')
			'A' Channel belongs to channel group 'A'
			'+' Defines channel as transfer module. Allowed with Client Server Channel only.
			' ' Channel belongs to no group.
		Note You must not have a user, with the same name as configured for the channel group. Otherwise, sending to this channel group will not work.	

Config line	No. of positions	Meaning	
3	3	pos 1	Channel type
			'X' Telex channel
			'T' Teletex channel (not supported)
			'F' FAX channel
			' ' Others
		pos 2	Channel capabilities

Config line	No. of positions	Meaning					
		value	control lines	rendering	binary	image	text
		'0'	no	no	no	no	no
		'1'	no	no	no	no	yes
		'2'	no	no	no	yes	no
		'3'	no	no	no	yes	yes
		'4'	no	no	yes	no	no
		'5'	no	no	yes	no	yes
		'6'	no	no	yes	yes	no
		'7'	no	no	yes	yes	yes
		'@'	no	yes	no	no	no
		'A'	no	yes	no	no	yes
		'B'	no	yes	no	yes	no
		'C'	no	yes	no	yes	yes
		'D'	no	yes	yes	no	no
		'E'	no	yes	yes	no	yes
		'F'	no	yes	yes	yes	no
		'G'	no	yes	yes	yes	yes
		'p'	yes	no	no	no	no
		'q'	yes	no	no	no	yes
		'r'	yes	no	no	yes	no
		's'	yes	no	no	yes	yes
		't'	yes	no	yes	no	no
		'u'	yes	no	yes	no	yes
		'v'	yes	no	yes	yes	no
		'w'	yes	no	yes	yes	yes
		'''	yes	yes	no	no	no
		'a'	yes	yes	no	no	yes
		'b'	yes	yes	no	yes	no
		'c'	yes	yes	no	yes	yes
		'd'	yes	yes	yes	no	no
		'e'	yes	yes	yes	no	yes
		'f'	yes	yes	yes	yes	no
		'g'	yes	yes	yes	yes	yes
		“++HLN” , “++HLB” and “++TXT” control lines are only sent on control line capability.					

Config line	No. of positions	Meaning	
		Pos 3	Reception state
		0	Disable reception
		1	Enable reception (default)

Config line	No. of positions	Meaning	
4	1	Channel language	
		'1'	German
		'2'	English

Config line	No. of positions	Meaning	
5	1	TCTI transport (default: 0)	
		'0'	Native (use [TCTI] section in TOPCALL1.ini)
		'1'	RPC (use [TCTI_RPC] section in TOPCALL1.ini)

Config line	No. of positions	Meaning	
6	24	<p>Comment line for Line statistics overview in TCfW / local answerback for teletex (not supported).</p> <p>With Transfer module (line 1 = '3' and line 2 = '+'), it defines the 2nd character of polled queues for up to 24 remote nodes.</p> <p>A comment may be included separated by a space from the node list. For example, "ABC transfer module".</p>	

Config line	No. of positions	Meaning	
7	1	Default value for NODES parameter with ..SEND ('A'-'Z', '0'-'9')	

Config line	No. of positions	Meaning	
8	1	Length of cost center designation	
		:00 ,	No cost center accounting
		:01.. 0C	<p>1 to 12 characters cost center designation</p> <p>Every KKxx (xx represents the current month) starts with 12 characters of cost center. Due to this fact it is possible to define different length of cost center designations for each channel</p>

Config line	No. of positions	Meaning
9	1	Cost center offset (number of leading characters having no significance) in the reference '0' - '9'
10	1	Number series for numbering the documents during sending ('A'..'Z') 'A'= number series A

Config line	No. of positions	Meaning
11	1	Locking of send commands to equal numbers
		'1, Locked
		'0, Not locked

Config line	No. of positions	Meaning
12	4	Sending time mapped to low priority
		', Low priority mapping not used (default)
		For example, '2200, If send orders on this channel are created without Priority parameter and TIME=2200, they will be set to low priority. The sending time will be set to the lowest tariff according to kk99

Config line	No. of positions	Meaning																		
13	1	Interval between send attempts ('1'..'T') $\text{time} = \frac{(9 - \text{new status})^2 * (\text{ASC}(\text{config value}) - 48)}{9}$ <table> <tr> <th>config value</th><th>ASCII value</th><th>time interval</th></tr> <tr> <td>'1'</td><td>49</td><td>0 .. 7 minutes</td></tr> <tr> <td>'9'</td><td>57</td><td>1 .. 64 minutes</td></tr> <tr> <td>'B'</td><td>66</td><td>2 ..128 minutes</td></tr> <tr> <td>'K'</td><td>75</td><td>3 ..192 minutes</td></tr> <tr> <td>'T'</td><td>84</td><td>4 .. 256 minutes</td></tr> </table>	config value	ASCII value	time interval	'1'	49	0 .. 7 minutes	'9'	57	1 .. 64 minutes	'B'	66	2 ..128 minutes	'K'	75	3 ..192 minutes	'T'	84	4 .. 256 minutes
config value	ASCII value	time interval																		
'1'	49	0 .. 7 minutes																		
'9'	57	1 .. 64 minutes																		
'B'	66	2 ..128 minutes																		
'K'	75	3 ..192 minutes																		
'T'	84	4 .. 256 minutes																		

Config line	No. of positions	Meaning
14	2	pos1 Send test intervals of 0,1 sec..
		bits 0-6 The interval of send tests can be set to values between 1 and 127 (Bits0- 6).
		01 .. Send test interval in minutes (01 .. 31 minutes) 1F

Config line	No. of positions	Meaning		
			20 .. 7F	Send test interval in seconds (3.2 ..12.7 seconds)
		bit 7	Bit 7 = 0	Next send test is immediate
			Bit 7 = 1	Next send test after the configured interval (1 ..31 minutes, 3.2 .. 12.7 seconds)
		pos2	"time overdue" value in minutes for additional channel groups	
			00..FF	0 ..255 minutes "time overdue" value (0 = no time overdue for additional channel groups)

Config line	No. of positions	Meaning	
15	2	Default channel for ..C,..S,..L	
		' '	No default channel, if no channel indicated Commands will lead to examination of text
		Others:	No examination possible

Config line	No. of positions	Meaning		
16	3	1. digit	Log file designation for transmission. Possible values: ' ', 0..9,A..Z	
			'A'	Enter sending procedures into log file 'A'
			' '	Enter sending procedures into no log file
		2. digit	Possible values: A, S	
			A	Enter all send attempts into log file
			S	Enter only successfully executed send attempts
		3. digit	Log file for examined text (used for FIS documents with session reversal). Possible values: ' ', 0..9, A..Z	
			'A'	Enter examined text into log file 'A'
			' '	Enter examined text into no log file (default)

Config line	No. of positions	Meaning	
17	2	pos1	Drive designation for 'sending log file'('A','B')
		pos2	Number series for "pages sent counter" Value range: ('A'..'Z'), space = no counting

Config line	No. of positions	Meaning
18	0	Comment
19	1	Drive designation for back-received doc. ('A', 'B')

Config line	No. of positions	Meaning
20	2	pos1 Number series for automatic generation of references for back received documents Value range: ('A'..'Z')
		pos2 First character of references for back received documents Value range: ('A' .. 'Z' and '0' .. '9')

Config line	No. of positions	Meaning
21	5	Receiver for automatic send printout
		' ' No automatic send printout
		otherwise 5-position receiver (channel or abbr. no.)

Config line	No. of positions	Meaning															
22	1	Erasability of first send order created for <table border="1"> <thead> <tr> <th></th><th>Automatically sending printout</th><th>Active acknowledgment</th></tr> </thead> <tbody> <tr> <td>'0'</td><td>no</td><td>no</td></tr> <tr> <td>'1'</td><td>yes</td><td>no</td></tr> <tr> <td>'2'</td><td>no</td><td>yes</td></tr> <tr> <td>'3'</td><td>yes</td><td>yes</td></tr> </tbody> </table>		Automatically sending printout	Active acknowledgment	'0'	no	no	'1'	yes	no	'2'	no	yes	'3'	yes	yes
	Automatically sending printout	Active acknowledgment															
'0'	no	no															
'1'	yes	no															
'2'	no	yes															
'3'	yes	yes															

Config line	No. of positions	Meaning
23	0	Comment

Config line	No. of positions	Meaning
24	1	Automatic distribution
		'0' No automatic distribution
		'1' Distribute received documents
		'2' Distribute received and back-received documents

Config line	No. of positions	Meaning
25	1	Drive designation for received documents 'A', 'B'

Config line	No. of positions	Meaning
26	2	pos1 Number series for automatic generation of references for received documents value range: ('A'..'Z')
		pos2 First character of references for received documents Value range: ('A' .. 'Z' and '0' .. '9')

Config line	No. of positions	Meaning
27	5	Receiver for automatic reception printout
		' ' No automatic reception printout
		otherwise 5-position receiver (channel or abbr. no.)

Config line	No. of positions	Meaning															
28	1	Erasability of first send order created for <table border="1"> <thead> <tr> <th></th><th>Automatically rec printout</th><th>Active distribution</th></tr> </thead> <tbody> <tr> <td>'0'</td><td>no</td><td>no</td></tr> <tr> <td>'1'</td><td>yes</td><td>no</td></tr> <tr> <td>'2'</td><td>no</td><td>yes</td></tr> <tr> <td>'3'</td><td>yes</td><td>yes</td></tr> </tbody> </table>		Automatically rec printout	Active distribution	'0'	no	no	'1'	yes	no	'2'	no	yes	'3'	yes	yes
	Automatically rec printout	Active distribution															
'0'	no	no															
'1'	yes	no															
'2'	no	yes															
'3'	yes	yes															

Config line	No. of positions	Meaning
29	1	Designation of log file for reception activities (' ',0..9,A..Z)
		'A' Enter reception activities in log file 'A'
		' ' Do not enter reception activities

Config line	No. of positions	Meaning
30	2	pos1 Drive designation for 'reception log file' ('A','B')
		pos2 Number series for "pages received counter" Value range: ('A'..'Z'), space = no counting

Config line	No. of positions	Meaning
31	0	Comment

Config line	No. of positions	Meaning
32	1	TAM/TUM trace level
		'0' No trace (default)
		'1' Minimum trace (only commands/response no text lines)
		'2' Standard trace (commands/responses, truncated text lines, recommended)
		'3' Enhanced trace (as '2' but do not truncate text lines and additional receiver ready trace)
		'4' Full trace (includes empty commands and polls, may be very big!)
		'5' Full hex trace

The trace output is written into the standard TCOSS trace file, such as `C:\tco\trace\tco\0.trc`. It does not depend on trace level configured in the registry.

In most cases, the standard trace is appropriate. The truncated lines are useful to reduce the trace data created by TCI image blocks. These blocks are usually using the maximum possible line length of 254 characters.

Config line	No. of positions	Meaning
33	1	TCI code output line length
		:00 .. FF Default value F8 = 248 characters
		Note Some channels, such as MEMO do not support lines longer than 69 characters. Therefore change this line to value: 45.

Config line	No. of positions	Meaning
34	2	Maximum number of pages for outbound messages. If this limit is exceeded the send order is terminated with error code "SZ".
		:00 00 Maximum number of pages is not limited.
		:00 01 Maximum number of pages is limited to 1 .. 65535. .. (Default is 03 E7 = 999 pages). :FF FF

Config line	No. of positions	Meaning
35	1	Printout of CF non-delivery notifications
		'0' No printout of CF non-delivery notifications
		'1' Automatic printout of CF non-delivery notifications if Address of automatic reception printout is configured

Config line	No. of positions	Meaning	
36	1	Limit for maximum number of chained messages	
		00	No limit
		01	No chaining
		02 .. FF	Maximum 2 ..255 messages can be sent in one chain

Config line	No. of positions	Meaning	
37	24	Reserved	

Config line	No. of positions	Meaning	
38	2	pos1	Reference with 8 or 10 digits in the log files
		:08,	8 digits
		:0A,	10 digits (default)
		pos2	Type of log file entries
		00	Write 1st line, fee includes all previous send attempts
		80	Write 1st line, fee of current send attempt only
		01	Write 2nd line
		02	Write 3rd line
		04	Write 4th line (alternative format of 2nd line)
		08	Write 5th line (alternative format of 3rd line)
		10	Write 6th line
		You can select the set-up of journals by adding the corresponding config values (default value is 03)	

Config line	No. of positions	Meaning	
39	1	How many document lines should be checked for automatic distribution	
		:00,	No line to be checked
		: 01 .. FE	1 to 254 lines to be checked
		:FF,	All lines of document to be checked

Config line	No. of positions	Meaning	
40	2	drive for masks and reference of default mask	
		1.digit:	A = drive A

Config line	No. of positions	Meaning	
			B = drive B
		2.digit:	A to Z for default mask +A to +Z
			Blank = no default mask

Config line	No. of positions	Meaning		
41	5	1.digit:	Erase send orders	
			Value	Unsuccessful
			0	no
			1	no
			2	yes
		2.digit:	Value	Unsuccessful
			0	no
			1	no
			2	yes
			3	yes
		3.digit:	Erase document if 1. character of reference is a figure (only for SEND command)	
			value	unsuccessful
			0	no
			1	no
			2	yes
		4.digit:	value	unsuccessful
			0	no
			1	no
			2	yes
			3	yes

Config line	No. of positions	Meaning		
		5.digit:	Generation of backreception send order	
			value	unsuccessful
			0	no
			1	no
			2	yes
			3	yes

Config line	No. of positions	Meaning	
42	24	Default originator, output channel for active acknowledgements (channel number or channel group). It has no fixed format and can be set to any valid number. If the * character is found it is replaced by the author field of the document (contains the answerback with UTX, UTF, UIF)	
		`FAX\$*	default value for UTF and UIF
		`TLX\$*	default value for UTX
		`xx:+Y	default for all other channels (xx = channel number)
		`Z: +Z	default value for MEMO
		Note FAX\$* means that service FAX is used. If this service does not exist, send orders using the default originator are not excepted. So take care that a	

Config line	No. of positions	Meaning
43	9	New send status after unsuccessful send attempt for BREAK=1 '87654321, '-' for send status to be skipped
44	9	Same as 43 but for BREAK=2
45	9	Same as 43 but for BREAK=3
46	9	Same as 43 but for BREAK=4
47	9	Same as 43 but for BREAK=5

Config line	No. of positions	Meaning
48	3	Latest delivery time for high, normal, low priority
		00 Latest delivery time infinite, no timeout supervision (compatible with previous releases)
		01 ..FF Latest delivery time in hours (1 ..255), relative to intended send Time standard configuration: '00 00 00, = no default latest delivery time (infinite)

Config line	No. of positions	Meaning	
49	3	Remote channel parameters (ASP)	
		Pos1	Remote connection type
		00	Local
		01	Remote user module (value used on storage server)
		02	Remote application module (value used on media server)
		Pos2	Dedicated / shared remote channel
		00	Shared
		01	Dedicated
		Pos3	Reserved for future extensions, set to 00

Config line	No. of positions	Meaning	
50	0	Comment (default TUM)	

Config Parameters at Activation Channel

The hidden TCOSS channel with the configuration file “ATAMCONFACTC” is used for the following:

- Activation of send orders (deferred sending, processing of events set in user profile).
- Update of send orders with delivery notifications (including state changes done by links).
- Latest delivery timeout supervision.
- Generation of system error messages.

Config Parameters of the Asynchronous Module (UAS)

Config line	No. of positions	Meaning	
1-51		See <i>Configuration Parameters for the Transputer Application Module (TAM)</i>	
51	0	Comment	

Config line	No. of positions	Meaning					
52	2	Channel allocation					
		UAS on TS0C/0D	<div>The allocation “logical” channel <--> hardware channel is carried out by indicating the corresponding SIO-port addresses</div> <table><tr><td>Pos1</td><td>Data port address</td></tr><tr><td>Pos 2</td><td>Status port address</td></tr></table>	Pos1	Data port address	Pos 2	Status port address
Pos1	Data port address						
Pos 2	Status port address						

Config line	No. of positions	Meaning		
		UAS on Windows Master	Communication port	
			Pos1	Pos2
			Used communication port	
			01	00
			02	00
			FE	FF
			FF	FF

Config line	No. of positions	Meaning		
53	12	Baud rate, data format. UAS on TSOC/OD: The 12 bytes indicated here are sent to the SIO status port at the start of the system UAS on Windows Master: (default values are underlined)		
		pos 1	Baud rate	
			00 - 11	75, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 14400, 19200 , 38400, 57600, 115200, 128000, 256000
		pos 2	Number of bits per character	
			00 - 04	5, 7, 6, 8 , 4
		pos 3	Parity	
			00 - 03	no , odd, mark, even
		pos 4	Number of stop bits	
			00 - 02	1, 1.5, 2
		pos 5	TX hardware flow control	
			00 - 03	Disabled , CTS, DSR, CTS+DSR
		pos 6	RX hardware flow control	
			Bits 0,1:	00-02DTR inactive, DTR active , DTR handshake
			Bits 2,3	00-03RTS inactive, RTS active , RTS handshake, RTS toggle
			Bit 7:	00-01 Ignore DSR for reception Ignore characters while DSR is inactive
		pos 7 - 12	Unused, has to be 00	

Config line	No. of positions	Meaning		
54	1	SIO write register 5 you have to indicate the value for WR5 here (has to be 00 for an UAS on Windows NT Master)		

Config line	No. of positions	Meaning
55	0	comment

Config line	No. of positions	Meaning
56	1	Automatic EOT
		'0' Without automatic EOT
		'1' With automatic EOT
		'2' Wait for, for example, 100 OK, then generate appropriate EOT according to config line 125
		'3' Same as 2, but EOT command without parameter AUTHOR for sending of active acknowledgments

Config line	No. of positions	Meaning
57	1	Multiplexer and FAX selection
		'0' No selection
		'1' Multiplexer selection (not supported for UAS on Windows master)

Config line	No. of positions	Meaning
58	1	Headline
		'0' No headline
		'1' Insert headline with document reference

Config line	No. of positions	Meaning
59	9	Kind of acknowledgments
		pos 1 Acknowledgment 100 – 199
		9. digit: Acknowledgment 900 - 999 per position:
		0 Corresponding acknowledgment group is sent
		1 Bell is sent once
		3 Bell is sent 3 times
		8 Corresponding acknowledgment group is stored and sent after break control character
		9 Corresponding acknowledgment group is not sent

Config line	No. of positions	Meaning	
60	3	pos 1	Suppress form feed at output Here you can enter the code of the character to be suppressed at its first occurrence in a document; the code refers to the status after all conversions. Hex FF = suppress no character
		pos 2	Here you can enter the HEX code for 10ms pause. Default "pause-character" for 10ms is 01H, FF HEX = no pause
		pos 3	Here you can enter the HEX code for 100ms pause. Default "pause-character" for 100ms is 04H, FF HEX = no pause
Note: Pause characters are not supported for UAS on Windows maste			

Config line	No. of positions	Meaning	
61	1	Line division at the output	
		'0'	Lines of excess length are cut off
		'1'	Lines of excess length are divided
		'2'	Lines of excess length are neither cut off nor divided

Config line	No. of positions	Meaning	
62	2	XON/XOFF	
		pos 1	XOFF-code, not converted
		pos 2	XON-code, not converted For operation without XON/XOFF protocol, both positions have to be configured with hex 00. In configurations with 7 data bits the 8th bits of the XON/XOFF characters represent the parity bits and have to be set accordingly (equal to the parity bit or 1 in case of no parity).

Config line	No. of positions	Meaning	
63	1	XON/XOFF	
		00	Start sending only if partner sends XON
		01	Start sending immediately

Config line	No. of positions	Meaning	
64	11	Start-string This is any code string sent automatically at the beginning of a document	
		pos 1	Number of chars. to be sent (hex)
		rest:	10-character string

Config line	No. of positions	Meaning	
65	11	end-string This is any code string sent automatically at the end of a document	
		1.digit:	Number of the chars. to be sent (hex)
		rest:	10 -character string

Config line	No. of positions	Meaning	
66	0	Comment	

Config line	No. of positions	Meaning	
67	21	Replacement sequence for LF0	
		pos 1	Number of valid characters in sequence (hex),
			FF Suppress lines with LF0
		rest:	Replacement sequence for LF0

Config line	No. of positions	Meaning	
68	21	Replacement sequence for LF1	
		pos 1	C in sequence (hex),
			FF Suppress lines with LF1
		rest:	Replacement sequence for LF1

Config line	No. of positions	Meaning	
69	21	Replacement sequence for LF2	
		pos 1	Number of valid characters in sequence (hex),
			FF Suppress lines with LF2
		rest:	Replacement sequence for LF2

Config line	No. of positions	Meaning	
70	21	Replacement sequence for LF3	
		pos 1	Number of valid characters in sequence (hex),
			FF Suppress lines with LF3
		rest:	Replacement sequence for LF3

Config line	No. of positions	Meaning
71	0	Comment

Config line	No. of positions	Meaning
72	21	Replacement sequence for BS0
		pos 1 Number of valid characters in sequence (hex),
		FF Suppress lines with BS0
		rest: Replacement sequence for BS0

Config line	No. of positions	Meaning
73	21	Replacement sequence for BS1
		pos 1 Number of valid characters in sequence (hex),
		FF Suppress lines with BS1
		rest: Replacement sequence for BS1

Config line	No. of positions	Meaning
74	21	Replacement sequence for BS2
		pos 1 Number of valid characters in sequence (hex),
		FF Suppress lines with BS2
		rest: Replacement sequence for BS2

Config line	No. of positions	Meaning
75	21	Replacement sequence for BS3
		pos 1 Number of valid characters in sequence (hex),
		FF Suppress lines with BS3
		rest: Replacement sequence for BS3

Config line	No. of positions	Meaning
76	0	Comment

Config line	No. of positions	Meaning
77	21	Replacement sequence for A4H
		pos 1 Number of valid characters in sequence (hex),

Config line	No. of positions	Meaning		
			FF	Suppress lines with A4H
			rest:	Replacement sequence for A4H

Config line	No. of positions	Meaning		
78	21	Replacement sequence for A4Q		
		pos 1	Number of valid characters in sequence (hex),	
			FF	Suppress lines with A4Q
			rest:	Replacement sequence for A4Q

Config line	No. of positions	Meaning		
79	21	Replacement sequence for BDH		
		pos 1	Number of valid characters in sequence (hex),	
			FF	Suppress lines with BDH
			rest:	Replacement sequence for BDH

Config line	No. of positions	Meaning		
80	21	Replacement sequence for BDQ		
		pos 1	Number of valid characters in sequence (hex),	
			FF	Suppress lines with BDQ
			rest:	Replacement sequence for BDQ

Config line	No. of positions	Meaning		
81	0	Comment		
82	4	Reserve		
83	0	Comment		
84	16	Output code table characters 00 to 0F		
85	16	Output code table characters 10 to 1F		
86	16	Output code table characters 20 to 2F		
87	16	Output code table characters 30 to 3F		
88	16	Output code table characters 40 to 4F		
89	16	Output code table characters 50 to 5F		
90	16	Output code table characters 60 to 6F		

Config line	No. of positions	Meaning
91	16	Output code table characters 70 to 7F
92	16	Output code table characters 80 to 8F
93	16	Output code table characters 90 to 9F
94	16	Output code table characters A0 to AF
95	16	Output code table characters B0 to BF
96	16	Output code table characters C0 to CF
97	16	Output code table characters D0 to DF
98	16	Output code table characters E0 to EF
99	16	Output code table characters F0 to FF
100	0	Comment
101	14	Reserved

Config line	No. of positions	Meaning
102	2	pos 1 Acceptation of internal commands
		'2' Not accepted
		'3' Accepted
		pos 2 EOT command during sending via the asynchronous channel
		'0' No EOT command during sending possible
		'1' EOT command during sending possible (default)

Config line	No. of positions	Meaning
103	1	auto-LF
		'0' Automatic insertion of LF after CR (connected device is without auto-LF)
		'1' No automatic insertion of LF (connected device is with auto-LF)

Config line	No. of positions	Meaning
104	0	comment
105	16	Input code table characters 00 to 0F
106	16	Input code table characters 10 to 1F
107	16	Input code table characters 20 to 2F
108	16	Input code table characters 30 to 3F

Config line	No. of positions	Meaning
109	16	Input code table characters 40 to 4F
110	16	Input-code-table characters 50 to 5F
111	16	Input-code-table characters 60 to 6F
112	16	Input code table characters 70 to 7F
113	16	Input code table characters 80 to 8F
114	16	Input code table characters 90 to 9F
115	16	Input code table characters A0 to AF
116	16	Input code table characters B0 to BF
117	16	Input code table characters C0 to CF
118	16	Input code table characters D0 to DF
119	16	Input code table characters E0 to EF
120	16	Input code table characters F0 to FF

Config line	No. of positions	Meaning
121	1	Time-out
		:00 , No time-out
		:01,to :FF, Time-out 1-255 s

Config line	No. of positions	Meaning
122	1	Automatic reception
		'0' Without automatic reception
		'1' With automatic reception

Config line	No. of positions	Meaning
123	1	Call collision
		'0' Ignored, sending has priority
		'1' Check input buffer before sending
		'2' Check input buffer and STX-ETX before sending with priority
		'3' Same as 2 but without priority

Config line	No. of positions	Meaning
124	2	Characters for STX/ETX (00 = without STX/ETX)

Config line	No. of positions	Meaning	
125	9	Break code / acknowledgment group allocation	
		pos 1	Break code for acknowledgments 100 – 199
		pos 9	Break code for acknowledgments 900 – 999 possible values: 0 - 6

Config line	No. of positions	Meaning	
126	1	back reception on / off	
		'0'	Without back reception
		'1'	With back reception

Config line	No. of positions	Meaning	
127	7	String-byte conversion during input of characters	
		pos 1	Replacement character (byte) for the configured string
		pos 2-7	String to be replaced (unused positions filled with 00Hex)

Config line	No. of positions	Meaning	
128	12	Script program to be loaded automatically during system booting	
		'blank'	No script program is loaded, standard functionality
		'script file name'	The specified script program is loaded. A drive specification and lower case letter reference are possible (e.g. 'SFILE1', 'A:SFILE1', 'B:sfile2').

Config line	No. of positions	Meaning	
129	1	Manual loading of script program with command ..SEND	
		'0'	Disabled (a script file is treated as ordinary file and is not compiled).
		'1'	Enabled (any currently running program is cancelled by a new script file and the compiler tries to translate it)

Config line	No. of positions	Meaning	
130-135	-	Reserved	

Handshake – V.24 Cables

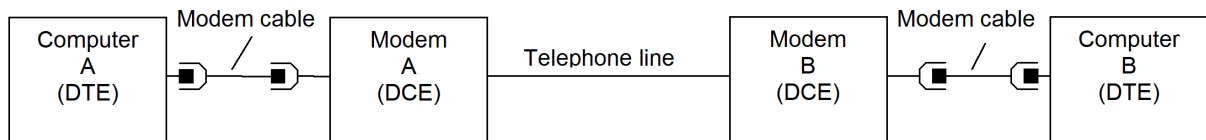
This chapter gives basic information about SW and HW handshake with the UAS channel. The different handshake methods are described with the required cables and how they are configured.

The hardware handshake functions are controlled by config lines 53 and 54. The software handshake is used if XON/XOFF characters are defined in config line 62. It is not supported to use both hard- and software handshake on the same port at the same time.

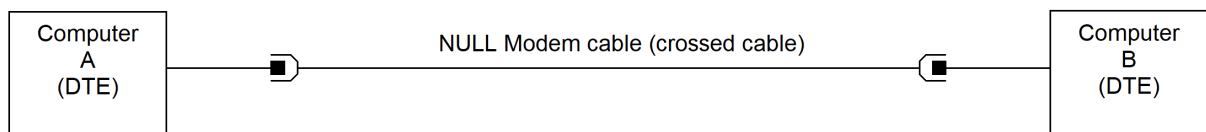
Pin Assignment, V.24 Reference Model

The serial V.24 interface was primary designed to connect to computers via modem. Of course, you can also use it to connect two computers together without modem connection.

Connecting two Computers via Modem



Direct Connection between two Computers



The computer is usually referred as DTE (data terminal equipment) and the modem is referred as DCE (data circuit equipment). Usually, DTE has male and DCE a female connector.

In KCS, the following pin connection are defined.

Signal	Data flow	Pin number		Description
		DB25	DB9	
GND		7	5	Signal ground
TXD	DTE → DCE	2	3	data transmitted from DTE
RXD	DTE ← DCE	3	2	data receive by DTE
RTS	DTE → DCE	4	7	Request To Send (DTE requests data, DTE is ready)
CTS	DTE ← DCE	5	8	Clear To Send (other DTE is ready for data)
DSR	DTE ← DCE	6	6	Data Set Ready (Modem is in off hook state)
DCD	DTE ← DCE	8	1	Data Carrier Detect (Modem received carrier)
DTR	DTE → DCE	20	4	Data Terminal Ready (Tells to modem to go to off-hook state)
CI	DTE ← DCE	22	9	Call Indicator (Modem has detecting ring signal)

Note The serial ports on TS0d do not exactly fit into this schema. It has the DTE pin assignment and DCE connector.

Software Handshake (XON/XOFF)

This section describes the software handshake.

How It Works

If two devices are connected via software handshake only Transmit Data and Receive Data lines are required. Data flow is controlled by sending XO/XOFF characters. Any side can send a XOFF character to indicate that it is not ready to receive further data (except XON/XOFF characters of cause). If any station will be ready again, it sends XON.

XON/XOFF handshake is used on most console based applications (MS-DOS command line) to stop output with Ctrl-S (=XOFF).

The following XON/XOFF characters must be used.

	hex – code	Control Code
XON	0x11	Ctrl-S
XOFF	0x13	Ctrl-Q

Configuration

XON/XOFF is default after adding a new UAS channel in the hardware/software assignment.

UAS on TS0C/0D

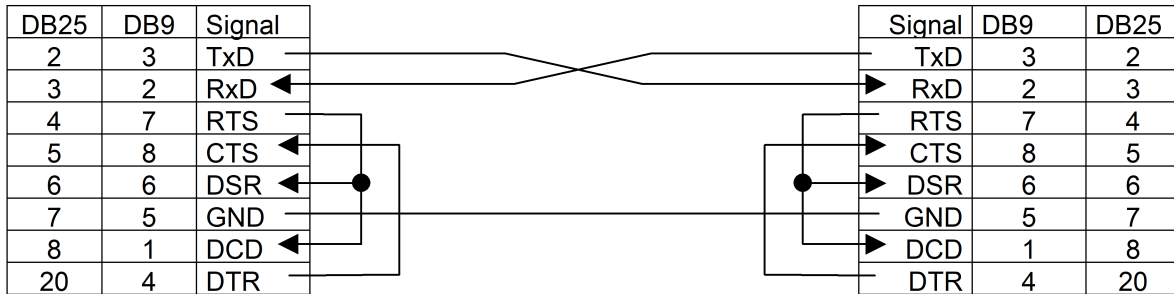
It is recommended to use the menu item 01) V.24 parameters, protocol to switch SW and HW handshake.

UAS on Windows NT Master

1. Set TX hardware flow control to disable. (position 5 of config line 53 = 00)
2. Set RX hardware flow control to DTR, RTS active, ignore DSR. (position 6 of config line 53 = 05)
3. Configure XON/XOFF characters (such as config line 62 = :91 92). The values for XON/XOFF are not used. It is just checked if they are not equal 00. XON/XOFF characters are always created by Windows NT with the codes shown above.

SW Handshake Cable

If you want to connect two Computers with SW handshake you can either use the cable described below or a cable described in [HW handshake Cable](#).



Note Connections between RTS, DSR and DCD, and connections between DTR and CTS are optional. They are not used with Software handshake.

You will need a female plug on the cable when connecting to a PC-COM port. You will need a male plug on the cable when connecting to an asynchronous port on TC0C/0D. The pin assignment is always the same.

Hardware Handshake

This section describes the hardware handshake.

How It Should Work

The hardware handshake usually controls data flow with RTS and CTS lines.

RTS is activated if the own Computer is ready to receive data from the other Computer.

CTS (=RTS of other Computer) indicates that the other Computer is ready to receive data.

All other control lines (DSR, DCD, DTR, CI) should be used for modem control.

To make it a bit more complicated, some different mutations are used:

1. DTR (or DTR and RTS) may be used instead of RTS to indicate the own receiver status.
2. DSR or DSR+CTS may be used instead of CTS to control the transmitter output.

The COM port used with the UAS on Windows NT Master supports the hardware handshake with all mutations described below. The UAS on TS0C/0C supports only a mutation as described below.

Hardware Handshake with UAS on TS0C/0D

If configured for hardware handshake, the serial port on TS0C/0D behaves as described below:

1. Transmitter data is controlled by CTS (or CTS + DSR depending if jumper settings JA3, JB3 on TS70 are changed).
2. Receiver is disable if DCD is inactive.
3. If the receiver buffer gets full, DTR is deactivated.
4. RTS is always active.

This means that UAS on TS0C/0D uses DTR instead of RTS to control the data flow.

Configuration

UAS on TS0C/0D

It is recommended to use the menu item 01) V.24 parameters, protocol to switch SW and HW handshake.

UAS on Windows NT Master

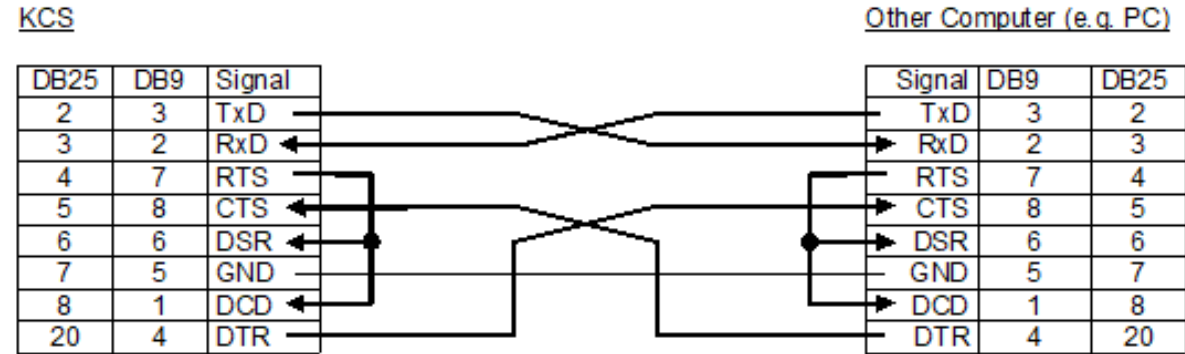
1. Set TX hardware flow control to CTS. (position 5 of config line 53 = 01)
2. Set RX hardware flow control to DTR, RTS handshake, ignore DSR. (pos. 6 of conf. line 53 = 0A). These settings are recommended because they will support both RTS and DTR hardware handshake cables.
3. Delete the XON/XOFF characters by changing config line 62 to :00 00.

HW Handshake Cable

This section describes two different HW handshake cables. Depending on the used receive data flow (RTS or DTR) these cables are called RTS or DTR hardware handshake cable. Which cable do you need (or may have a special cable with DTR handshake on KCS side and RTS handshake on PC side) depends on the other application!

DTR Hardware handshake cable

Use the DTR hardware handshake cable to connect KCS with Hardware handshake to any Computer, such as PC with TC/PC.

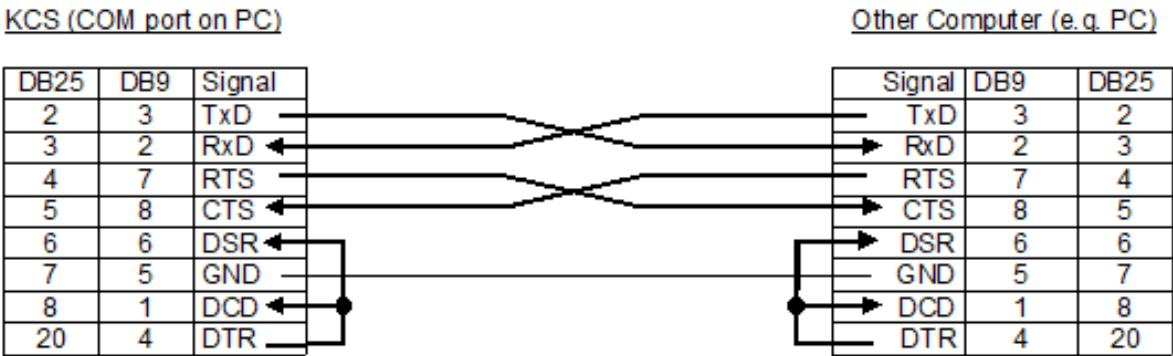


This cable can be used both with UAS on TS0C/0D and UAS on Windows NT.

This cable requires a female plug when connecting to a PC-COM port and a male plug when connecting to an asynchronous port on TC0C/0D. The pin assignment is always the same.

RTS Hardware handshake cable

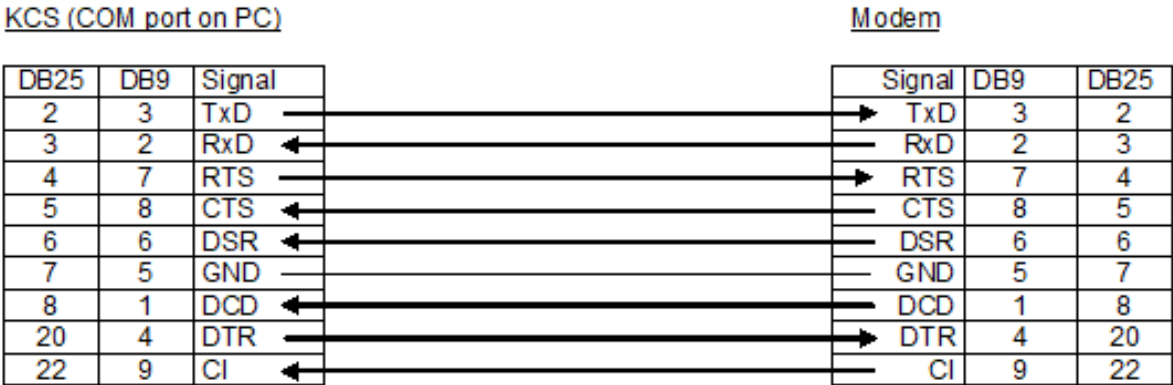
This cable is a standard hardware handshake cable supported by UAS on Windows NT only. Data flow is controlled by RTS/CTS.



This cable requires a female plug on both sides.

HW Handshake with Modem Connection

If you want to use a modem connection between both computers, use a direct connection between KCS and Modem.



This connection requires a female plug on KCS side and a male plug on Modem side.

Config Parameters of the Telex Module (UTX)

Config line	No. of positions	Meaning	
1-51		See <i>Configuration Parameters for the Transputer Application Module (TAM)</i>	

Config line	No. of positions	Meaning	
51	4	SIO port addresses. Are set automatically by SW-HW- assignment. Do not change them with the line editor! (shown values are for operation with telex machine)	
		Plug position	Addresses (hex)

Config line	No. of positions	Meaning	
		S0	14 16 15 17
		S1	3C 3E 3D 3F
		S2	38 3A 39 3B
		S3	34 36 35 37
		S4	30 32 31 33
		S5	10 12 11 13
		S6	20 22 21 23

Config line	No. of positions	Meaning	
52	1	Telex interface	
		00	TS20, TS22, TS26, TS28 with tele printer
		01	TS21 with tele printer
		02	TS20, TS22, TS26, TS28 without teleprint

Config line	No. of positions	Meaning	
53	1	Telex reception on/off	
		00	off
		01	on

Config line	No. of positions	Meaning		
54	2	Telex back reception on/off		
		pos 1		
			00	off
			01	Normal (all send attempts with positive answer back check are back-received)
			02	Extended (all send attempts are back received, including unsuccessful ones)
		pos 2		
			00	Back received characters not underlined
			01	Back received characters underlined (does not work in combination with overprint characters)

Config line	No. of positions	Meaning	
55	1	Answer back verification after transmission	

Config line	No. of positions	Meaning	
		00	no
		01	yes

Config line	No. of positions	Meaning	
56	1	Type of telex exchange	
		'A'	Type 'A' exchange (similar to CCITT U.1 type A)
		'B'	Type 'B' exchange (similar to CCITT U.1 type B, selection with number plate)
		'C'	Type 'C' exchange (like B, but selection with telex characters)
		'M'	Leased line

Config line	No. of positions	Meaning	
57	1	Maximum waiting time for call confirmation	
		00 - FF	0..255 seconds

Config line	No. of positions	Meaning	
58	1	Maximum waiting time for proceed to select or call connected signal	
		00 - FF	0..255 seconds

Config line	No. of positions	Meaning	
59	10	Busy signal without disconnection If such a service signal exists (in the case of automatic call retries done by the exchange) it is possible to set either the service signal "occ end of retry" or "occ auto retry", depending whether the automatic retries are desired or not. "Wild cards" (apostrophes) can be used; the positions with apostrophes are not relevant for the comparison of the service signal. If less than 10 positions are set, the remaining ones have to be filled with zeros (hex 00)	

Config line	No. of positions	Meaning	
60	1	Duration of break signal	
		:00 to :FF	Break 0...25.5 sec. for TS 20, 22 or 26
		:FF	Send break until reception of clear confirmation
		:00 to :FE	For TS 28

Config line	No. of positions	Meaning
61	1	Character for recognizing call collision only with exchange type 'A'

Config line	No. of positions	Meaning
62	1	"possible duplicate message" in the telex head
		pos 1 'possible duplicate message'
		00 no
		01 yes, if necessary
		pos 2 'stored message' or 'ci'
		00 no
		01 'stored message'
		02 'ci'
		pos 3 Date / time
		00 no
		01 yes
		pos 4 Current number
		00 no
		01 yes

Config line	No. of positions	Meaning
63	4	Character set, 'CI', subscriber absent, reception time out. This flags can be combined by adding the hex values
		pos 1 Switching the Greek characters for reception and back reception on/off
		00 Greek characters off
		01 Greek characters on
		02 Received characters upper case
		04 Back-received letters lower case
		10 Skip additional line before distant answer-back in received telex
		pos 2 return 'CI'
		00 no
		01 yes KCS can automatically return the service signal 'ci' (conversation impossible) on receipt of 3 or more bell signals (comb. no 10 in figure case)
		pos 3 Apply 'subscriber absent' cond. if the system fill-up degree exceeds 90%

Config line	No. of positions	Meaning		
			00	no
			01	yes (use for TS26 only)
		pos 4	reception time-out	
			00	No time-out (incoming calls not cleared)
			01..FF	Time-out in 10 sec. units (incoming call cleared)

Config line	No. of positions	Meaning		
64	1	Break code for service signal 'der' (is also used for the signals in config lines 71 and 72		
		'1,.....'5,		

Config line	No. of positions	Meaning		
65	12	Chaining parameters		
		pos 1	Chaining on/off	
			00	Chaining disabled
			01	Chaining enabled, 'G' switch will be evaluated
		pos 2	Answerback exchange at beginning of chained message	
			00	no
			01	yes
		pos 3	Answerback exchange at end of message if a chained message follows	
			00	no
			01	yes
		pos 4 – 12	Separation string between chained messages, unused positions filled with 00 For example, 4E 4E 4E 4E 3C 3E 00 00 00 = “NNNN”, carriage return, line feed	

Config line	No. of positions	Meaning		
66	1	Length of character string for end of text		
		01 - 06	Length of character string	
		00	No character string for recognizing end of text. Text end only at disconnection or break signal	

Config line	No. of positions	Meaning
67	6	Character string for text end when receiving telexes, valid length defined by line 66, remaining positions filled with any characters (or blanks)

Config line	No. of positions	Meaning
68	2	Minimum length of an incoming telex, intermediate storage interval
		pos 1 Minimum length of an incoming telex
		00..C8 0 ..200 characters
		pos 2 Intermediate storage interval
		00 No intermediate storing
		01..FF 1..255 seconds interval of intermediate storage

Config line	No. of positions	Meaning
69	1	Maximum number of incoming characters
		:00 ,...:FE Call cleared if more than 0 .. 254 characters are received in one sequence (less than 1 second delay between characters)
		:FF Call not cleared because of incoming signals

Config line	No. of positions	Meaning
70	20	Local telex answer back for activation without tele printer set-up of the telex answer back:
		1 position _ Letter shift
		1 position < Carriage return
		1 position > Line feed
		1 position ^ Figure shift
		6 positions Call number
		1 position _ Letter shift
		1 position Space
		5-7 positions Abbreviated name, space, country designation (capital letters)
		1-3 positions _ Letter shift (for a total of 20 filled positions).

Config line	No. of positions	Meaning
71	10	10-position 'der' service signal without disconnection
72	15	Same as 71 (see explanation of this config line)

Config line	No. of positions	Meaning	
73	4	Delay times (x = config value)	
		pos 1	Break detection
			01 ..FF = 132.5 ..6482.5 ms (+- 12.5 ms) for TS20, 22 or 26 (time in ms = x*25 +107.5)
			01 ..23 for TS 28
		pos 2	Non-break detection
			01 ..FF = 22.5 ..6372.5 ms (+- 12.5 ms) (time in ms = x*25 - 2.5)
		pos 3	Delay after break
			00 ..FF =0 ..6375 ms (time in ms = x*25)
		pos 4	Delay after non-break
			00 ..F =0 ..6375 ms (time in ms = x*25)

Config line	No. of positions	Meaning	
74	12	Reserved	

Config line	No. of positions	Meaning	
75	2	Answer back verification (only for dialing stage 0)	
		pos 1	After reception of the character configured here the system will call the other subscriber's answer back and clear the connection within 4 sec. if the received answer back is not the expected one.
		pos 2	Possible values: 0 - 9
		0	No automatic replacement of expected answer back
		1 - 9	If a one-character answer back has been entered, the last 1 - 9 positions of the telex number will be used for answer back verification.

Config line	No. of positions	Meaning	
76, 89, 102,115, 128	1	Character in receiver for this stage. It is not used for stage 0.	

Config line	No. of positions	Meaning	
77, 90, 103, 116, 129	1	Verification for further selection stage starting from position.....	
		00	Off, no further selection stages

Config line	No. of positions	Meaning
		01..FF Verification for further selection stage begins at position 1..255 in telex number

Config line	No. of positions	Meaning
78, 91, 104, 117, 130	10	Proceed to select signal (pts) "Wild cards" can be used, the positions with inverted commas (Hex 27) do not influence the comparison. If fewer than 10 positions are configured the remaining ones must be filled with zeros (hex 00)

Config line	No. of positions	Meaning
79, 92, 105, 118, 131	1	Delay after reception of pts
		00..FF 0..255 seconds delay

Config line	No. of positions	Meaning
80, 93, 106, 119, 132	1	Selection termination character (only for selection with telex char.'s)
		hex 00 off, no char. after selection digits

Config line	No. of positions	Meaning
81, 94, 107, 120, 133	1	No selection termination character if the telex number is terminated with this character (for suppressing the selection termination character for special protocols)

Config line	No. of positions	Meaning
82, 95, 108, 121, 134	1	Maximum waiting period for answer back
		00..FF 0..255 seconds

Config line	No. of positions	Meaning
83, 96, 109, 122, 135	1	Request answer back after
		00..FF 0..255 seconds
		The answer back is requested after the configured waiting period if it has not been correctly received before

Config line	No. of positions	Meaning	
84, 97, 110, 123, 136	1	Call connected signal	
		00	Connected signal can be missing before answer back
		01	Connected signal always comes before answer back

Config line	No. of positions	Meaning	
85, 98, 111, 124, 137	1	Answer back exchange	
		00	no
		01	yes
		02	yes, answer back exchange at the end of the transmission in reverse order

Config line	No. of positions	Meaning	
86, 99, 112, 125, 138	5	Disconnection string If fewer than 5 positions are configured the remaining ones must be filled with zeros (hex 00)	

Config line	No. of positions	Meaning	
87, 100, 113, 126, 139	1	Delay between disconnection string and break signal (1 hex number)	
		00..FF	0..255 seconds delay

Config line	No. of positions	Meaning	
88, 101, 114, 127	0	Comment	

Config line	No. of positions	Meaning	
140	1	Variable answer back on/off	
		'0'	Sending without variable answer back (default)
		'1'	Sending with variable answer back
		'2'	Incoming with variable answer back
		'3'	Sending + incoming with variable answer back

Config line	No. of positions	Meaning
141	1	International network access number
		'0'..'9' Defines the first digit of the selection number for international calls and is also used for the decision whether a call is international or national by comparing it with the first digit of the actual selection number
		' ' All calls are considered as being national

Config line	No. of positions	Meaning
142-147	20	General part for telex TCOSS-code to TCOSS-string output conversion table
148-149	20	National part for telex TCOSS-code to TCOSS-string output conversion table
150-151	20	International part for telex TCOSS-code to TCOSS-string output conversion table
152-155	20	Input TCOSS-string to TCOSS code conversion table for received national characters

Config line	No. of positions	Meaning
156-175	24	Variable answerbacks on incoming calls
		Setup: xxxxxxxxxxxxxxxxxxxxxxxx
		xxxx 4 positions extension number
		aaaaaaaaaaaa 20 positions answerback
		Example: 256?_<>^111388-256_ TCA 2???_<>^111388-2??_ TCINT

Config line	No. of positions	Meaning
176	4	Prefix for inbound routing (unused positions filled with blanks)
		' ' Do not use inbound distribution
		'TX' Inbound distribution via NN99
		'TXI\$' Inbound routing via rr99
		Note 'TX' and 'TXI\$' prefixes are only examples

Config line	No. of positions	Meaning
177	1	Maximum length of sub-address (Maximum of 5 is possible)
		0 Inbound routing via rr99 and TX99 features switched off

Config line	No. of positions	Meaning
178	21	Reserved

Configuring Telex Code Conversions

Config lines 142 - 155 contain a variable number of entries with variable length.

Each entry can be continued on the next line.

Entries are separated from each other by a 00HEX value.

The last entry must end with a 00HEX value. The unused positions behind the last entry must be filled with 00HEX values.

Config lines	
142 - 147	Each entry in these config lines consists of: <ul style="list-style-type: none"> TCOSS-code (which is to be replaced) in the first position of the entry. Replacement string which starts at the second position of the entry (with variable length, maximum 32 characters)
148 - 149	These config lines have the same structure as described for config lines 142 - 147.
150 - 151	These config lines have the same structure as described for config lines 142 - 147.
152 - 153	Each entry in these config lines consists of: <ul style="list-style-type: none"> Input string (which has to be replaced) starting at the first position of the entry (with variable length, maximum 32 characters). Replacement TCOSS-code which starts immediately behind the last position of the input string.
154 - 155	These config lines have the same structure as described for config lines 152 - 153.

See the next section "Configuration Example for Spain".

Configuration Example for Spain

Consider a possible configuration for Spain where ITA no.2 national combinations 6,7 and 8 in figure case are assigned to characters %, H and Ñ. For the appropriate TCOSS-codes refer to TCOSS code page 0.

General part of the output TCOSS-code to TCOSS-string conversion table

"\$"	Converted to	"DLRS"
"@"	converted to	"AT"

National part of the output TCOSS-code to TCOSS-string conversion table

"%"	converted to	"{"
"ñ"	converted to	"}"

"Ñ"	converted to	"}"
-----	--------------	-----

International part of the output TCOSS-code to TCOSS string conversion table

"%"	converted to	"0/0"
"ñ"	converted to	"N"
"Ñ"	converted to	"N"

Input conversion table for reception

"{"	converted to	"%"
"|"	converted to	"h"
"}"	converted to	"ñ"

Input conversion table for back reception

"{"	converted to	"%"
"|"	converted to	"H"
"}"	converted to	"Ñ"

The corresponding config lines should have the following set-up:

```

142: 24 44 4C 52 53 00 40 41 54 00 00 00 00 00 00 00 00 00 00 00
143: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
144: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
145: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
146: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
147: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
148: 25 7B 00 A4 7D 00 A5 7D 00 00 00 00 00 00 00 00 00 00 00 00
149: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
150: 25 30 2F 30 00 A4 4E 00 A5 4E 00 00 00 00 00 00 00 00 00 00
151: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
152: 7B 25 00 7C 68 00 7D A4 00 00 00 00 00 00 00 00 00 00 00 00
153: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
154: 7B 25 00 7C 48 00 7D A5 00 00 00 00 00 00 00 00 00 00 00 00
155: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

Inbound Telex Distribution with Loopback Telex Adapter

This section describes a test environment that is useful for the test text inbound distribution with a loop back telex adapter in an ASP environment.

Required Configuration Changes

This section describes the configuration changes on the Media server and Storage server.

Telex Channel Configuration on the Media Server (Special Config Lines)

The following table defines the special configuration lines for the Telex channel configuration on the Media server.

Config line	Configuration	Description
2 = Y	Y	Channel group Y used for the Telex Loopback service. This is specific to our environment, normally the channel group is X: Set the channel group to Y for the sending channel of one loopback adapter. Set the channel group to an empty string for the receiving channel of the loopback adapter.
42	TLXLOOP\$*	The default originator should be modified to the service TLXLOOP created in one of the next steps (as we already used the service TLX for the public Telex connection), so the line should contain: TLXLOOP\$*
56 = T	T	This is a special type of telex exchange for sending subaddressing digits on a telex loopback adapter.
73, position 4	50	This is the “delay after nonbreak”. It must be different than 0 to enable reception of subaddressing digits. Recommended value according to manual is 28 hex (1 second delay), which caused problems (subaddressing digits were not recognized correctly) in our environment, therefore this value has been increased to 50 hex (2 seconds delay).
83	05	Request answer back after 5 seconds. This config line is important for sending. Normally the PTT requests the answerback of the distant receiver automatically. Only if the sending KCS does not receive the distant answerback within this timeout configured here, it will send a “Who are you” (#) signal to the receiver. Normally this value is set to 2D, which is 45 seconds. As we have no PTT in the loopback environment, KCS must always request the distant answerback. This config line is set to 05 to make the waiting time for the sender shorter (5 sec instead of 45 sec)
140	03	Variable answerbacks switched on for sending and receiving.
176	TXI\$	Inbound prefix for creating the Telex inbound send order (similar to FXI\$ in config line 235 of the FAX module).
177	03	Maximum length of inbound subaddressing digits. The value should be between 1 to 5.

The complete TAMCONF file is listed at the end of this chapter.

Make sure that you switch the channel via HW/SW assignment to a remote TAM configuration.

When switching to remote channel, configure a “shared channel” and set the LineID. For example, set the LineID to “TELEX GROUP”.

Registry Settings on the Media Server

Within the registry of the Media Server, do the following:

1. Create a new subkey with the line ID configured in step 1.

HKLM\SOFTWARE\TOPCALL\TCOSS\RemoteChannels\TELEX GROUP

2. Create new registry values within this subkey:

CustomerList	(REG_MULTI_SZ)	(All)
ListPriority	(REG_DWORD)	0

Telex Channel Configuration on the Storage Server(s)

Configure a Remote Telex channel, set the config line 2 (channel group) to the same value as configured for the telex channel on the media Server. This is Y in our case.

Additionally, modify the default originator (config line 42) to the service TLXLOOP created in one of the next steps: TLXLOOP\$*

Additional Files and Services for Inbound Configuration

This section describes additional files and services for inbound configuration.

Create the +MAIL5V/ATX99 on the Media Server

The TX99 is the configuration file for responding with variable answerbacks on receiving telex messages. It is checked by the TUM of the Telex module to respond with the correct answerback in case of receiving telex messages.

In our case, the TX99 file is configured for 2 variable answerbacks (sample):

```
165,165 KM TCINT A
```

```
130,130 SB TCINT A
```

This means if an incoming telex with subaddressing digits 165 is received, the given answerback is 165 KM TCINT A.

Create the TXI Service on the Media Server and Also on Each of the Storage Servers

The TXI Service is used by the Telex channel to create the inbound send order (see config line 177).

According to the documentation the service should be configured as follows :

- Service name: TXI
- Service abilities: R (restricted text)
- Service prefix: X:TXI

Create the Sender Service TLXLOOP on the Media Server and Also on the Storage Servers

Create the Sender service TLXLOOP on the Media server and Storage servers.

- Service name: TLXLOOP
- Service abilities: R (restricted text)
- Service prefix: Y:

Configure the rr99 Telex Inbound Routing on the Media Server

The inbound routing is similar to the inbound routing of FAX. Again the customer IDs (in this case the customer IDs are SUPPORT1, SUPPORT2,...) must be added to a routable channel number.

The important lines are marked bold.

****SENDMODES**

****NORMALIZE**

****ROUTE**

„FAX inbound routing to storage server

FXI:1~,FXI:SUPPORT1

FXI:2~,FXI:SUPPORT2

FXI:3~,FXI:SUPPORT3

FXI:4~,FXI:SUPPORT4

FXI:5~,FXI:SUPPORT5

FXI:6~,FXI:SUPPORT6

FXI:~,invalid

„Telex inbound routing to storage server

X:TXI1~,X:SUPPORT1

X:TXI2~,X:SUPPORT2

X:TXI3~,X:SUPPORT3

X:TXI4~,X:SUPPORT4

X:TXI5~,X:SUPPORT5

X:TXI6~,X:SUPPORT6

X:TXI~,invalid

****NODES**

****INBOUND**

„the normal inbound routing is now disabled

„FXI:~,„ fax inbound routing to TCOSS user

„FXI:~,DIST:FXI~, default fax inbound receiver

„X:TXI~,„

Configure the Telex Inbound Routing on the Storage Servers

The important lines are marked bold.

****SENDMODES**

****NORMALIZE**

****ROUTE**

****NODES**

****INBOUND**

FXI:~, , fax inbound routing to TCOSS user

FXI:~,invalid, reject FAX if no valid user

,,FXI:~,DIST:FXI~, default fax inbound receiver

X:TXI~, , telex inbound routing to TCOSS user

X:TXI~,DIST:TXI~ default telex inbound receiver

Configure Inactive TXI Addresses for the Users on the Storage Server

In our case, the TXI Address must be defined on the Storage Server SUPPORT1. The address must be 3-digit long and must start with 1, otherwise it is not routed by the media server to the storage Server SUPPORT1.

Active	No	Service	Number:
X	1	TOPCALL	SB,
	2	FXI	130,
	3	TXI	130,

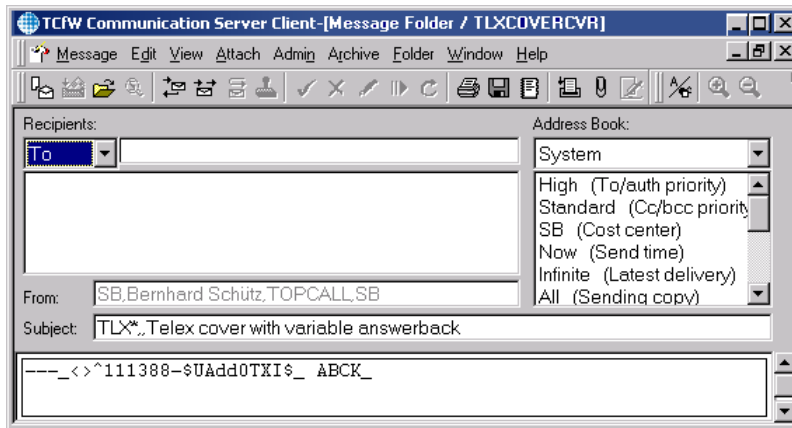
Active	No	Service	Number:
X	1	TOPCALL	KM,
	2	TXI	165,

Create a Cover for Sending Telex Messages with Variable Answerback (Storage Server)

The variable answerback line must be the first line in the cover. It must start with three hyphens --- and afterwards the answerback of the sender in the same format as configured in config line 70 of the telex channel. Here we use the TXI Address of the user (\$UAdd0TXI\$) as variable part.

The ^ character is the figure shift character and must be used before entering digits.

The _ character is the so called letter shift character and must be used before entering characters.



Testing the Configuration

1. Log on with a user to the storage Server (SB in my case).
2. Create a new message in TCFW and select the Telex Cover created in the previous step.
3. Address the message to Service TLXLOOP and number 165. The answerback should be that one (or parts of it) as it is configured for this receiver in the TX99 file. Then send the message.

4. If using a Telex loop connection, make sure that the message is addressed to the subaddressing digits only; there is no “main number”.

Active	No	Service	Numbe
X	1	TLXLD	165,

Check the Received Message in the Inbox of the Receiver

The message above should be routed to the user KM located on TCOSS Server SUPPORT1.

The message should look like:

```
010621 2055
#
165 KM TCINT A
111388-130 abck

stored message
010621/2054 nr. 0009

this is a test message for inbound routing of telex on asp systems
#
165 KM TCINT A
111388-130 abck
```

Line 1 contains the date and time of sending

Line 2 is the “Who are you” character # sent by the sender for requesting the answerback of the receiver

Line 3 contains the answerback of the receiver as configured in the TX99 of the media server

Line 4 contains the answerback of the sender as it was set by using the Telex cover

Line 5 is empty

Line 6 and 7 is the fixed message header as it is sent by the KCS Telex module.

Line 8 is empty again

Line 9 contains the body of the message as entered by the sender

Line 10 contains again the “Who are you” requesting the answerback of the receiver

Line 11 contains the answerback of the receiver

Line 12 contains the answerback of the sender

The From: of the message should contain the TLXLOOP Service:

From: Y,,TLXLOOP,111388

Appendix

TAMCONF file for the Telex channel configuration on the Media server.

```
'1, 001
'Y , 002
'X10, 003
'2, 004
'1, 005
'666666 TCINT TS26A , 006
'A, 007
:00 ,008
'0, 009
'I, 010
'0, 011
' , 012
'9, 013
:32 00 ,014
' , 015
'JS , 016
'A , 017
, 018
'A, 019
'RT, 020
'.TXBR, 021
'0, 022
, 023
'1, 024
'A, 025
'TT, 026
'.TXIN, 027
'0, 028
'I, 029
'A , 030
, 031
'0, 032
:FE ,033
'ST, 034
'0, 035
:00 ,036
```

```
'TELEX GROUP          , 037
:08 00 ,038
:0F ,039
'A , 040
'10110, 041
'TLXLOOP$*          , 042
'876543210, 043
'-----0, 044
'-----0, 045
'-----0, 046
'-----0, 047
:00 00 00 ,048
:02 00 00 ,049
TUM
:34 36 34 36 ,051
:02 ,052
:01 ,053
:02 00 ,054
:01 ,055
'T, 056
:14 ,057
:5A ,058
:4F 43 43 20 20 41 55 54 4F 20 ,059
:14 ,060
'#, 061
:01 01 01 01 ,062
:00 00 00 00 ,063
'3, 064
:01 01 00 4E 4E 4E 4E 3C 3E 00 00 00 ,065
:00 ,066
', 067
:34 1E ,068
:FF ,069
' <>^666666 TCINT____, 070
:44 45 52 20 20 41 55 54 4F 20 ,071
:4E 50 20 52 41 44 41 55 53 20 ,072
:0C 05 00 50 ,073
:00 00 00 00 00 00 00 00 00 00 00 00 ,074
';0, 075
:20 ,076
:04 ,077
:00 00 00 00 00 00 00 00 00 ,078
:01 ,079
:2B ,080
:2D ,081
:36 ,082
:05 ,083
:00 ,084
:01 ,085
:00 00 00 00 00 ,086
:00 ,087
, 088
:47 ,089
:00 ,090
:47 41 00 00 00 00 00 00 00 ,091
:00 ,092
:2B ,093
:2D ,094
:36 ,095
:2D ,096
:01 ,097
:01 ,098
:2E 2E 2E 2E 00 ,099
:05 ,100
```

```
, 101
:2D ,102
:00 ,103
:00 00 00 00 00 00 00 00 00 00 ,104
:00 ,105
:00 ,106
:2D ,107
:00 ,108
:00 ,109
:00 ,110
:00 ,111
:00 00 00 00 00 ,112
:00 ,113
, 114
:42 ,115
:01 ,116
:47 41 00 00 00 00 00 00 00 00 ,117
:00 ,118
:2B ,119
:2F ,120
:00 ,121
:00 ,122
:00 ,123
:00 ,124
:2B 2B 2B 2B 00 ,125
:3C ,126
, 127
:54 ,128
:00 ,129
:00 00 00 00 00 00 00 00 00 00 ,130
:00 ,131
:00 ,132
:2D ,133
:36 ,134
:2D ,135
:00 ,136
:01 ,137
:2B 2B 2B 2B 00 ,138
:3C ,139
'3, 140
', 141
:23 3F 00 2A 3F 00 24 44 4C 52 53 00 25 4F 2F 4F 00 40 41 54 ,142
:00 81 55 45 00 84 41 45 00 8E 41 45 00 94 4F 45 00 99 4F 45 ,143
:00 9A 55 45 00 E1 53 53 00 22 27 27 00 26 2B 00 5C 2F 00 5B ,144
:28 00 5D 29 00 7E 2D 00 60 3F 00 90 45 00 00 00 00 00 00 00 ,145
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,146
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,147
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,148
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,149
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,150
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,151
:7B 46 00 7C 47 00 7D 48 00 00 00 00 00 00 00 00 00 00 00 ,152
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,153
:7B 46 00 7C 47 00 7D 48 00 00 00 00 00 00 00 00 00 00 00 ,154
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,155
', 156
', 157
', 158
', 159
', 160
', 161
', 162
', 163
', 164
```

```

'      , 165
'      , 166
'      , 167
'      , 168
'      , 169
'      , 170
'      , 171
'      , 172
'      , 173
'      , 174
'      , 175
'TXI$, 176
:03 ,177
'      , 178

```

Config Parameters of the Transputer Fax Module (UTF)

Config line	No. of positions	Meaning
1-51		See <i>Configuration Parameters for the Transputer Application Module (TAM)</i>
51	16	Own answer back, left justified, unused positions filled with space. This text will be entered in the header line
52	20	Own telephone number with country code. This number will be sent as answer back to the distant telefax

Config line	No. of positions	Meaning
53	1	back reception
		'0, No back reception
		'1, Back reception without graphics and forms (graphics will appear as “++FX2” and “++TXT” line only in the back received document, forms will be suppressed)
		'2, Back reception with graphics but without forms (forms will be suppressed completely).
		'3, Back reception as full graphics. If this mode is activated, every page will be received back as a graphics block containing all transmitted data (header lines, top margin, bottom margin, text, graphics and forms).
		'4, Back reception as full graphics without leading page break. This mode is the same as mode 3 with the exception that the first page does not start with an +A4H page break.
		Note The feature is not supported by UTF/UIF/ULL on TSxx interfaces.

Config line	No. of positions	Meaning
54	0	Comment

Config line	No. of positions	Meaning	
55	4	Send options	
		pos 1	Error correction mode
		"N"	Send without error correction mode
		"E"	Send with ECM if supported by distant station
		pos 2	Maximum transmission speed
		"0"	2400 bps (V.27ter)
		"1"	4800 bps (V.27ter)
		"2"	7200 bps (V.29)
		"3"	9600 bps (V.29)
		"9"	14400 bps (V.17) (default)
		"N"	33600 bps (V.34) (FoIP only)
		pos 3	Coding
		"0"	Standard one dimensional coding (MH)
		"2"	Two dimensional coding (MR)
		"6"	T.6 coding (MMR)
		pos 4	Use two dimensional coding for sending without ECM
		"0"	no (=default)
		"2"	yes

Config line	No. of positions	Meaning	
56	1	retransmission mode	
		'0,	Standard: retransmit the whole document (default)
		'1,	Enhanced: retransmit first and all non-confirmed pages

Config line	No. of positions	Meaning	
57	1		
		'0,	Do not send a break page
		'1,	Send a break page after transmission has been interrupted

Config line	No. of positions	Meaning	
58	1	Expansion of last page to full length specified in page format	
59	0	Comment	

Config line	No. of positions	Meaning	
60	1	dialing	
		'0,	Pulse dialing international
		'1,	DTMF dialing
		'2'	Pulse dialing for Sweden

Config line	No. of positions	Meaning	
61	1	Short circuit time before 1st dial pulse	
		00....FF	0....2,55s

Config line	No. of positions	Meaning	
62	1	Duration of dial pulse or DTMF tone	
		00....09	0...90ms (10ms steps)
		0A....FF	10...255ms (1ms steps, not available for TSxx interfaces)

Config line	No. of positions	Meaning	
63	2	For pulse dialing	
		pos 1	Delay between dialing pulses
			00...09 0...90ms (10ms steps)
			0A...FF 10...255ms (1ms steps, not available for TSxx interfaces)
		pos 2	not used
		For DTMF - dialing (assumed transm. level of -6dBm)	
		pos 1	Level of the lower frequency signal
			00..7F 64 -8dBm (standard value)
			Level in dBm -8dBm +20*lg (x / 100)
		pos 2	Level of the higher frequency signal
			00..7F 64 -6dBm (standard value)
			Level in dBm -6dBm +20*lg (x / 100)

Config line	No. of positions	Meaning	
64	1	Delay between digits	
		00....FF	0....2,55s

Config line	No. of positions	Meaning	
65	1	Delay after last dial digit	
		00....FF	0....2,55s

Config line	No. of positions	Meaning	
66	1	DC/DC converter control	
		00..07	$1*a + 2*b + 4*c$
		a	Converter on in standby mode (0/1)
		b	Converter on for sending (0/1)
		c	Converter on for local printout (0/1)

Config line	No. of positions	Meaning	
67	1	Ringing time for local printout	
		00....FF	0....25,5s

Config line	No. of positions	Meaning	
68	1	Delay between ring attempts	
		00....FF	0....25,5s

Config line	No. of positions	Meaning	
69	1	Number of ring attempts	
		00....FF	0....255

Config line	No. of positions	Meaning	
70	0	Comment	

Config line	No. of positions	Meaning	
71	2	pos 1	Maximum waiting time for identification of called station
			00..FF 0..255s (used during sending, default 50s)
		pos 2	DCS time-out
			00..FF 0..255s (used during reception, def. 50s)

Config line	No. of positions	Meaning
72	3	Delay before consecutive transmissions / before new page / before page header

Config line	No. of positions	Meaning
73	3	T.30 in message time-outs
		pos 1 Time-out for receiving a response (used during sending only; default = 3s)
		00..FF 0..25,5s
		pos 2 Time-out for receiving a command (used during reception only; default = 7s)
		00..FF 0..25,5s
		pos 3 Receiver not ready time-out (used during sending with ECM, default=60s)
		00..FF 0..255s

Config line	No. of positions	Meaning
74	1	Maximum frame length
		0..FF 0..25,5s (default = 4sec.)

Config line	No. of positions	Meaning
74	1	Maximum frame length
		0..FF 0..25,5s (default = 4sec.)

Config line	No. of positions	Meaning
75	1	Minimum carrier loss time
		0..FF 0..2,55s (default = 200msec)

Config line	No. of positions	Meaning
76	1	Length of HDLC preamble
		0..FF 0..25,5s (default = 1sec.)

Config line	No. of positions	Meaning
77	1	Length of transmitted TCF
		0..1F 0..3,1s (default = 1,5sec.)

Config line	No. of positions	Meaning	
78	1	CNG tone interval	
		0..FF	0..25,5s (default = 3,5sec.)

Config line	No. of positions	Meaning	
79	1	Length of CNG tone	
		0..FF	0..25,5s (default = 0,5 sec.)

Config line	No. of positions	Meaning	
80	1	Receiver threshold	
		00	-43dBm
		01	-46dBm

Config line	No. of positions	Meaning	
81	1	Transmit echo protector tone (default = 26 HEX)	
		value	$2*a + 4*b + 8*c + 10*d + 20*e$ (hex values)
		a	echo protector tone with V.27, 2400 bps (0/1)
		b	echo protector tone with V.27, 4800 bps (0/1)
		c	echo protector tone with V.29, 7200 bps (0/1)
		d	echo protector tone with V.29, 9600 bps (0/1)
		e	echo protector tone with V.17/33, 4800 - 14400 bps (0/1)

Config line	No. of positions	Meaning
82..83	0	Comment
84..103	20x11	Reserved for state machine
104	0	Comment
105..119	15x17	Reserved
120...124		Reserved for state machine
125	0	Comment
126..128	3x16	Reserved

Config line	No. of positions	Meaning
129	1	dial and busy tone detector threshold

Config line	No. of positions	Meaning	
		06..7F	= -53.6dBm ... -5.2dBm
		threshold = -56dBm + n * 0.4 dBm (n = config value)	

Config line	No. of positions	Meaning	
130	0	Comment	

Config line	No. of positions	Meaning	
131	40	Automatic prefix for internal sending. Possible values are:	
		'0'..'9'	Dial digits
		'A'..'Z'	Dial stages unused positions filled with spaces

Config line	No. of positions	Meaning	
132	40	Automatic prefix for external sending. Possible values are:	
		'0'..'9'	dial digits
		'A'..'Z'	dial stages unused positions filled with spaces

Config line	No. of positions	Meaning	
133	1	Internal sending identifier Internal sending if selection number begins with that character	
		' '	No internal sending

Configurations of lines 131 to 133 are supported via WConfig menus.

Config line	Direct	PBX with dial tone	PBY without dial tone
131	'	'PP	'PP
132	'A	'PP0A	'PP0Q
133	' ,	'I,	'I,

Config line	No. of positions	Meaning	
134	4	pos 1	'busy' counter (XU or IU)
			00 counter not used
			01..FF end value 1..255
		pos 2	'no answer' counter (XF or IF)
			00 counter not used

Config line	No. of positions	Meaning		
			01..FF	end value 1..255
		pos 3	'no dial tone' counter (XJ of IJ)	
			00	counter not used
			01..FF	end value 1..255
		pos 4	'no telefax answered' counter (XL)	
			00	counter not used
			01..FF	end value 1..255

Config line	No. of positions	Meaning		
135	4	output power for .. (default = 64)		
		pos 1	59 .. 70	CNG-tone
		pos 2	59 .. 70	V.21 mod. (frames between pages)
		pos 3	59 .. 70	V.27 mod. (2400 and 4800 bps)
		pos 4	59 .. 70	V.17/29/33 mod. (7200 to 14400 bps)
		Note This config line should only be used to correct level deviations between different modulations or to fine adjust the whole output level (range: +/- 1dBm).		

Config line	No. of positions	Meaning		
136	9	Page layout for A4 upright size (see set-up of pages)		
137	9	Page layout for A4 broadside (see set-up of pages)		
138	9	Page layout for Basic Service upright (see set-up of pages)		
139	9	Page layout for Basic Service broadside (see set-up of pages)		

Config line	No. of positions	Meaning		
140	4	Page layout parameters		
		pos 1	Top margin of header line and header line logo (0.1mm units)	
			00..FF	default = 28HEX (4mm)
		pos 2	Left margin of header line (1mm units)	
			00..FF	default = 11HEX (17mm)
		pos 3	Top margin for graphics and forms (0.1mm units)	
			00..FF	default = 00HEX (no top margin)
		pos 4	Left margin of KCS header line logo (1mm units)	

Config line	No. of positions	Meaning		
			00..FF	default = 82HEX (130mm), 00HEX = no logo

Config line	No. of positions	Meaning		
141	0	comment		

Config line	No. of positions	Meaning		
142	1	Header line type (default: 13)		
		00	Old header line format. Uses large font (12 cpi, 6.11lpi).	
		01	Uses small font for header line (17cpi, 8.15lpi).	
		02, 03	Similar to 00 and 01, but header line is printed bold.	
		10-13	Similar to 00-03, but header line can be modified (see variable header line option).	

Config line	No. of positions	Meaning		
143	3	Reception config		
		pos 1	Reception mode	
			00	No reception
			01	With ECM (=default)
			02	Without ECM
		pos 2	Maximum bit rate for reception, option flags	
			00	2400 bps
			01	4800 bps
			02	9600 bps
			04	14400 bps (V.17, default)
			05	33600 bps (V.34; FoIP only)
			The value may be combined with the following option flags:	
			10	Do not decrease speed after bad page
			20	Continue after end-of-retransmission (EOR)
			40	Ignore bad data during none-ECM training
			80	Ignore bad data during ECM training
		pos 3	show transmission parameters in author field	
			00	no (default)
			01	yes (special meaning, see below.)

Config line	No. of positions	Meaning
Note If position 3 of config line 143 is set to '01', positions 21 to 23 of the author field are used to show the operation mode parameters both for sending and reception as shown below.		
Position 21		Send Mode
"N"		normal resolution, without error correction
"E"		normal resolution, with error correction
"n"		fine resolution, without error correction
"e"		fine resolution, with error correction
Position 22		Transmission speed (of last page)
"0"		2400 bps (V.27ter)
"1"		4800 bps (V.27ter)
"2"		7200 bps (V.29)
"3"		9600 bps (V.29)
"4"		12000 bps (V.33)
"5"		14400 bps (V.33)
"6"		7200 bps (V.17)
"7"		9600 bps (V.17)
"8"		12000 bps (V.17)
"9"		14400 bps (V.17)
Position 23		Coding
"0"		Standard one dimensional coding
"2"		Two dimensional coding (according to T.4)
"6"		T.6 coding
Note If the reference in the log file is configured to 10 characters, positions 22 and 23 will be truncated in the log file entry. The "show transmission parameters" must not be used if fax security mode 2 (identify called station be TSI frame) is required		

Config line	No. of positions	Meaning
144	8	Maximum noise for ...
	pos 1	00..FF V.27 with 2400 bps (default = 7F)
	pos 2	00..FF V.27 with 4800 bps (default = 0A)

Config line	No. of positions	Meaning		
		pos 3	00..FF	V.29 with 7200 bps (default = 05)
		pos 4	00..FF	V.29 with 9600 bps (default = 03)
		pos 5	00..FF	V.33 with 12000 bps (default = 04)
		pos 6	00..FF	V.33 with 14400 bps (default = 02)
		pos 7	00..FF	V.17 with 7200 bps (default = 10)
		pos 8	00..FF	V.17 with 9600 bps (default = 09)
		pos 9	00..FF	V.17 with 12000 bps (default = 04)
		pos 10	00..FF	V.17 with 14400 bps (default = 02)

Config line	No. of positions	Meaning		
145	4	Limit 1: if this limit is reached, transmission speed will be decreased before the next page will be received Limit 2: if this limit is exceeded, the received page will be rejected and the following pages will be received with a lower transmission speed		
		pos 1	Maximum number for consecutive bad lines for limit 1	
			00..FF	=0..255 lines
		pos 2	Maximum ratio of bad to received lines for limit 1	
			00..FF	=0..25,5 percent
		pos 3	Maximum number of consecutive bad lines for limit 2	
			00..FF	=0..255 lines
		pos 4	Maximum ratio of bad to received lines for limit 2	
			00..FF	=0..25,5 percent

Config line	No. of positions	Meaning		
146	1	Reception with standard / standard and fine resolution		
		0	Reception with standard	
		1	Reception with standard and fine resolution	

Config line	No. of positions	Meaning		
147	1	Variable date format		
		0	Date format: 92-02-24	
		1	Date format: 24-FEB-1992	
		2	Date format: FEB-24-1992	

Config line	No. of positions	Meaning
148-179	16	Eight 2-byte internal FAX codes for TCOSS code 00H to FFH

Config line	No. of positions	Meaning
180	18	Configuration of DTMF detector (these values are just offsets added to the modem chips default values).
		pos 1 and pos 2 min. on-time per tone
		pos 3 and pos 4 min. off-time per tone
		pos 5 and pos 6 min. cycle time
		pos 7 and pos 8 max. drop out time per tone
		pos 9 and pos 10 max. speech energy
		pos 11 and pos 12 max. freq. deviation for low freq. group
		pos 13 and pos 14 max. freq. deviation for high freq. group
		pos 15 and pos 16 max. negative twist
		pos 17 and pos 18 max. positive twist

Config line	No. of positions	Meaning
181..230	7	Reserved for state machine for controlling the connection assignment
231-234	4	Tracer possibility

Config line	No. of positions	Meaning
235	14	Prefix for inbound and userID command
		pos 1..4 Inbound prefix (unused positions filled with blanks)
		‘ ’ Do not use inbound distribution
		‘.FX ’ Inbound distribution via NN99
		Example: ‘FXI\$’ Distribution via number normalization
		pos 5 Reserved
		pos 6..9 prefix for fax commands (used with 8xxxx command)
		‘+ ’ get userID and password from uu99
		Example: ‘FXI\$’ userID and password is taken from user profile
		pos 10 reserved
		pos 11..14 prefix for originator, if caller Id is available
		‘ ‘ always use the TSI as originator (prefix is configured in config line 42)

Config line	No. of positions	Meaning		
			Example: 'FAX\$'	if available, use caller Id as originator of inbound messages

Config line	No. of positions	Meaning		
236	1	Maximum length of inbound DID number		

Config line	No. of positions	Meaning		
237	3	Router function settings for DID or DDI:		
		pos 1		
			00	Password not required
			01	Password required
		pos 2		
			00	TSI need not match
			01	TSI must match
		pos 3		
			00	Number need not match
			01	Number must match

Config line	No. of positions	Meaning		
238	14	Same as 235 but for DTMF		
239	1	Same as 236 but for DTMF		
240	3	Same as 237 but for DTMF		

Config line	No. of positions	Meaning		
241	8	Maximum length of received page		
		pos 1 and 2	Reserved	
		pos 3 and 4	Maximum length of empty line that will be removed from bottom of page (256*pos3+pos4)*1mm/3.85 Default: 00 78 = 120(dec) = 31.2mm Note When using TC/CCD this value should be changed to 0.	
		pos 5 and 6	Values for length of page	
			00 00	Unlimited page length

Config line	No. of positions	Meaning		
			00 01 to 3F FF	Page length = (256*pos5+pos6) * 1mm/3.85 Standard value: 04 C0 (=315.84mm)
		pos 7 and 8	Reserved	

Config line	No. of positions	Meaning		
242	4	Tracer configuration		
		pos 1	Hex dump reception	
			00	= normal reception
			01	= received docs are stored as hex dump
		pos 2	DID state machine trace	
			00	= no DID state machine trace
			01	= DID state machine trace
			02	= run in fax test mode (direct function calls)
		pos 3	Signal state machine trace	
			00	= no signal state machine trace
			01	= low trace
			02	= high trace
		pos 4	Fax modem trace	
			00	= no fax modem trace
			01	= ...
			02	= ...
			03	= recommend for fax communication problems
			04	= ...
			05	= ...
			06	= full fax modem trace
		pos 5	Binary trace primary datapump	
		pos 6	Binary trace secondary datapump	
		pos 7	DSP performance counter trace Note Binary- and LS1 performance counter trace parameters (positions 5, 6 and 7) do only apply for UTF (TC26) or UIF (TC23 or TC24) modules configured on an LS1. For TC20 and other hardware, these parameters have no effect. See Line Server Model 305 (LS1) Manual [16] for details.	
		pos 8..12	Reserved	

Config line	No. of positions	Meaning
243-246	65	<p>Definition of the FAX default header line</p> <p>If you want to use vowel mutations in the header line, you must do the following:</p> <ul style="list-style-type: none">• Enter the normal characters as normal.• For vowel mutations, type the character using ALT and the keys from the numeric keypad. <div><p>Important To switch to ANSI-codepage, type the hex code of this character with a leading 0 (also typed in at numeric keypad). For example:</p><p>ALT - 0132 for ä</p><p>ALT - 0148 for ö</p><p>ALT - 0129 for ü</p><p>ALT - 0142 for Ä</p><p>ALT - 0153 for Ö</p><p>ALT - 0154 for Ü</p></div> <div><p>Note The line editor display does not show the right character at this time.</p></div>

Config line	No. of positions	Meaning
247-248		Comment
249, 250		Not used
251	4	Reserved
252, 253	1	Not used

Config line	No. of positions	Meaning																																	
254-283	40	Number conversion table. Unused config lines must be set to blanks. Default: all lines set to blanks Format: <number type> + <search string> + '=' + <replace string>																																	
		<table><tr><td><number type></td><td>'1'</td><td>Line is valid for DID numbers only</td></tr><tr><td></td><td>'2'</td><td>Line is valid for DTMF numbers only</td></tr><tr><td></td><td>'3'</td><td>Line is valid for DID or DTMF numbers</td></tr><tr><td></td><td>'4'</td><td>Assigns a CSI on incoming calls</td></tr><tr><td></td><td>'8'</td><td>Line is valid for all sending number</td></tr><tr><td></td><td>'@'</td><td>Converts received caller ID before it is used as originator or for originator based routing</td></tr><tr><td></td><td>'A'</td><td>Redirecting number conversion Rule</td></tr><tr><td></td><td>'C'</td><td>Outgoing caller ID (Calling Party Number) conversion Rule</td></tr><tr><td></td><td>'L'</td><td>Used for loop detection with call rerouting numbers</td></tr><tr><td><search string></td><td colspan="2">It may contain '?' or '~' as wildcard characters</td></tr><tr><td><replace string></td><td colspan="2">Any character sequence If the replace string starts with "T" followed by a decimal digit, an additional prompt is used for DTMF.</td></tr></table>	<number type>	'1'	Line is valid for DID numbers only		'2'	Line is valid for DTMF numbers only		'3'	Line is valid for DID or DTMF numbers		'4'	Assigns a CSI on incoming calls		'8'	Line is valid for all sending number		'@'	Converts received caller ID before it is used as originator or for originator based routing		'A'	Redirecting number conversion Rule		'C'	Outgoing caller ID (Calling Party Number) conversion Rule		'L'	Used for loop detection with call rerouting numbers	<search string>	It may contain '?' or '~' as wildcard characters		<replace string>	Any character sequence If the replace string starts with "T" followed by a decimal digit, an additional prompt is used for DTMF.	
		<number type>	'1'	Line is valid for DID numbers only																															
			'2'	Line is valid for DTMF numbers only																															
			'3'	Line is valid for DID or DTMF numbers																															
			'4'	Assigns a CSI on incoming calls																															
			'8'	Line is valid for all sending number																															
			'@'	Converts received caller ID before it is used as originator or for originator based routing																															
			'A'	Redirecting number conversion Rule																															
			'C'	Outgoing caller ID (Calling Party Number) conversion Rule																															
			'L'	Used for loop detection with call rerouting numbers																															
		<search string>	It may contain '?' or '~' as wildcard characters																																
		<replace string>	Any character sequence If the replace string starts with "T" followed by a decimal digit, an additional prompt is used for DTMF.																																
		Examples:																																	
		<table><tr><td>'11??=80073???0'</td><td>"1xx" delivers text "xx" (session rev.)</td></tr><tr><td>'32~=~'</td><td>convert "2345*" => "2345"</td></tr><tr><td>'4~+=+31 123~'</td><td>CSI prefix +31 123 for inb. calls</td></tr><tr><td>'1100=T20'</td><td>DTMF prompt after DID input "100"</td></tr><tr><td>'800~=00~#'</td><td>append "#" with int. numbers</td></tr></table>		'11??=80073???0'	"1xx" delivers text "xx" (session rev.)	'32~=~'	convert "2345*" => "2345"	'4~+=+31 123~'	CSI prefix +31 123 for inb. calls	'1100=T20'	DTMF prompt after DID input "100"	'800~=00~#'	append "#" with int. numbers																						
		'11??=80073???0'	"1xx" delivers text "xx" (session rev.)																																
		'32~=~'	convert "2345*" => "2345"																																
'4~+=+31 123~'	CSI prefix +31 123 for inb. calls																																		
'1100=T20'	DTMF prompt after DID input "100"																																		
'800~=00~#'	append "#" with int. numbers																																		
Refer to TCOSS System manual [2] for more details																																			

Config line	No. of positions	Meaning
284	1	Reserved
285	2	Reserved
286	8	Reserved
287	16	Reserved
288		Comment

Config line	No. of positions	Meaning	
289	16	Parameters for the Incoming call ring detector in the LS1 TC26 module	
		pos 1	Ring detector full wave mode disabled/enabled
			00 Full wave mode disabled (default)
			01 Full wave mode enabled
		pos 2	Ring validation disabled/enabled
			00 Ring validation disabled
			01 Ring validation enabled (default)
		pos 3	Reserved (set to 00)
		pos 4	Ringer impedance
			00 Maximum (high) ringer impedance (default)
			01 Synthesized ringer impedance to satisfy a maximum ringer impedance in countries, such as Poland, South Africa and Slovenia.
		pos 5	Ring detector threshold Defines the minimum and maximum level of acceptable ring signal. Signals below the lower level do not generate ring detection, but the signals above the upper level are guaranteed to generate ring detection.
			01 $13.5 \text{ Vrms} \leq \text{RingLevel} \leq 16.5 \text{ Vrms}$ (default)
			02 $19.35 \text{ Vrms} \leq \text{RingLevel} \leq 23.65 \text{ Vrms}$
			03 Reserved
			04 $40.5 \text{ Vrms} \leq \text{RingLevel} \leq 49.5 \text{ Vrms}$
		pos 6	Minimum ringer frequency
			19 Sets the minimum ringer tone frequency to 10Hz computed according to the formula: $\text{Pos5} \geq 1 / (2 \times \text{Fmin} \times 2\text{ms})$ Where Fmin is the minimum ringer frequency in Hertz.
		pos 7	Maximum ringer frequency
			16 Sets the maximum ringer tone frequency to 83Hz, computed according to the formula: $\text{Pos6} \geq \text{Pos5} - 1 / (2 \times \text{Fmax} \times 2\text{ms})$ Where Fmax is the maximum ringer frequency in Herz. Additionally relation $\text{Pos6} \leq \text{Pos5}$ must apply.
		pos 8	Minimum ring duration Sets the amount of time the ring frequency must be within tolerances set by upper positions 5 and 6 to be classified as a valid ring signal. The following values are possible:
			00 Ring confirmation time 100ms
			01 Ring confirmation time 150ms

Config line	No. of positions	Meaning		
			02	Ring confirmation time 200ms (default)
			03	Ring confirmation time 256ms
			04	Ring confirmation time 384ms
			05	Ring confirmation time 512ms
			06	Ring confirmation time 640ms
			07	Ring confirmation time 1024ms
		pos 9	Ring timeout (minimum pause between two subsequent rings) Sets the point when a ring signal is determined to be over after the most recent ring threshold crossing. In other words, it sets the minimum pause between to subsequent ring signals:	
			00	Reserved
			01	Ring confirmation time 128ms
			02	Ring confirmation time 256ms
			03	Ring confirmation time 384ms (default)
			04	Ring confirmation time 512ms
			05	Ring confirmation time 640ms
			0F	Ring confirmation time 1920ms
		pos 10	Ring delay Sets the amount of time between a ring signal validated and a valid ring signal indicated. If the ring delay expires before the ring timeout (Position 8 above), a valid ring is indicated:	
			00	0ms
			01	Ring confirmation time 256ms (default)
			02	Ring confirmation time 256ms
			03	Ring confirmation time 384ms
			04	Ring confirmation time 512ms
			05	Ring confirmation time 640ms
			0F	Ring confirmation time 1920ms
		pos 11 to 16	Reserved (set to 00)	

Config line	No. of positions	Meaning
290		Comment

Config line	No. of positions	Meaning	
291	16	Analogue telephone line parameters for the LS1 TC26 module	
		pos 1	Off-hook AC impedance selection
			00 600 Ohm (USA, Japan)
			02 270 Ohm + (750 Ohm || 150nF) (TBR21, Europe) (default)
			03 220 Ohm + (820 Ohm || 120nF) Australia
			05 320 Ohm + (1050 Ohm || 230nF) United Kingdom
		pos 2	Transmitter gain/attenuation control The four LSB bits set (bits 0-3) the gain/attenuation level in 1dB steps, in the range +12/-15 dB The 4th bit selects the gain or attenuation mode: <ul style="list-style-type: none"> 4th bit = 0=Gain 4th bit = 1=Attenuation
			00 0dB gain applied to the transmit path
			01 1dB gain applied to the transmit path
			08 8dB gain applied to the transmit path (default)
			0C 12dB gain applied to the transmit path
			11 -1dB attenuation applied to the transmit path
			1F -15dB attenuation applied to the transmit path
		pos 3	Receiver gain/attenuation control The four LSB bits set (bits 0-3) the gain/attenuation level in 1dB steps, in the range +12/-15 dB The 4th bit selects the gain or attenuation mode: <ul style="list-style-type: none"> 4th bit = 0=Gain 4th bit = 1=Attenuation
			00 0dB gain applied to the receiver path
			01 1dB gain applied to the receiver path
			08 8dB gain applied to the receiver path (default)
			0C 12dB gain applied to the receiver path
			11 -1dB attenuation applied to the receiver path
			1F -15dB attenuation applied to the receiver path
		pos 4	Current limiting disabled/enabled
			00 current limiting disabled

Config line	No. of positions	Meaning		
			01	current limiting enabled. This setting limits loop current to a maximum of 60mA (per the TBR21 standard) (default)
		pos 5	DC Impedance	
			00	50 Ohm DC impedance (default)
			01	800 Ohm DC impedance
		pos 6	Minimum operational loop current Adjusts the minimum loop current at which the TC26 can operate:	
			00	10mA (default)
			01	12mA
			02	14mA
			03	16mA
		pos 7	TIP/RING voltage adjust Adjusts the voltage on the line-side of the TC26, which affects the TIP/ RING voltage on the line:	
			00	3.1V
			01	3.2V
			02	3.35V
			03	3.5V (default)
		pos 8	On-hook speed Adjusts how quickly line loop current equals zero (mA) after the TC26 has changed the state from Off-Hook to On-Hook:	
			00	Less than 0.5ms (default)
			04	3ms +- 10%
			0B	26ms +- 10% (Australia)
		pos 9	Activate auto-calibration of the A/D converter Chooses the method to use for the calibration of the TC26 A/D converter (analog to digital converter used for digitalization of the analogue telephone signals). This calibration is necessary to adjust the A/D circuitry to the exact line present at the time of going off-hook conditions. The manual A/D calibration is the preferred method to use.	
			00	Uses manual A/D calibration (default).
			01	Uses auto-A/D calibration.
		pos 10 to 16	Reserved (set to 00)	

Config line	No. of positions	Meaning
292-294		Comment
295	8	Reserved

Config line	No. of positions	Meaning	
296	8	Log Entry Filtering	
		pos 1	Type filter for logging entries of incoming calls.
			Bit value
		01	0: type "Fax In" entries disabled (default) 1: type "Fax In" entries possible
		02	0: type "Fax Routing" entries disabled (default) 1: type "Fax Routing" entries possible
		04	0: type "Fax Scan" entries disabled (default) 1: type "Fax Scan" entries possible
		08	0: type "Fax Command" entries disabled (default) 1: type "Fax Command" entries possible
		10	0: type "Fax Command (SR)" entries disabled (default) 1: type "Fax Command (SR)" entries possible
		20	0: type "FIS Command" entries disabled (default) 1: type "FIS Command" entries possible
		40	0: type "FIS Command (SR)" entries disabled (default) 1: type "FIS Command (SR)" entries possible
		80	0: type "Voice In" entries disabled (default) 1: type "Voice In" entries possible
		pos 2	Type filter logging entries for outgoing calls
			Bit value
		01	0: type "Fax Out" entries disabled (default) 1: type "Fax Out" entries possible
		02	0: type "Voice Out" entries disabled (default) 1: type "Voice Out" entries possible
		04	Reserved
		08	Reserved
		10	Reserved
		20	Reserved
		40	Reserved
		80	Reserved
		pos 3	Result value filter for logging entries

Config line	No. of positions	Meaning	
			Bit value
		01	0: result "Error" entries disabled (default) 1: result "Error" entries possible
		02	0: result "No Fax" entries disabled (default) 1: result "No Fax" entries possible
		04	0: result "Ok" entries disabled (default) 1: result "Ok" entries possible
		08	0: result "Ok (Tx)" entries disabled (default) 1: result "Ok (Tx)" entries possible
		10	0: result "Ok (Rx)" entries disabled (default) 1: result "Ok (Rx)" entries possible
		20	Reserved
		40	Reserved
		80	Reserved
		pos 4 to 8	Reserved (set to 00)

Config line	No. of positions	Meaning
297	6	Reserved

Config line	No. of positions	Meaning	
298	16	Call progress detector parameters for the LS1 TC26 module	
		pos 1	Call progress tones detector relative sensitivity expressed in percent of the total signal energy, according to the formula: $\text{Sensitivity} = (\text{CallProgressTonesEnergy} * 100) / \text{TotalSignalEnergy}$
		46	corresponds with sensitivity 70% (default) If the call progress tone energy lies below this relative sensitivity, the call progress tone will be not recognized.
		pos 2	Call progress tones detector minimum energy level in the range from -10dBm to -35dBm
		23	Corresponds with minimum level -35dBm (default) If the call progress tone energy lies below this level, the signal is considered being pure noise and thus call progress tone will be not recognized.
		pos 3	Block size for the call progress tones analysis in milliseconds. Possible values are: 10ms, 20ms, and 30ms
		14	corresponds with block size 20ms (default)
		pos 4	Reserved

Config line	No. of positions	Meaning	
		pos 5 to 8	<p>2 CED fax tone detector coefficients that deploy a notch or band-pass filter in order to detect the frequency range of the CED tone.</p> <p>Each coefficient is an integer value occupying 2 byte positions, the MSB byte the first.</p> <p>The default configuration deploys the notch filter in the frequency range 2100Hz (±5%) that detects the CED tone being generated by the terminating fax machine during an outgoing fax call.</p> <p>This setting activates the detection of the CED fax tone being generated by the terminating fax machine during an outgoing fax call.</p>
		pos 9 to 16	Coefficients for echo cancellation with LS1 TC26 module.

Config line	No. of positions	Meaning	
299	16	Call progress detector parameters for the LS1 TC26 module	
		pos 1 to 16	<p>8 call progress tone detector coefficients that deploy a band-pass filter in order to detect the frequency range of the call progress tone</p> <p>Each coefficient is an integer value occupying 2 byte positions, the MSB byte the first.</p> <p>The default configuration deploys the band-pass filter in the frequency range 340Hz–500Hz according to the international standard ITU E.180/Q.35, which states that the accepted frequency for the dial, busy and ringing tones should be not less than 340Hz and not more than 500Hz</p>

LS1 DTMF Receiver Configuration

Since TCOSS 7.47.06 the DTMF receive for LS1 has been improved in order to solve errors 9437 and 9512. Since this release it is also possible to modify some parameters of the DTMF receiver. Therefore configuration line 180 is used. But, note that the description of this line is valid for LS1 only. For TC20/TSxx based fax cards, the meaning remains unchanged. It is used for the DTMF receiver on those cards is already described in the TCOSS configuration manual.

As a general rule, value 0 indicates that a hard-coded default should be used. If you have any problems with the default configuration, contact Kofax.

Configuration line 180 (pos 1-10 / 11-18)	Description
:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 EB E0,	<p>New default since TCOSS 7.47.06. This configuration is good tradeoff between DTMF detection and speech insensitivity.</p> <p>Note Errors 9437 and 9512 are solved with this configuration only.</p>
:00 00 00 00 01 68 01 4C 4E 20 4B 78 00 00 00 0F 02 6C,	DTMF detector is using parameters as with TCOSS releases up to 7.47.05. This configuration is recommended if you have problems with DTMF detection after an update to 7.47.06 or higher.

Configuration line 180 (pos 1-10 / 11-18)	Description
:00 00 00 00 00 00 00 00 27 10 00 00 00 00 00 00 00 00 00,	This configuration is recommended if detection of some digit fails. However, speech insensitivity is reduced with this configuration.
:00 00 00 00 00 00 00 00 75 30 00 00 00 00 00 00 00 00 00,	This configuration improves the speed insensitivity but decreases DTMF detection. It is recommended if DTMF digits are detected within speech.

Note If the value in positions 17/18 is higher than 0x7FFF, the built in default is used instead. This ensures that the UIF default value (0xEBE0), which makes sense for TC20 only will be ignored.

Setup of TCOSS Fax Pages

This section describes the setup of TCOSS fax pages.

Overview about Page Definition

The page layout can be configured with the following config lines:

Transputer fax module, ISDN FAX module	136 to 139
Laser printer module, LAN laser printer module	131 to 134

Each line has 9 positions indicating hexadecimal values.

Pos	Meaning	Unit	Min	Max
1	Font		00	11
2	top margin	PH	00	FF
3	bottom margin	PH	2D	FF
4	left margin	PW	37	FF
5	line pitch vertical (3)	PH	(4)	FF
6	character pitch horizontal	PW	(5)	FF
7	lines per page	lines	01	FF
8	length of BS-line	characters	01	6E
9	BS/LF offset	characters	00	05
PH	Pixel height (1/3.85 millimeters)			
PW	Pixel width (215/1728 millimeters)			
(3)	The line pitch must be an even value.			
(4)	The minimum line pitch is 0C with font 0 and 10 with font 1			
(5)	The minimum character pitch is 0C with font 0 and 10 with font 1			

One of the following fonts may be selected for each page format:

Font (hex.)	Character height (dec.)	Character width (dec.)	Description
00	12*PH = 3.12mm	12*PW = 1.49mm	Font 0 portrait
01	16*PH = 4.16mm	16*PW = 1.99mm	Font 1 portrait
10	25*PW = 3.11mm	6*PH = 1.56mm	Font 0 landscape
11	33*PW = 4.11mm	8*PH = 2.08mm	Font 1 landscape

PH Pixel height (1/3.85 millimeters)

PW Pixel width (215/1728 millimeters)

Hints for configuration:

Positions 5 and 6 can be calculated as follows:

$Pos5 = 97.8 / \langle \text{lines per inch} \rangle$

$Pos6 = 204 / \langle \text{characters per inch} \rangle$

The maximum pixels per line must not exceed 1673:

$Pos4 + Pos6 * Pos8 \leq 1673$

The page length must not exceed the ISO A4 paper size:

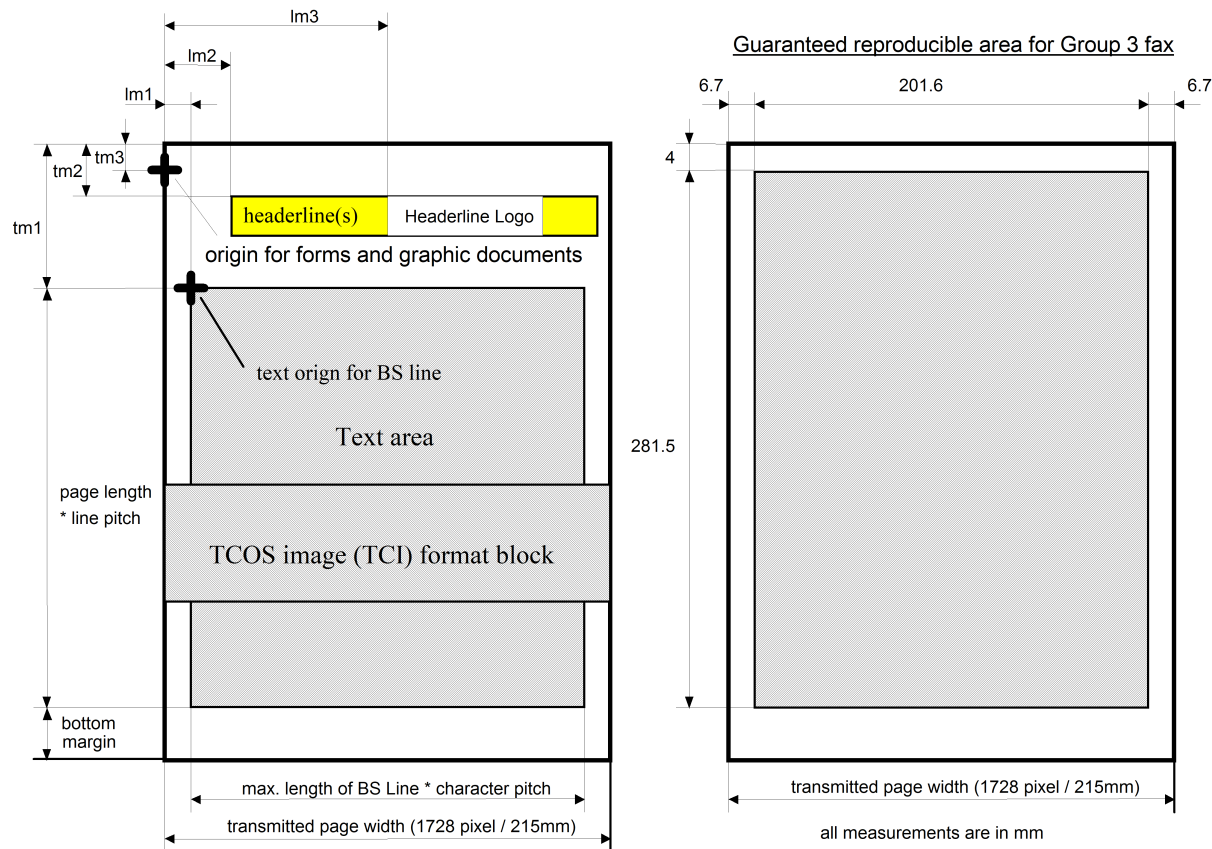
$Pos2 + Pos3 + Pos5 * Pos7 \leq 1143$ (UFX and ULL)

$Pos2 + Pos3 + Pos5 * (Pos7+1) \leq 1123$ (UTF)

Transputer Fax ISDN Fax LAN Laser Printer and Laser Printer Page Setup

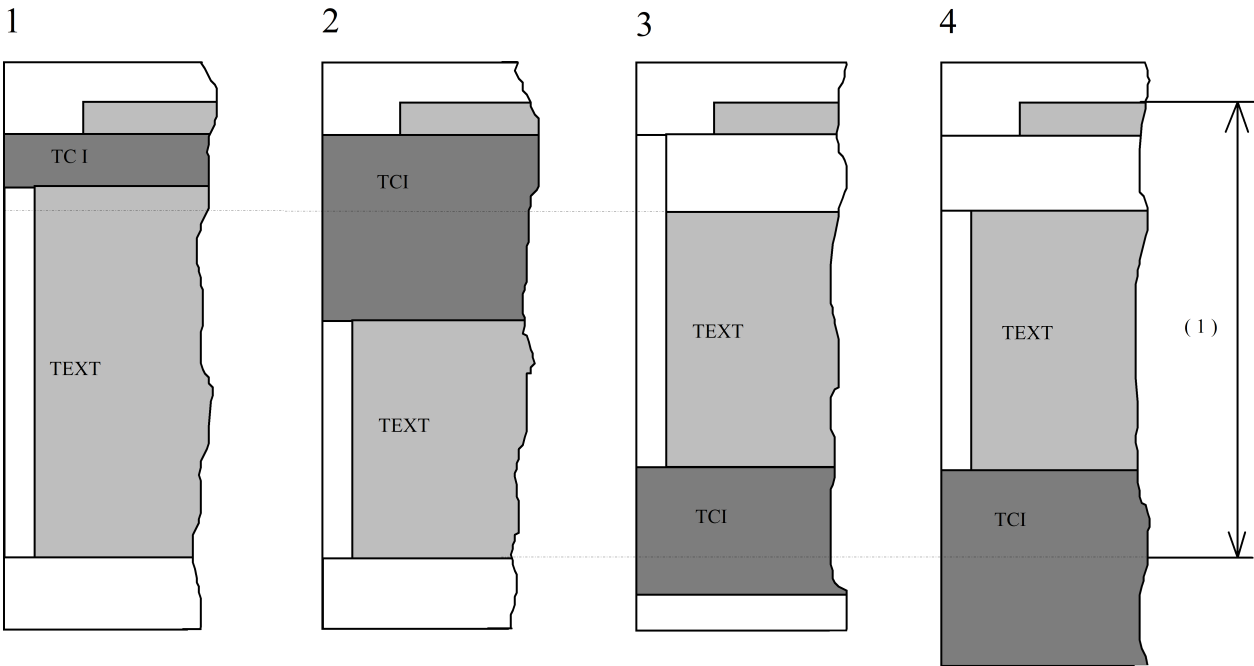
This section describes transputer fax ISDN fax LAN laser printer and laser printer page setup.

Layout



Note According to CCITT recommendation T.4, all information outside the guaranteed reproducible area may not be printed out by the receiving fax machine. To get this reproducible area also with ULL, it increases all top margins by 2.7mm.

Restrictions



(1) : REQUIRED PAGE LENGTH

Overview of possible configurations.

ref.	Config line(s)		Positions	Unit	Standard value	Description
	UTF,UIF	ULL				
tm1	136-139	131-134	2	1/3.85mm	-	top text margin of current page layout
lm1	136-139	131-134	4	0.124mm	-	left text margin of current page layout (can be changed with ++TXT line)
tm2	140	135	1	0.1mm	4mm	top margin of header line and header line logo
lm2	140	135	2	1mm	17mm	left margin of header line
tm3	140	135	3	0.1mm	0mm	top margin for graphics and forms
lm3	140	135	4	1mm	130mm	left margin of header line logo

The top margin of all standard page layouts is set to the following values.

Page format	standard value
A4H	4E(h) = 20.26mm
A4Q	2A(h) = 10.9mm
BDH	2A(h) = 10.9mm

Page format	standard value
BDQ	24(h) = 9.35mm

- Image pages (starting with an image block at begin of document or after form feed line) starts at top margin tm3 (standard value = 0mm). There is no auto page break for this first image on the page even if the configured page length will be exceeded.
- Text pages and pages after an automatic page break starts at top margin tm1 (see chapter layout).
- If the maximum configured page length will be reached during sending, empty lines at the end of the image are suppressed automatically in order to do need exceed the configured page length. This means that if images with a white bottom margin are too long, it's bottom margin will decreased to match the configured page length. Up the last none empty line within the block nothing will be suppressed.
- Page breaks are inserted within the image blocks to make sure that no oversized pages are transmitted. The Fax module does not insert page breaks within character lines. Page breaks are only inserted when an empty image line is detected. Scanning for empty lines starts at the for the Fax module configured bottom margin. If no empty image lines are detected 3 mm before the end of page is reached, a page break is forced. Empty lines due to underlining or other formatting could result in unwanted page breaks.
- The header line is placed on a configurable position on every page as an overlay. This means it can be mixed with printed text or graphics. If a new header line will be created during sending, all existing header lines in the document (if it is a back received document) are removed. The header line is not part of the text!
- Text, following this TCI block will be located directly after the TCI block, also if the TCI block is shorter than the top margin (see figure 1).
- TCI blocks are always starting on the very left vertical paper position (no left margin).
- If a text block reaches the bottom margin a new page will start automatically (see figure 1 and 2 of Restrictions).
- If a TCI block reaches the bottom margin no new page will be started. Only the length of the bottom margin will be reduced by the length of the exceeding TCI block (see figure 3 of Restrictions).
- If the "over length" of a TCI block is greater than the bottom margin, the transmitted page length will be increased.

Config Parameters of the ISDN Fax Module (UIF)

Since config lines 51 to 248 have the same meaning both for UTF and UIF they are described only in the UTF part of the config manual.

Config line	No. of positions	Meaning
1-51		see <i>Configuration Parameters for the Transputer Application Module (TAM)</i>
51-248		see <i>Configuration Parameters for the Transputer Fax Module (UTF)</i>

Config line	No. of positions	Meaning	
249	2 ASCII	reference channel	
		‘ ‘	do not refer to any other channel
		‘00’ .. ‘B9’	channel number of reference channel

Config line	No. of positions	Meaning		
250	5	type of connections		
		pos 1		connection type
			00	point to point
			01	point to multi-point (=default)
		pos 2		layer 3 protocol
			00	EURO-ISDN or Q.931 protocol
			01	1TR6 protocol
			02	AT&T protocol for 4ESS switch type
			03	QSIG protocol
		pos 3		TEI assignment procedure
			00	for point to point
			01..3F	non automatic TEI value
			FF	automatic TEI assignment used (for PtMP) – default
		pos 4		ISDN Line type
			00	Basic rate ISDN connection (=default)
			01	Primary rate E1 ISDN connection
			02	Primary rate T1 ISDN connection
		pos 5		Coding standard
			00	A-law coding (used in Europe)
			01	u-law coding (used in USA, Japan)

Config line	No. of positions	Meaning												
251	6	<p>Service identification (1TR6) or Higher/Lower Layer Comp. (EURO-ISDN) A sequence of up to 6 different call setup parameters can be configured. Unused positions must be set to FF. Each of these 6 positions represents an 8 bit value. Default value: 00 FF FF FF FF FF.</p> <table> <tr> <th>bits</th><th>EURO-ISDN</th><th>1TR6</th></tr> <tr> <td>0..5</td><td>used HLC code 00=no HLC 01=telephone 04=fax Group 3</td><td>used Service Indicator 00=fax group 3 12=telephone 22=fax group 3</td></tr> <tr> <td>6</td><td>used BC/LLC code 0=3.1kHz analog 1=speech</td><td>unused must be 0</td></tr> <tr> <td>7</td><td colspan="2">retry with next position upon info code 300 (user alerted, but call has not been answered) 0=no 1=yes</td></tr> </table>	bits	EURO-ISDN	1TR6	0..5	used HLC code 00=no HLC 01=telephone 04=fax Group 3	used Service Indicator 00=fax group 3 12=telephone 22=fax group 3	6	used BC/LLC code 0=3.1kHz analog 1=speech	unused must be 0	7	retry with next position upon info code 300 (user alerted, but call has not been answered) 0=no 1=yes	
bits	EURO-ISDN	1TR6												
0..5	used HLC code 00=no HLC 01=telephone 04=fax Group 3	used Service Indicator 00=fax group 3 12=telephone 22=fax group 3												
6	used BC/LLC code 0=3.1kHz analog 1=speech	unused must be 0												
7	retry with next position upon info code 300 (user alerted, but call has not been answered) 0=no 1=yes													

Config line	No. of positions	Meaning	
252	1	DDI/MSN mode	
		‘0’	no DDI/MSN
		‘1’	MSN supplementary service
		‘2’	DDI supplementary service

Config line	No. of positions	Meaning	
253	1	currency units scaling	
		'0'	report value in 1/1000 currency units
		'1'	report value in 1/100 currency units
		'2'	report value in 1/10 currency units
		'3'	report value in currency units
		'4'	report value in 10 currency units
		'5'	report value in 100 currency units
		'6'	report value in 1000 currency units

Config line	No. of positions	Meaning	
254-283	40	number conversion table. If MSN supplementary is used, KCS answers the call only if the received MSN number matches with any search string. Unused config lines must be set to blanks. Format: <number type> + <search string> + '=' + <replace string>	
		<number type>	'1' applies to received DID/DDI/MSN numbers
			'2' applies to DTMF input
			'3' applies to received DID/DDI/MSN numbers and DTMF input. Is equivalent to '1' + '2'
			'4' conversion of DID/DDI/MSN numbers to fax CSI(called station identification)
			'8' applies to all outgoing fax & voice numbers
			'@' applies to calling party number (incoming calls)
			'A' applies to redirecting number (incoming calls)
			'C' applies to calling party number (outgoing calls)
			'L' applies to call rerouting number (loop detection with outgoing calls)
		<search string>	It may contain '?' or '*' as wildcard characters.
		<replace string>	May be any character sequence If the replacement string starts with a T, an additional DTMF prompt will be generated. If the replace string contains a % character, this character is replaced by the FAX Calling Party number If the replace string starts with a V, the message is treated as Voice message and the remaining number part is used as "called number" (only with Line Server possible) Examples: <div> <div>'11??=80073???0'</div> <div>"1xx" delivers text "xx" (session rev.)</div> </div> <div> <div>'32~00=~'</div> <div>convert "234500" => "345"</div> </div> <div> <div>'1100=T20'</div> <div>DTMF prompt after DID input "100"</div> </div> Refer to TCOSS system manual [2] for more details

Config line	No. of positions	Meaning	
284	1	call request time-out in seconds	
		00 .. FF	0 .. 255 seconds (default = 60 seconds)

Config line	No. of positions	Meaning		
285	2	DDI length and time-out		
		pos 1	00 .. FF	DDI time-out in seconds, time to wait for the next DDI digit. (default = 5s)
		pos 2	00 .. FF	max. count of DDI digits, only the configured count of digits is awaited. (default = 16)

Config line	No. of positions	Meaning		
286	8	protocol deviations		
		pos 1	call reference length	
			01	1 byte call reference length (=default)
			02	2 byte call reference length (has to be used for primary rate)
		pos 2	channel information element format	
			00	short channel identifier information element format(using channel number coding). To be used for EuroISDN BRI (default)
			01	long channel identifier information element format(using channel number coding) to be used for EuroISDN PRI, AT&T 4ESS PRI, NI2 PRI, QSIG BRI and PRI. (but may work also for Japanese INS-Net 1500 (PRI)
			02	long channel identifier information element format(using slot map coding) to be used for Japanese INS-Net 1500 (PRI) if 01 does not work
		pos 3	outgoing B channel negotiation method	
			00	any channel (=default, dedicated ONLY for basic rate interface except ECMA Q.SIG protocol)
			01	exclusive (for primary rate interface)
			02	preferred (for primary rate interface)
				Note See "Allocating B-channels".
		pos 4	call collision handling	
			00	A-side (=default, TC34 starts choosing B-channel for outgoing calls from the lower end – B1, B2, ...)
			01	B-side (TC34 starts choosing B-channels from upper end, such as B30, B29, and more)
				Note See "Allocating B-channels".
		pos 5	Bit value	

Config line	No. of positions	Meaning		
			01	use sending complete indicator in outgoing setup 0: yes (=default, informs the network that the dialed number is complete) 1: no (even though KCS inserts always the complete dialed number into the setup message, some ISDN networks do not support this indicator(currently AT&T and ISDN in Japan).
			02	Reserved
			04	Reserved
			08	Reserved
			10	Reserved
			20	Reserved
			40	Reserved
			80	Routing of incoming calls 0: circular incoming call distribution via reception enabled channels (default) 1: route calls to the idle channel with the lowest TCOSS channel number
		pos 6	numbering plan identification used for outgoing calls	
			00	ISDN/Telephony numbering plan (ITU recommendation E.164/ E.163)
			01	unknown numbering plan (no knowledge of the numbering plan) 'unknown' should be used in Japan
		pos 7	AT&T service used for outgoing calls (NOTE: AT&T protocol only!)	
			00	no specific service used for the call on the call-by-call basis, must be provisioned for the whole T1 trunk
			01	SDN service (Software Defined Network)
			02	Reserved
			03	MEGACOM service
			04	Reserved
			05	Reserved
			06	Reserved
			07	Long Distance Service
		pos 8	Bit value	
			01	General redirecting number on / off (do not activate concurrent with redirecting number for voice calls, line 295 position 3)
		(bit 0)	0 ...	redirecting number disabled (default), compatible to versions previous to TCOSS 7.40.00

Config line	No. of positions	Meaning		
			1 ...	redirecting number enabled: if available with an incoming call, used for inbound routing instead of DDI if not, fully compatible to previous releases (use DDI for inbound routing)
			06	used QSIG protocol variant (only relevant for QSIG configuration on Line Server Model 305 [LS1], ignored for other configurations)
		(bit 1)	0 ...	ISO/ECMA QSIG (default)
			1 ...	ETSI QSIG
		(bit 2)	0 08	Reserved B-channel numbering scheme (only relevant for QSIG configuration on E1 lines, ignored for other configurations)
		(bit 3)	0 ...	B-channel numbering scheme using logical channel number (default)
			1 ...	B-channel numbering scheme using E1 timeslot number

Config line	No. of positions	Meaning		
287	16	Layer 3 parameters		
		pos 1 to 4	Allocating B-channels. Bitwise map of B-channels being used For details, see Advanced Configuration: Allocating B-channels.	
			00 00 00 00	Default setting, switches "full" E1/T1 line (with 30 /23 channels)
		pos 5	timer T302 (in sec. units)	
			00 or 0F	Sets default value for Euro-ISDN and 1TR6 not used with AT&T protocol
		pos 6	timer T303 (in sec. units)	
			00 or 04	Sets default value for Euro-ISDN and 1TR6
			04	AT&T protocol
		pos 7	timer T305 (in sec. units)	
			00 or 1E	Sets default value for Euro-ISDN and 1TR6
			04	AT&T protocol
		pos 8	timer T308 (in sec. units)	
			00 or 04	Sets default value for Euro-ISDN and 1TR6
			04	AT&T protocol
		pos 9	timer T313 (in sec. units)	
			00 or 04	Sets default value for Euro-ISDN and 1TR6
			04	AT&T protocol
		pos10	timer T317 (in sec. units)	

Config line	No. of positions	Meaning		
			00 or 0A	sSets default value for Euro-ISDN and 1TR6
			01	AT&T protocol
		pos 11 to 14	Not used	
		pos 15 to 16	PBX model	
			00 00	Default (all PBXs except those listed below)
			00 01	Alcatel OmniPCX 4400 R6.x

Config line	No. of positions	Meaning		
288		comment		

Config line	No. of positions	Meaning		
289	16	Layer 2 configuration		
		pos 1	layer 2 side	
			00	user side (=default)
			01	network side
		pos 2	window size k	
			00 or 01	k=1, for basic rate (if set to 00, ISDN stack defaults to 01)
			07	k=7, for primary rate
		pos 3	parameter N200 (retransmission counter)	
			00 or 03	Sets default value for all protocol variants
		pos 4	parameter N202 (retransmission counter)	
			00 or 03	Sets default value for all protocol variants
		pos 5	timer T200 (in 100ms units)	
			00 or 0A	Sets default value for all protocol variants
		pos 6	timer T202 (in 100ms units)	
			00 or 0A	Sets default value for all protocol variants
		pos 7	timer T203 (in 100ms units)	
			00 or 64	Sets default value for Euro-ISDN and 1TR6
			96	Sets default value for AT&T protocol

Config line	No. of positions	Meaning
290		comment

Config line	No. of positions	Meaning
291	16	Layer 1 configuration (used with TC34 only)
		pos 1 clock mode
		00 E1/T1: slave mode (=default, TE)
		01 E1/T1: master mode (NT)
		pos 2 operation mode
		Bit value
		01 0 ... E1: CRC4 framing T1: ESF framing (extended superframe)
		1 ... E1: double frame T1: SF framing (superframe, D4)
		02 T1: enable performance report message (PRM)
		0 ... handling according to AT&T TR54016
		1 ... T1: disable TR54016 PRMs
		04 0 ... T1: disable one-second PRMs according to ANSI T1.403
		1 ... T1: enable ANSI T1.403 PRMs
		08 0 ... T1: B8ZS line coding
		1 ... T1: AMI with ZCS line coding
		pos 3 to 6 T1 transmit pulse shape (quarters of full wave)
		00 default value for 0 – 35m line length
		else output level in app. 150 mVpeak steps (max. 31)
		pos 7 not used; do not modify
		pos 8 Reference clock source priority
		00 Do never use this line as reference clock. This setting is recommended for Line Server Primary rate Loop tests (one TC24 interconnected with a crossed cable to simulate 2 PRI lines)
		01 This line may be used as reference clock if the Layer 1 is active and configured as “clock slave”
		02 same as value 01 but prefer this line as reference clock even if any other line with priority 1 is currently used as reference clock. This is used for Line Server test environments with 1 PRI (TC24 loop connection) and 1 BRI (TC23). The BRI interface MUST have priority 2 in this scenario!

Config line	No. of positions	Meaning	
		pos 9	Supervision of BRI/PRI line status
			3C – the value of layer 1 supervision timer in seconds, default hex 3C (60 seconds).
			00 - layer 1 supervision is deactivated (may only be necessary for some ISDN approvals in order not to confuse the ISDN testing equipment)
		pos 10	phase deviation select (PDS) - used with BRI only Since TCOSS 7.63.01 the value of the PDS bit is both configurable and its default value has been changed to lower the phase jitter on the BRI line. (See error 11711)
			00 (correspond with the new PDS value, which is used since TCOSS 7.63.01)
			01 (use the same setting as before TCOSS 7.63.01)
		pos 11 to 16	reserved (set to 00)

Note For all currently supported basic access protocols, these lines are automatically changed by the config program according to the configured protocol (menu general parameters). In this case they should not be changed manually.

For primary rate interfaces, manual configuration changes are necessary.

Config line	No. of positions	Meaning
292-294		comment

Config line	No. of positions	Meaning	
295	8	ISDN Supplementary Services and Automatic Fax Detection (only relevant for QSIG protocol running on KCS Line Server Model 305 [LS1])	
		pos 1	outgoing voice calls
			00 disabled
			01 enabled (default)
		pos 2	using configured PABX prefix for outgoing voice calls
			00 Do not use the configured PABX prefix for outgoing voice calls
			01 Use the configured PABX prefix for outgoing voice calls Remark: The prefix refers to "automatic prefix for external sending" in fax config line 132.
		pos 3	redirecting number for voice calls (do not activate concurrent with general redirecting number feature, line 286 position 8 bit 0)
			00 disabled
			01 enabled (default)

Config line	No. of positions	Meaning	
		02	reserved
		04	the Original Redirecting number for outgoing VOICE calls enabled
		80	(KCS FoIP only) suppress redirecting number (number of the party that has diverted the call is not evaluated)
		pos 4	automatic fax detection
		00	disabled (default)
		else	time in seconds TCOSS tries to detect an incoming fax after the call has been answered
		pos 5	call transfer 1
		00	call transfer via PBX disabled (=tromboning, default)
		01	call transfer by join "into ringing" (preferred CT variant)
		02	call transfer by join "into connected"
		pos 6	call transfer 2
		00	call transfer without call hold
		01	put the 1st call on hold prior to the CT
		pos 7 to 8	reserved (set to 00)

Config line	No. of positions	Meaning
296	8	See Config Parameters of the Transputer Fax Module (UTF)
297	6	ISDN HLC definition; see TCOSS ISDN manual
298	16	reserved
299	16	reserved

Troubleshooting

It is possible that some special fax machines cannot be reached with UIF (e.g. info codes 17, 31, 63, 88, or 111 may occur with EURO-ISDN) but sending with an analogue fax machine is possible. The problem is caused by incorrect settings of the higher layer compatibility (HLC, used with EURO-ISDN) or service identification (SI, used with 1TR6) at the receiver side!

It can be solved by call retries with different services. Therefore config line 251 uses 5 additional hex positions. The first position specifies the service for the first call request. If it fails with an info code between 0 and 127 immediate retries are made with the service code configured in positions 2 to 6. These retries are very fast (normally within 1 second) and not visible for the user (send state will not be changed, no journal entry, ..). Retries are stopped if a position contains FF, the connection could be established or an error with info code higher than 127 occurs.

If a call request terminates without any response (INFO code 300), it may be necessary to make a service retry with another service code. Since service codes are using only 7 data bits, bit 7 is used to define if retries are made in case of INFO 300.

Note If a retry with INFO 300 is activated, the ringing time of destinations that do not answer the call (such as telephone without user) will be multiplied (configuration depend by 2,3,4,5 or 6).

Configuration for 1TR6

	config line 251	Used SI for all call requests
default value	:00 FF FF FF FF FF,	1. SI = a/b service fax group 3
recommended value if you could not sent to all fax machines	:00 12 FF FF FF FF,	1. SI = a/b service fax group 3 2. SI = analogue telephone

Note Service code 00 is the same as service code 22 (a/b service fax group 3). Calls without service codes are not possible with 1TR6.

Configuration for EURO-ISDN (and ECMA Q.Sig)

	config line 251	Used HLC for all call requests
default value	:00 FF FF FF FF FF,	1. no HLC is used
recommended value if you could not sent to all fax machines	:04 00 01 FF FF FF,	1. HLC = fax group 3 2. no HLC is used 3. HLC = telephone
recommended if bearer capability speech is required	:40 FF FF FF FF FF,	1. no HLC, use speech BC/LLC
recommended if all send attempts to specif number leads to XL and default value for 251 is not possible. 3)	:00 84 01 FF FF FF,	1. No HLC is used 2. HLC = fax group 3 (retry with INFO 300) 3. HLC = telephone
recommended if bearer capability speech is required	:40 FF FF FF FF FF,	1. no HLC, use speech BC/LLC
recommended for tests only to find out the working HLCs	:84 80 81 C4 C0 C1,	1. HLC = fax group 3 2. no HLC is used 3. HLC = telephone 4. HLC = fax group 3, BC/LLC=speech 5. no HLC, BC/LLC=speech 6. HLC = telephone, BC/LLC=speech

Note the following:

- Service code 00 is used to suppress the HLC info element. According to recommendations such calls should be answered from every apparatus at the distant side that may be compatible (such as

telephone, fax, modems, and others). In some countries, such as Switzerland, calls without HLC are not accepted by the local exchange.

- Bearer and Lower Layer capability speech must be handled with care. It should only be used as last resort, if problems cannot be solved. By definitions, speech calls may be compressed with compression algorithm that do not support fax communication.
- When sending to specific numbers via ISDN, it is possible that always error XL appears. When sending to this number via analog line (e.g. TS32) it's ok. This behavior is in most cases reproducible at the customer and sometimes at KCS too!

A possible reason for this behavior can be that the receiver FAX is incompatible or wrong configured for receiving faxes from a KCS system.

We made several tests to these specific receiver fax numbers and finally found a working configuration. Default setting of line 251 is :84 00 81..... which means KCS sends an identification "fax group 3" at the beginning which is not correctly detected by the receiver fax. By specifying this line to :00 84 81, which means "no HLC is sent from KCS", sending is possible without problems. Please note also that this is NOT a KCS problem, it is a receiver fax problem (e.g. wrong configured)!

Take care that this setting is now used for all faxes which are sent via this ISDN line. Possible solution can be to configure just one ISDN channel with this configuration modification and to create a rr99 file which routes all send commands for these numbers via the configured ISDN channel.

Alcatel 4400 PABX

Overlap sending can be configured by changing position 5 in config line 286 to 01. This is required for required for ALCATEL 4400 PABX. It is not recommended to use it for other installations.

Siemens HiCom 300 via 1TR6

Important information for all ISDN HICOM 300 connections with 1TR6 protocol and Release 3.5 on HICOM

Following problems with the connection to HICOM 300 via ISDN and 1TR6 protocol might occur if release 3.5 on HICOM is used:

- hang up of B channel and
- problems with cost accounting

Following patches must be installed or configured by the Siemens technician.

- In this case, HICOM 300 with release 3.5 acts like release 3.4.
- A release 3.6 for 'old' HICOM systems and a release 2.0 for HICOM 300 E systems. It contains the cost accounting and EDDS1 should work properly then.

Solution for B channel hang up with

- VK 5358 Patch PS 10 G 63
- K 5358 Patch PS 10 G 73

Solution for cost accounting with:

- VK 5590 Patch PS 10 K19

Special ISDN Issues

This section describes the special ISDN issues.

Support Internal Number Type for Outgoing Calls

If any UIF channel is not configured for PABX and the destination number is starting with “I” (switch for internal numbers), the number will be sent as internal PABX extension.

Note This feature helps to ease configuration of UIF.

Config Parameters of Fax over IP Module (UFI)

UFI is derived from UIF. All positions not noted here have the same meaning and defaults as for UIF. For details on T.38 Fax over IP with UFI channels, refer to the *TC/FoIP Manual [17]*.

Config line	No. of positions	Meaning
55		Reserved
57		Reserved
60-130		Reserved
135		Reserved

Config line	No. of positions	Meaning
143	3	Reception configuration
		pos 1 see <i>Config Parameters of the Transputer Fax Module (UTF)</i>
		pos 2 reserved
		pos 3 reserved

Config line	No. of positions	Meaning
144-146		Reserved
180-230		Reserved
241		Reserved

Config line	No. of positions	Meaning
242	7	Tracer configuration
		pos 1 T.38 master trace level
		00 no T.38 trace
		01 less T.38 trace (may be activated on up to 30 channels).
		02 medium T.38 trace (recommended for trouble shooting on some few channels).

Config line	No. of positions	Meaning		
			03 or more	high T.38 trace (only recommended for intensive trouble shooting on one channel).
		pos 2	T.38 general trace level.	
			00	trace errors/warnings and PCLI assign/removal only.
			01	like 00 + additional information about the number and callerId for outgoing calls.
			02 or more	like 01 + additional information about the number conversions.
		pos 3	Level for CAPI message trace.	
			00	trace CAPI Message only if they contains any error information.
			01	like 00 + all CAPI messages (excluding CAPI_DATA_B3) is single trace line.
			02	like 00 + all CAPI messages (including CAPI_DATA_B3) is single trace line.
			03 or more	trace all CAPI message with a detailed description of their parameters. Each CAPI message will lead to multiple trace lines.
		pos 4	State changes trace level.	
			00	do not trace any state changes in the internal state machine.
			01	trace only some major state changes (about 3 lines per document).
			02	trace more state changes.
			03	trace all state changes except during data reception/transmission and idle state.
			04	trace all state changes except during data reception/transmission.
			05 or more	Trace all state changes.
		pos 5.	Event trace level.	
			00 or 01	do not trace any state machine events.
			02 or 03	trace all events except DATA_B3 CAPI events.
			04 or more	Trace all events.
		pos 6	Action trace level.	
			00	trace only actions that are called due to unexpected error conditions. (State Table error handling).
			01	00 + one action at begin of transmission or reception.
			02	01 + more details
			03	02 + one action call for each transmitted pixel line.

Config line	No. of positions	Meaning		
			04 or more	All actions (=03 + one action call for each received pixel line and idle polls).
		pos 7	Reserved	

Note T.38 specific traces consist of a master trace level and some detailed trace levels. The master trace level will be mapped to different detailed trace levels as shown in the table below.

Detailed Trace Setting	Master Trace Level			
	0	1	2	3
Level for general trace	0	1	2	7
Level for CAPI Message trace	0	1	2	2
State changes trace level	0	0	1	5
Event trace level	0	0	1	5
Action trace level	0	0	1	5

Each detailed trace level has its own configuration position. If the value in this position is zero, then a trace level according to that table above is used, otherwise the trace level from the corresponding configuration position is used. Unless there is any very special situation to trace, it is recommended to activate traces with the master trace level only.

Config line	No. of positions	Meaning
250-251		Reserved

Config line	No. of positions	Meaning	
252	1	MSN/DDI mode	
		'0'	Accept all calls, no not use the received called party number (default).
		'1'	MSN Config: Accept calls if the called party number matches with any entry in the number conversion table (number type "1"). The converted called party number is then used as received number for e.g. inbound distribution. This functionality is like an UIF with MSN configuration
		'2'	DDI Config: Accept all calls and use the (converted) called party number as received number for e.g. inbound distribution. This functionality is like an UIF with DDI with the exception that overlapped received digits (this means additional digits after the incoming call has been signaled) will be ignored

Config line	No. of positions	Meaning
253		Reserved

Config line	No. of positions	Meaning	
284	1		Reserved
			Call request time-out in seconds.
		00 .. FF	0 .. 255 seconds (default = 60 seconds).

Config line	No. of positions	Meaning	
285-290		Reserved	

Config line	No. of positions	Meaning	
291	16	Configuration for FoIP v3 (for TC/FoIP v2 / CAPI configuration, refer to <i>TC/FoIP Technical Manual</i>)	
		pos 1-8	Reserved
		pos 9	Call peer mask for outgoing calls (default =00).
			00, FF All call peer are available.
			01 First call peer
			02 Second call peer
			04 Third call peer
			08 Fourth call peer
			10 Fifth call peer
			20 Sixth call peer
			40 Seventh call peer
			80 Eighth call peer
			Any combination Allows to configure which call peers are available for outgoing calls.
		pos 10	Call peer mask for incoming calls (default = 00)
			00, FF Incoming calls from all call peers are accepted.
			01 First call peer
			02 Second call peer
			04 Third call peer
			08 Fourth call peer
			10 Fifth call peer
			20 Sixth call peer
			40 Seventh call peer
			80 Eighth call peer

Config line	No. of positions	Meaning	
		Any combination	Allows to configure the call peers used for incoming calls.
		pos 11	Enable variable gateway IP for outgoing calls.
		00	Gateway IP is always taken from the Call-peer configuration (default).
		01	Variable gateway IP may be specified in the number field.
		pos 12	Failover strategy for outgoing calls.
		00	Use the first available call peer (default for updates).
		01	Use current call peer until it fails.
		02	Load balance (round robin) between all call peers (default for new channels).

Config line	No. of positions	Meaning	
292-299		Reserved	
	All other positions	See <i>Config Parameters of the ISDN Fax Module (UIF)</i> .	

Config Parameters of the Laser Printer Module (ULL)

Config line	No. of positions	Meaning	
51	16	Own answer back, left justified, unused positions filled with space. This text will be entered in the header line.	
52	20	TSI field of laser printer header line.	
53-83	-	Not used.	

Config line	No. of positions	Meaning	
84	11	Number parameter - printer resolution - send option.	
		60..100	Default = 90 - printed page has 90 percent the size of the original document.

Config line	No. of positions	Meaning	
85-103	-	Not used.	
104	0	Comment	

Config line	No. of positions	Meaning	
105-109	5x17	Initializing sequence for the laser printer.	
		pos 1	Length of init sequence (hex)
		pos 2 - 17:	Init sequence in hex (16 positions).

Config line	No. of positions	Meaning	
110-128	-	Not used	

Config line	No. of positions	Meaning	
129	4	pos 1	?
		pos 2	?
		pos 3	Module failure counter(01 is recommended for multiple TCLANPRT modules)
		pos 4	?

Config line	No. of positions	Meaning	
130	-	Not used	
131	9	Page layout for A4 upright size (see set-up of pages).	
132	9	Page layout for A4 broadside (see set-up of pages).	
133	9	Page layout for Basic Service upright (see set-up of pages).	
134	9	Page layout for Basic Service broadside (see set-up of pages).	

Config line	No. of positions	Meaning		
135	4	Page layout parameters.		
		pos 1	00..FF	Top margin of header line and header line logo (0.1mm units) Default = 28HEX (4mm)
		pos 2	00..FF	Left margin of header line (1mm units) Default = 11HEX (17mm)
		pos 3	00..FF	Top margin for graphics and forms (0.1mm units) Default = 00HEX (no top margin)
		pos 4	00..FF	Left margin of KCS header line logo (1mm units) Default = 82HEX (130mm), 00HEX = no logo

Config line	No. of positions	Meaning	
136	1	Not used.	

Config line	No. of positions	Meaning	
137	1	Header line type.	
		00	Old header line format, use large font (12 cpi, 6.11lpi).
		01	Use small font for header line (17cpi, 8.15lpi).
		02,03	Like 00,01 but header line will be printed bold.
		10-13	Like 00-03 but header line can be modified (see variable header line option).

Config line	No. of positions	Meaning	
138 - 141	-	Not used.	

Config line	No. of positions	Meaning	
142	1	0, 1 or 2	Variable date format
		0	date format: 92-02-24
		1	date format: 24-FEB-1992
		2	date format: FEB-24-1992

Config line	No. of positions	Meaning	
143-174	16	Eight 2-byte internal FAX codes for TCOSS code 00H to FFH.	
175-178	4	Tracer possibility.	
179-182	65	Definition of the default header line.	

Config Parameters of the Character Recognition Module (OCR) (NOT SUPPORTED)

Config line	No. of positions	Meaning	
51	1	Form mode	
		:00	Form mode off, skip to page mode immediately.
		:01..FD	read 1 to 253 pages in form mode, then go to page mode.
		:FE	Read in form mode until a page that is not a form mode is found (less than 4 fields), then go to page mode.
		:FF	Read all pages in form mode, never go to page mode.

Config line	No. of positions	Meaning	
52	1	Page Mode	
		:00	Do not read in page mode, stop reading.
		:01..FE	Read 1 to 254 pages in page mode.
		:FF	Read the rest of the pages in page mode.

Config line	No. of positions	Meaning	
53	1	Author field of back reception.	
		:00	Author reference to original file + header line.
		:01	Author only as read from header line.

Config line	No. of positions	Meaning	
54	1	Reserved	
55	1	Reserved	

Config line	No. of positions	Meaning	
56	2	Confidence threshold and difference for alpha fields.	
		pos 1	Confidence threshold between 0...100
		pos 2	Confidence difference between 0...100

Config line	No. of positions	Meaning	
57	2	Confidence threshold and difference for numeric fields.	
		pos 1	Confidence threshold between 0...100
		pos 2	Confidence difference between 0...100

Config line	No. of positions	Meaning	
58	2	Confidence threshold and difference for alphanumeric fields.	
		pos 1	Confidence threshold between 0...100
		pos 2	Confidence difference between 0...100

Config Parameters of the Client Server Module (UC0)

There are no parameters for this module.

Chapter 4

Standard Configuration

This section describes the standard configuration.

Default Configuration after Initial Installation

The default configuration can be used on a model/155/21x without modifications.

Required:

- At least a TP80 and a TC90/95 to have a valid CPU number.
- The License Tool TC/LT to enter License keys.

Note Slaves and interfaces are not required.

It supports the following features:

1. TCOSS can be accessed via TCSI (RPC transport).
2. Channel 00 is configured for maintenance with TCUAS.

Hardware/Software Assignment

Channel	SW module	HW Module	Slot	Slave
00	AS	----	--	0.R
B0	C0	----	--	-
B1	C0	----	--	-
B2	C0	----	--	-
B3	C0	----	--	-
B4	C0	----	--	-
B5	C0	----	--	-
B6	C0	----	--	-
B7	C0	----	--	-
B8	C0	----	--	-
B9	C0	----	--	-

TCUAS Tool

You can access Channel 00 via TCUAS.exe (located in C:\tcoss\system). This tool is dedicated for KCS technicians only. The TCUAS tool is not an official KCS product, therefore, it is not maintained, no errors are fixed, and no manual exists for this tool.

Command line:

```
TCUAS.EXE 00 KCS < Input.txt > Output.txt
```

Parameters:

00	Channel number of UAS module on TCOSS server, usually 00
KCS	Name of the TCOSS server or "." for local machine (Note: TCUAS does not use TCTI and therefore no TCTI paths are used).
< Input.txt	Take input from a text file
> Output.txt	Write output to a text file (output is also written to console window in any case)

Note If you create a shortcut, for example, on your desktop with a pipe in the command line, the piping will only work correctly if you run the Cmd.exe within the shortcut:

```
"C:\WINNT\system32\CMD.EXE /C C:\Tcoss\System\tcuas.exe 00 KCS > c:\temp\tcuasout.txt"
```

Services

Service	Description	Document class	Prefix	Address type
FAX	Fax	RTI	F:	Fax
FREE	Free format	RTIB		Free format
FXI	Fax inbound	RTI	FXI:	Fax
SCAN	Scanner	RTI		TOPCALL
TLX	Telex	R	X:	Telex
TOPCALL	TOPCALL Users	RTIB		TOPCALL

Users

User ID	TCTECH	+ENVELOP	DIST	TCLINK
Default Password See Point 1 in Note	TCTECH See Point 1 in Note	invalid See Point 2 in Note	invalid See Point 2 in Note	invalid See Point 2 in Note
Rights	all	no	See Point 3 in Note	no
Address Service	no See Point 4 in Note	SCAN	TOPCALL	TOPCALL
Address number	no	+ENVELOP	DIST	TCLINK
Default Template	no	no	no	TCLINK/DEFTEMP

Note the following:

1. The TCTECH user is created with a default password. This password must be changed at first login.
2. The users +ENVELOP, DIST and TCLINK are created as disabled accounts with invalid passwords. Disabled accounts can be used as originator or recipient but you cannot login using these users. If you want to login with one of these accounts (which is typically required for the TCLINK user), these must be enabled using the following steps:
 - a. Open the KCS user administration with any client (Topcall for Windows or TC/Web) with a user who has permissions to modify other user profiles (for example, TCTECH).
 - b. Open the desired user profile to change.
 - c. Assign a password.
 - d. Unlock the account by checking the corresponding check box.
 - e. Save changes.Refer to the following screen to enable a user using Topcall for Windows. Relevant fields are highlighted.

User Profile - TCLINK

Queue Length/Age/Pages alerting | Queue Length/Age/Pages logging | TC/WEB | TC/WEB Identity Rights

General | Address | Event | Rights | Manual Fax | Distributor | Authorize/Sign

User ID: TCLINK

Group: TCLINK

Location:

Representative: TCLINK

Company:

Department:

Full name:

Salutation:

Password: *****

Retype password: *****

☒ Change own password

☐ Password never expires

Password will never expire

☐ Change password at next login

☒ **Unlock account**

Account is locked

3. The DIST user has a minimum set of rights that are required for distributor operation.
Rights setting: read system and group address book, open in- and out-box of group members
Distributor setting: Queue name is DIST, print and terminate is enabled.

4. The TCLINK user has appropriate rights for TCLINK operation as shown in the following screen shot:

<table><tr><td>Read</td><td>Write</td></tr><tr><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table>	Read	Write	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<table><tr><td>FIS Folder</td></tr><tr><td>Message Folder</td></tr><tr><td>System Folder</td></tr><tr><td>System Address Book</td></tr><tr><td>User Address Book</td></tr><tr><td>All Priv.Address Books</td></tr><tr><td>Group Address Book</td></tr><tr><td>Group User Profiles</td></tr><tr><td>System User Profiles</td></tr></table>	FIS Folder	Message Folder	System Folder	System Address Book	User Address Book	All Priv.Address Books	Group Address Book	Group User Profiles	System User Profiles	<table><tr><td>FIS prefix:</td><td></td></tr><tr><td><input type="checkbox"/> Tech user</td><td><input type="checkbox"/> Meta-Mail</td></tr><tr><td><input type="checkbox"/> Server</td><td><input type="checkbox"/> LAN login</td></tr><tr><td><input checked="" type="checkbox"/> Services</td><td><input type="checkbox"/> Terminate incoming</td></tr><tr><td><input type="checkbox"/> Registration/licence</td><td><input type="checkbox"/> Change cost center</td></tr><tr><td><input type="checkbox"/> Change sender</td><td><input type="checkbox"/> Extended folder view</td></tr><tr><td><input type="checkbox"/> Reporting</td><td><input type="checkbox"/> Preferences</td></tr><tr><td><input checked="" type="checkbox"/> May mark complete</td><td><input checked="" type="checkbox"/> Save as Cover Sheet</td></tr></table>	FIS prefix:		<input type="checkbox"/> Tech user	<input type="checkbox"/> Meta-Mail	<input type="checkbox"/> Server	<input type="checkbox"/> LAN login	<input checked="" type="checkbox"/> Services	<input type="checkbox"/> Terminate incoming	<input type="checkbox"/> Registration/licence	<input type="checkbox"/> Change cost center	<input type="checkbox"/> Change sender	<input type="checkbox"/> Extended folder view	<input type="checkbox"/> Reporting	<input type="checkbox"/> Preferences	<input checked="" type="checkbox"/> May mark complete	<input checked="" type="checkbox"/> Save as Cover Sheet
Read	Write																																														
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	Group members			All users																																											
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Outbox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																									
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Enter number directly	<input type="checkbox"/> Always	<input type="checkbox"/> Correct																																													
Restricted use of services	<input type="checkbox"/>																																														

System Account Policy File (+MAIL5V/App99)

Password expires after 0 days
Account lockout after 0 bad logon attempts
Minimum password length 0 characters
History holds last 0 passwords

Routing Directory (+MAIL5V/Arr99)

```
**SENDMODES
**NORMALIZE
**ROUTE
**NODES
**INBOUND
FXI:~, , fax inbound routing to TCOSS User
FXI:~,DIST:FaxDID~, default fax inbound receiver
```

Default Number Series (+MAIL5V/Att99)

Series	Current	From	To	Cycle
A	0002	0000	9999	0100
B	0000	0000	9999	0100
C	0000	0000	9999	0100
D	0000	0000	9999	0100
E	0000	0000	9999	0100
F	0000	0000	9999	1000
G	0000	0000	9999	0100
H	001	001	999	100
I	0000	0000	9999	0100
J	002	002	999	100
K	0000	0000	9999	0100

Series	Current	From	To	Cycle
L	0000	0000	9999	0100
M	0000	0000	9999	0100
N	0000	0000	9999	0100
O	0000	0000	9999	0100
P	0000	0000	9999	0100
Q	0000	0000	9999	0100
R	0000	0000	9999	1000
S	0000	0000	9999	0100
T	0000	0000	9999	0100
U	0000	0000	9999	0100
V	0000	0000	9999	0100
W	0000	0000	9999	0100
X	0000	0000	9999	0100
Y	0000	0000	9999	0100
Z	0000	0000	9999	0100

Standard Time Zone Definitions (+MAIL5V/Atz99)

```

**TIMEZONE,NAME=AKST/AKDT
Comment: Alaska Standard Time / Alaska Daylight Time
Add to UTC: -09:00
Daylight Saving times:
1997-04-06 02:00 - 1997-10-26 02:00
1998-04-05 02:00 - 1998-10-25 02:00
1999-04-04 02:00 - 1999-10-31 02:00
2000-04-02 02:00 - 2000-10-29 02:00
2001-04-01 02:00 - 2001-10-28 02:00
2002-04-07 02:00 - 2002-10-27 02:00
2003-04-06 02:00 - 2003-10-26 02:00
2004-04-04 02:00 - 2004-10-31 02:00
2005-04-03 02:00 - 2005-10-30 02:00
2006-04-02 02:00 - 2006-10-29 02:00
2007-03-11 02:00 - 2007-11-04 02:00
2008-03-09 02:00 - 2008-11-02 02:00
2009-03-08 02:00 - 2009-11-01 02:00
2010-03-14 02:00 - 2010-11-07 02:00
2011-03-13 02:00 - 2011-11-06 02:00
2012-03-11 02:00 - 2012-11-04 02:00
2013-03-10 02:00 - 2013-11-03 02:00
2014-03-09 02:00 - 2014-11-02 02:00
2015-03-08 02:00 - 2015-11-01 02:00
2016-03-13 02:00 - 2016-11-06 02:00
2017-03-12 02:00 - 2017-11-05 02:00
2018-03-11 02:00 - 2018-11-04 02:00
2019-03-10 02:00 - 2019-11-03 02:00
2020-03-08 02:00 - 2020-11-01 02:00
2021-03-14 02:00 - 2021-11-07 02:00
2022-03-13 02:00 - 2022-11-06 02:00
2023-03-12 02:00 - 2023-11-05 02:00

```

```
2024-03-10 02:00 - 2024-11-03 02:00
2025-03-09 02:00 - 2025-11-02 02:00
2026-03-08 02:00 - 2026-11-01 02:00
2027-03-14 02:00 - 2027-11-07 02:00
2028-03-12 02:00 - 2028-11-05 02:00
2029-03-11 02:00 - 2029-11-04 02:00
**TIMEZONE,NAME=PST/PDT
Comment: Pacific Standard Time / Pacific Daylight Time
Add to UTC: -08:00
Daylight Saving times:
1997-04-06 02:00 - 1997-10-26 02:00
1998-04-05 02:00 - 1998-10-25 02:00
1999-04-04 02:00 - 1999-10-31 02:00
2000-04-02 02:00 - 2000-10-29 02:00
2001-04-01 02:00 - 2001-10-28 02:00
2002-04-07 02:00 - 2002-10-27 02:00
2003-04-06 02:00 - 2003-10-26 02:00
2004-04-04 02:00 - 2004-10-31 02:00
2005-04-03 02:00 - 2005-10-30 02:00
2006-04-02 02:00 - 2006-10-29 02:00
2007-03-11 02:00 - 2007-11-04 02:00
2008-03-09 02:00 - 2008-11-02 02:00
2009-03-08 02:00 - 2009-11-01 02:00
2010-03-14 02:00 - 2010-11-07 02:00
2011-03-13 02:00 - 2011-11-06 02:00
2012-03-11 02:00 - 2012-11-04 02:00
2013-03-10 02:00 - 2013-11-03 02:00
2014-03-09 02:00 - 2014-11-02 02:00
2015-03-08 02:00 - 2015-11-01 02:00
2016-03-13 02:00 - 2016-11-06 02:00
2017-03-12 02:00 - 2017-11-05 02:00
2018-03-11 02:00 - 2018-11-04 02:00
2019-03-10 02:00 - 2019-11-03 02:00
2020-03-08 02:00 - 2020-11-01 02:00
2021-03-14 02:00 - 2021-11-07 02:00
2022-03-13 02:00 - 2022-11-06 02:00
2023-03-12 02:00 - 2023-11-05 02:00
2024-03-10 02:00 - 2024-11-03 02:00
2025-03-09 02:00 - 2025-11-02 02:00
2026-03-08 02:00 - 2026-11-01 02:00
2027-03-14 02:00 - 2027-11-07 02:00
2028-03-12 02:00 - 2028-11-05 02:00
2029-03-11 02:00 - 2029-11-04 02:00
**TIMEZONE,NAME=MST/MDT
Comment: Mountain Standard Time / Mountain Daylight Time
Add to UTC: -07:00
Daylight Saving times:
1997-04-06 02:00 - 1997-10-26 02:00
1998-04-05 02:00 - 1998-10-25 02:00
1999-04-04 02:00 - 1999-10-31 02:00
2000-04-02 02:00 - 2000-10-29 02:00
2001-04-01 02:00 - 2001-10-28 02:00
2002-04-07 02:00 - 2002-10-27 02:00
2003-04-06 02:00 - 2003-10-26 02:00
2004-04-04 02:00 - 2004-10-31 02:00
2005-04-03 02:00 - 2005-10-30 02:00
2006-04-02 02:00 - 2006-10-29 02:00
2007-03-11 02:00 - 2007-11-04 02:00
2008-03-09 02:00 - 2008-11-02 02:00
2009-03-08 02:00 - 2009-11-01 02:00
2010-03-14 02:00 - 2010-11-07 02:00
2011-03-13 02:00 - 2011-11-06 02:00
2012-03-11 02:00 - 2012-11-04 02:00
2013-03-10 02:00 - 2013-11-03 02:00
```

```
2014-03-09 02:00 - 2014-11-02 02:00
2015-03-08 02:00 - 2015-11-01 02:00
2016-03-13 02:00 - 2016-11-06 02:00
2017-03-12 02:00 - 2017-11-05 02:00
2018-03-11 02:00 - 2018-11-04 02:00
2019-03-10 02:00 - 2019-11-03 02:00
2020-03-08 02:00 - 2020-11-01 02:00
2021-03-14 02:00 - 2021-11-07 02:00
2022-03-13 02:00 - 2022-11-06 02:00
2023-03-12 02:00 - 2023-11-05 02:00
2024-03-10 02:00 - 2024-11-03 02:00
2025-03-09 02:00 - 2025-11-02 02:00
2026-03-08 02:00 - 2026-11-01 02:00
2027-03-14 02:00 - 2027-11-07 02:00
2028-03-12 02:00 - 2028-11-05 02:00
2029-03-11 02:00 - 2029-11-04 02:00
**TIMEZONE,NAME=CST/CDT
Comment: Central Standard Time / Central Daylight Time
Add to UTC: -06:00
Daylight Saving times:
1997-04-06 02:00 - 1997-10-26 02:00
1998-04-05 02:00 - 1998-10-25 02:00
1999-04-04 02:00 - 1999-10-31 02:00
2000-04-02 02:00 - 2000-10-29 02:00
2001-04-01 02:00 - 2001-10-28 02:00
2002-04-07 02:00 - 2002-10-27 02:00
2003-04-06 02:00 - 2003-10-26 02:00
2004-04-04 02:00 - 2004-10-31 02:00
2005-04-03 02:00 - 2005-10-30 02:00
2006-04-02 02:00 - 2006-10-29 02:00
2007-03-11 02:00 - 2007-11-04 02:00
2008-03-09 02:00 - 2008-11-02 02:00
2009-03-08 02:00 - 2009-11-01 02:00
2010-03-14 02:00 - 2010-11-07 02:00
2011-03-13 02:00 - 2011-11-06 02:00
2012-03-11 02:00 - 2012-11-04 02:00
2013-03-10 02:00 - 2013-11-03 02:00
2014-03-09 02:00 - 2014-11-02 02:00
2015-03-08 02:00 - 2015-11-01 02:00
2016-03-13 02:00 - 2016-11-06 02:00
2017-03-12 02:00 - 2017-11-05 02:00
2018-03-11 02:00 - 2018-11-04 02:00
2019-03-10 02:00 - 2019-11-03 02:00
2020-03-08 02:00 - 2020-11-01 02:00
2021-03-14 02:00 - 2021-11-07 02:00
2022-03-13 02:00 - 2022-11-06 02:00
2023-03-12 02:00 - 2023-11-05 02:00
2024-03-10 02:00 - 2024-11-03 02:00
2025-03-09 02:00 - 2025-11-02 02:00
2026-03-08 02:00 - 2026-11-01 02:00
2027-03-14 02:00 - 2027-11-07 02:00
2028-03-12 02:00 - 2028-11-05 02:00
2029-03-11 02:00 - 2029-11-04 02:00
**TIMEZONE,NAME=EST/EDT
Comment: Eastern Standard Time / Eastern Daylight Time
Add to UTC: -05:00
Daylight Saving times:
1997-04-06 02:00 - 1997-10-26 02:00
1998-04-05 02:00 - 1998-10-25 02:00
1999-04-04 02:00 - 1999-10-31 02:00
2000-04-02 02:00 - 2000-10-29 02:00
2001-04-01 02:00 - 2001-10-28 02:00
2002-04-07 02:00 - 2002-10-27 02:00
2003-04-06 02:00 - 2003-10-26 02:00
```

```
2004-04-04 02:00 - 2004-10-31 02:00
2005-04-03 02:00 - 2005-10-30 02:00
2006-04-02 02:00 - 2006-10-29 02:00
2007-03-11 02:00 - 2007-11-04 02:00
2008-03-09 02:00 - 2008-11-02 02:00
2009-03-08 02:00 - 2009-11-01 02:00
2010-03-14 02:00 - 2010-11-07 02:00
2011-03-13 02:00 - 2011-11-06 02:00
2012-03-11 02:00 - 2012-11-04 02:00
2013-03-10 02:00 - 2013-11-03 02:00
2014-03-09 02:00 - 2014-11-02 02:00
2015-03-08 02:00 - 2015-11-01 02:00
2016-03-13 02:00 - 2016-11-06 02:00
2017-03-12 02:00 - 2017-11-05 02:00
2018-03-11 02:00 - 2018-11-04 02:00
2019-03-10 02:00 - 2019-11-03 02:00
2020-03-08 02:00 - 2020-11-01 02:00
2021-03-14 02:00 - 2021-11-07 02:00
2022-03-13 02:00 - 2022-11-06 02:00
2023-03-12 02:00 - 2023-11-05 02:00
2024-03-10 02:00 - 2024-11-03 02:00
2025-03-09 02:00 - 2025-11-02 02:00
2026-03-08 02:00 - 2026-11-01 02:00
2027-03-14 02:00 - 2027-11-07 02:00
2028-03-12 02:00 - 2028-11-05 02:00
2029-03-11 02:00 - 2029-11-04 02:00
**TIMEZONE,NAME=AST/ADT
Comment: Atlantic Standard Time / Atlantic Daylight Time
Add to UTC: -04:00
Daylight Saving times:
1997-04-06 02:00 - 1997-10-26 02:00
1998-04-05 02:00 - 1998-10-25 02:00
1999-04-04 02:00 - 1999-10-31 02:00
2000-04-02 02:00 - 2000-10-29 02:00
2001-04-01 02:00 - 2001-10-28 02:00
2002-04-07 02:00 - 2002-10-27 02:00
2003-04-06 02:00 - 2003-10-26 02:00
2004-04-04 02:00 - 2004-10-31 02:00
2005-04-03 02:00 - 2005-10-30 02:00
2006-04-02 02:00 - 2006-10-29 02:00
2007-03-11 02:00 - 2007-11-04 02:00
2008-03-09 02:00 - 2008-11-02 02:00
2009-03-08 02:00 - 2009-11-01 02:00
2010-03-14 02:00 - 2010-11-07 02:00
2011-03-13 02:00 - 2011-11-06 02:00
2012-03-11 02:00 - 2012-11-04 02:00
2013-03-10 02:00 - 2013-11-03 02:00
2014-03-09 02:00 - 2014-11-02 02:00
2015-03-08 02:00 - 2015-11-01 02:00
2016-03-13 02:00 - 2016-11-06 02:00
2017-03-12 02:00 - 2017-11-05 02:00
2018-03-11 02:00 - 2018-11-04 02:00
2019-03-10 02:00 - 2019-11-03 02:00
2020-03-08 02:00 - 2020-11-01 02:00
2021-03-14 02:00 - 2021-11-07 02:00
2022-03-13 02:00 - 2022-11-06 02:00
2023-03-12 02:00 - 2023-11-05 02:00
2024-03-10 02:00 - 2024-11-03 02:00
2025-03-09 02:00 - 2025-11-02 02:00
2026-03-08 02:00 - 2026-11-01 02:00
2027-03-14 02:00 - 2027-11-07 02:00
2028-03-12 02:00 - 2028-11-05 02:00
2029-03-11 02:00 - 2029-11-04 02:00
**TIMEZONE,NAME=UTC
```

```
Comment: Coordinated Universal Time
Add to UTC: +00:00
**TIMEZONE,NAME=WET/WEST
Comment: Western European Time / Western European Summer Time
Add to UTC: +00:00
Daylight Saving times:
1997-03-30 01:00 - 1997-10-26 02:00
1998-03-29 01:00 - 1998-10-25 02:00
1999-03-28 01:00 - 1999-10-31 02:00
2000-03-26 01:00 - 2000-10-29 02:00
2001-03-25 01:00 - 2001-10-28 02:00
2002-03-31 01:00 - 2002-10-27 02:00
2003-03-30 01:00 - 2003-10-26 02:00
2004-03-28 01:00 - 2004-10-31 02:00
2005-03-27 01:00 - 2005-10-30 02:00
2006-03-26 01:00 - 2006-10-29 02:00
2007-03-25 01:00 - 2007-10-28 02:00
2008-03-30 01:00 - 2008-10-26 02:00
2009-03-29 01:00 - 2009-10-25 02:00
2010-03-28 01:00 - 2010-10-31 02:00
2011-03-27 01:00 - 2011-10-30 02:00
2012-03-25 01:00 - 2012-10-28 02:00
2013-03-31 01:00 - 2013-10-27 02:00
2014-03-30 01:00 - 2014-10-26 02:00
2015-03-29 01:00 - 2015-10-25 02:00
2016-03-27 01:00 - 2016-10-30 02:00
2017-03-26 01:00 - 2017-10-29 02:00
2018-03-25 01:00 - 2018-10-28 02:00
2019-03-31 01:00 - 2019-10-27 02:00
2020-03-29 01:00 - 2020-10-25 02:00
2021-03-28 01:00 - 2021-10-31 02:00
2022-03-27 01:00 - 2022-10-30 02:00
2023-03-26 01:00 - 2023-10-29 02:00
2024-03-31 01:00 - 2024-10-27 02:00
2025-03-30 01:00 - 2025-10-26 02:00
2026-03-29 01:00 - 2026-10-25 02:00
2027-03-28 01:00 - 2027-10-31 02:00
2028-03-26 01:00 - 2028-10-29 02:00
2029-03-25 01:00 - 2029-10-28 02:00
**TIMEZONE,NAME=CET/CEST
Comment: Central European Time / Central European Summer Time
Add to UTC: +01:00
Daylight Saving times:
1997-03-30 02:00 - 1997-10-26 03:00
1998-03-29 02:00 - 1998-10-25 03:00
1999-03-28 02:00 - 1999-10-31 03:00
2000-03-26 02:00 - 2000-10-29 03:00
2001-03-25 02:00 - 2001-10-28 03:00
2002-03-31 02:00 - 2002-10-27 03:00
2003-03-30 02:00 - 2003-10-26 03:00
2004-03-28 02:00 - 2004-10-31 03:00
2005-03-27 02:00 - 2005-10-30 03:00
2006-03-26 02:00 - 2006-10-29 03:00
2007-03-25 02:00 - 2007-10-28 03:00
2008-03-30 02:00 - 2008-10-26 03:00
2009-03-29 02:00 - 2009-10-25 03:00
2010-03-28 02:00 - 2010-10-31 03:00
2011-03-27 02:00 - 2011-10-30 03:00
2012-03-25 02:00 - 2012-10-28 03:00
2013-03-31 02:00 - 2013-10-27 03:00
2014-03-30 02:00 - 2014-10-26 03:00
2015-03-29 02:00 - 2015-10-25 03:00
2016-03-27 02:00 - 2016-10-30 03:00
2017-03-26 02:00 - 2017-10-29 03:00
```

```
2018-03-25 02:00 - 2018-10-28 03:00
2019-03-31 02:00 - 2019-10-27 03:00
2020-03-29 02:00 - 2020-10-25 03:00
2021-03-28 02:00 - 2021-10-31 03:00
2022-03-27 02:00 - 2022-10-30 03:00
2023-03-26 02:00 - 2023-10-29 03:00
2024-03-31 02:00 - 2024-10-27 03:00
2025-03-30 02:00 - 2025-10-26 03:00
2026-03-29 02:00 - 2026-10-25 03:00
2027-03-28 02:00 - 2027-10-31 03:00
2028-03-26 02:00 - 2028-10-29 03:00
2029-03-25 02:00 - 2029-10-28 03:00
**TIMEZONE,NAME=EET/EEST
Comment: Eastern European Time / Eastern European Summer Time
Add to UTC: +02:00
Daylight Saving times:
1997-03-30 03:00 - 1997-10-26 04:00
1998-03-29 03:00 - 1998-10-25 04:00
1999-03-28 03:00 - 1999-10-31 04:00
2000-03-26 03:00 - 2000-10-29 04:00
2001-03-25 03:00 - 2001-10-28 04:00
2002-03-31 03:00 - 2002-10-27 04:00
2003-03-30 03:00 - 2003-10-26 04:00
2004-03-28 03:00 - 2004-10-31 04:00
2005-03-27 03:00 - 2005-10-30 04:00
2006-03-26 03:00 - 2006-10-29 04:00
2007-03-25 03:00 - 2007-10-28 04:00
2008-03-30 03:00 - 2008-10-26 04:00
2009-03-29 03:00 - 2009-10-25 04:00
2010-03-28 03:00 - 2010-10-31 04:00
2011-03-27 03:00 - 2011-10-30 04:00
2012-03-25 03:00 - 2012-10-28 04:00
2013-03-31 03:00 - 2013-10-27 04:00
2014-03-30 03:00 - 2014-10-26 04:00
2015-03-29 03:00 - 2015-10-25 04:00
2016-03-27 03:00 - 2016-10-30 04:00
2017-03-26 03:00 - 2017-10-29 04:00
2018-03-25 03:00 - 2018-10-28 04:00
2019-03-31 03:00 - 2019-10-27 04:00
2020-03-29 03:00 - 2020-10-25 04:00
2021-03-28 03:00 - 2021-10-31 04:00
2022-03-27 03:00 - 2022-10-30 04:00
2023-03-26 03:00 - 2023-10-29 04:00
2024-03-31 03:00 - 2024-10-27 04:00
2025-03-30 03:00 - 2025-10-26 04:00
2026-03-29 03:00 - 2026-10-25 04:00
2027-03-28 03:00 - 2027-10-31 04:00
2028-03-26 03:00 - 2028-10-29 04:00
2029-03-25 03:00 - 2029-10-28 04:00

**TIMEZONE,NAME=Z
Comment: Zulu Time Zone
Add to UTC: +00:00

**TIMEZONE,NAME=Y
Comment: Yankee Time Zone
Add to UTC: -12:00

**TIMEZONE,NAME=X
Comment: X-ray Time Zone
Add to UTC: -11:00

**TIMEZONE,NAME=W
Comment: Whiskey Time Zone
```



```
Add to UTC: -10:00

**TIMEZONE,NAME=V
Comment: Victor Time Zone
Add to UTC: -09:00

**TIMEZONE,NAME=U
Comment: Uniform Time Zone
Add to UTC: -08:00

**TIMEZONE,NAME=T
Comment: Tango Time Zone
Add to UTC: -07:00

**TIMEZONE,NAME=S
Comment: Sierra Time Zone
Add to UTC: -06:00

**TIMEZONE,NAME=R
Comment: Romeo Time Zone
Add to UTC: -05:00

**TIMEZONE,NAME=Q
Comment: Quebec Time Zone
Add to UTC: -04:00

**TIMEZONE,NAME=P
Comment: Papa Time Zone
Add to UTC: -03:00

**TIMEZONE,NAME=O
Comment: Oscar Time Zone
Add to UTC: -02:00

**TIMEZONE,NAME=N
Comment: November Time Zone
Add to UTC: -01:00

**TIMEZONE,NAME=A
Comment: Alpha Time Zone
Add to UTC: +01:00

**TIMEZONE,NAME=B
Comment: Bravo Time Zone
Add to UTC: +02:00

**TIMEZONE,NAME=C
Comment: Charlie Time Zone
Add to UTC: +03:00

**TIMEZONE,NAME=D
Comment: Delta Time Zone
Add to UTC: +04:00

**TIMEZONE,NAME=E
Comment: Echo Time Zone
Add to UTC: +05:00

**TIMEZONE,NAME=F
Comment: Foxtrot Time Zone
Add to UTC: +06:00

**TIMEZONE,NAME=G
Comment: Golf Time Zone
```

```
Add to UTC: +07:00

**TIMEZONE,NAME=H
Comment: Hotel Time Zone
Add to UTC: +08:00

**TIMEZONE,NAME=I
Comment: India Time Zone
Add to UTC: +09:00

**TIMEZONE,NAME=K
Comment: Kilo Time Zone
Add to UTC: +10:00

**TIMEZONE,NAME=L
Comment: Lima Time Zone
Add to UTC: +11:00

**TIMEZONE,NAME=M
Comment: Mike Time Zone
Add to UTC: +12:00

**TIMEZONE,NAME=$TZ$
Comment: Variable for Dirsync
Add to UTC: +00:00
```

Common Parameters (SYSCONF)

```
01 ,
02 '.JOUR,      addressee for autom. printout of log files
03 '0,         printout of log file can't be deleted
04 '1,         remove digit '0' in special cases
05 'x.yy.zz,   release number
06 '1,         acceptance of ..cmdon (0,1)
07 'A,         system files kept on drive A
08 :00 01 ,    no cyclical log file erasure, fast SCSI speed
09 'AE,        drive, reference for system errors
10 :0D 06 00 00 , main board type, KCS model
11 '5.06 ,     UCR memory file format
12 :00 96 00 23 , hard disk capacity, maximum number of files
13 :00 03 00 00 00 03 00 07 , hard disk settings
14 '+1.05.14 , allowed TCSI releases
15 '+1.08.03 , allowed TCfW releases
16 :00,        Node separation character
17 :00,        document converter level
18 :00 01 00 00 , log file-year, cost center, subject visible
19 :00 00 00 00 ,
20 :00 00 00 00 ,
21 :00 00 00 00 ,
22 :00 00 00 00 ,
```

Configuration for the Asynchronous Module (UAS)

Except for the SIO-port-addresses, the configuration of these channels is identical. Channel 0 is used here as an example (port A for standard and PC, port B for TS72 and TS73 standards).

```
01 '1 initial state (0,1,2)
```

```
02 ', channel groups (' ',A..Z)
03 '31, channel type (' ',F,X,T), channel capabilities
04 '2, language (1,2)
05 '0, CORR default (0,1)
06 ', line status comment
07 'A, NODES default (A..Z)
08 :00, number of characters for cost accounting
09 '0, offset in reference for cost accounting
10 'A, number series for send commands (A..Z)
11 '0, locking of send commands
12 ', sending time mapped to low priority
13 '9, interval between call retries (1..T)
14 :32 00 send test timer value in 0.1 sec. (position 1)
15 ', default channel for ..C, ..S, ..L
16 'S, log file of trans. mess. (' ',0..9,A..Z), all/succ. only
17 'B, drive for log file of trans. mess., page sent counter
18 ', BACK RECEPTION
19 'A, drive for back received mess
20 'RT, number series (A..Z), 1st char. for ref. (0..9,A..Z)
21 ', address for autom. printout of back received mess
22 '0, auto. send print. and active ackn. can't be deleted
23 , RECEPTION
24 '1, automatic distribution (0,1,2)
25 'A, drive for received mess
26 'TT, number series (A..Z), 1st char. for ref. (0..9,A..Z)
27 ', address for autom. printout of received mess
28 '0, autom. receipt. printout and distrib. can't be deleted
29 ', log file of received mess. (' ',0..9,A..Z)
30 'A, drive for log file of rec. mess. (A,B), page rec. counter
31 , TEST
32 '0, reserved
33 :F8 TCI code output line length
34 :03 E7, Maximum number of pages = 999
35 '0, automatic printout of CF non-delivery notifications
36 :00 reserved
37 :08 00, reserved
38 reference with 8 characters in log file, entry mode
39 :0F, lines checked for automatic distribution
40 'A, drive for masks, default mask
41 '10110, termination
42 '00:+Y, output channel, mask for active acknowledg
43 '87654321-, new send status for BREAK = 1
44 '87654321-, new send status for BREAK = 2
45 '-----1-, new send status for BREAK = 3
46 '-----10, new send status for BREAK = 4
47 '-----10, new send status for BREAK = 5
48 :00 00 00, ASP parameters
49 :00 00 00, ASP parameters
50 TUM
51 , SIO VALUES
52 :14 16 , data port, status port
53 :18 18 10 04 4C 01 00 03 41 05 AA 00 ,
54 :AA,
55 ,
56 '1, automatic EOT
57 '0, MUX and fax selection (0,1,2)
58 '1, head line (0,1)
59 '133333333, response group print mode (0..9)
60 :FF 01 04 , suppress char, HEX code 10ms pause, HEX 100ms pause
61 '1, line division (0,1,2)
62 :93 91 , XOFF/XON
63 :01 , start state for XON/XOFF transm. (00,01)
64 :00 00 00 00 00 00 00 00 00 00 00, start string
65 :01 0D 00 00 00 00 00 00 00 00 00 , end string
```

```

66 , REPLACEMENT STRINGS FOR LFx
67 :FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,0
68 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,1
69 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,2
70 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,3
71 , REPLACEMENT STRINGS FOR BSx
72 :FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,0
73 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,1
74 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,2
75 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,3
76 , REPLACEMENT STRINGS FOR A4H, A4Q, BDH, BDQ
77 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
78 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
79 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
80 :01 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
81 ,
82 :00 00 00 00, reserved
83 , OUTPUT CODE TABLE
84 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF ,
85 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF ,
86 :20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F ,
87 :30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F ,
88 :40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F ,
89 :50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F ,
90 :60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F ,
91 :70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F ,
92 :2E 7D 2E 2E 7B 2E 2E 2E 2E 2E 2E 2E 2E 2E 5B 2E ,
93 :2E 2E 2E 2E 7C 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E ,
94 :2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E ,
95 :2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E ,
96 :2E 40 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E ,
97 :2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E ,
98 :2E 7E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E ,
99 :2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E 2E ,
100 ,
101 , reserved
102 '21, internal commands (0,1), EOT command for sending (0,1)
103 '1, auto-LF (0,1)
104 , INPUT CODE TABLE
105 :FF FF FF FF FF FF FF FF 0F FF FF FF FF 12 FF FF ,
106 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF ,
107 :20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F ,
108 :30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F ,
109 :C1 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F ,
110 :50 51 52 53 54 55 56 57 58 59 5A 8E 99 9A 5E 5F ,
111 :60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F ,
112 :70 71 72 73 74 75 76 77 78 79 7A 84 94 81 E1 0F ,
113 :FF FF FF FF FF FF FF FF 0F FF FF FF FF 12 FF FF ,
114 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF ,
115 :20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F ,
116 :30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F ,
117 :C1 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F ,
118 :50 51 52 53 54 55 56 57 58 59 5A 8E 99 9A 5E 5F ,
119 :60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F ,
120 :70 71 72 73 74 75 76 77 78 79 7A 84 94 81 E1 0F ,
121 :00, timeout
122 '0, automatic reception (0,1)
123 '0, detect call collision (0..3)
124 :00 00, STX, ETX
125 '012555555,
126 '0, without back reception
127 :00 00 00 00 00 00 00 , no string-byte conversion
128 , no script program
129 '0, no manual loading of script program

```

```

130 :07, reserved
131 ', reserved
132 :07, reserved
133 :00, reserved
134 :00, reserved
135 :02, reserved

```

PC Standard Configuration

Only config lines with different entries are described here. The rest of the lines are identical to the asynchronous standard configuration.

```

01 '2, initial state (0,1,2)
40 'AA, drive for masks, default mask
50 TUM
56 '0, automatic EOT
59 '999999999, response group print mode (0..9)
61 '2, line division (0,1,2)
62 :00 00, XOFF/XON
83 , OUTPUT CODE TABLE
84 :00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F ,
85 :10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F ,
86 :20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F ,
87 :30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F ,
88 :40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F ,
89 :50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F ,
90 :60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F ,
91 :70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F ,
92 :80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F ,
93 :90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F ,
94 :A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF ,
95 :B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF ,
96 :C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF ,
97 :D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF ,
98 :E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF ,
99 :F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF ,
103 '0, auto-LF (0,1)
104 , INPUT CODE TABLE
105 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF 12 FF FF ,
106 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF ,
107 :20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F ,
108 :30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F ,
109 :40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F ,
110 :50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F ,
111 :60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F ,
112 :70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 0F ,
113 :80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F ,
114 :90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F ,
115 :A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF ,
116 :B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF ,
117 :C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF ,
118 :D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF ,
119 :E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF ,
120 :F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF ,
124 :02 03 , STX, ETX

```

TS72 Standard Configuration (Non-Transparent Mode)

Only config lines with different entries are described here. The rest of the lines are identical to the asynchronous standard configuration.

```

01 '2, initial state (0,1,2)
40 'AA, drive for masks, default mask
41 '33310, termination
50      TUM
52 :15 17, data port, status port
53 :18 18 18 04 4C 01 E0 03 E1 05 EA 10
54 :EA ,
56 '0, automatic EOT
59 '999999999, response group print mode (0..9)
61 '2, line division (0,1,2)
62 :00 00 , XOFF/XON
83 ,      OUTPUT CODE TABLE
84 :00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F ,
85 :10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F ,
86 :20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F ,
87 :30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F ,
88 :40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F ,
89 :50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F ,
90 :60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F ,
91 :70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F ,
92 :80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F ,
93 :90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F ,
94 :A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF ,
95 :B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF ,
96 :C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF ,
97 :D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF ,
98 :E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF ,
99 :F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF ,
104 ,      INPUT CODE TABLE
105 :00 01 02 03 04 05 06 07 08 09 0A 0B 0C 12 0E 0F ,
106 :10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F ,
107 :20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F ,
108 :30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F ,
109 :40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F ,
110 :50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F ,
111 :60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F ,
112 :70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F ,
113 :80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F ,
114 :90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F ,
115 :A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF ,
116 :B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF ,
117 :C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF ,
118 :D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF ,
119 :E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF ,
120 :F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF ,
124 :02 03, STX, ETX

```

TS72 Standard Configuration (Transparent Mode)

Only config lines with different entries are described here. The rest of the lines are identical to the asynchronous standard configuration.

```

01 '2, initial state (0,1,2)
40 'AA, drive for masks, default mask
41 '33310, termination
50      TUM
52 :15 17 , data port, status port
53 :18 18 18 04 4C 01 E0 03 E1 05 EA 10 ,
54 :EA,
56 '0, automatic EOT
59 '999999999, response group print mode (0..9)
61 '2, line division (0,1,2)

```

```

62 :00 00 , XOFF/XON
83 ,
      OUTPUT CODE TABLE
84 :40 40 40 40 40 60 60 60 60 60 60 60 40 40 40 ,
85 :40 40 40 40 40 40 40 40 40 60 60 60 60 60 60 ,
86 :40 4F 7F 7B 5B 6C 50 7D 4D 5D 5C 4E 6B 60 4B 61 ,
87 :F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 7A 5E 4C 7E 6E 6F ,
88 :7C C1 C2 C3 C4 C5 C6 C7 C8 C9 D1 D2 D3 D4 D5 D6 ,
89 :D7 D8 D9 E2 E3 E4 E5 E6 E7 E8 E9 4A E0 5A 5F 6D ,
90 :79 81 82 83 84 85 86 87 88 89 91 92 93 94 95 96 ,
91 :97 98 99 A2 A3 A4 A5 A6 A7 A8 A9 C0 BB D0 A1 60 ,
92 :68 DC 51 42 43 44 47 48 52 53 54 57 56 58 63 67 ,
93 :71 9C 9E CB CC CD DB DD DF EC FC B0 B1 B2 60 60 ,
94 :45 55 CE DE 49 69 9A 9B AB 60 BA B8 B7 AA 8A 8B ,
95 :60 60 BE 60 60 60 60 60 60 BD BD 90 9D 60 7F 60 60 ,
96 :60 B5 AC 60 C8 BF 60 D3 D3 FA 60 60 AE E3 D5 95 ,
97 :92 9F 84 8C 88 60 60 93 93 70 60 B9 8E A3 95 60 ,
98 :60 59 60 60 60 60 A0 60 60 60 60 60 60 80 60 60 ,
99 :60 8F 60 60 60 60 E1 60 90 60 60 60 60 EA 60 40 ,
104 ,
      INPUT CODE TABLE
105 :20 20 20 20 20 20 20 20 20 20 20 20 20 12 20 20 ,
106 :20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ,
107 :20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ,
108 :20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ,
109 :20 20 83 84 85 A0 61 86 87 A4 5B 2E 3C 28 2B 21 ,
110 :26 82 88 89 8A A1 8C 8B 8D E1 5D 24 2A 29 3B 5E ,
111 :2D 2F 41 8E 41 41 41 8F 80 A5 7C 2C 25 5F 3E 3F ,
112 :D9 90 45 45 45 49 49 49 49 60 3A 23 40 27 3D 22 ,
113 :ED 61 62 63 64 65 66 67 68 69 AE AF D3 79 DC F1 ,
114 :F8 6A 6B 6C 6D 6E 6F 70 71 72 A6 A7 91 BB 92 D1 ,
115 :E6 7E 73 74 75 76 77 78 79 7A AD A8 C2 59 CC 2D ,
116 :9B 9C 9D 2D 2D C1 2D AC AB DB AA 7C 2D B8 B2 C5 ,
117 :7B 41 42 43 44 45 46 47 48 49 2D 93 94 95 A2 6F ,
118 :7D 4A 4B 4C 4D 4E 4F 50 51 52 2D 96 81 97 A3 98 ,
119 :5C F6 53 54 55 56 57 58 59 5A 2D 4F 99 4F 4F 4F ,
120 :30 31 32 33 34 35 36 37 38 39 2D 55 9A 55 55 2D ,
124 :02 03, STX, ETX

```

TS73 Standard Configuration (Transparent Mode)

Only config lines with different entries are described here. The rest of the lines are identical to the asynchronous standard configuration.

```

01 '2, initial state (0,1,2
40 'AA, drive for masks, default mask
41 '33310, termination
50      TUM
52 :15 17, data port, status port
53 :18 18 18 04 4C 01 E0 03 E1 05 EA 00 ,
54 :EA,
56 '0,      automatic EOT
59 '999999999, response group print mode (0..9)
61 '2, line division (0,1,2)
62 :00 00, XOFF/XON
65 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 end string
66 ,
      REPLACEMENT STRINGS FOR LfX
67 :FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,0
68 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,1
69 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,2
70 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,3
71 ,
      REPLACEMENT STRINGS FOR BSx
72 :FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,0
73 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,1

```

```

74 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,2
75 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,3
76 ,      REPLACEMENT STRINGS FOR A4H, A4Q, BDH, BDQ
77 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
78 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
79 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
80 :01 F2 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
83 ,      OUTPUT CODE TABLE
84 :10 10 10 10 10 10 31 31 31 31 31 31 10 10 10 ,
85 :10 10 10 10 10 10 10 10 31 31 31 31 31 31 31 ,
86 :10 19 13 2C 1A 2E 30 12 0D 0C BF 35 33 31 32 14 ,
87 :20 21 22 23 24 25 26 27 28 29 34 BE 09 11 08 18 ,
88 :2D A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE ,
89 :AF B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 0A 15 0B 3A 2F ,
90 :3D 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E ,
91 :8F 90 91 92 93 94 95 96 97 98 99 0F 16 0E 3B 31 ,
92 :BD 54 5B 55 50 40 9C 4F 56 51 41 52 57 42 70 BC ,
93 :7B 9A BA 58 53 43 59 44 47 73 74 1B 1C 1D 1E 10 ,
94 :5A 5C 5D 5E 5F 7F 31 31 31 31 36 31 31 31 31 ,
95 :31 31 3E 31 31 37 31 31 3C 3C 38 3F 32 13 31 31 ,
96 :31 2B A3 31 A7 97 31 AB AB 31 31 31 31 B3 AD 8D ,
97 :8A 1F 83 31 87 31 31 8B 8B 9B 31 31 31 93 8D 31 ,
98 :31 2A 31 31 31 31 31 31 31 31 31 31 31 BB 31 31 ,
99 :31 31 31 31 31 31 31 31 38 31 31 31 31 31 31 ,
104 ,      INPUT CODE TABLE
105 :FF FF FF FF FF FF FF FF 3E 3C 5B 5D 29 28 7D 7B ,
106 :20 3D 27 22 2F 5C 7C 7C 3F 21 24 9B 9C 9D 9E D1 ,
107 :30 31 32 33 34 35 36 37 38 39 E1 C1 23 40 25 5F ,
108 :26 2D 2E 2C 3A 2B AA B5 BA BF 5E 7E B8 60 B2 BB ,
109 :85 8A 8D 95 97 61 6F 79 85 8A 82 8D 95 97 81 87 ,
110 :84 89 8B 94 81 83 88 8C 93 96 A0 82 A1 A2 A3 A4 ,
111 :41 45 49 4F 55 41 4F 59 41 45 45 49 4F 55 59 43 ,
112 :8E 45 49 99 9A 41 45 49 4F 55 41 45 49 4F 55 A5 ,
113 :61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 ,
114 :71 72 73 74 75 76 77 78 79 7A 91 D9 86 87 FF FF ,
115 :41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 ,
116 :51 52 53 54 55 56 57 58 59 5A 92 ED 8F 80 3B 2A ,
117 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF ,
118 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF ,
119 :FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF ,
120 :FF FF 12 FF FF FF FF FF FF FF FF FF FF FF FF FF ,
124 :F0 F1, STX, ETX

```

Configuration for the Telex Module (UTX)

```

01 '1, initial state (0,1,2)
02 'X, channel groups (' ',A..Z)
03 'X11, channel type (' ',F,X,T), channel capability
04 '2, language (1,2)
05 '1, CORR default (0,1)
06 ', line status comment
07 'A, NODES default (A..Z)
08 :00, number of characters for cost accounting
09 '0, offset in reference for cost accounting
10 'I, number series for send commands (A..Z)
11 '0, locking of send commands
12 ', sending time mapped to low priority
13 '9, interval between call retries (1..T)
14 :32 00, send test timer value in 0.1 sec. (position 1)
15 ', default channel for ..C, ..S, ..L

```



```

16 'JS, log file of trans. mess. (' ',0..9,A..Z), all/success. only
17 'A , drive for log file of trans. mess. (A,B), page sent counter
18 , BACK RECEPTION
19 'A, drive for back received mess
20 'RT, number series (A..Z), 1st char. for reference (0..9,A..Z)
21 ', address for autom. printout of back received mess
22 '0, auto. send print. and active acknowledge. can't be deleted
23 , RECEPTION
24 '0, automatic distribution (0,1,2)
25 'A, drive for received mess
26 'TT, number series (A..Z), 1st char. for reference (0..9,A..Z)
27 ', address for autom. printout of received mess
28 '0, autom. recept. printout and distribution can't be deleted
29 'I, log file of received mess. (' ',0..9,A..Z)
30 'A , drive for log file of rec. mess. (A,B), page rec. counter
31 , TEST
32 '0, reserved
33 :FE, TCI code output line length
34 :03 E7, Maximum number of pages = 999
35 '0, automatic printout of CF non-delivery notifications
36 :00, reserved
37 ', reserved
38 :08 00 , reference with 8 characters in log file, entry mode
39 :0F, lines checked for automatic distribution
40 'A , drive for masks, default mask
41 '10110, termination
42 'TLX$*, output channel for active acknowledgements
43 '87654321- ,new send status for BREAK = 1
44 '87654321- ,new send status for BREAK = 2
45 '-----1- ,new send status for BREAK = 3
46 '-----10 ,new send status for BREAK = 4
47 '-----10 ,new send status for BREAK = 5
48 :00 00 00, ASP parameters
49 :00 00 00, ASP parameters
50 TUM
51 :10 12 11 13 SIO addresses
52 :00, telex interface (00,01,02)
53 :00, telex reception (00,01)
54 :00 00, back reception (00,01,02), underlined (00,01)
55 :00, answerback verification after transm.(00,01)
56 'A, type of telex exchange (A,B,C,M)
57 :14, max. waiting time for call confirmation (sec.)
58 :5A, max. waiting time for pts or call connected (sec.)
59 'OCC AUTO, busy signal, no break(OCC AUTO )
60 :14, duration of break signal (0.1 sec.)
61 '#, character for call collision recognition
62 :01 01 01 01, telex header
63 :00 00 00 00, character set
64 '3, break code for 'der'
65 :01 01 00 4E 4E 4E 4E 3C 3E 00 00 00 chaining enabled, a/b exch. at beginning of
chained msg., "NNNN" between chained msggs
66 :00, length of text end string
67 ', text end string
68 :34 1E, min. length of inc. tx, temp. storage interval
69 :FF, max. number of incoming characters
70 ' <>^111111_ TEST____, answerback
71 'DER AUTO,
72 'NP RADUAS,
73 :0C 05 00 00, break and non-break detection delay
74 :00 00 00 00 00 00 00 00 00 00 00 reserved
75 ';0, answerback check stage
76 :20, ===== stage 0 =====
77 :04, check for next stage (position in telex number)
78 :00 00 00 00 00 00 00 00 00 00 proceed to select string

```

```
79 :01, delay after reception of pts
80 :2B, selection termination character
81 :2D, no selection termination character
82 :36, maximum waiting time for answerback (sec.)
83 :2D, requesting answerback after (sec.)
84 :00, call connected signal
85 :01, answerback exchange (00,01,02)
86 :00 00 00 00 00, disconnection string
87 :00, delay between disconnection string and break signal
88 , ===== stage 1 =====
89 :47, character in receiver for stage 1
90 :00,
91 :47 41 00 00 00 00 00 00 00 00,
92 :00,
93 :2B,
94 :2D,
95 :36,
96 :2D,
97 :01,
98 :01,
99 :2E 2E 2E 2E 00,
100 :05,
101 , ===== stage 2 =====
102 :2D, character in receiver for stage 2
103 :00,
104 :00 00 00 00 00 00 00 00 00 00,
105 :00,
106 :00,
107 :2D,
108 :00,
109 :00,
110 :00,
111 :00,
112 :00 00 00 00 00,
113 :00,
114 , ===== stage 3 =====
115 :42 character in receiver for stage 3
116 :01
117 :47 41 00 00 00 00 00 00 00 00,
118 :00,
119 :2B,
120 :2F,
121 :00,
122 :00,
123 :00,
124 :00,
125 :2B 2B 2B 2B 00,
126 :3C,
127 , ===== stage 4 =====
128 :54, character in receiver for stage 4
129 :00,
130 :00 00 00 00 00 00 00 00 00 00,
131 :00,
132 :00,
133 :2D,
134 :36,
135 :2D,
136 :00,
137 :01,
138 :2B 2B 2B 2B 00,
139 :3C,
140 '0, variable answerback (0,1,2,3)
141 ', international network access number
```

```

142 :23 3F 00 2A 3F 00 24 44 4C 52 53 00 25 4F 2F 4F 00 40 41 54 ,
143 :00 81 55 45 00 84 41 45 00 8E 41 45 00 94 4F 45 00 99 4F 45 ,
144 :00 9A 55 45 00 E1 53 53 00 22 27 27 00 26 2B 00 5C 2F 00 5B ,
145 :28 00 5D 29 00 7E 2D 00 60 3F 00 90 45 00 00 00 00 00 00 00 ,
146 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
147 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
148 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
149 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
150 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
151 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
152 :7B 46 00 7C 47 00 7D 48 00 00 00 00 00 00 00 00 00 00 00 ,
153 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
154 :7B 46 00 7C 47 00 7D 48 00 00 00 00 00 00 00 00 00 00 00 ,
155 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
156 ', Variable answerbacks on incoming calls
157 ', Variable answerbacks on incoming calls
158 ', Variable answerbacks on incoming calls
159 ', Variable answerbacks on incoming calls
160 ', Variable answerbacks on incoming calls
161 ', Variable answerbacks on incoming calls
162 ', Variable answerbacks on incoming calls
163 ', Variable answerbacks on incoming calls
164 ', Variable answerbacks on incoming calls
165 ', Variable answerbacks on incoming calls
166 ', Variable answerbacks on incoming calls
167 ', Variable answerbacks on incoming calls
168 ', Variable answerbacks on incoming calls
169 ', Variable answerbacks on incoming calls
170 ', Variable answerbacks on incoming calls
171 ', Variable answerbacks on incoming calls
172 ', Variable answerbacks on incoming calls
173 ', Variable answerbacks on incoming calls
174 ', Variable answerbacks on incoming calls
175 ', Variable answerbacks on incoming calls
176 :00,
178 ',

```

Configuration for the Transputer Fax Module (UTF)

This section describes the configuration for the transputer fax module (UTF).

Standard Configuration

```

01 '1,          initial state (0,1,2)
02 'F,          channel groups (' ',A..Z)
03 'FC1,        channel type (' ',F,X,T), channel capability
04 '2,          language (1,2)
05 '0,          CORR default (0,1)
06 ',          line status comment
07 'A,          NODES default (A..Z)
08 :00,         number of characters for cost accounting
09 '0,          offset in reference for cost accounting
10 'H,          number series for send commands (A..Z)
11 '1,          locking of send commands
12 ',          sending time mapped to low priority
13 '9,          interval between call retries (1..T)
14 :FF 00,      send test timer value in 0.1 sec. (position 1)
15 ',          default channel for ..C, ..S, ..L

```

```

16 'JA,          Log file of trans. mess. (' ',0..9,A..Z), all/success. only
17 'A ,          drive for log file of trans. mess. (A,B), page sent counter
18 ',          BACK RECEPTION
19 'A,          drive for back received mess
20 'RT,          number series (A..Z), 1st char. for reference (0..9,A..Z)
21 'FOUT,        address for autom. printout of back received mess
22 '0,          auto. send print. and active acknowledge. can't be deleted
23 ',          RECEPTION
24 '0,          automatic distribution (0,1,2)
25 'A,          drive for received mess
26 'FT,          number series (A..Z), 1st char. for reference (0..9,A..Z)
27 'FIN,         address for autom. printout of received mess
28 '0,          autom. recept. printout and distribution can't be deleted
29 'I,          log file of received mess. (' ',0..9,A..Z)
30 'A ,          drive for log file of rec. mess. (A,B), page rec. counter
31 ',          TEST
32 '0,          reserved
33 :FE,          TCI code output line length
34 :03 E7,       Maximum number of pages = 999
35 '0,          automatic printout of CF non-delivery notifications
36 :00,         reserved
37 ',          reserved
38 :08 00,       reference with 8 characters in log file, entry mode
39 :0F,          lines checked for automatic distribution
40 'A ,          drive for masks, default mask
41 '10110,       termination
42 'FAX$*,       output channel with mask for active acknowledge
43 '87654321-,   new send status for BREAK = 1
44 '876543210,   new send status for BREAK = 2
45 '-----10,   new send status for BREAK = 3
46 '-----10,   new send status for BREAK = 4
47 '-----10,   new send status for BREAK = 5
48
:00 00 00,      ASP parameters
49 :00 00 00,      ASP parameters
50
      TUM
51 'TEST,        answerback
52 '+11 111 111111, fax number
53 '3,           full image backreception
54 ,           Transmission style / speed
55 'E960,        9600 / 14400 bps, ECM, no 2dim.
56 '0,          retransmission mode
57 '0,          send break page
58 '0,          expansion of last page to specified format
59 ,           Dial parameters
60 '1,          dialing (pulse/dtmf/sweden)
61 :05,         delay before first dial pulse
62 :08,         length of dial pulse
63 :64 64,      delay between dial pulses
64 :08,         delay between digits
65 :05,         delay after last dial pulse
66 :04,         DC/DC converter
67 :0A,         Ring on time
68 :28,         Ring off time
69 :05,         Ring retries
70 ,           FACSIMILE procedure
71 :32 32,      timeout for receiving valid identification / DCS timeout
72 :07 14 00,   Del. V29/V21, CFR/Page, FF-Seq.
73 :1E 46 3C,   wait 3s/7s for response/command, ECM timeout
74 :28,         max. frame length 4s
75 :14,         min. carrier lost time 200ms
76 :0A,         1s HDLC-preamble
77 :0F,         1.5s training sequence
78 :23,         3.5s CNG-tone pause

```

```

79 :05,          0.5s CNG-tone
80 :00,          receiver threshold = -43dBm
81 :26,          EPT with V.27 and V.17/V.33
82 ,           ===== signal detection =====
83 ,           STATE machine
84 'A2-4a3+,     'A' dial tone detector
85 'a2-4b3+,
86 'b2-4c3+,
87 'c2-4+3+,
88 'W1-5+,       'W' wait for any tone
89 'P0+,         'P' 1s pause
90 'Q1+,         'Q' 4s pause
91 'Z7-8zB=6=,   'Z' ring/busy detection
92 'z7-9+A*B=6=,
93 'CE-3+A+,     'C' Callback ring-back Signal
94 'DE-Dd,       'D' wait for call-back
95 'dE-C+,
96 'BH-3+,       'B' Check CB prompt
97 ' ,
98 'EE-F+,       'E' wait 35s for ear
99 'FH-G+,       'F' wait 12s for ear pulse
100 'IH-GJ,      'I' wait 12s for 1st pulse of digit
101 'JI-J+,      'J' wait 4 next pulse of digit
102 'fH-C+,      'R' Ring indication
103 'RH-Df,
104 ,           ===== EVENTS =====

      Chnl.  tonmin tonmax toffmin toffmax Tmin  Tmax   ton/T min Ton/T max
105 :00      00 64   00 00   00 00   00 00   00 00   00 00   00 00,  0
106 :00      01 90   00 00   00 00   00 00   00 00   00 00   00 00,  1
107 :00      07 08   00 00   00 00   00 00   00 00   00 00   00 00,  2
108 :01      00 50   00 00   00 00   00 00   00 00   00 00   00 00,  3
109 :81      00 07   00 4B   00 0A   00 5F   00 19   00 8C   00 00,  4
110 :01      00 14   00 00   00 00   00 00   00 00   00 00   00 00,  5
111 :00      00 00   00 00   00 00   00 00   00 00   00 00   00 00,  6
112 :06      01 90   00 00   00 00   00 00   00 00   00 00   00 00,  7
113 :01      00 02   00 00   00 00   00 00   00 00   00 00   00 00,  8
114 :81      00 08   00 50   00 08   00 42   00 00   00 00   00 00,  9
115 :81      00 05   00 00   00 64   00 00   00 00   00 00   00 00,  A
116 :07      00 08   00 00   00 00   00 00   00 00   00 00   00 00,  B
117 :84      00 00   00 00   00 5A   00 00   00 00   00 00   00 00,  C
118 :84      00 00   00 00   00 5A   02 58   00 00   00 00   00 00,  D
119 :00      0D AC   00 00   00 00   00 00   00 00   00 00   00 00,  E
120 :05      00 01   00 00   00 00   00 00   00 00   00 00   00 00,  F
121 :85      00 01   00 00   00 01   00 00   00 00   00 00   00 00,  G
122 :00      04 B0   00 00   00 00   00 00   00 00   00 00   00 00,  H
123 :06      00 14   00 00   00 00   00 00   00 00   00 00   00 00,  I
124 :45      00 01   00 00   00 02   00 00   00 00   00 00   00 00,  J

125 ,
126 :02 00 72 74 C7 5C 02 EE 72 74 C7 5C 00 44 7F BA,
127 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
128 :0F A0 2A F8 D0 64 0F A0 2A F8 D0 64 00 22 7F DC,
129 :21,          receiver threshold
130 ,
131 ' ,           ,           automatic prefix for internal sending
132 'A ,
133 ' ,
134 :00 00 00 00,          do not use a failure counter
135 :64 64 64 64,          Output power = J6
136 :01 4E 78 37 10 11 3B 5F 05, A4H
137 :11 2A 2D A0 21 08 2E 84 05, A4Q
138 :00 2A 38 37 0C 0C 57 86 05, BDH
139 :10 24 2D A0 19 06 3D B1 05, BDQ

```

```

140 :28 11 00 82 ,          page settings, header line margin, Kofax-logo
141 ,
142 :13,                    header line settings
143 :01 04 00,              Rec. On/Off; bit rate; unused
144 :7F 0A 05 03 04 02 10 09 04 02, max. noise levels
145 :02 05 10 78,          page acceptability limits
146 '1,                    Rec. with/without fine mode
147 '0,                    Date format
148 :00 00 00 01 00 02 00 03 00 04 00 05 00 06 00 07 , fax code
149 :00 08 00 09 00 0A 00 0B 00 0C 00 0D 00 0E 00 0F , fax code
150 :00 10 00 11 00 12 00 13 00 14 00 15 00 16 00 17 , fax code
151 :00 18 00 19 00 1A 00 1B 00 1C 00 1D 00 1E 00 1F , fax code
152 :00 20 00 21 00 22 00 23 00 24 00 25 00 26 00 27 , fax code
153 :00 28 00 29 00 2A 00 2B 00 2C 00 2D 00 2E 00 2F , fax code
154 :00 30 00 31 00 32 00 33 00 34 00 35 00 36 00 37 , fax code
155 :00 38 00 39 00 3A 00 3B 00 3C 00 3D 00 3E 00 3F , fax code
156 :00 40 00 41 00 42 00 43 00 44 00 45 00 46 00 47 , fax code
157 :00 48 00 49 00 4A 00 4B 00 4C 00 4D 00 4E 00 4F , fax code
158 :00 50 00 51 00 52 00 53 00 54 00 55 00 56 00 57 , fax code
159 :00 58 00 59 00 5A 00 5B 00 5C 00 5D 00 5E 00 5F , fax code
160 :00 60 00 61 00 62 00 63 00 64 00 65 00 66 00 67 , fax code
161 :00 68 00 69 00 6A 00 6B 00 6C 00 6D 00 6E 00 6F , fax code
162 :00 70 00 71 00 72 00 73 00 74 00 75 00 76 00 77 , fax code
163 :00 78 00 79 00 7A 00 7B 00 7C 00 7D 00 7E 00 7F , fax code
164 :5C 43 20 75 04 65 18 61 20 61 10 61 44 61 5C 63 , fax code
165 :18 65 20 65 10 65 20 8B 18 8B 10 8B 24 8E 48 8F , fax code
166 :08 90 00 91 00 92 18 6F 20 6F 10 6F 18 75 10 75 , fax code
167 :20 79 28 99 2C 9A 00 9B 00 9C 00 9D 00 9E 00 9F , fax code
168 :04 61 04 8B 04 6F 04 75 30 6E 30 A5 00 A6 00 A7 , fax code
169 :00 A8 00 A9 00 AA 00 AB 00 AC 00 AD 00 AE 00 AF , fax code
170 :00 B0 00 B1 80 00 00 B3 00 B4 84 00 88 00 8C 00 , fax code
171 :90 00 94 00 98 00 9C 00 A0 00 A4 00 A8 00 AC 00 , fax code
172 :00 C0 00 C1 00 C2 00 C3 00 C4 00 C5 00 C6 00 C7 , fax code
173 :00 C8 00 C9 00 CA 00 CB 00 CC 00 CD 00 CE 00 CF , fax code
174 :00 D0 00 D1 00 D2 00 D3 00 D4 00 D5 00 D6 00 D7 , fax code
175 :00 D8 00 D9 00 DA 00 DB 00 DC 00 DD 00 DE 00 DF , fax code
176 :00 E0 00 E1 00 E2 00 E3 00 E4 00 E5 00 E6 00 E7 , fax code
177 :00 E8 00 E9 00 EA 00 EB 00 EC 00 ED 00 EE 00 EF , fax code
178 :00 F0 00 F1 00 F2 00 F3 00 F4 00 F5 00 F6 00 F7 , fax code
179 :00 F8 00 F9 00 FA 00 FB 00 FC 00 FD 00 FE 00 FF , fax code
180 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 D8 00 EB E0,
181 :03 00 00 14 01 31 31, (00) ===== DID State machine =====
182 :02 00 00 13 13 31 31, (01)
183 :01 00 00 15 15 31 31, (02) ->Call-Ind
184 :0B 00 00 14 14 31 31, (03) ->Disc-Ind
185 :00 00 00 00 00 00 00, (04)
186 :0F 00 32 16 16 16 16, (05)
187 :09 00 00 05 05 31 31, (06) ->Conn-Conf
188 :0F 00 C8 08 08 31 31, (07) ->Conn-Ind (Line without DTMF)
    :08 83 E8 08 08 08 08, line if DTMF input is configured
189 :0A 00 00 06 16 31 31, (08)
190 :0D 00 42 0D 0A 31 31, (09) ->Conn-ConfCB
191 :07 00 00 16 06 16 31, (0A)
192 :0B 00 20 0C 0C 31 31, (0B)
193 :01 00 00 07 07 31 31, (0C)
194 :06 00 00 0E 0B 31 31, (0D)
195 :13 00 20 16 16 31 31, (0E)
196 :00 00 00 00 00 00 00, (0F)
197 :00 00 00 00 00 00 00, (10)
198 :00 00 00 00 00 00 00, (11)
199 :00 00 00 00 00 00 00, (12)
200 :04 00 00 1D 23 31 31, (13) ->Conn-Req (normal ab with callback)
201 :06 00 00 2B 2A 31 31, (14) ->Idle-Req
202 :0D 00 52 03 1B 31 31, (15) ->Call-Rsp

```

```

203 :0C 00 01 28 28 28 31, (16) ->Disc-Req
204 :00 00 00 00 00 00 00, (17)
205 :00 00 00 00 00 00 00, (18)
206 :00 00 00 00 00 00 00, (19)
207 :00 00 00 00 00 00 00, (1A)
208 :0C 00 02 03 07 03 31, (1B) Receive part
209 :00 00 00 00 00 00 00, (1C)
210 :0C 00 02 24 1E 24 31, (1D) Transmit part
211 :07 00 00 1F 06 16 31, (1E)
212 :0D 00 43 26 20 31 31, (1F)
213 :0C 00 01 21 21 21 31, (20)
214 :0D 00 44 25 22 31 31, (21)
215 :0C 00 02 24 09 24 31, (22)
216 :0C 00 04 24 06 24 31, (23)
217 :13 00 01 03 03 31 31, (24)
218 :13 00 03 03 03 31 31, (25)
219 :13 00 03 16 16 31 31, (26)
220 :00 00 00 00 00 00 00, (27)
221 :0F 00 C8 03 03 31 31, (28) disconnect part
222 :00 00 00 00 00 00 00, (29)
223 :0C 00 08 2B 00 02 31, (2A) idle part
224 :0C 00 01 00 00 00 31, (2B)
225 :00 00 00 00 00 00 00, (2C)
226 :00 00 00 00 00 00 00, (2D)
227 :00 00 00 00 00 00 00, (2E)
228 :00 00 00 00 00 00 00, (2F)
229 :0F 00 00 F1 F0 F0 F0, (30) IsConnReq
230 :00 00 31 00 00 00 00, (31)
231 :00 00 00 00, FXC tracer
232 :00 00 00 00, FXC tracer
233 :00 00 00 00, FXC tracer
234 :00 00 00 00, FXC tracer
235 `FXI$ FXI$ FAX$, inbound/user/originator prefix for DID
236 :10, max. length of DID inbound Number
237 :01 01 01, pw, TSI, number match required
238 `FXI$ FXI$ FAX$, inbound/user/originator prefix for DTMF
239 :10, max. length of DID inbound Number
240 :01 01 01, pw, TSI, number match required
241 :00 00 00 78 04 C0 00 10, received page layout
242 :00 00 00 00 00 00 00 00 00 00 00 00, hex-, DID-, Sign-, Modem-, Binary- and LS1
perf. counter Trace
243 'To:%C_____ % From:%A_____ % Fax:%T_____,
244 ' _____ % at:%D% Doc:%N% Page:%P%/%Q% ,
245 ' ,
246 ' ,
247 ,
248 ,
249 ',
250 :01 00 FF 00 00, 250
251 :00 FF FF FF FF FF
252 '0,
253 '0,
254 ', 254-283 number conversion table
255 ',
256 ',
257 ',
258 ',
259 ',
259 ',
260 ',
261 ',
262 ',
263 ',

```

```

264 ',
265 ',
266 ',
267 ',
268 ',
269 ',
270 ',
271 ',
272 ',
273 ',
274 ',
275 ',
276 '8*~=00~,           276-283 default conversion
277 '80~=0~,           rules for international
278 '8I~=I~,           /national/internal/unknown
279 '8~=~,           (number types)
280 '@TI~=*~,
281 '@TN~=0~,
282 '@TS~=~,
283 '@~=~,
284 :1E,
285 :05 10,
286 :01 00 00 00 00 00 00 00 00,
287 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
288 ,
289 :00 01 00 00 00 19 16 02 03 01 00 00 00 00 00 00,
290 :02 08 08 01 00 00 03 00 00 00 00 00 00 00 00,
291 ,
292 ,
293 ,
294 ,
295 :01 00 01 00 00 00 00 00 00,
296 :00 00 00 00 00 00 00 00 00,
297 :01 FF FF FF FF FF,
298 :46 23 14 00 08 34 00 00 00 00 00 00 00 00 00,
299 :01 63 01 90 01 BD 01 EA 00 00 00 00 00 00 00 00,

```

The default value, for UTF running on TC20, of config lines 126 to 128 is shown below:

config line 126 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,

config line 127 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,

config line 128 :00 01 00 00 00 00 00 00 00 00 00 00 00 00 00,

With this configuration, the modem default filter is used for dial-, ring- and busy detection. Since this filter detects tones between 200 and 850 Hz, it will work in all countries.

Country Specific Changes

This chapter describes the changes made (compared with the general standard configured), if a country specific standard configured is selected via menu. This description can be used both for UTF and UIF.

Overview

This section provides an overview of country specific standard settings.

General Parameters

line	description	general	ES	I	GB
4	channel language	'1,	'0,	-	-
16	send journal	'JA,	'2S,	-	-
40	default mask	'A ,	'AF,	-	-
51	own answer back	'TEST	blanks	-	-
52	own tel. number	' +11 111..	blanks	-	-
58	fill last page '0'/'1'	'0,	'1,	'1,	-
147	date format	'0,	-	-	'2,

Call Retries

General Call retries

Config line	General	Austria	Germany	GB, S	NL
44	876543210	876543210	8765----0	8765----0	876543210
45	-----10	-----210	-----10	8765----0	-7-5-3-10
46	-----10	-----210	-----10	8765----0	-7-5-3-10
47	-----10	-----210	-----10	8765----0	-7-5-3-10

Failure counter

Line	General	Austria
134	:00 00 00 00,	:0A 0A 0A 03,

Dial Parameter

Pulse dialing parameter

Line	Description	General	GB, H	Sw	ES	I
60	dial mode	'0,	'0,	'2,	'0,	'0,
62	duration of pulse [10ms]	:06,	:07,	:06,	:06,	:06,
63	pos1: pause between pulses[10ms] pos2: unused	:04 64,	:03 64,	:04 64,	:04 64,	:05 64,
64	delay between digits [10ms]	:5A	:5A,	:5A	:AA,	:60,

DTMF dialing parameter

config line 60 (dial mode) = '1,

config line 62 (duration of pulse) = :08, (80 ms)

Line	Description	General	D	GB	S,RSA	NL
62	duration of pulse [10ms]	:08,	:0A,	:08,	:08,	:08,
63	pos1: Plow = 20lg(x)+J6-42dBm pos1: Phigh = 20lg(x)+J6-40dBm	:64 64,	:4E 4E	:6F 58	:59 59	:38 38
64	delay between digits [10ms]	:08	:18	:09	:08	:08

Changes for Switzerland

There are no changes required for Switzerland.

Changes for Austria

```
line 45 '-----210, call retries
line 46 '-----210,
line 47 '-----210,
line 134 :0A 0A 0A 03, user failure counter
```

Changes for Germany

```
line 44 '8765----0, call retries
line 62 :0A , 100ms DTMF pulse length
line 63 :4E 4E , DTMF level
line 64 :18, 240ms DTMF pulse pause
line 80 :01, -46dBm receiver threshold
line 129 :16, -47dBm Signal detection threshold
```

Changes for U. K.

```
line 44 '8765----0, call retries
line 45 '8765----0,
line 46, '8765----0,
line 47 '8765----0,
line 63 :6F 58 , DTMF level
line 64 :09 , 90ms delay between DTMF digits
line 126 :02 00 73 00 C7 A0 02 EE 73 00 C7 A0 00 44 7F BA ,
line 135 :3F 3F 3F 3F , Sending power
line 147 '2, date format
line 291 :05 08 00 01 00 00 03 04 00 00 00 00 00 00 00 00, impedances
```

Changes for Hungary

```
line 84 'A2-3+3+ ,
line 88 'W2-5+4+ ,
line 107, :00 0C 80 00 00 00 00 00 00 00 00 00 00 00 00 00
line 109 :03 00 16 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
line 129 :3C ,
```

Changes for Netherlands

```
line 45 '-7-5-3-10, 045
line 46 '-7-5-3-10, 046
line 47, '-7-5-3-10, 047
line 63 :38 38 , 063
line 126 :10 00 3D 00 00 00 06 00 72 74 C7 5C 00 44 7F BA, 126
line 129 :42 129
```

Changes for Sweden

```
line 44 '8765----0,
line 45 '8765----0,
line 46, '8765----0,
line 47 '8765----0,
line 63 :59 59 ,
line 86 'b2-4+3+ ,
line 109 :01 00 1E 00' 00 00 00 00 07 00 00 00 00 00 00 00,
line 129 :3C ,
```

Changes for Denmark

```
line 80 :01 080
line 108 :01 00 82 00 00 00 00 00 00 00 00 00 00 00 00 00, 108
line 126 :02 00 73 00 C7 A0 02 EE 73 00 C7 A0 00 44 7F BA, 126
line 129 :3C, 129
```

Changes for Finland

```
line 126 :02 00 73 00 C7 A0 02 EE 73 00 C7 A0 00 44 7F BA , 126
```

Changes for Spain

```
line 16 '2S,
line 21 ',
line 40 'AF,
line 51 ',
line 52 ',
line 58 '1,
line 80 :01 ,
line 86 'b2-4+3+ ,
line 109 :01 00 1E 00' 00 00 00 00 07 00 00 00 00 00 00 00,
```

Changes for Italy

```
line 58 '1,
line 84 'A8+ ,
```

Changes for Belgium

```
line 80 :01,
```

Changes for U. S. A.

```
line 134 :00 00 05 00 ,
line 291 :00 08 00 00 00 00 03 00 00 00 00 00 00 00 00, impedances
```

Changes for Russia

```
line 63 :59 59,
line 84 'A2-3+,
line 85 'X4-8a,
line 86 'a4-5+,
line 109 :00 2E E0 00 00 00 00 00 00 00 00 00 00 00 00,
line 291 :00 08 00 00 00 00 03 00 00 00 00 00 00 00 00, impedances
```

Changes for France

```
line 44 '8765----0,
line 71 :82 28 ,
line 85 'a2-5+3+ ,
line 91 'Z7-8zB=6= ,
line 92 'z7-9+A*B=6=,
line 106 :00 00 C8 00 00 00 00 00 00 00 00 00 00 00 00,
line 107 :00 03 E8 00 00 00 00 00 00 00 00 00 00 00 00,
line 018 :01 00 82 00 00 00 00 00 00 00 00 00 00 00,
line 109 :81 00 50 00 00 00 00 00 07 00 00 00 00 00 00,
line 111 :02 00 32 00 00 00 00 00 00 00 00 00 00 00 00,
line 126 :02 00 73 00 C7 A0 05 DC 73 00 C7 A0 00 44 7F BA,
line 127 :01 98 1A 4A C0 C4 01 98 17 5A C0 C4 00 44 7F BA,
line 129 :0C ,
line 134 :00 00 00 85,
line 143 :01 14 00,
```

Changes for Japan

```
line 291 :00 08 00 00 00 01 01 00 00 00 00 00 00 00 00 , impedances
```

Changes for Malaysia

```
line 291 :00 08 00 00 00 01 01 00 00 00 00 00 00 00 00 , impedances
```

Changes for Australia

```
line 291 :03 08 00 00 00 01 01 0B 00 00 00 00 00 00 00, impedances
```

Tips for Configuring the UTF Module

This section provides tips for configuring the UTF module.

Dial Tone Detection

The standard values of line 84 is suitable for many countries. If you face problems with dial tone detection, set the following value:

```
line 84 'A1+ ,
```

With this value, dial tone detection is switched off. Kofax Communication Server starts dialing 4 seconds after entering the off-hook state.

Busy and Ring Tone Detection

The busy and ring tone detection can be disabled by changing line 91 to:

```
line 91 'Z7-B= ,
```

Rings for an Incoming Call

The number of rings for an incoming call (for TS2X/3Y) can be configured as shown below.

Config line	Connect line 900ms after 2nd ring (=default)	Connect line 900ms after the first ring	Connect line during the first ring
102	'fH-C+ ,	not used	not used 'RH-C+ ,
103	'RH-Df ,	'RH-C+ ,	'RH-C+ ,
117	:84 00 00 00 00 00 5A ..	:84 00 00 00 00 00 5A ..	:00 00 00 00 00 00 00 ..

E&M Standard Configuration





Only config lines with different entries are described here. The rest of the lines are identical to the UTF standard configuration.

```
66 :7F,      DC/DC  Converter always on
200 :0C 00 10 1D 22 1D 1D, (13) Conn-Req
201 :06 00 10 00 2A 31 31, (14) Idle-Req
202 :11 00 00 31 18 31 31, (15) Call-Rsp
203 :0C 00 4m 27 27 27 31, (16) Disc-Req
204 :00 00 00 00 00 00 00, (18) Receive part
205 :0F cc cc 19 19 19 31, (19)
206 :dd dd dd 1A 1A 1A 31, (1A)
207 :08 43 E8 1B 1B 1B 31, => with Pulse dialing
      :08 C3 E8 1B 1B 1B 31, => with DTMF dialing
208 :0C 00 2m 1C 1C 1C 31, (1B)
209 :0C 00 1m 16 07 31 31, (1C)
210 :11 00 00 1E 1E 1E 31 (1D) Transmite part
211 :0C 00 2m 1F 1F 1F 31, (1E)
212 :aa aa aa 23 20 23 23, (1F)
213 :07 00 02 16 21 16 31, (20)
214 :bb bb bb 24 06 24 23, (21)
215 :13 00 20 03 03 03 31, (22)
216 :13 00 03 16 16 16 31, (23)
217 :13 00 15 16 16 16 31, (24)
218 :00 00 00 00 00 00 00,
```

```

219 :00 00 00 00 00 00 00,
220 :0C 00 10 28 27 28 31, (27) disconnect part
221 :0F 00 32 29 29 29 31, (28)
222 :11 00 01 03 03 03 31, (29)
223 :0C 00 10 00 02 31 31, (2A) idle part
224 :00 00 00 00 00 00 00,
225 :00 00 00 00 00 00 00,
226 :00 00 00 00 00 00 00,
227 :00 00 00 00 00 00 00,
228 :00 00 00 00 00 00 00,
229 :0C 00 1m F1 F0 F0 F0, (30) IsConnReq
230 :00 00 31 00 00 00 00, (31)

```

function	ref.	Seizure acknowledge	Delay dial / Wink start	Immediate Start	BELL DID
Protocol (send example)	M=ye. E=gr. LED	Mouth  Ear 		Mouth  Ear 	
check before dial	aa aa aa	Wait for Ear ("E") 0D 00 45	Wait for falling edge of ear ("F") 0D 00 46	nothing 0F 00 00	Wait for falling edge of ear ("F") 0D 00 46
Answer check	bb bb bb	delay 1s 0F 00 64	Wait for Ear ("E") 0D 00 45	Wait for Ear ("E") 0D 00 45	Wait for Ear ("E") 0D 00 45
call ack. delay	cc cc cc	120ms 0F 00 0C	120ms 0F 00 0C	no delay 0F 00 00	120ms 0F 00 0C
call ack. signal	dd dd dd	Set Mouth 0C 00 20	Wink (200ms) 0C 16 20	nothing 0F 00 00	Wink (200ms) 0C 16 21
Mouth wire	m	0 = AQV	0 = AQV	0 = AQV	1 = Blockrel.

E&M Timing Specifications

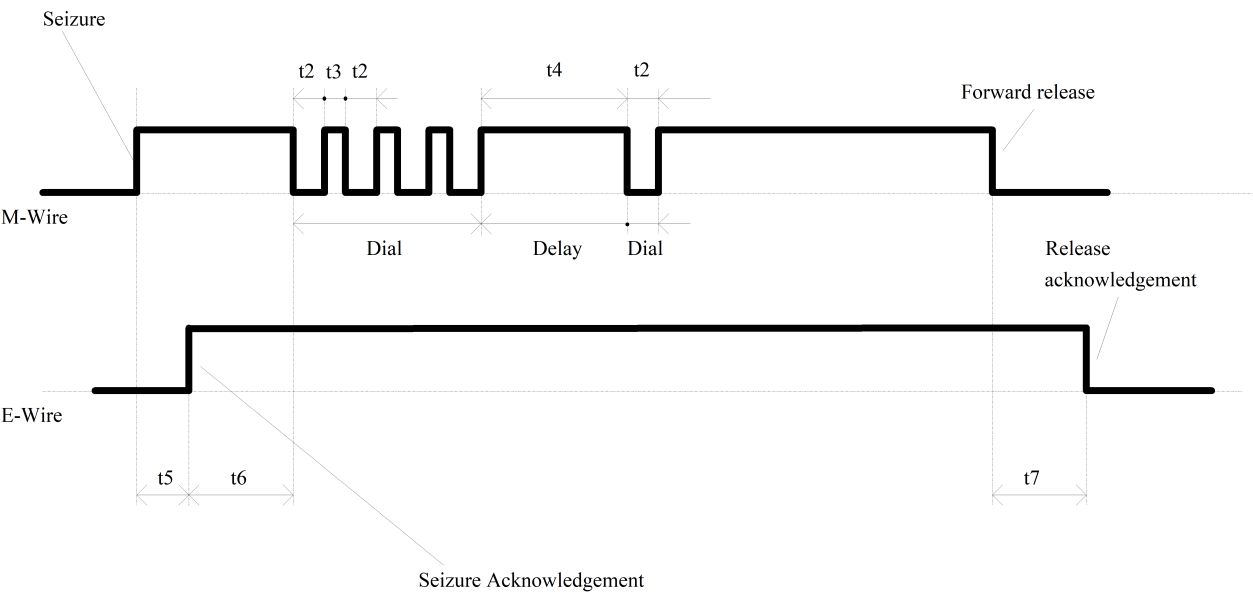
This section gives detailed timing information about the supported E&M protocols. Each protocol is explained with a timing diagram which is valid when using pulse dialing. The relevant timing values are explained in a separate section both for sending and reception. Times created by Kofax Communication Server are shown with there nominal value. All times created by the PABX must be within a specified range. In this case both minimum and maximum values are specified.

Note that DTMF digits are sent via speech path (a, b wires) and not with E&M-wires.

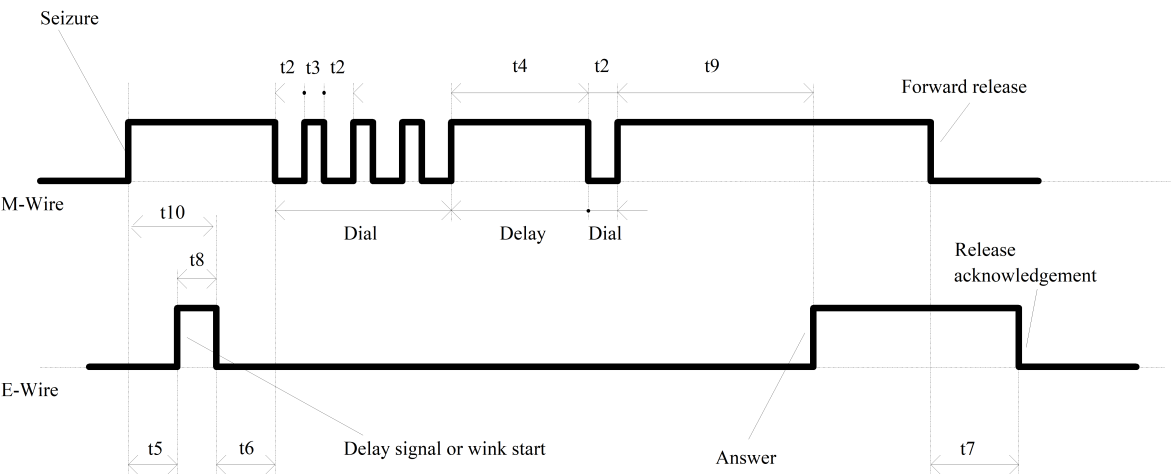
The timing is basically the same as with pulse dialing with the following exceptions:

1. T2 is used as time of the DTMF pulse.
2. T3 does not exist.

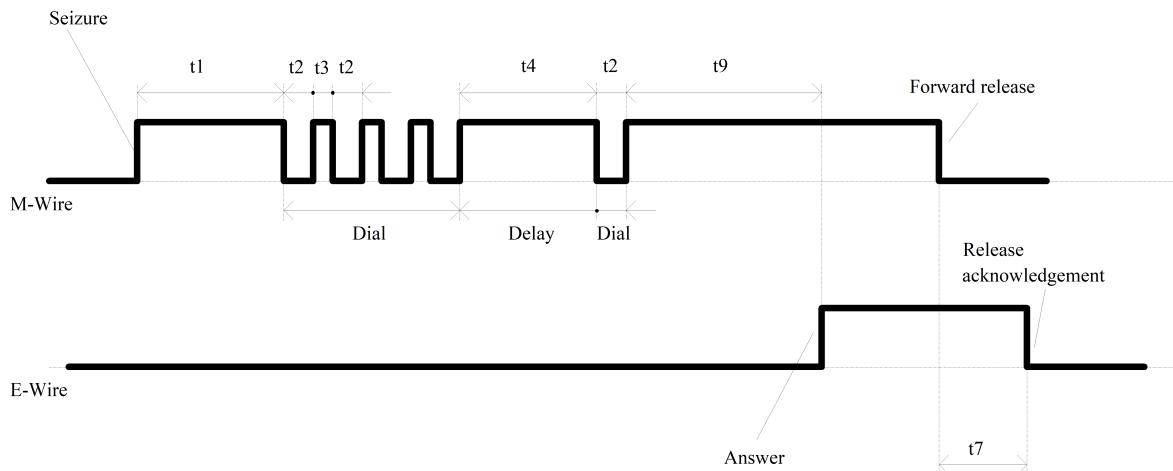
Seizure Acknowledgment Protocol



Delay Dial/Wink Start or Bell DID Protocol



Immediate Start Protocol



Sending with Kofax Communication Server to PABX

Ref.	Description	Formula See Point 1 of Note.	Default value
t1	Delay between seizure and 1st DID digit	$\text{Conf}[212][2,3] * 10\text{ms} + t6$	2050ms
t2	Duration of dial pulse or DTMF digit	$\text{Conf}[62][1] * 10\text{ms}$	60ms
t3	Delay between dialing pulses or DTMF digits	$\text{Conf}[63][1] * 10\text{ms}$	40ms
t4	Delay between digits	$\text{Conf}[64][1] * 10\text{ms}$	900ms
t5(min)	Minimum delay between seizure and wink signal	Cannot be configured	0ms
t5(max)	Maximum delay between seizure and acknowledged signal (Time between seizure in wink is not checked)	$\text{Conf}[119][2,3] * 10\text{ms}$	35s
t6	Delay before dial	$\text{Conf}[61][1] * 10\text{ms} + 2\text{s}$ See point 3 of Note.	2050ms
t7	Time between forward release and release acknowledge	Cannot be configured. Time is not checked by TCOSS.	
	Time between backward release and release acknowledge	Cannot be configured	<1min See point 2 of Note.
t8(min)	Minimum length of wink signal	$\text{Conf}[121][2,3] * 10\text{ms} + 10\text{ms}$	20ms
t8(max)	Maximum length of wink signal	Not checked	
t10(max)	Maximum delay between seizure and falling edge of wink	$\text{Conf}[122][2,3] * 10\text{ms}$	12s

Note

1. The expression “Conf[line][pos]” refers to config positions as shown in the example below:

1)	Conf[62][1]	position 1 of config line 62
	Conf[119][2,3]	positions 2 and 3 (where position 2 is MSB and position 3 is LSB) of config line 119

2. Backward release will be detected within 3.5s during call establishing phase (before Kofax Communication Server has detected the fax prompt of the receiver). After the fax prompt has been detected, the ear line is not sample anymore. This means that backward release is detected only after fax protocol fails with an time-out error (e.g. error XT). This may usually take up to 1 minute. If fax transmission is successfully, both sender and receiver disconnects the line approximately at the same time.
3. The 2s delay in t6 is produced by the pause characters “P” at the begin of config lines 132 and 133.

Receiving with Kofax Communication Server from PABX

ref.	Description	Formula	Default value
t1(min)	Minimum delay between seizure and 1st DID digit	Cannot be configured	500ms See point 1 of Note.
t1(max)	Maximum delay between seizure and 1st DID digit	=t9	5s
t2(min)	Minimum duration of dial pulse	Conf[124][6,7] * 10ms + 20ms	40ms
	Minimum duration of DTMF tone	Conf[180][1,2] * 139us + 40ms	40ms
t2(max)	Maximum duration of dial pulse	Conf[123][2,3] * 10ms	200ms
	Maximum duration of DTMF tone	=t9	5s
t3(min)	Minimum delay between dialing pulses	Conf[124][2,3] * 10ms + 10ms	20ms
t3(max)	Maximum delay between dialing pulses	Conf[123][2,3] * 10ms	200ms
t4(min)	Minimum delay between digits	Conf[123][2,3] * 10ms + 10ms	210ms
	Minimum pause between DTMF tones	Conf[180][3,4] * 139us + 40ms	40ms
t4(max)	Maximum delay between digits or DTMF tones	=t9	5s
t5	Delay between seizure and acknowledge or wink signal	Conf[205][2,3] * 10ms ... Conf[205][2,3] * 10ms + 500ms	120ms .. 620ms See point 1 of Note.
t6(min)	Minimum delay before dial	Cannot be configured	0ms
t6(max)	Maximum delay before dial	=t9	5s
t7	Time between backward release and release acknowledge	Cannot be configured. Time is not checked by TCOSS.	
	Time between forward release and release acknowledge	Cannot be configured	<6s See point 3 of Note.
t8	Length of wink signal	Conf[206][2,3] * 10ms	200ms

ref.	Description	Formula	Default value
t9	Delay between last dialed digit and answer signal	“DID reception time-out” as configured in general parameters menu of wconfig. See point 2 of Note.	5s

Note

1. The ear line is sampled every 500ms in the idle state. This means that time t5 has an additional delay between 0 and 500ms. Furthermore, the reception of the first digit with immediate start protocol, cannot be guaranteed within the first 500ms after the Ear signal is activated.
2. Time T9 is reduced to 20ms, if a complete number is detected by the incoming number conversion table.
3. Forward release will be detected within 5s during call establishing phase (before KCS has detected the fax prompt of the receiver). After the fax prompt has been detected, the ear line is not sample anymore. This means that backward release is detected only after fax protocol fails with a time-out error (such as error XY). This will usually take 6 seconds. If fax reception is successfully, both sender and receiver disconnects the line approximately at the same time.

Tips for Configuring the E&M Channels

This section provides tips for configuring the E&M channels.

DID Together with DTMF

It is possible to use DID and DTMF configuration at the same time with one channel. Therefore the DTMF time-out in the general parameters menu of the config program must be set.

Check of the E-Signal

Kofax Communication Server recognizes when the PABX releases the E&M line by resetting the E-signal. The ear signal of the TS2Z will be checked while Kofax Communication Server is waiting for a valid frame from the other station.

Config line 229 is used with all DID plans to detect a line disconnect. It's standard value is set as follows:

Type of connection	Config line 229	Meaning
normal connection	0F 00 00 F1 F0 F0 F0	No line disconnect detection
DID plan 2,3 and 4	0C 00 10 F1 F0 F0 F0	Check Ear signal
Bell DID	0C 00 11 F1 F0 F0 F0	Check Ear signal
ISDN	12 00 05 F1 F0 F0 F0	Check disconnect from ISDN D-channel

Tips How to Configure Code Pages for the FAX Module

This section provides tips to configure code pages for the fax module.

Adapting Code Pages to Country-Specific Characters

To create new characters with TCOSS code page follow the instructions given below.

Basics

TCOSS characters are created by taking the incoming character code to point to a 16bit table in TCOSS Config file (lines 148-179 for UTF [analogue and E&M Transputerfax] and lines 143-174 for ULL [Line Printer]).

This table is created by combining a 10Bit number for the standard character and a 6Bit number for the diacritical mark (see the tables for Standard Character set and Diacritical marks). These two images are overlaid for the actual character image.

Diacritical mark Bits 0-5						Character Bits 0-9										
5	4	3	2	1	0	9	8		7	6	5	4	3	2	1	0
High Byte (lower address)								Low Byte (higher address)								

How to Change a Character

To find the appropriate code for the new character use the character Tables below.

1. Add the values of the selected character and the diacritical code.
2. Write this value to the calculated config position by placing both values together in one 16Bit value (shift diacritical mark value to highest 6 Bit results by multiplying with 4).
3. Place diacritical mark value to the lower byte and character value to the higher byte.
4. Save and reboot TCOSS. The new table is available.

Example

Create character "Ã" as image for code 0xC3 (dec. 195) for UTF.

From tables below you find that "Ã" can be created by an overlay of characters "A" (0x41) and "¨" (0x0C). To bring 0x0C to the upper 6 Bit position, multiply it by 4 ($4 \times 12 = 48 = 0x30$). So you have to insert 0x3041 to the appropriate location in the TCOSS Config file.

Find the location of the character. Each config line holds codes for 8 characters. For UTF the table starts with config line 148. For code 0xC3 the appropriate config line is $195 / 8 = 24 + 148 = 172$, Bytes 7 and 8 (excess of division $*2 + 1$). Change these to 0x30 and 0x41. Now save this configuration.

After restarting TCOSS, the new code page will be active and ready for testing.

Tables

Standard Character set																Diacritical marks													
0 1 2 3 4 5 6 7 8 9 A B C D E F																0 1 2 3 4 5 6 7 8 9 A B C D E F													
0x	|	|								α	β	γ	δ	ε	ζ	η	θ			0x									
1										ν	ξ	ο	ρ	σ	τ	υ	φ			1									
2		!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/				2									
3		0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?			3									
4		@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O												
5		P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_												
6		`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o												
7		p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	x												
8		ç	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î												
9		Ê	æ	Ë	ÿ	Ð	ð										Ó	Ü	Ý	Þ	ÿ								
A										N	ä	ö	¿	Γ	γ	½	¼	i	«	»									
B		ç	€							ψ	ω																		
C		π	§	Ð	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı									
D		κ	α	δ	δ	ħ	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı									
E		Β	β	Γ	Δ	Ε	Ζ	μ	Η	Θ	Ι	Ω	Κ	Λ	Ø	Μ	Ν												
F		Ε	±	Ο	Π	Ρ	Σ	÷	Τ	°	Υ	Φ	Χ	Ψ	²	λ													

Configuration for the ISDN Fax Module (UIF)

```
01 '1, initial state (0,1,2)
02 'F, channel groups (' ',A..Z)
03 'FC1, channel type (' ',F,X,T), channel capability
04 '2, language (1,2)
05 '0, CORR default (0,1)
06 ', line status comment
07 'A, NODES default (A..Z)
08 :00, number of characters for cost accounting
```

```

09 '0, offset in reference for cost accounting
10 'H, number series for send commands (A..Z)
11 '1, locking of send commands
12 ', sending time mapped to low priority
13 '9, interval between call retries (1..T)
14 :FF 00, send test timer value in 0.1 sec. (position 1)
15 ', default channel for ..C, ..S, ..L
16 'JA, Log file of trans. mess. (' ',0..9,A..Z), all/success. only
17 'A , drive for log file of trans. mess. (A,B), page sent counter
18 , BACK RECEPTION
19 'A, drive for back received mess
20 'RT, number series (A..Z), 1st char. for reference (0..9,A..Z)
21 'FOUT, address for autom. printout of back received mess
22 '0, auto. send print. and active acknowledge. can't be deleted
23 , RECEPTION
24 '0, automatic distribution (0,1,2)
25 'A, drive for received mess
26 'FT, number series (A..Z), 1st char. for reference (0..9,A..Z)
27 'FIN, address for autom. printout of received mess
28 '0, autom. recept. printout and distribution can't be deleted
29 'I, Log file of received mess. (' ',0..9,A..Z)
30 'A, drive for log file of rec. mess. (A,B), page rec. counter
31 , TEST
32 '0, reserved
33 :FE, TCI code output line length
34 :03 E7, Maximum number of pages = 999
35 '0, automatic printout of CF non-delivery notifications
36 :00, reserved
37 ', reserved
38 :08 00 reference with 8 characters in log file, entry mode
39 :0F lines checked for automatic distribution
40 'A , drive for masks, default mask
41 '10110, termination
42 'FAX$* output channel with mask for active acknowledge
43 '87654321-, new send status for BREAK = 1
44 '876543210, new send status for BREAK = 2
45 '-----10, new send status for BREAK = 3
46 '-----10, new send status for BREAK = 4
47 '-----10, new send status for BREAK = 5
48 :00 00 00, ASP parameters
49 :00 00 00, ASP parameters
50 TUM
51 'TEST, answerback
52 '+11 111 111111, fax number
53 '3, full image backreception
54 , Transmission style / speed
55 'E960, 9600 / 14400 bps, ECM, no 2dim.
56 '0, retransmission mode
57 '0, send break page
58 '0, expansion of last page to specified format
59 , Dial parameters (used with Callback switch only)
60 '1, dialing (pulse/dtmf/sweden)
61 :05, delay before first dial pulse
62 :08, length of dial pulse
63 :64 64, delay between dial pulses
64 :08, delay between digits
65 :05, delay after last dial pulse
66 :04 , not used for ISDN
67 :0A , not used for ISDN
68 :28 , not used for ISDN
69 :05 , not used for ISDN
70 , FACSIMILE procedure
71 :32 32, timeout for receiving valid identification / DCS timeout
72 :07 14 00, Del. V29/V21, CFR/Page, FF-Seq.

```

```

73 :1E 46 3C, wait 3s/7s for response/command, ECM timeout
74 :28, max. frame length 4s
75 :14, min. carrier lost time 200ms
76 :0A, 1s HDLC-preamble
77 :0F, 1.5s training sequence
78 :23, 3.5s CNG-tone pause
79 :05, 0.5s CNG-tone
80 :00, receiver threshold = -43dBm
81 :26, EPT with V.27 and V.17/V.33
82 , ===== signal detection =====
83 , STATE machine
84 'A2-4a3+ , 'A' dial tone detector
85 'a2-4b3+ ,
86 'b2-4c3+ ,
87 'c2-4-3+ ,
88 'W1-5+ , 'W' wait for any tone
89 'P0+ , 'P' 1s pause
90 'Q1+ , 'Q' 4s pause
91 'Z7-8zB= , 'Z' ring/busy detection
92 'z7-9+A*B= ,
93 'CE-3+A+ , 'C' Callback ring-back Signal
94 'DE-Dd , 'D' wait for call-back
95 'dE-C+ ,
96 'BH-3+ , 'B' Check CB prompt
97 ' ,
98 'EE-F+ , 'E' wait 35s for ear
99 'FH-G+ , 'F' wait 12s for ear pulse
100 'IH-GJ , 'I' wait 12s for 1st pulse of digit
101 'JI-J+ , 'J' wait 4 next pulse of digit
102 'fH-C+ ,
103 'RH-Df , 'R' Ring indication
104 , ===== EVENTS =====
      Chnl. tonmin tonmax toffmin toffmax Tmin Tmax ton/T min Ton/T max
105 :00 00 64 00 00 00 00 00 00 00 00 00 00 00, 0
106 :00 01 90 00 00 00 00 00 00 00 00 00 00 00, 1
107 :00 07 08 00 00 00 00 00 00 00 00 00 00 00, 2
108 :01 00 50 00 00 00 00 00 00 00 00 00 00 00, 3
109 :81 00 07 00 4B 00 0A 00 5F 00 19 00 8C 00 00, 4
110 :01 00 14 00 00 00 00 00 00 00 00 00 00 00, 5
111 :00 00 00 00 00 00 00 00 00 00 00 00 00 00, 6
112 :06 01 2C 00 00 00 00 00 00 00 00 00 00 00, 7
113 :01 00 02 00 00 00 00 00 00 00 00 00 00 00, 8
114 :81 00 08 00 50 00 08 00 42 00 00 00 00 00 00, 9
115 :81 00 05 00 00 00 64 00 00 00 00 00 00 00, A
116 :07 00 08 00 00 00 00 00 00 00 00 00 00 00, B
117 :84 00 00 00 00 00 5A 00 00 00 00 00 00 00, C
118 :84 00 00 00 00 00 5A 02 58 00 00 00 00 00 00, D
119 :00 0D AC 00 00 00 00 00 00 00 00 00 00 00, E
120 :05 00 01 00 00 00 00 00 00 00 00 00 00 00, F
121 :85 00 01 00 00 00 01 00 00 00 00 00 00 00, G
122 :00 04 B0 00 00 00 00 00 00 00 00 00 00 00, H
123 :06 00 14 00 00 00 00 00 00 00 00 00 00 00, I
124 :45 00 01 00 00 00 02 00 00 00 00 00 00 00, J
125 ,
126 :02 00 72 74 C7 5C 02 EE 72 74 C7 5C 00 44 7F BA,
127 :00 00 00 00 00 00 00 00 00 00 00 00 00 00,
128 :0F A0 2A F8 D0 64 0F A0 2A F8 D0 64 00 22 7F DC,
129 :21 ,
130 ,
131 ' , automatic prefix for internal sending
132 'A ,
133 ' ,
134 :00 00 00 00, do not use a failure counter
135 :64 64 64 64, Output power = J6

```

```
136 :01 4E 78 37 10 11 3B 5F 05, A4H
137 :11 2A 2D A0 21 08 2E 84 05, A4Q
138 :00 2A 38 37 0C 0C 57 86 05, BDH
139 :10 24 2D A0 19 06 3D B1 05, BDQ
140 :28 11 00 82 , page settings, header line margin, Kofax-logo
141 ,
142 :13, header line settings
143 :01 04 00, Rec. On/Off; bit rate; unused
144 :7F 0A 05 03 04 02 10 09 04 02, max. noise levels
145 :02 05 10 78, page acceptability limits
146 '1, Rec. with/without fine mode
147 '0, Date format
148 :00 00 00 01 00 02 00 03 00 04 00 05 00 06 00 07, fax code
149 :00 08 00 09 00 0A 00 0B 00 0C 00 0D 00 0E 00 0F, fax code
150 :00 10 00 11 00 12 00 13 00 14 00 15 00 16 00 17, fax code
151 :00 18 00 19 00 1A 00 1B 00 1C 00 1D 00 1E 00 1F, fax code
152 :00 20 00 21 00 22 00 23 00 24 00 25 00 26 00 27, fax code
153 :00 28 00 29 00 2A 00 2B 00 2C 00 2D 00 2E 00 2F, fax code
154 :00 30 00 31 00 32 00 33 00 34 00 35 00 36 00 37, fax code
155 :00 38 00 39 00 3A 00 3B 00 3C 00 3D 00 3E 00 3F, fax code
156 :00 40 00 41 00 42 00 43 00 44 00 45 00 46 00 47, fax code
157 :00 48 00 49 00 4A 00 4B 00 4C 00 4D 00 4E 00 4F, fax code
158 :00 50 00 51 00 52 00 53 00 54 00 55 00 56 00 57, fax code
159 :00 58 00 59 00 5A 00 5B 00 5C 00 5D 00 5E 00 5F, fax code
160 :00 60 00 61 00 62 00 63 00 64 00 65 00 66 00 67, fax code
161 :00 68 00 69 00 6A 00 6B 00 6C 00 6D 00 6E 00 6F, fax code
162 :00 70 00 71 00 72 00 73 00 74 00 75 00 76 00 77, fax code
163 :00 78 00 79 00 7A 00 7B 00 7C 00 7D 00 7E 00 7F, fax code
164 :5C 43 20 75 04 65 18 61 20 61 10 61 44 61 5C 63, fax code
165 :18 65 20 65 10 65 20 8B 18 8B 10 8B 24 8E 48 8F, fax code
166 :08 90 00 91 00 92 18 6F 20 6F 10 6F 18 75 10 75, fax code
167 :20 79 28 99 2C 9A 00 9B 00 9C 00 9D 00 9E 00 9F, fax code
168 :04 61 04 8B 04 6F 04 75 30 6E 30 A5 00 A6 00 A7, fax code
169 :00 A8 00 A9 00 AA 00 AB 00 AC 00 AD 00 AE 00 AF, fax code
170 :00 B0 00 B1 80 00 00 B3 00 B4 84 00 88 00 8C 00, fax code
171 :90 00 94 00 98 00 9C 00 A0 00 A4 00 A8 00 AC 00, fax code
172 :00 C0 00 C1 00 C2 00 C3 00 C4 00 C5 00 C6 00 C7, fax code
173 :00 C8 00 C9 00 CA 00 CB 00 CC 00 CD 00 CE 00 CF, fax code
174 :00 D0 00 D1 00 D2 00 D3 00 D4 00 D5 00 D6 00 D7, fax code
175 :00 D8 00 D9 00 DA 00 DB 00 DC 00 DD 00 DE 00 DF, fax code
176 :00 E0 00 E1 00 E2 00 E3 00 E4 00 E5 00 E6 00 E7, fax code
177 :00 E8 00 E9 00 EA 00 EB 00 EC 00 ED 00 EE 00 EF, fax code
178 :00 F0 00 F1 00 F2 00 F3 00 F4 00 F5 00 F6 00 F7, fax code
179 :00 F8 00 F9 00 FA 00 FB 00 FC 00 FD 00 FE 00 FF, fax code
180 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 EB E0
181 :03 00 00 14 01 31 31, (00) ===== ISDN Statemachine =====
182 :02 00 00 13 13 31 31, (01)
183 :01 00 00 15 15 31 31, (02) ->Call-Ind
184 :0B 00 00 14 14 31 31, (03) ->Disc-Ind
185 :00 00 00 00 00 00 00, (04)
186 :0F 00 32 16 16 16 16, (05)
187 :09 00 00 05 05 31 31, (06) ->Conn-Conf
188 :0F 00 C8 08 08 31 31, (07) ->Conn-Ind (Line without DTMF)
    :08 83 E8 08 08 08 08, line if DTMF input is configured
189 :0A 00 00 06 16 31 31, (08)
190 :0D 00 42 0D 0A 31 31, (09) ->Conn-ConfCB
191 :07 00 00 16 06 16 31, (0A)
192 :0B 00 20 0C 0C 31 31, (0B)
193 :01 00 00 07 07 31 31, (0C)
194 :06 00 00 0E 0B 31 31, (0D)
195 :13 00 20 16 16 31 31, (0E)
196 :00 00 00 00 00 00 00, (0F)
197 :00 00 00 00 00 00 00, (10)
198 :00 00 00 00 00 00 00, (11)
```

```

199 :00 00 00 00 00 00 00 , (12)
200 :12 00 02 1D 06 21 31 , (13) ->Conn-Req
201 :12 00 01 00 02 31 31 , (14) ->Idle-Req
202 :12 00 03 03 07 31 31 , (15) ->Call-Rsp
203 :12 00 04 03 03 03 31 , (16) ->Disc-Req
204 :00 00 00 00 00 00 00, (17)
205 :00 00 00 00 00 00 00, (18)
206 :00 00 00 00 00 00 00, (19)
207 :00 00 00 00 00 00 00, (1A)
208 :00 00 00 00 00 00 00, (1B)
209 :00 00 00 00 00 00 00, (1C)
210 :0F 00 64 1E 1E 1E 31, (1D)
211 :12 00 04 1F 1F 1F 31, (1E)
212 :12 23 01 22 20 31 31, (1F)
213 :12 00 03 22 09 21 31, (20)
214 :12 00 04 03 03 03 31, (21)
215 :13 00 03 03 03 03 31, (22)
216 :00 00 00 00 00 00 00, (23)
217 :00 00 00 00 00 00 00, (24)
218 :00 00 00 00 00 00 00, (25)
219 :00 00 00 00 00 00 00, (26)
220 :00 00 00 00 00 00 00, (27)
221 :00 00 00 00 00 00 00, (28)
222 :00 00 00 00 00 00 00, (29)
223 :00 00 00 00 00 00 00, (2A)
224 :00 00 00 00 00 00 00, (2B)
225 :00 00 00 00 00 00 00, (2C)
226 :00 00 00 00 00 00 00, (2D)
227 :00 00 00 00 00 00 00, (2E)
228 :00 00 00 00 00 00 00, (2F)
229 :12 00 05 F1 F0 F0 F0, (30)
230 :00 00 00 00 00 00 00, (31)
231 :00 00 00 00 , FXC tracer
232 :00 00 00 00 , FXC tracer
233 :00 00 00 00 , FXC tracer
234 :00 00 00 00 , FXC tracer
235 `FXI$ FXI$ FAX$, inbound/user/originator prefix for DID
236 :10, max. length of DID inbound Number
237 :01 01 01, pw, TSI, number match required
238 `FXI$ FXI$ FAX$, inbound/user/originator prefix for DTMF
239 :10, max. length of DID inbound Number
240 :01 01 01, pw, TSI, number match required
241 :00 00 00 78 04 C0 00 10, received page layout
242 :00 00 00 00 00 00 00 00 00 00 00 00, hex-, DID-, Sign-, Modem-, Binary- and LS1
perf. counter Trace
243 'To:%C_____ % From:%A_____ % Fax:%T_____,
244 '_____ % at:%D% Doc:%N% Page:%P%/%Q% _____,
245 ',
246 ',
247 ,
248 ,
249 ',ISDN reference channel
250 :01 00 FF 00 00, 250
251 :00 FF FF FF FF FF,
252 '0,
253 '0,
254 ', 254-283 number conversion table
255 ',
256 ',
257 ',
258 ',
259 ',
260 ',
261 ',

```



```
262 ',
263 ',
264 ',
265 ',
266 ',
267 ',
268 ',
269 ',
270 ',
271 ',
272 ',
273 ',
274 ',
275 ',
276 '8*~=TI~, (276-283 default conversion)
277 '80~=0~ rules for international
278 '8I~=I~, /national/internal/unknown
279 '8~=~, (number types
280 '@TI~=*~,
281 '@TN~=0~,
282 '@TS~=~,
283 '@~=~,
284 :3C,
285 :05 10,
286 :01 00 00 00 00 00 00 00
287 ,
288 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
289 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
290 ,
291 :00 00 00 00 00 00 00 01 3C 00 00 00 00 00 00 00,
292 ,
293 ,
294 ,
295 :01 00 01 00 00 00 00 00,
296 :00 00 00 00 00 00 00 00,
297 :01 FF FF FF FF FF,
298 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
299 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
```

The default value, for UIF running on TC20, of config lines 126 to 128 is shown below:

config line 126	:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
config line 127	:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
config line 128	:00 01 00 00 00 00 00 00 00 00 00 00 00 00 00,

These lines are used for tone detector filters. Note that these are not required for ISDN. The lines have been changed for compatibility with UTF.

Configuration for Fax over IP Module (UFI)

```
1 '1,
2 'F
3 'FC1,
4 '2,
5 '0,
6 '
7 'A,
8 :00 ,
```

```
9 '0,
10 'H,
11 '1,
12 ' ,
13 '9,
14 :FF 00,
15 ' ,
16 'JA ,
17 'A ,
18 ,
19 'A,
20 'RT,
21 '.FOUT,
22 '0,
23 ,
24 '0,
25 'A,
26 'FT,
27 '.FIN ,
28 '0,
29 'I,
30 'A ,
31 ,
32 '0,
33 :FE ,
34 :03 E7,
35 '0,
36 :00 ,
37 ' ,
38 :08 00,
39 :0F ,
40 'A ,
41 '10110,
42 'FAX$* ,
43 '87654321-,
44 '876543210,
45 '-----10,
46 '-----10,
47 '-----10,
48 :00 00 00,
49 :00 00 00,
50 TUM
51 'TEST ,
52 '+11 111 111111 ,
53 '3,
54 ,
55 'E960,
56 '0,
57 '0,
58 '0,
59 ,
60 '1,
61 :05 ,
62 :08 ,
63 :64 64 ,
64 :08 ,
65 :05 ,
66 :04 ,
67 :0A ,
68 :28 ,
69 :05 ,
70 ,
71 :32 32 ,
72 :07 14 00 ,
```

```
73 :1E 46 3C ,
74 :1E ,
75 :14 ,
76 :0A ,
77 :0F ,
78 :23 ,
79 :05 ,
80 :00 ,
81 :26 ,
82 ,
83 ,
84 'A2-4a3+ ,
85 'a2-4b3+ ,
86 'b2-4c3+ ,
87 'c2-4-3+ ,
88 'W1-5+ ,
89 'P0+ ,
90 'Q1+ ,
91 'Z7-8zB= ,
92 'z7-9+A*B= ,
93 'CE-3+A+ ,
94 'DE-Dd ,
95 'dE-C+ ,
96 'BH-3+ ,
97 ' ,
98 'EE-F+ ,
99 'FH-G+ ,
100 'IH-GJ ,
101 'JI-J+ ,
102 'fH-C+ ,
103 'RH-Df ,
104 ,
105 :00 00 64 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
106 :00 01 90 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
107 :00 07 08 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
108 :01 00 50 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
109 :81 00 07 00 4B 00 0A 00 5F 00 19 00 8C 00 00 00 43 ,
110 :01 00 14 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
111 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
112 :06 01 2C 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
113 :01 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
114 :81 00 08 00 50 00 08 00 42 00 00 00 00 00 00 00 ,
115 :81 00 05 00 00 00 64 00 00 00 00 00 00 00 00 00 ,
116 :07 00 08 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
117 :84 00 00 00 00 00 5A 00 00 00 00 00 00 00 00 00 ,
118 :84 00 00 00 00 00 5A 02 58 00 00 00 00 00 00 00 ,
119 :00 0D AC 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
120 :05 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
121 :85 00 01 00 00 00 01 00 00 00 00 00 00 00 00 00 ,
122 :00 04 B0 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
123 :06 00 14 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
124 :45 00 01 00 00 00 02 00 00 00 00 00 00 00 00 00 ,
125 ,
126 :02 00 72 74 C7 5C 02 EE 72 74 C7 5C 00 44 7F BA ,
127 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ,
128 :0F A0 2A F8 D0 64 0F A0 2A F8 D0 64 00 22 7F DC ,
129 :21 ,
130 ,
131 ' ,
132 'A ,
133 ' ,
134 :00 00 00 00 ,
135 :64 64 64 64 ,
```

```
136 :01 4E 78 37 10 11 3B 5F 05 ,
137 :11 2A 2D A0 21 08 2E 84 05 ,
138 :00 2A 38 37 0C 0C 57 86 05 ,
139 :10 24 2D A0 19 06 3D B1 05 ,
140 :28 11 00 82 ,
141 ,
142 :13 ,
143 :01 04 00 ,
144 :7F 0A 05 03 04 02 10 09 04 02,
145 :02 05 10 78,
146 '1,
147 '0,
148 :00 00 00 01 00 02 00 03 00 04 00 05 00 06 00 07 ,
149 :00 08 00 09 00 0A 00 0B 00 0C 00 0D 00 0E 00 0F ,
150 :00 10 00 11 00 12 00 13 00 14 00 15 00 16 00 17 ,
151 :00 18 00 19 00 1A 00 1B 00 1C 00 1D 00 1E 00 1F ,
152 :00 20 00 21 00 22 00 23 00 24 00 25 00 26 00 27 ,
153 :00 28 00 29 00 2A 00 2B 00 2C 00 2D 00 2E 00 2F ,
154 :00 30 00 31 00 32 00 33 00 34 00 35 00 36 00 37 ,
155 :00 38 00 39 00 3A 00 3B 00 3C 00 3D 00 3E 00 3F ,
156 :00 40 00 41 00 42 00 43 00 44 00 45 00 46 00 47 ,
157 :00 48 00 49 00 4A 00 4B 00 4C 00 4D 00 4E 00 4F ,
158 :00 50 00 51 00 52 00 53 00 54 00 55 00 56 00 57 ,
159 :00 58 00 59 00 5A 00 5B 00 5C 00 5D 00 5E 00 5F ,
160 :00 60 00 61 00 62 00 63 00 64 00 65 00 66 00 67 ,
161 :00 68 00 69 00 6A 00 6B 00 6C 00 6D 00 6E 00 6F ,
162 :00 70 00 71 00 72 00 73 00 74 00 75 00 76 00 77 ,
163 :00 78 00 79 00 7A 00 7B 00 7C 00 7D 00 7E 00 7F ,
164 :5C 43 20 75 04 65 18 61 20 61 10 61 44 61 5C 63 ,
165 :18 65 20 65 10 65 20 8B 18 8B 10 8B 24 8E 48 8F ,
166 :08 90 00 91 00 92 18 6F 20 6F 10 6F 18 75 10 75 ,
167 :20 79 28 99 2C 9A 00 9B 00 9C 00 9D 00 9E 00 9F ,
168 :04 61 04 8B 04 6F 04 75 30 6E 30 A5 00 A6 00 A7 ,
169 :00 A8 00 A9 00 AA 00 AB 00 AC 00 AD 00 AE 00 AF ,
170 :00 B0 00 B1 80 00 00 B3 00 B4 84 00 88 00 8C 00 ,
171 :90 00 94 00 98 00 9C 00 A0 00 A4 00 A8 00 AC 00 ,
172 :00 C0 00 C1 00 C2 00 C3 00 C4 00 C5 00 C6 00 C7 ,
173 :00 C8 00 C9 00 CA 00 CB 00 CC 00 CD 00 CE 00 CF ,
174 :00 D0 00 D1 00 D2 00 D3 00 D4 00 D5 00 D6 00 D7 ,
175 :00 D8 00 D9 00 DA 00 DB 00 DC 00 DD 00 DE 00 DF ,
176 :00 E0 00 E1 00 E2 00 E3 00 E4 00 E5 00 E6 00 E7 ,
177 :00 E8 00 E9 00 EA 00 EB 00 EC 00 ED 00 EE 00 EF ,
178 :00 F0 00 F1 00 F2 00 F3 00 F4 00 F5 00 F6 00 F7 ,
179 :00 F8 00 F9 00 FA 00 FB 00 FC 00 FD 00 FE 00 FF ,
180 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 D8 00 EB E0 ,
181 :03 00 00 14 01 31 31, 181 (00) ->Idle-Conf
182 :02 00 00 13 13 31 31, 182 (01)
183 :01 00 00 15 15 31 31, 183 (02) ->Call-Ind
184 :0B 00 00 14 14 31 31, 184 (03) ->Disc-Ind
185 :00 00 00 00 00 00 00, 185 (04)
186 :00 00 00 00 00 00 00, 186 (05)
187 :09 00 00 16 16 31 31, 187 (06) ->Conn-Conf
188 :0F 00 C8 08 08 31 31, 188 (07) ->Conn-Ind (Line without DTMF)
189 :0A 00 00 06 16 31 31, 189 (08)
190 :0D 00 42 0D 0A 31 31, 190 (09) ->Conn-ConfCB
191 :07 00 00 16 06 16 31, 191 (0A)
192 :0B 00 20 0C 0C 31 31, 192 (0B)
193 :01 00 00 07 07 31 31, 193 (0C)
194 :06 00 00 0E 0B 31 31, 194 (0D)
195 :13 00 20 16 16 31 31, 195 (0E)
196 :00 00 00 00 00 00 00, 196 (0F)
197 :00 00 00 00 00 00 00, 197 (10)
198 :00 00 00 00 00 00 00, 198 (11)
199 :00 00 00 00 00 00 00, 199 (12)
```

```
200 :12 00 02 1D 06 21 03, 200 (13) ->Conn-Req
201 :12 00 01 00 02 31 31, 201 (14) ->Idle-Req
202 :12 00 03 03 07 31 31, 202 (15) ->Call-Rsp
203 :12 00 04 03 03 03 31, 203 (16) ->Disc-Req
204 :00 00 00 00 00 00 00, 204 (17)
205 :00 00 00 00 00 00 00, 205 (18)
206 :00 00 00 00 00 00 00, 206 (19)
207 :00 00 00 00 00 00 00, 207 (1A)
208 :00 00 00 00 00 00 00, 208 (1B)
209 :00 00 00 00 00 00 00, 209 (1C)
210 :0F 00 64 1E 1E 1E 31, 210 (1D)
211 :12 00 04 1F 1F 1F 31, 211 (1E)
212 :12 23 01 22 20 31 31, 212 (1F)
213 :12 00 03 22 09 21 31, 213 (20)
214 :12 00 04 03 03 03 31, 214 (21)
215 :13 00 03 03 03 03 31, 215 (22)
216 :00 00 00 00 00 00 00, 216 (23)
217 :00 00 00 00 00 00 00, 217 (24)
218 :00 00 00 00 00 00 00, 218 (25)
219 :00 00 00 00 00 00 00, 219 (26)
220 :00 00 00 00 00 00 00, 220 (27)
221 :00 00 00 00 00 00 00, 221 (28)
222 :00 00 00 00 00 00 00, 222 (29)
223 :00 00 00 00 00 00 00, 223 (2A)
224 :00 00 00 00 00 00 00, 224 (2B)
225 :00 00 00 00 00 00 00, 225 (2C)
226 :00 00 00 00 00 00 00, 226 (2D)
227 :00 00 00 00 00 00 00, 227 (2E)
228 :00 00 00 00 00 00 00, 228 (2F)
229 :12 00 05 F1 F0 F0 F0, 229 (30)
230 :00 00 00 00 00 00 00, 230 (31)
231 :00 00 00 00,
232 :00 00 00 00,
233 :00 00 00 00,
234 :00 00 00 00,
235 'FXI$ FXI$ FAX$,
236 :10,
237 :01 01 01,
238 'FXI$ FXI$ FAX$,
239 :10,
240 :01 01 01,
241 :00 00 00 78 04 C0 00 10,
242 :00 00 00 00 00 00 00 00 00 00 00, 242
243 'To:%C_____ % From:%A_____ % Fax:%T_____,
244 '_____ % at:%D% Doc:%N% Page:%P%/%Q% ,
245 ' , 245
246 ' ,
247 ,
248 ' ,
249 ,
250 :01 00 FF 00 00, 250
251 :00 FF FF FF FF FF,
252 '0,
253 '0,
254 ' ,
255 ', 255
256 ' ,
257 ' ,
258 ' ,
259 ' ,
260 ' , 260
261 ' ,
262 ' ,
263 ' ,
```

```

264 ',
265 ', 265
266 ',
267 ',
268 ',
269 ',
270 ', 270
271 ',
272 ',
273 ',
274 ',
275 ', 275
276 '8*~=TI~
277 '80~=0~
278 '8I~=I~
279 '8~=~
280 '@TI~=*~
281 '@TN~=0~
282 '@TS~=~
283 '@~=~
284 :3C ,
285 :05 10 285
286 :01 00 00 00 00 00 00 00,
287 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
288 ,
289 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00,
290 ,
291 :00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00, 291
292 ,
293 ,
294 ,
295 :01 00 01 00 00 00 00 00, 295
296 :00 00 00 00 00 00 00 00, 296
297 :01 FF FF FF FF FF, 297
298 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00, 298
299 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00, 299

```

Configuration for ULL

Only config lines which are used by the ULL module are described here. The rest of the lines are marked as not used.

```

01 '1, initial state (0,1,2)
02 ', channel groups (' ',A..Z)
03 'C1, channel type (' ',F,X,T), channel capability
04 '2, language (1,2)
05 '0, CORR default (0,1)
06 ', Line status comment
07 'A, NODES default (A..Z)
08 :00, number of characters for cost accounting
09 '0, offset in reference for cost accounting
10 'H, number series for send commands (A..Z)
11 '0, locking of send commands
12 ', sending time mapped to low priority
13 '9, interval between call retries (1..T)
14 :32 00, send test timer value in 0.1 sec
15 ', default channel for ..C, ..S, ..L
16 'JA, log file of trans. mess. (' ',0..9,A..Z), all/success. only
17 'A , drive for log file of trans. mess. (A,B), page sent counter
18 , BACK RECEPTION

```

```

19 'A, drive for back received mess
20 'RT, number series (A..Z), 1st char. for reference (0..9,A..Z)
21 ', address for automatic printout of back received mess
22 '0, auto. send print. and active acknowledge. can't be deleted
23 , RECEPTION
24 '0, automatic distribution (0,1,2)
25 'A, drive for received mess
26 'FT, number series (A..Z), 1st char. for reference (0..9,A..Z)
27 ', address for autom. printout of received mess
28 '0, autom. recept. printout and distribution can't be deleted
29 'I, log file of received mess. (' ',0..9,A..Z)
30 'A , drive for log file of rec. mess. (A,B), page rec. counter
31 , TEST
32 '0, reserved
33 :FE, TCI code output line length
34 :03 E7, Maximum number of pages = 999
35 '0, automatic printout of CF non-delivery notifications
36 :00, reserved
37 ', reserved
38 :08 00, reference with 8 characters in log file, entry mode
39 :0F lines checked for automatic distribution
40 'A , drive for masks, default mask
41 '10110, termination
42 ', output channel with mask for active acknowledgements
43 '876-----, new send status for BREAK = 1
44 '8-----, new send status for BREAK = 2
45 '8-----, new send status for BREAK = 3
46 '8-----, new send status for BREAK = 4
47 '-----0, new send status for BREAK = 5
48 :00 00 00, ASP parameters
49 :00 00 00, ASP parameters
50 TUM
51 'Kofax plc., answerback
52 'F090, TSI field for laser printer module
53-83 not used
84 '90, Laser printer module, default number parameter
85-104 , not used
105 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00, printer
106 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00, init
107 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00, sequences
108 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00, from 105
109 :00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00, up to 109
110-130 , not used
131 :01 4E 78 37 10 11 3B 5F 05, page layout A4H
132 :11 2A 2D A0 21 08 2E 84 05, page layout A4Q
133 :00 2A 38 37 0C 0C 57 86 05, page layout BDH
134 :10 24 2D A0 19 06 3D B1 05, page layout BDQ
135 :28 11 00 82, page default settings, header line margin, Kofax-logo
136 ,
137 :13, header line type
138-141 not used
142 '0, date format
143 :00 00 00 01 00 02 00 03 00 04 00 05 00 06 00 07, fax code
144 :00 08 00 09 00 0A 00 0B 00 0C 00 0D 00 0E 00 0F, fax code
145 :00 10 00 11 00 12 00 13 00 14 00 15 00 16 00 17, fax code
146 :00 18 00 19 00 1A 00 1B 00 1C 00 1D 00 1E 00 1F, fax code
147 :00 20 00 21 00 22 00 23 00 24 00 25 00 26 00 27, fax code
148 :00 28 00 29 00 2A 00 2B 00 2C 00 2D 00 2E 00 2F, fax code
149 :00 30 00 31 00 32 00 33 00 34 00 35 00 36 00 37, fax code
150 :00 38 00 39 00 3A 00 3B 00 3C 00 3D 00 3E 00 3F, fax code
151 :00 40 00 41 00 42 00 43 00 44 00 45 00 46 00 47, fax code
152 :00 48 00 49 00 4A 00 4B 00 4C 00 4D 00 4E 00 4F, fax code
153 :00 50 00 51 00 52 00 53 00 54 00 55 00 56 00 57, fax code
154 :00 58 00 59 00 5A 00 5B 00 5C 00 5D 00 5E 00 5F, fax code

```

```

155 :00 60 00 61 00 62 00 63 00 64 00 65 00 66 00 67, fax code
156 :00 68 00 69 00 6A 00 6B 00 6C 00 6D 00 6E 00 6F, fax code
157 :00 70 00 71 00 72 00 73 00 74 00 75 00 76 00 77, fax code
158 :00 78 00 79 00 7A 00 7B 00 7C 00 7D 00 7E 00 7F, fax code
159 :5C 43 20 75 04 65 18 61 20 61 10 61 44 61 5C 63, fax code
160 :18 65 20 65 10 65 20 8B 18 8B 10 8B 24 8E 48 8F, fax code
161 :08 90 00 91 00 92 18 6F 20 6F 10 6F 18 75 10 75, fax code
162 :20 79 28 99 2C 9A 00 9B 00 9C 00 9D 00 9E 00 9F, fax code
163 :04 61 04 8B 04 6F 04 75 30 6E 30 A5 00 A6 00 A7, fax code
164 :00 A8 00 A9 00 AA 00 AB 00 AC 00 AD 00 AE 00 AF, fax code
165 :00 B0 00 B1 80 00 00 B3 00 B4 84 00 88 00 8C 00, fax code
166 :90 00 94 00 98 00 9C 00 A0 00 A4 00 A8 00 AC 00, fax code
167 :00 C0 00 C1 00 C2 00 C3 00 C4 00 C5 00 C6 00 C7, fax code
168 :00 C8 00 C9 00 CA 00 CB 00 CC 00 CD 00 CE 00 CF, fax code
169 :00 D0 00 D1 00 D2 00 D3 00 D4 00 D5 00 D6 00 D7, fax code
170 :00 D8 00 D9 00 DA 00 DB 00 DC 00 DD 00 DE 00 DF, fax code
171 :00 E0 00 E1 00 E2 00 E3 00 E4 00 E5 00 E6 00 E7, fax code
172 :00 E8 00 E9 00 EA 00 EB 00 EC 00 ED 00 EE 00 EF, fax code
173 :00 F0 00 F1 00 F2 00 F3 00 F4 00 F5 00 F6 00 F7, fax code
174 :00 F8 00 F9 00 FA 00 FB 00 FC 00 FD 00 FE 00 FF, fax code
175 :00 00 00 00,
176 :00 00 00 00,
177 :00 00 00 00,
178 :00 00 00 00,
179 'To:%C_____ % From:%A_____ % Fax:%T_____,
180 '_____ % at:%D% Doc:%N% Page:%P% _____,
181 ',
182 ',

```

Configuration for the Client Server Module (UC0)

```

01 '3, initial state (0,1,2)
02 ', channel groups (' ',A..Z)
03 '11, channel type (' ',F,X,T), channel capability
04 '2, language (1,2)
05 '1, CORR default (0,1)
06 ', Line status comment
07 'A, NODES default (A..Z)
08 :00, number of characters for cost accounting
09 '0, offset in reference for cost accounting
10 'A, number series for send commands (A..Z)
11 '0, locking of send commands
12 ', sending time mapped to low priority
13 '9, interval between call retries (1..T)
14 :32 00, send test timer value in 0.1 sec. (position 1)
15 ', default channel for ..C, ..S, ..L
16 ' S log file of trans. mess. (' ',0..9,A..Z), all/success. only
17 'B , drive for log file of trans. mess. (A,B), page sent counter
18 , BACK RECEPTION
19 'A, drive for back received mess
20 'RT, number series (A..Z), 1st char. for reference (0..9,A..Z)
21 ', address for autom. printout of back received mess
22 '0, auto. send print. and active acknowledge. can't be deleted
23 , RECEPTION
24 '1, automatic distribution (0,1,2)
25 'A, drive for received mess
26 'TT, number series (A..Z), 1st char. for reference (0..9,A..Z)
27 ', address for autom. printout of received mess
28 '0, autom. recept. printout and distribution can't be deleted
29 ', log file of received mess. (' ',0..9,A..Z)

```



```
30 'B , drive for log file of rec. mess. (A,B), page rec. counter
31 , TEST
32 '0, reserved
33 :FE, TCI code output line length
34 :03 E7, Maximum number of pages = 999
35 '0, automatic printout of CF non-delivery notifications
36 :00, reserved
37 ', reserved
38 :08 00 reference with 8 characters in log file, entry mode
39 :0F lines checked for automatic distribution
40 'A , drive for masks, default mask
41 '10110, termination
42 ', output channel with mask for active acknowl
43 '87654321-, new send status for BREAK = 1
44 '87654321-, new send status for BREAK = 2
45 '-----1-, new send status for BREAK = 3
46 '-----10, new send status for BREAK = 4
47 '-----0, new send status for BREAK = 5
48 :00 00 00, ASP parameters
49 :00 00 00, ASP parameters
```

Chapter 5

Trace Possibilities

This section describes the trace possibilities.

General

A trace can be activated for every process.

HKEY_LOCAL_MACHINE\Software\TOPCALL\<processname>

Value: TraceLevel

Type	Default	Description
REG_DWORD		Binary value specifying different trace options for the specified process. The value represents the sum of bit-values each enabling certain trace options. Possible bit values are given in the following table.

Apply to process	Bit value (hex)	Trace information
All processes	0x01	trace not-filtered information and errors (default if any other bit is set)
	0x10000000	less info TCRPC trace
	0x20000000	trace TCRPC calls
	0x40000000	full stream IO trace (not recommended)
	0x80000000	full procedure IO trace (not recommended)
TCOSS	0x02	TUP start/stop
	0x04	TAMIO calls
	0x08	display status and usage of all channels and semaphores when TCOSS terminates
	0x10	trace all calls from external TC-RPC clients
	0x20	TCTI connect and disconnect trace
	0x40	Model/165/22x start-up trace
	0x80	LCD Info trace
	0x100	LAN-Link function calls (huge output!)
	0x200	Trace each disk read/write access
	0x400	Reserverd

Apply to process	Bit value (hex)	Trace information
	0x800	Status Agent trace
	0x1000	LAN-link error trace
	0x4000	Remote channels connection trace (ASP)
	0x8000	Dump process token at start
	0x20000	Denied access due to missing rights to server objects
	0x80000	Alerting and queue log performance info
	0x100000	Mail system updates
	0x200000	Login trace
	0x400000	Compact TCSI server calls (1-line per call)

The recommended TCOSS trace level for most cases is 0x1083.

Value: TraceFile

Type	Default	Description
REG_SZ	<RootDir>\Trace\<ProcessName><number>.trc	Trace file/path Fully qualified path to trace file or path relative to <RootDir>\Trace. The actual trace file name is the name specified here (or the default) extended with a number. The number is added before the period ('.') of the extension, such as 'TCOSS0.TRC'. The number increments by one every time the maximum file size is reached (see below). In this case the current file gets closed and a new file with the new name is created. If the file exists it gets truncated. When the maximum file number is reached (see below) the current file number is set to zero.

Value: MaxTraceFileSize

Type	Default	Description
REG_DWORD	128	Maximum size of a file in kB. Specifies the maximum size of a single trace file for a process. Trace data gets added to the current file until the file size reaches the max. value. In this case, the current file gets closed and a new one gets opened.

Value: MaxTraceFiles

Type	Default	Description
REG_DWORD	2	Maximum number of files. Specifies the maximum number of trace files generated for one process. The generated trace files are numbered from 0 to <i>MaxTraceFiles</i> -1. This value only restricts the number of trace files, that is, the amount of trace data kept on disk and not the total number of files generated while the process is active. When the maximum trace file number is reached, the next file generated gets number 0.

Value: TraceToScreen

Type	Default	Description
REG_DWORD	1	<p>Boolean value</p> <p>Enables or disables output of trace information to screen. If this value is non-zero trace information is displayed on the screen. Not that all processes that have been started via TCSRVR do have a console window. Processes without a console window will ignore this value.</p> <p>Tip To attach console windows to TCSRVR and all its processes set the option <i>Allow Interaction with Desktop</i> for the service TCSRVR using the control panel/ services.</p>

Value: TraceToFile

Type	Default	Description
REG_DWORD	1	<p>Boolean value</p> <p>Enables or disables output of trace information to files. If this value is non-zero trace information is written to files as described above.</p>

Value: AppendTrace

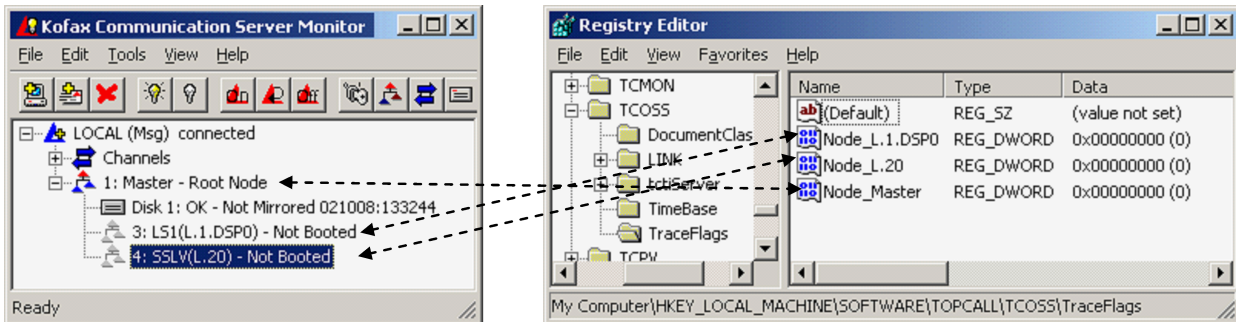
Type	Default	Description
REG_DWORD	0	<p>Current file number or zero.</p> <ul style="list-style-type: none"> Zero: The corresponding process starts writing trace files at trace file number 0. Any previously stored data gets deleted before the first line of new trace data is written to the file. The trace file gets truncated when the process starts. Non-zero: The corresponding process starts writing trace files at trace file number <i>AppendTrace</i>-1. But, the previously stored trace data is preserved. Any new data gets appended to the current file until it reaches <i>MaxFileSize</i>. If this value is non-zero, it automatically changes during run-time to store the number of current trace file.

Configuration of Traces on TCOSS Nodes

Note The Tracer channels within WCONFIG, which were used before TCOSS 7.62.00, are not used anymore. They can be removed without losing trace capability. (Future versions of WCONFIG may do this).

HKLM\Software\TOPCALL\TCOSS\TraceFlags

This registry key is used for configuration of individual trace flags for each TCOSS node. This key is read from current TCOSS Master. The *Node_xxx* (type REG_DWORD) registry values are used, where *xxxx* describes the node. If these values do not exist they are created (with 0 as default) whenever TCOSS restarts (in a tandem system you will get it on the secondary master only if it is running stand alone). An example is given in the screen shots below:



The registry values get a name according to the following rules:

The current master gets the name "Node_Master"

In a tandem system, the secondary master gets the registry value "Node_SecMaster" on the primary master. If the secondary master is starting standalone, it uses the registry value "Node_Master" on the secondary master. Since these values are only used to enable traces it is typically not required to keep it up to date on the secondary master.

All other nodes use a name with the prefix "Node_" followed by the node location as it is shown within the TCMON message server. For example, "LS1(L.1.DSP0)" uses the registry value "Node_L.1.DSP0".

The trace values are read upon TCOSS restart or node reboot. They are then updated every 5 minutes. Whenever the trace flags are changed, the node responds with a trace line to confirm that the modification is accepted. See the following example.

```
12:42:17.390 (1290/ed8) [Tcoss] N3/T04 5.99=Traceflags changed from 0x0 to 0x2
```

Where "N3" means that this trace was created by node 3.

Use TCMON Message server to get the actual name of the node. For example, "3: LS1(L.1.DSP0)" means that the name of node 3 is "LS1(L.1.DSP0)".

The value is defined as a set of trace flags. Each flag can be set/cleared to individually enable/disable traces. The flags are described in the following table.

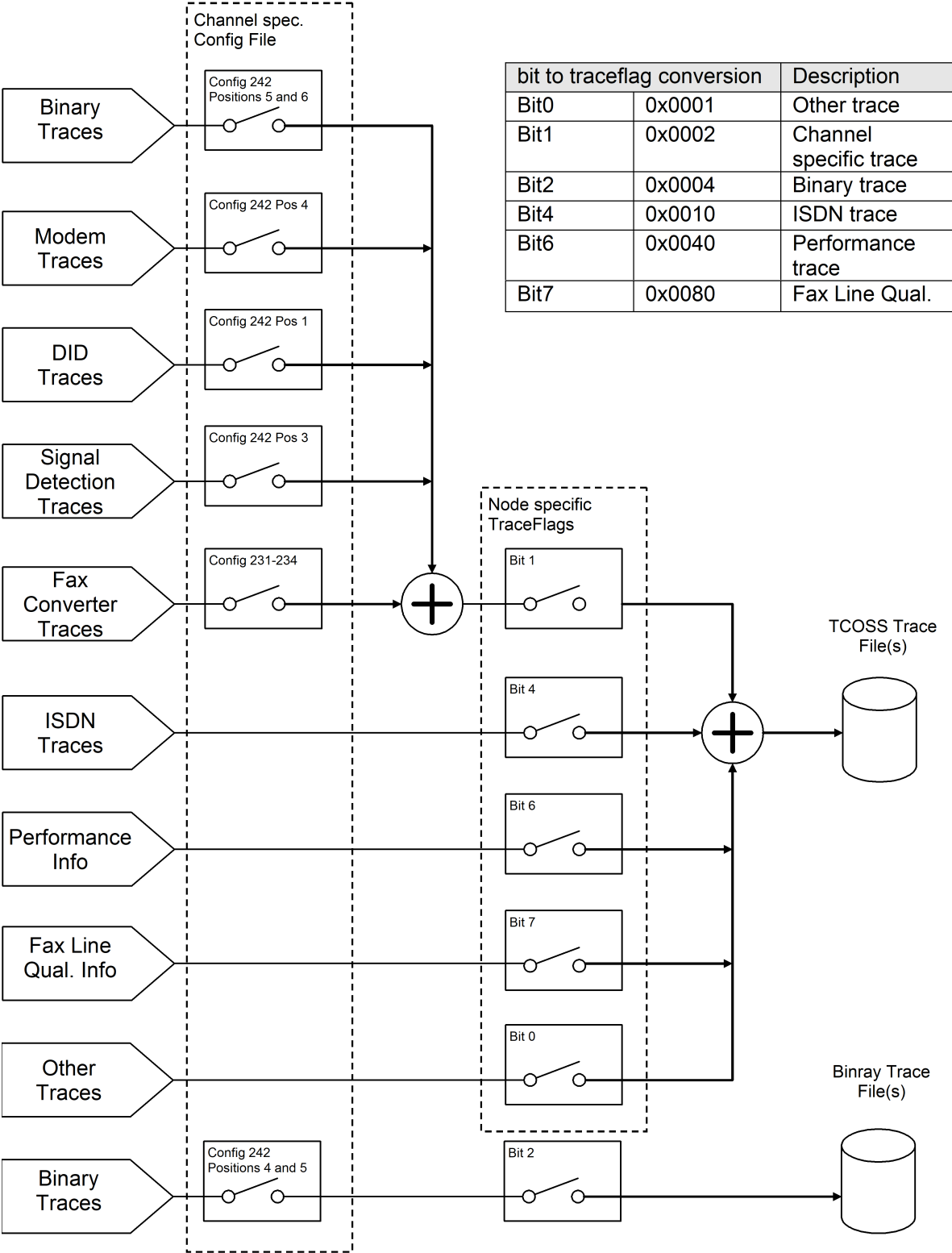
Trace Flag	Description
0x00000001	general not further categorized traces
0x00000002	Traces that can be configured in the TUM part of the channel configuration. These traces are: Modem Trace, Fxc Traces, DID State Machine Trace, Signal detection traces.
0x00000004	Enable binary traces on LS1
0x00000010	Trace ISDN signaling and number conversions.
0x00000040	Output CPU performance info (once every minute).
0x00000080	Fax line quality trace (info about bad received lines, ECM retransmissions)
0x80000000	Block the current thread if the trace buffer gets full. If this flag is set no trace output gets lost, but the timing of the channels may be affected due to trace.

All other flags are reserved for future use. They are currently ignored.

Note

- The ISDN Trace (flag 0x10) has been reduced to the minimum trace output that is required for understanding the signaling. Some redundant or less important trace output that was generated as “ISDN” trace with releases before 7.62.00 is no more part of trace switch 0x10. If you want to see the ISDN trace as it was with prior releases, you have to add the flag 0x01 by setting the trace flags value to, for example, 0x11.
- The primary reason for excluding some information from the ISDN trace is that the ISDN trace, as it was before TCOSS 7.62.00 may produces too much output when it was activated on a primary rate ISDN line with many active channels.

An overview about the trace switches for each node is shown below:



The “+” symbol means that traces from different sources are added together.

Note

- When using TC/FOIP, the trace flags affect the Fax Converter Traces only. Other traces, such as CAPI Trace are always created if they are configured in the UFI channel configuration (as with prior releases).
- When using ULL, the trace flags affect the Fax Converter Traces only.
- If you use a line server with multiple DSPs, there is an individual trace flag for each DSP. For example, to get a modem trace from a channel that is configured on DSP 1, you must enable the appropriate trace flag. ISDN traces are always created on DSP 0.
- For PRI with TC20, the ISDN trace is created on the TC20 interface where the TC34 interface is installed.
- The ISDN Trace Flag (0x10) contains only the mandatory information that is exchanged on the D-Channel. Even this information is less than an ISDN Trace as described in prior releases (before TCOSS 7.62.00) it should be enough for troubleshooting. If you want to have the full ISDN Trace output you should add the Flags 0x1 (for general traces). But take care that this amount of trace may lead to side effects if it is activated on DSP 0 with many channels (example: 30 channel E1 line).

Compatibility, Update Hints

After an update to 7.62.00, the configured tracer channels (in the WCONFIG HW/SW assignment) are not used anymore. If you need these traces you have to manually change the appropriate registry value in the `HKLM\Software\Topcall\tcoss\TraceFlags` registry key as described in *Configuration of Traces on TCOSS Nodes*.

If you use module updates, you can get a version mix between new and old modules. In that case you may get a mix between old and new functionality. The behavior is described in the following table by specifying the “*TraceFlags*” value according to the new version that would lead to the same trace.

WCONFIG	Trace Channel configured	TC22.bin or TC20.	TCOSS.exe	TraceFlags value
Old	no	regardless	regardless	0x0000
Old	yes	Old	regardless	0x00FF
Old	yes	New / LS1V2	Old	0x0000
Old	yes	New / LS1V2	New	read from registry
New	regardless	Old	regardless	0x00FF
New	regardless	New / LS1V2	Old	0x0000
New	regardless	New / LS1V2	New	read from registry

Note LS1V2 is handled like a new TC22.bin.

Additional Hints for ASP Systems

When using an ASP system, the trace flags are read from a registry key according to the TCOSS instance, such as `HKLM\Software\Topcall\tcoss01\TraceFlags`.

Channel specific traces, such as Modem have to be configured on the media server channels both for shared and dedicated lines.

Trace Performance Considerations

If you are using traces on a TCOSS node, such as Line server model 305, the complete trace output is sent on the TCP/IP connection between the TCOSS master and this node in addition to all other real-time sensitive communication on this connection. Especially if you have restricted available network bandwidth or long turn-around trip times, traces should be enabled very carefully.

In order to minimize the trace impact, all traces are sent via buffer to the TCOSS master. Whenever this buffer fills up more than 66 percent, the actual number of free lines are added to the trace. This information indicates that the amount of generated trace exceeds the amount of trace which can be transferred to the master. See the following example:

```
15/18:42:17.374 (900/ee0) N3/T150 580599=26:MOD sound 1100, 50
15/18:42:17.531 (900/ee0) N3/T138 580689(84lines free)=17:MOD-Rx ok(07) = tPPS-tEOP
2F000100
15/18:42:17.671 (900/ee0) N3/T138 580729(83lines free)=17:MOD NoSig Received
```

Since TCOSS 7.85.02 trace data is discarded if the trace buffer gets full, the influence is minimized due to traces but may cause incomplete traces. If trace lines are discarded, an additional entry with x lines skipped is added. The value x indicates how many traces lines have been removed. See the following example:

```
15/18:43:02.249 (900/ee0) N3/T1E 591258(11lines free)=24:MOD rx_start1 1 0 0
15/18:43:02.359 (900/ee0) N3/T0C 591348(12lines free)=30:MOD tx_start1 1 0 0
15/18:43:02.484 (900/ee0) N3/T00 594299(13lines free)=85 lines skipped, current_free=20
15/18:43:02.609 (900/ee0) N3/T52 594299(14lines free)=37:MOD tx_start1 1 0 0
15/18:43:02.718 (900/ee0) N3/T1E 594429(15lines free)=24:MOD-Tx ok(03) = rRNR
```

If the trace flag 0x80000000 is set, the trace buffer behaves as with prior releases and the program blocks until the trace buffer is not full. This helps in trace information not getting lost, but may impact the real-time behavior of channels which may cause communication errors.

FAX Traces

If you do traces with sending to the own interface card, make sure that the trace writes information from both channels (sending and reception) into its file, otherwise, it may be difficult for the developer to find the error. If you want to trace outgoing calls, send one document (maybe set one channel to wait) and as soon as the error appears, copy the trace file to another file name to prevent mixed information.

Modem Trace

The Modem traces should be used if the connection with the other fax machine could be established, but fax transmission or reception failed. This happens due to outgoing or incoming calls getting aborted.

- Outgoing calls are aborted with error codes: XM, XN, XO, XP, XQ, XS, XT, XG
- Incoming calls are aborted with error codes: XV, XW, XY, XZ

Install the Trace Tup and change the following lines in the UTF or UIF configuration:

1. config line 232: :02 02 02 02,

2. config line 242: :00 00 00 03,

If you have trouble with tone detection, such as getting error code XL instead of XJ, XU or XF, you should change config line 242 as follows:

config line 242: 00 00 00 02 03,

ISDN Trace

The ISDN traces should be used if the connection with the other fax machine could not be established. This happens if the outgoing calls are aborted with an error code that starts with “I”, such as IP and IU.

As a result, you do not get a fax prompt, if you try to dial the ISDN channel with a telephone.

If you do not have other problems, install the Trace Tup without additional configuration changes in the UIF module.

T.38 and CAPI Trace

T.38 and CAPI traces are used to troubleshoot UFI channels. The traces are activated in line 242, position 1 to 6 of UFI channels. See [Config Parameters of the T.38 Fax over IP Module \(UFI\)](#) or refer to *TC/FoIP Manual [17]* for details.

E&M Trace

The E&M trace is used if the connection with the other fax machine could not be established via E&M line. This happens due to the following reasons:

- Outgoing calls are aborted with a error codes: XH, XF, XL, XJ, XU
- You do not get a fax prompt, if you try to dial the KCS E&M line with a Telephone.
- The dialed in digits (DDI) are wrong or missing.

Install the Trace Tup and change the following lines in the UTF configuration:

- config line 232: :02 02 02 02,
- config line 242: :00 01 01 03,

Binary Trace for Specific Originators

The Binary trace (refer to *Line Server Model 305 Manual*) provides the most valuable information for fax-related problems. However, the binary trace should not be enabled on many channels because the available bandwidth (for trace data) between TCOSS and LS1 is restricted.

For example, if you have a non-reproducible reception problem on a PRI ISDN line (with many channels), it is recommended to selectively activate the binary trace depending on the DDI/MSN number or caller ID. See the following example.

Activation

Set `TraceFlags` to 0x04.

Take care that the received number or the caller ID of incoming fax calls that should be traced are converted to a number that ends with “<T>”. The string “<T>” detected is the option to activate the binary

trace, if it is not already enabled by positions 5 and 6 of configuration line 242. In any case the "<T>" switch is removed from the converted number before the number is used, such as for inbound routing.

See the following example for number conversion.

line 256 '183=83<T> , 257

line 257 '@~41=~41<T> , 258

Line 256 activates the binary trace for all incoming fax calls with DDI/MSN/DID number 83.

Line 257 activates the binary trace for all incoming fax calls where the callerID ends with 41.

Deactivation

Set `TraceFlags` to 0. Optionally, the modification in the number conversion table should be changed back.

Examples

This chapter gives you some examples of frequently used trace settings.

ISDN Trace

Activation

Set `TraceFlags` to 0x10. No TCOSS restart or configuration change is required.

Deactivation

Set `TraceFlags` to 0. No TCOSS restart or configuration change is required.

ISDN, Modem and Binary Trace

Activation

Set `TraceFlags` to 0x96.

Change the following configuration lines on all UIF modules, where you want to have a Modem and Binary trace.

Config line 232 :02 02 02 02,

Config line 242 :00 00 00 03 0F 03 ..,

A node reboot is required.

Deactivation

Set `TraceFlags` to 0. Optionally the configuration lines 232 and 242 can be changed back to zeros.

Tip

If modem traces are configured in configuration lines 232 and 242 but disabled by trace flags, additional performance will be required on the DSP (even there is no trace output). Even this overhead is very less (with the values shown above); it is not recommended to enable the modem traces always by default.

Chapter 6

Registry Overview

Key=HKEY_LOCAL_MACHINE\Software\TOPCALL\<ProcessName>

Note Valid Process names: All processes controlled by TCSRv.

Value	Type	Default	Short description
Commandline	string	tcoss /n	Command line used by TCSRv
DependOn	multi-string	TCOSS	Start this process after..
UserId	string	empty	User account when started via TCSRv
Password	string	empty	Password (required if user account is spec.)
Domain	string	empty	Domain of user account
LogonType	string	Service	Type of how the process gets logged on to the system

Key=HKEY_LOCAL_MACHINE\Software\TOPCALL\<ProcessName>

Note Valid Process names: All processes including BOOT for TCSRv.

Value	Type	Default	Short description
TraceLevel	integer	0	Trace level for TCSRv trace
TraceFile	string	<ProcessName>.TRC	Trace file name (rel. to <RootDir>\trace)
TraceToScreen	boolean	1	Enables output of trace information to screen
TraceToFile	boolean	1	Enables output of trace information to file
MaxTraceFiles	integer	2	Maximum number of stored trace files
MaxTraceFileSize	integer	128	Maximum size of one trace file in kB
AppendTrace	integer	0	Trace file counter / Append switch

Key=HKEY_LOCAL_MACHINE\Software\TOPCALL\Boot

Value	Type	Default	Short description
Startup	multi-string	empty	List of keys of appl. to be started by TCSRv
RootDir	string	C:\TCOSS	Root directory of TCOSS
EnableBoot	boolean	1	Must be non-zero for auto boot by TCSRv
Active	integer		Set to 1 if TCSRv is running, else deleted

Key=HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS

Value	Type	Default	Short description
RPCServer	boolean	1	Enable remote procedure calls
TCTIIniFile	string	<RootDir>\system\topcall11.ini	TCTI ini file name
TerminationCause	string		Is written by TCOSS in case of error abort.
tmoWaitForSlave	integer	90	Timeout until Primary Master starts up with secondary Master
StartInactivityWarningTime	integer	600	Timeout until a warning is issued on TCOSS inactivity. 0 disables the watchdog.
StartInactivityErrorTmo	integer	1800	Timeout until TCOSS will be restarted by TCSR.V.
trpKeepAliveInterval	integer	30	Interval in seconds between sending of "keep alive" messages to interfaces. 0 deactivates it.
trpKeepAliveTimeout	integer	100	Time in seconds until interface falls in error state, if no more "keep alive" messages are received from master.
NetworkPackageSize	integer	1460	Packet size on LAN connection between primary and secondary master on a Model 22x. See TCOSS specific registry entry for details.
TimeBase	string	Local	"Local" – TCOSS uses servers local time "UTC" – TCOSS uses UTC
TimeOffsetMinutes	string		Offset which is added to UTC / local time to calculate TCOSS time (decimal numeric expression with optional leading sign).
DisabledFolderFields	string	0	<p>This key can be used to control which parts of the optional content to be included/excluded in the response from the server:</p> <ul style="list-style-type: none"> • 0: Default. All optional fields are enabled. • 1: Disable support of long subject field in system, FIS and message folder. • 2: Disable support of KCS Portal events view. • 4: Disable support of default template in user profile folder. <p>Note You can change the value of this key without restarting TCOSS. New values are effective after about one minute.</p>

Key=HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\Drive0

Value	Type	Default	Short description
FileName	string	C:\TCOSS\Data\KCS File Structure.tcss	Full path and name of TCOSS file.

Value	Type	Default	Short description
TargetId	integer	0	Used if FileName is empty.
ScsiPort	integer	0	Used if FileName is empty.
DirCacheSize	integer	2048	Directory cache size in kB
DocCacheSize	integer	40960	Document cache size in kB
DataBaseCacheSize	integer	5120	Database cache size in kB
CacheAweEnable	integer	0	Cache AWE (Address Windowing Extensions) enable (1 = enabled)

Key=HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\LINK\LAN<LanLinkNumber>

Note Refer to *BranchBox configuration* for details.

Value	Type	Default	Short description
AutoUpdate	integer	1	If not zero, then program files on LS1 are automatically kept up-to-date. This registry is reserved for development purposes and should not be changed.
IPtoConnect	string		IP address of the BranchBox
MaxBootBandwidth	integer	0	Maximum bandwidth for booting BranchBox
Password	string		Password for connection to BranchBox
PorttoConnect	integer	5000	IP port of the BranchBox
Priority	integer	<ul style="list-style-type: none"> 1: For sec. or single 2: For prim. of tandem 	Priority level for connection
TxOptimization	integer	1	Defines how TCOSS optimizes the transmission of data on the TCP/IP connection.
Type	integer	<ul style="list-style-type: none"> 2: LANLINK - Used for branchboxes and LS1 (registry key TCOSS\LINK\LANxxx) 0: TRANSPUTERLINK - Used for legacy TP80 hardware (registry key TCOSS\LINK\LNKxxx) 	Type of link

Key=HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\Security

Value	Type	Default	Short description
EncryptNumericalPassword	Boolean	0	Enable encryption of numerical voice passwords in user profiles

Key=HKEY_LOCAL_MACHINE\Software\TOPCALL\TCOSS\TraceFlags

Contains trace flags for each remote node (such as DSPs on LS1) of the system and the master node. See chapter *Enable Traces on LS1 without TCOSS Restart* for details.

Key=HKEY_LOCAL_MACHINE\Software\Hardware

Value	Type	Default	Short description
Link0BaseAddress	integer	140h	Set to 150h by SETUP (do not change)
Link1BaseAddress	integer	150h	Set to 140h by SETUP (do not change)
Link2BaseAddress	integer	160h	(Do not change)
Link3BaseAddress	integer	170h	(Do not change)

Key=HKEY_LOCAL_MACHINE\Software\DocumentClass

See TCOSS specific registry entry for details.