

# **Dialogic® Diva® softSS7 Software for Windows version 1.5.4**

Reference Guide

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- You may install and use one copy of the Program on a single-user computer, file server, or on a workstation of a local area network.
- Some or all functions of the Program may be available solely if the Program is used with one or more legally acquired Dialogic Activation Key(s).
- To obtain an Activation Key you must first purchase a Proof of Purchase Code (PPC). A PPC may be included in your software or hardware package or you may have to purchase it separately.
- You will receive your Activation Key upon registering the Proof of Purchase Code as directed in the PPC document.
- It may be possible to install multiple Activation Keys into the Program; in such a case, the total functionality provided by the Program will be the sum of the licensed functionalities controlled by the installed Activation Keys as long as the maximum capabilities of the Program are not exceeded and the functionalities are compatible.
- Your Activation Key(s) will restrict your use of the Program. At least one of the following restriction schemes will be available to you when you register each Proof of Purchase Code (PPC) and request an Activation Key.
  - The Activation Key may be associated with a specific Dialogic hardware device. In this case, the licensed functionality controlled by the Activation Key will be available solely if the same Dialogic hardware is present in the computer. You can move the Program to another computer solely if you move the specified Dialogic hardware to the new computer.
  - The Activation Key may be associated with a specific Dialogic-supplied software protection device ('dongle'). In this case, the licensed functionality controlled by the Activation Key will be available solely if the same dongle is present in the computer. You can move the Program to another computer solely if you also move the dongle to the new computer.
  - The Activation Key may be associated with your specific computer hardware platform. In this case, the licensed functionality controlled by the Activation Key will be available solely if no significant change is made to the hardware installed in the computer. Replacement Activation Keys may be issued at the discretion of Dialogic solely if Dialogic can determine that you have not moved the Program to another computer. Sufficient information must be provided to Dialogic to allow it to make that determination.
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- The Activation process requires that you enter the following information into the web-based system to obtain an Activation Key:
  - Proof of Purchase Code (PPC)
  - The Device ID provided to You by the 'Activation' function in the Program
  - Your email address so that the Activation Key can be delivered to You by email
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  - Sending renewal reminders to You in the case of limited time licenses.
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DIALOGIC CORPORATION.

9800 Cavendish Blvd., Montreal, Quebec, Canada H4M 2V9

This Agreement has been drafted in English at the express wish of the parties. Ce contrat a été rédigé en anglais à la demande expresse des parties.

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## About This Publication

### How to use this online guide

- To view a section, click the corresponding bookmark located on the left.
- To view a topic that contains further information, click the corresponding blue underlined phrase.
- You may wish to print out the pages required for installing the drivers.

### Structure of this guide

This guide provides a detailed description of how to install and configure Dialogic® Diva® softSS7 software.

This guide is structured as follows:

Section	Contents
<a href="#">About the Dialogic® Diva® softSS7 Software</a>	Dialogic® Diva® softSS7 software features, supported Dialogic® Diva® Media Boards
<a href="#">Preparing the Dialogic® Diva® Media Boards</a>	Preparations before using the Diva softSS7 software
<a href="#">Installing the Dialogic® Diva® softSS7 Software</a>	Installation of the Diva softSS7 software
<a href="#">Software Configuration</a>	Modifications in the Dialogic® Diva® Configuration Manager, activation and installation of the license file
<a href="#">Starting the Dialogic® Diva® softSS7 Software</a>	Start and verification of the Diva softSS7 software
<a href="#">Tracing</a>	Creation of traces with the Dialogic® Diva® Diagnostics tool
<a href="#">Uninstalling</a>	Uninstallation of the Diva softSS7 software
<a href="#">Issues While Running the Dialogic® Diva® softSS7 Software</a>	How to solve problems with Diva softSS7
<a href="#">Glossary</a>	Explanation of the most common terms in the SS7 environment
<a href="#">Appendix</a>	Examples and explanations of the default Diva softSS7 configuration file

## CHAPTER 1

### About the Dialogic® Diva® softSS7 Software

The Diva softSS7 software is an add-on for the Dialogic® Diva® System Release Software. The Diva softSS7 software enables you to use your Dialogic® Diva® Media Board with Microsoft® Windows® XP, Windows Server® 2003, Windows Vista®, Windows Server® 2008, Windows® 7 and to have connectivity over the SS7 signaling network and still use applications with standard programming interfaces like CAPI and SDK.

This reference guide describes the basic Windows® configuration for the Diva softSS7 software. It is intended to provide advice and instructions on how to install the Diva softSS7 software modules as add-on software for Diva System Release Software.

#### Diva softSS7 software signaling features

- Basic inbound and outbound calls
- Support for ETSI (ITU-T) SS7 MTP3/ISUP protocols
- SS7 Signaling End Point (SEP) functionality
- Connection to other SEP or Signaling Transfer Point (STP)
- Associated signaling mode (SS7 link and bearer channels on same trunk)
- Quasi-associated signaling mode via STP (one or more SS7 link(s) on one or more trunk(s), bearer channels on different trunks)
- User-defined trunk number(s) and 64 kbps timeslot(s) for signaling link(s)
- Up to eight E1 trunks per installation
- Up to 247 bearer channels per installation
- Up to eight linksets with up to 16 SS7 signaling links
- Support of B-channel types (speech, 3.1 kHz audio, 64 kbps transparent, Data, 3G Video GW)
- Configuration for MTP 1-3, ISUP and call control parameters per text file
- Blocking/unblocking according to ITU-T ISUP
- Disabling incoming/outgoing calls on specific channels (CICs)
- User mode management interface for all layers
- Enable dynamic change of:
  - blocking states
  - disabling incoming/outgoing calls
  - debug maskvia user mode management interface
- Representation of layer 1 state on ISUP via blocking, e.g., if Layer 1 goes down on a trunk, the related interface is blocked
- Any event disabling signaling is represented on ISUP via blocking, e.g., if the signaling connection between the trunk card and the SS7 system service is down, the related interface is blocked
- Restricted representation of blocking state and disabling incoming/outgoing calls on specific channels via the Dialogic® Diva® Management tool
- 24-bit point code support as used in China



## Supported hardware

The Dialogic® Diva® softSS7 software supports the following Dialogic® Diva® ISDN Media Boards:

### **Diva PRI 3.0:**

- Diva PRI/E1/T1-CTI
- Diva PRI/E1/T1-8
- Diva PRI/E1-30

### **Diva V-PRI:**

- Diva V-PRI/E1-30

### **Diva Multiport PRI PCI:**

- Diva V-2PRI/T1-48 PCI
- Diva V-2PRI/E1-60 PCI
- Diva V-4PRI/T1-96 PCI
- Diva V-4PRI/E1-120 PCI

### **Diva Multiport PRI PCIe:**

- Diva V-1PRI/E1/T1-30 PCIe HS
- Diva V-2PRI/E1/T1-60 PCIe HS
- Diva V-4PRI/E1/T1-120 PCIe HS
- Diva V-4PRI/E1/T1-120 PCIe FS
- Diva V-8PRI/E1/T1-240 PCIe FS

**Note:** "HS" stands for the half size and "FS" for the full size board format.

## CHAPTER 2

### Preparing the Dialogic® Diva® Media Boards

To use your Diva Media Board with the Dialogic® Diva® softSS7 software, you need to install the Dialogic® Diva® System Release WIN Software first. You can download the files for installing the software from the following Dialogic web site:

[http://www.dialogic.com/products/tdm\\_boards/system\\_release\\_software/Diva\\_for\\_Windows\\_2000.htm?dl=1&regID=6628](http://www.dialogic.com/products/tdm_boards/system_release_software/Diva_for_Windows_2000.htm?dl=1&regID=6628)

The online Diva System Release WIN Software Reference Guide provides help for the installation of the software. You can download it from the following Dialogic web site:

<http://www.dialogic.com/manuals/>

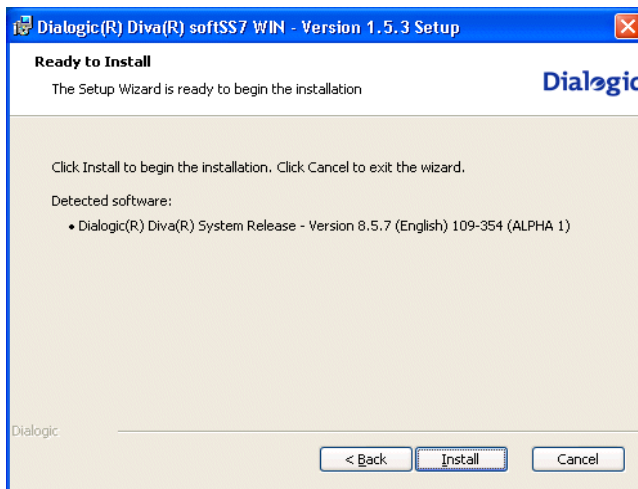
After the successful installation of the Dialogic® Diva® drivers, you can install the Diva softSS7 software add-on. See [Installing the Dialogic® Diva® softSS7 Software](#) on page 11 for more information.

## CHAPTER 3

### Installing the Dialogic® Diva® softSS7 Software

After you installed the Dialogic® Diva® System Release WIN Software as described in [Preparing the Dialogic® Diva® Media Boards](#) on page 10, you may install the Diva softSS7 software as described below:

1. Click **Start > Programs > Dialogic Diva > Install softSS7**.
2. The Diva softSS7 software welcome screen appears. Click **Next** to continue with the installation.
3. The **End-User Licence Agreement** box appears. Read the license agreement carefully. You need to accept it in order to install the drivers.
4. The **Ready to Install** box appears and displays information on the detected software.



Click **Install** to install the Diva softSS7 software.

5. After the installation is complete, the **Completing the Diva softSS7 for Windows** box appears. Click **Finish** to complete the installation. Restart your computer if you are prompted to do so.

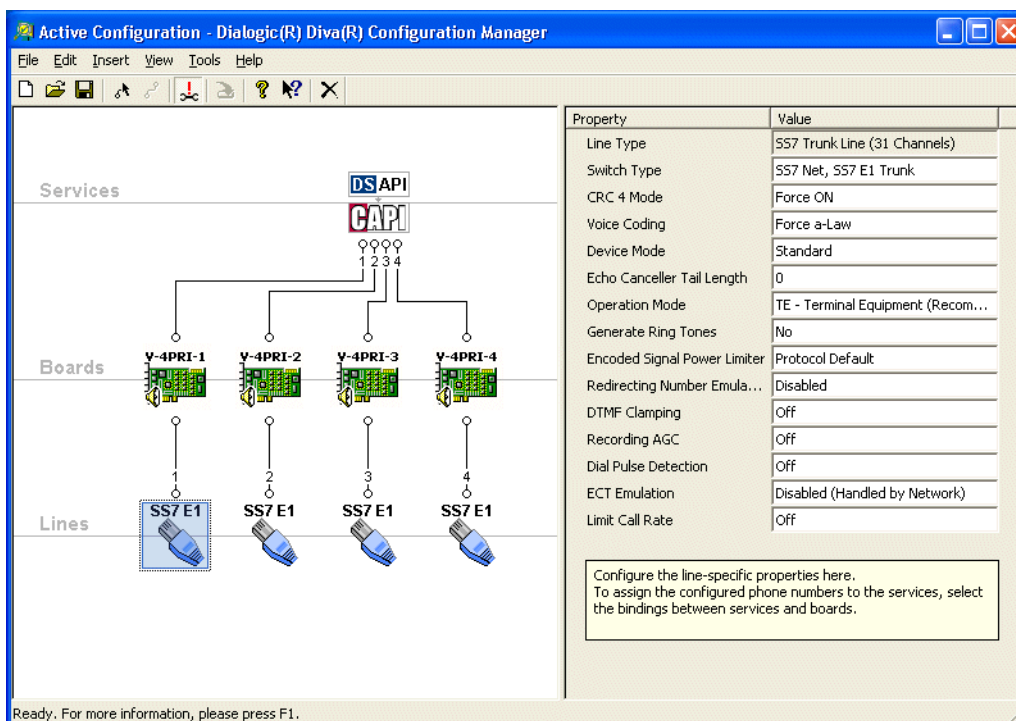
You can now configure the Diva softSS7 software as described in [Software Configuration](#) on page 12.

## CHAPTER 4

### Software Configuration

After you installed the Dialogic® Diva® softSS7 software as described in [Installing the Dialogic® Diva® softSS7 Software](#) on page 11, open the Dialogic® Diva® Configuration Manager to make some necessary changes.

1. Click **Start > Programs > Dialogic Diva > Configuration Manager**.
2. To enable the SS7 protocol, select the line and set the property **Switch Type** to **SS7 Net, SS7 E1 Trunk**. Depending on your network, you can either switch **CRC 4 Mode** to **Force ON** or to **Force OFF**. If the network provides the clock for the signaling, the **Operation Mode** should be set to **TE - Terminal Equipment (Recommended)**. Leave the rest of the settings at their default values.



3. Save your configuration. To do so, click **File > Save**, then go to the directory where you want to save the file, enter a name for the configuration file and click **Save**.
4. Activate your configuration. To do so, click **File > Activate**. Restart your PC when you are prompted to do so.

### Test the Dialogic® Diva® Media Board

After the restart of the system, plug the 2MB trunk into one port of your Diva Media Board. If the red LED of this port is turned off, your configuration is working properly from the hardware point of view. If the red LED remains lit, you need to verify the configuration with help of the Dialogic® Diva® Configuration Manager or you need to make sure that the other end of the cable is properly connected to the end-point.

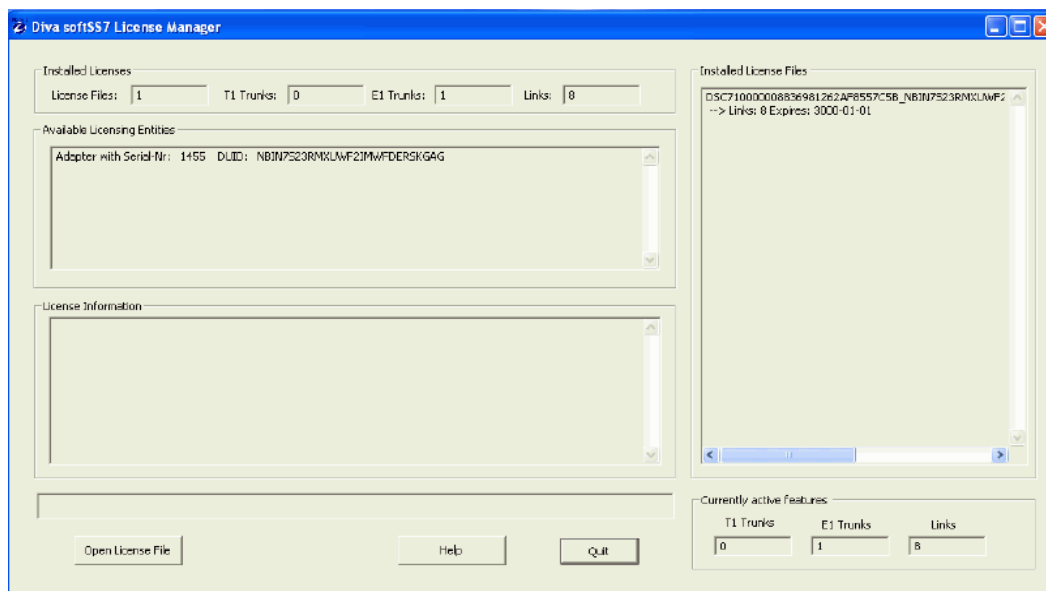
#### Loopback test

If your Diva Media Board has various ports or you have various Diva Media Boards installed, you can also do a loopback test. To do so, plug the loopback cable in the ports you want to test. If the red LED is turned off, your configuration is working properly on a hardware/electrical level. If they remain lit, you need to verify the configuration with help of the Diva Configuration Manager.

## Activate the license

If you received a Proof of Purchase Code (PPC) for the Dialogic® Diva® softSS7 software instead of a license file from Dialogic Corporation, you need to activate your license yourself via the Dialogic web portal.

1. Open the following web site: <http://www.dialogic.com/activate>.
2. Follow the instructions on the web site.
3. If you are asked to enter your Device Unique ID (DUID), obtain this number as follows:
  - Click **Start > Programs > Diva softSS7 > Diva softSS7 License Manager**.



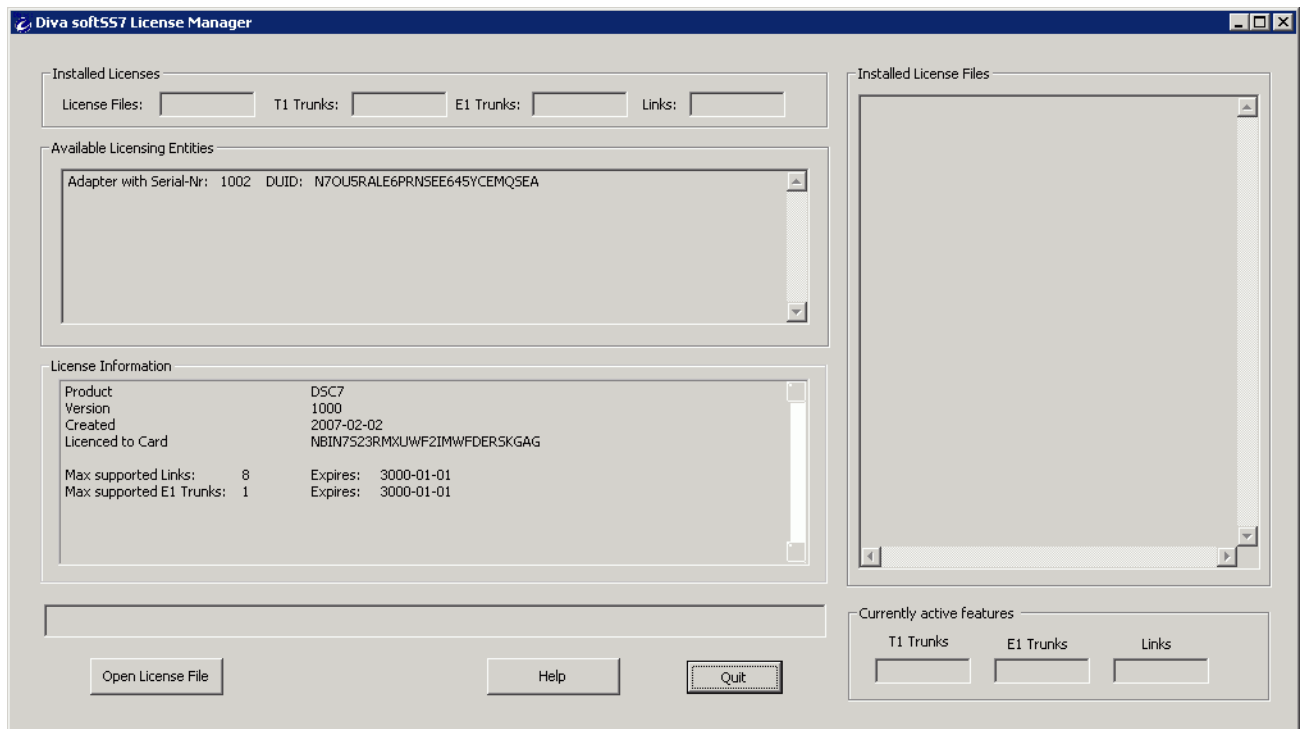
- The serial number of the installed Diva Media Boards and the Device Unique ID are displayed under **Available Licensing Entities**.
4. Copy and paste the Device Unique ID from the Diva softSS7 License Manager into the web site.
  5. Follow the remaining instructions.
  6. The license file will be generated and sent to the email address you entered.

## Install the license file

The license file you receive as an attachment of an email looks similar to this example:  
SC71000\_000093\_N13ZC4VYX22PR4NHG3UVDP1T2AJ.lic

1. Copy the license file to the computer where you installed the Dialogic® Diva® softSS7 software.
2. Click **Start > Programs > Diva softSS7 > Diva softSS7 License Manager**.
3. Click **Open License File** and go to the directory where your file is stored. Select the license file and click **Open**.
4. In the License Manager window, click **Install License File** to copy and install the license file into the Diva softSS7 software directory.

5. All information regarding the license are displayed under **License Information**.



6. Click **Quit** to close the Diva softSS7 License Manager.

### Change the Dialogic® Diva® softSS7 software configuration file

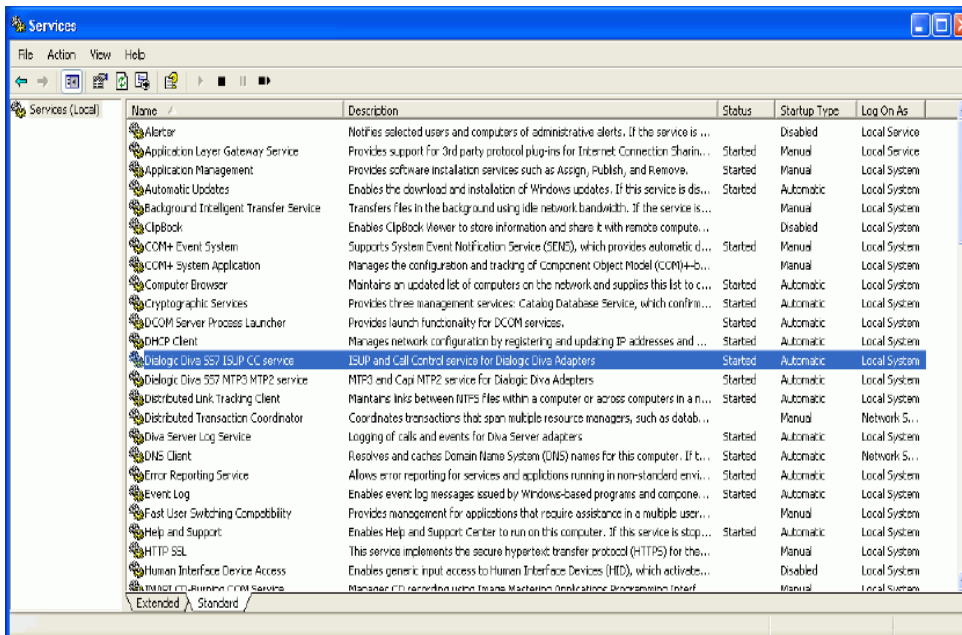
A default configuration file is installed with the Diva softSS7 software package. This configuration file called "divaSS7.cfg" is text based. You need to change the configuration file and enter your own SS7 configuration parameters. To do so, open the configuration file via: **Start > Programs > Diva softSS7 > Edit Diva softSS7 Configuration File**. See the [Appendix](#) on page 22 for a more detailed description of this file. If the Diva softSS7 software was configured before that update, the configuration from the former version will be loaded.

## CHAPTER 5

### Starting the Dialogic® Diva® softSS7 Software

After you installed the Diva softSS7 software and the license file and made the necessary changes to the divaSS7.cfg configuration file, you can start the Diva softSS7 software.

1. Click **Start > Programs > Diva softSS7 > Start SS7 Services**.
2. If an error message appears, you might have an error in your DivaSS7.cfg configuration file or a license problem. Verify your configuration and license file again.
3. To stop the services, click **Start > Programs > Diva softSS7 > Stop SS7 Services**.
4. To see the services running, click **Start > Control Panel > Administrative Tools > Services**.



5. The default start-up settings for the Dialogic Diva softSS7 services are **Automatic**. This means that Diva softSS7 software will start automatically after a restart of the system. You can change this as follows:
  - Select the service you want to change, right-click it and select **Properties**.
  - In the windows that opens select under **Startup type** the type you need.

### Verify if the Dialogic® Diva® softSS7 software is running

To verify if the Diva softSS7 software starts up properly, you can use the following command in a command line box:

```
ditrace -p | find " S-"
```

This command shows the start-up of MTP3 and ISUP and all signaling link status related events, for example when a link goes down or a point code is unreachable.

```
Administrator: Command Prompt
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\labov>dirtrace -p ! find "S-"
16:12:58.223 0 L 12 S-MTP23: VerifySS7Licence success
16:12:59.239 0 L 12 S-MTP23: Dialogic Diva SS7 MTP3 Capi MTP2 service <1.5.0.117> started
16:12:58.239 0 L 12 S-CMP12: CONFIGURATION for link id1:
16:12:58.239 0 L 12 S-CMP12: MTP2 Id: 0
16:12:58.239 0 L 12 S-CMP12: log link id: 1
16:12:58.239 0 L 12 S-CMP12: cfr Controller: 1
16:12:59.239 0 L 12 S-CMP12: serial: 5-1
16:12:58.239 0 L 12 S-CMP12: timeslot: 16
16:12:58.239 0 L 12 S-CMP12: Mode: normal
16:12:58.254 0 L 12 S-CMP2111: Changing state to OUT_OF_SERVICE
16:12:59.254 0 L 12 S-CMP2111: RR - MTP2-T0_MTP3_CongestionLevelChange
16:13:04.301 1 L 12 S-ISUPCC: VerifySS7Licence success
16:13:04.301 1 L 12 S-ISUP-CC: Dialogic Diva SS7 ISUP CC service <1.5.2.202> started
16:13:04.301 1 L 12 S-CC: CONFIGURATION:
16:13:04.301 1 L 12 S-CC: No USIG Controller: 1
16:13:04.301 1 L 12 S-CC: Log Controller: 1
16:13:04.301 1 L 12 S-CC: Serial: 5-1
16:13:04.301 1 L 12 S-CC: Low: a-law
16:13:04.301 1 L 12 S-CC: Initial State: PAUSED
16:13:04.301 1 L 12 S-CC: Number of Terms: 30
16:13:04.301 1 L 12 S-CC: 1 OPC: 130 DPC: 129 timeslot: 1 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 2 OPC: 130 DPC: 129 timeslot: 2 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 3 OPC: 130 DPC: 129 timeslot: 3 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 4 OPC: 130 DPC: 129 timeslot: 4 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 5 OPC: 130 DPC: 129 timeslot: 5 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 6 OPC: 130 DPC: 129 timeslot: 6 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 7 OPC: 130 DPC: 129 timeslot: 7 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 8 OPC: 130 DPC: 129 timeslot: 8 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 9 OPC: 130 DPC: 129 timeslot: 9 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 10 OPC: 130 DPC: 129 timeslot: 10 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 11 OPC: 130 DPC: 129 timeslot: 11 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 12 OPC: 130 DPC: 129 timeslot: 12 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 13 OPC: 130 DPC: 129 timeslot: 13 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 14 OPC: 130 DPC: 129 timeslot: 14 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 15 OPC: 130 DPC: 129 timeslot: 15 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 16 OPC: 130 DPC: 129 timeslot: 16 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 17 OPC: 130 DPC: 129 timeslot: 17 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 18 OPC: 130 DPC: 129 timeslot: 18 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 19 OPC: 130 DPC: 129 timeslot: 19 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 20 OPC: 130 DPC: 129 timeslot: 20 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 21 OPC: 130 DPC: 129 timeslot: 21 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 22 OPC: 130 DPC: 129 timeslot: 22 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 23 OPC: 130 DPC: 129 timeslot: 23 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 24 OPC: 130 DPC: 129 timeslot: 24 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 25 OPC: 130 DPC: 129 timeslot: 25 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 26 OPC: 130 DPC: 129 timeslot: 26 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 27 OPC: 130 DPC: 129 timeslot: 27 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 28 OPC: 130 DPC: 129 timeslot: 28 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 29 OPC: 130 DPC: 129 timeslot: 29 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 30 OPC: 130 DPC: 129 timeslot: 30 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC: 31 OPC: 130 DPC: 129 timeslot: 31 block state:0x0000 (UNBLK) ENABLED BOTH
16:13:04.301 1 L 12 S-CC:01: controller mapping: serial:5-1 log:1/ CAPI:(5) sys:MCM141
16:13:04.317 1 L 12 S-CC:01: setTrunkNewLocHURResourceUnavail - from 0111:1111:1111:1111:1111:1111 to 000300:0000
16:13:04.317 1 L 12 S-CC:01: H event_notify activated
16:13:04.332 1 L 12 S-MTP23: ntp3_prov - self point code OPC:130 Type:"Primary PC"
16:13:04.332 1 L 12 S-MTP23: ntp3_prov - destination DPC:129 Type:"adj. broadcast disabled, non mated SIP"
16:13:04.332 0 L 12 S-ISUP-CC: isup_prov - OPC:130 DPC:129 Start-CIC:1 Num.CIC:15
16:13:04.332 1 L 12 S-MTP23: ntp3_prov - link OPC:130, DPC:129 LIC:0, MTP2 Id:0, Log. data link Id:1 Type:"0"
16:13:04.332 0 L 12 S-ISUP-CC: isup_prov - OPC:130 DPC:129 Start-CIC:17 Num.CIC:15
16:13:04.332 1 L 12 S-MTP23: ntp3_prov - linkset OPC:130, DPC:129, num. links:1, num. norml. links:1
```



## CHAPTER 6

### Tracing

With the Dialogic® Diva® softSS7 software you can collect trace information with static tracing or dynamic tracing as described below.

#### Static tracing

Trace information will be written via the standard Dialogic® Diva® trace facilities. To enable tracing for the Diva softSS7 software you have to make sure that you have the following entries in the "divaSS7.cfg" file:

```
ISUP_CC_DEBUG_MASK 0x00000007 # set to STATUS|ERROR|WARN
MTP3_MTP2_DEBUG_MASK 0x00000007 # set to STATUS|ERROR|WARN
```

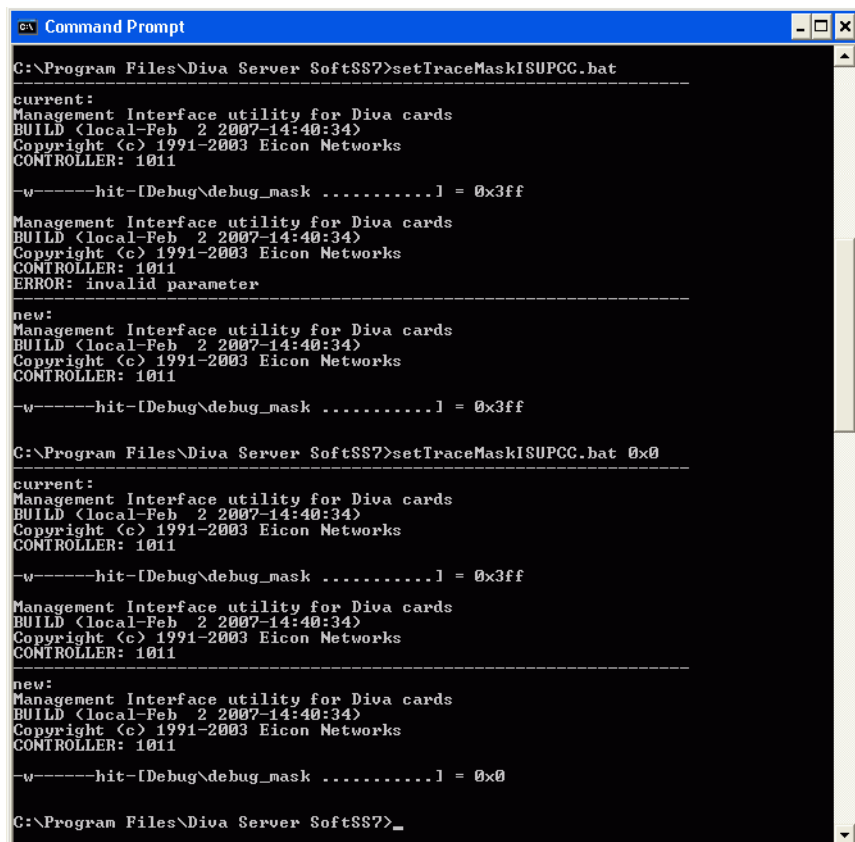
See the [Appendix](#) on page 22 for a full description of the debug mask. If you need to make changes to the "divaSS7.cfg" file, you need to stop and start the Diva softSS7 software, after the configuration file is saved.

To do so, click **Start > Programs > Diva softSS7 > Stop SS7 Services** and then **Start > Programs > Diva softSS7 > Start SS7 Services**.

Now you can use the Dialogic® Diva® Diagnostic Tool to create a trace. See [Dialogic® Diva® Diagnostics tool](#) on page 18 for more information.

#### Dynamic tracing

With the Dialogic® Diva® softSS7 software it is possible to enable and disable tracing dynamically. You can use the specially provided batch files for this: setTraceMaskISUPCC.bat as shown in the first graphic and setTraceMaskMTP.bat as shown in the second graphic. These batch files are located under: C:\Program Files\Diva Server SoftSS7



```
C:\ Command Prompt

C:\Program Files\Diva Server SoftSS7>setTraceMaskISUPCC.bat

-----
current:
Management Interface utility for Diva cards
BUILD (local-Feb  2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1011

-w-----hit-[Debug\debug_mask .....] = 0x3ff

Management Interface utility for Diva cards
BUILD (local-Feb  2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1011
ERROR: invalid parameter

-----
new:
Management Interface utility for Diva cards
BUILD (local-Feb  2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1011

-w-----hit-[Debug\debug_mask .....] = 0x3ff

C:\Program Files\Diva Server SoftSS7>setTraceMaskISUPCC.bat 0x0

-----
current:
Management Interface utility for Diva cards
BUILD (local-Feb  2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1011

-w-----hit-[Debug\debug_mask .....] = 0x3ff

Management Interface utility for Diva cards
BUILD (local-Feb  2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1011

-----
new:
Management Interface utility for Diva cards
BUILD (local-Feb  2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1011

-w-----hit-[Debug\debug_mask .....] = 0x0

C:\Program Files\Diva Server SoftSS7>_
```

```

C:\Program Files\Diva Server SoftSS7>setTraceMaskMTP.bat

current:
Management Interface utility for Diva cards
BUILD (local-Feb 2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1010

-w-----hit-[Debug\debug_mask .....] = 0x0

Management Interface utility for Diva cards
BUILD (local-Feb 2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1010
ERROR: invalid parameter

new:
Management Interface utility for Diva cards
BUILD (local-Feb 2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1010

-w-----hit-[Debug\debug_mask .....] = 0x0

C:\Program Files\Diva Server SoftSS7>setTraceMaskMTP.bat 0x3ff

current:
Management Interface utility for Diva cards
BUILD (local-Feb 2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1010

-w-----hit-[Debug\debug_mask .....] = 0x0

Management Interface utility for Diva cards
BUILD (local-Feb 2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1010

new:
Management Interface utility for Diva cards
BUILD (local-Feb 2 2007-14:40:34)
Copyright (c) 1991-2003 Eicon Networks
CONTROLLER: 1010

-w-----hit-[Debug\debug_mask .....] = 0x3ff

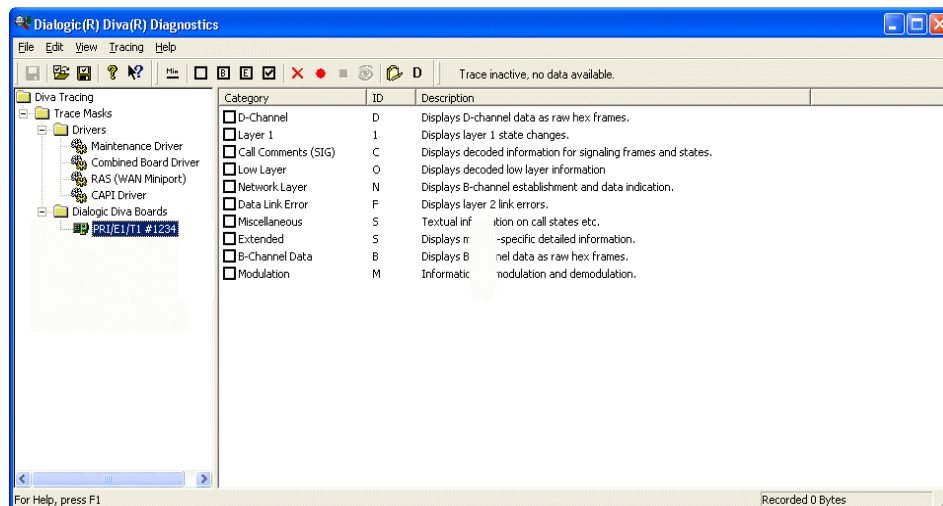
C:\Program Files\Diva Server SoftSS7>_

```

After setting the trace masks for the ISUP and MTP processes you can use the Diva Diagnostics tool to start your tracing as described below.

## Dialogic® Diva® Diagnostics tool

Now you can use the Diva Diagnostics tool to create a trace. To open the tool, click **Start > Programs > Dialogic Diva > Diagnostics**. If you want to trace only on SS7 level, you need to disable all other categories as shown below.



For more information on how to create a trace file see the Dialogic® Diva® Diagnostics Online Help file (DivaTrace.chm).

## CHAPTER 7

### Uninstalling

To uninstall the Dialogic® Diva® softSS7 software do the following:

1. Click **Start > Control Panel > Add or Remove Programs**.
2. Select the Diva softSS7 software and click **Remove**.
3. Your Diva softSS7 software is now uninstalled.
4. License files and configuration files are not removed. They are saved and stay in the Diva softSS7 software folder under C:\Program files\Diva Server SoftSS7.

## CHAPTER 8

### Issues While Running the Dialogic® Diva® softSS7 Software

If you have any problems with the Diva softSS7 software, please contact Dialogic support at <http://www.dialogic.com/support/contact/>.

**Note:** When contacting support, you will be asked to provide traces of your Diva softSS7 software application as well as of the CAPI and Dialogic® Diva® Media Board. For more information, see [Tracing](#) on page 17.

## Glossary

APC	Adjacent Point Code
CAPI	COMMON-ISDN-API: CAPI - the ISDN interface
CIC	Circuit Identification Code
DPC	Destination Point Code
ETSI	European Telecommunications Standards Institute
ISUP	ISDN User Part
ITU-T	International Telecommunication Union
LPC	Local Point Code this is the same as the OPC
MTP2	Message Transfer Part level 2
MTP3	Message Transfer Part level 3
OPC	Originator Point Code
SDK	Software Development Kit
SEP	Signaling End Point
SLC	Signaling Link Code
SLS	Signaling Link Selection
SS7	Signaling System Number 7
STP	Signal Transfer Point

## Appendix

### Explanation of the divaSS7.cfg file

It is necessary to configure the Dialogic® Diva® softSS7 software via file editing. Below you find the default divaSS7.cfg file that is delivered with the Diva softSS7 software:

```
#-----
# STACK_STANDARD_TYPE : Specifies the variant of the stack
# ITU= 1, ETSI=2
#-----
STACK_STANDARD_TYPE          1
#-----
# NETWORK_INDICATOR : Specifies the network indicator of ISUP and MTP3
# International 0 = 0, International 1 / SPARE = 1,
# National 0 = 2, National 1 (Reserved for national use) = 3
#-----
NETWORK_INDICATOR            2
#-----
# MTP3 and ISUP are communicating via (local) sockets with each other
# -> therefore the below paragraph is required
# MTP3_IP_ADDRESS             - IP of MTP3
# ISUP_IP_ADDRESS             - IP of ISUP
# MTP3_SERVER_PORT            - MTP3 server port to which the ISUP client is connecting
# ISUP_SERVER_PORT            - ISUP server port to which the MTP3 client is connecting
# MTP3_CLIENT_TO_ISUP_PORT    - MTP3 client port which connects to the ISUP server
# ISUP_CLIENT_TO_MTP3_PORT    - ISUP client port which connects to the MTP3 server
# all entries are required
#-----
MTP3_IP_ADDRESS               127.0.0.1
MTP3_SERVER_PORT              13000
MTP3_CLIENT_TO_ISUP_PORT      13100
ISUP_IP_ADDRESS               127.0.0.1
ISUP_SERVER_PORT              14000
ISUP_CLIENT_TO_MTP3_PORT      14100
#-----
# DEBUG MASKs
# set debug mask according to the definitions below
# debug information is written via standard log mechanism
# STATUS 0x00000001 - output STATUS (marked with 'S-')
# ERROR  0x00000002 - output ERRORS (marked with 'E-')
# WARN   0x00000004 - output WARNINGS (marked with 'W-')
# INFO   0x00000008 - output info (marked with 'I-')
# WRAPPER 0x00000010 - output details of the stack encapsulation (marked with 'A-')
# DETAIL  0x00000020 - output detail (creates a lot of output) (marked with 'V-')
# DATA   0x00000040 - output data (for data messages) (marked with 'D-')
# PERROR  0x00000080 - output pointer errors (marked with 'R-')
# NCCI_STM 0x00000100 - output Capi NCCI statemachine (marked with 'N-')
# PLCI_STM 0x00000200 - output Capi PLCI statemachine (marked with 'P-')
# CONT_STM 0x00000400 - output Capi Controller statemachine (marked with 'C-')
# MALLOC  0x00000800 - output memory allocation errors
#                      (creates a lot of output, do not use if not requested)
#                      (marked with 'M-')
# TIMER    0x00001000 - output timer handling
#                      (creates a lot of output, do not use if not requested)
#                      (marked with 'T-')
# in general a debug mask set to 0x00000007 should be sufficient
#-----
ISUP_CC_DEBUG_MASK 0x00000007 # set to STATUS|ERROR|WARN
MTP3_MTP2_DEBUG_MASK 0x00000007 # set to STATUS|ERROR|WARN
#-----
#-----
# Controller configuration
# This paragraphs were changed from 1.2 to 1.5
# The 'old' style configuration will still work
# Using the 'old' style will cause the following Warning on startup:
# W-CONFIGURATION: cc_prov: no Controller Configuration found - assuming old format
# W- This may cause fatal errors if your DIVA server adapter
# W- numbering changes
# W- (e.g. adapter was not found while rebooting)
#
```

```

# Reason for the change:
#   The 'old' configuration may cause fatal errors.
#   In the 'old' configuration the CAPI adapter number was used to
#   identify the DIVA server controller/trunk.
#   The mapping between the CAPI adapter number and the physical
#   DIVA server controller/trunk is not hard wired.
#   When adding an additional, removing or crash of a DIVA server
#   controller/trunk the mapping between CAPI adapter number
#   DIVA server controllers/trunks may change.
#   Even on startup the DIVA server controllers/trunks may be detected
#   in a different sequence and therefore the mapping may change.
#   The only secure way to identify a DIVA server controller/trunk is
#   via serial number.
#
#       There are different formats for the serial numbers:
#       1234      - single controller
#                  or first controller of a multispan DIVA server card
#                  running on LINUX
#
#       1234-1    - serial numbers of controllers on a multispan card
#       1234-2    LINUX would not display 1234-1 but 1234
#       1234-3    -> the serial numbers in the configuration of Linux
#       1234-4    would be 1234, 1234-2, 1234-3, 1234-4
#
#       Windows adds an additional number identifying the DIVA server
#       card type: 1234-72    -> PRI v3.0 E1/T1 8M
#                   1234-1-85 -> first controller on Diva Server 4PRI/E1/T1
#       The cardtype is ignored -> please do not add the type to the
#       configuration of the serial
#
# How to obtain the serial number of your adapters:
#   Windows: - open the Diva Server Configuration Manager
#             - click onto the corresponding adapter symbol
#             - in the properties You will find the serial number
#             - for multispan adapters you have to append the 'Lines'
#               after the serial '-1', '-2', ...
#   Linux:   run the tool adapter_info.sh and the serial numbers of the
#             DIVA Server controllers will be displayed
#
# Note: to enable the handling of the serials (windows/linux), serial
#       numbers without the 'port'-number (sub adapter number) will have appended
#       automatically the '-1'
#-----
NUM_CONTROLLER 1
#-----
#LogControllerNum local   law      SerialN
CONTROLLER_CONFIG_START
1                local   A        1300
CONTROLLER_CONFIG_END
#-----

#-----
#CC_PROVISIONING
#-----
# number of terminals configured/used
CC_NUM_TERMINALS 30
#-----
# length called party number
CC_LENGTH_CALLED_PARTY_NUMBER_START
0
CC_LENGTH_CALLED_PARTY_NUMBER_END
#-----
# initial state 0-PAUSE 1-ACTIVE
CC_INITIAL_STATE 0
#-----
# Due to the increased functionality of the blocking, the configuration of
# the blocking is enhanced
#
# LSB - bit 0 0x01    local maintenance blocking (by operator) (Note1)
#       bit 1 0x02    local hardware blocking (by operator)   (Note2)
#       bit 2         reserved
#       bit 3         reserved
#       bit 4 0x10    follow remote blocking                  (Note3)

```

```

#      bit 5      reserved
#      bit 6 0x40  inbound calls disabled      (Note4)
# MSB   bit 7 0x80  outbound calls disabled    (Note4)
#
# All theses values may be superseded by management when
# ISUP/CallControl is started
# Note1: local maintenance blocking may be set/reset additionally via
#       DIVA server adapter management and when follow remote is set
# Note2: local hardware blocking is as well set/reset when Layer 1 of
#       DIVA server adapter is Down OR the CAPI connection to the
#       DIVA server adapter is lost (no path to the applications)
# Note3: When follow remote is set, local maintenance blocking will be
#       set/reset when blocking/unblocking is received from the
#       remote peer
# Note4: The disabling of in-/outbound calls can NOT be signaled to
#       the remote peer.
#       Therefore be sure, that the administrator of the peer is
#       aware if the disabling is set.
#       Even if those values can be set/reset when started, but
#       it does not make sense to do it, other than for testing purpose.
#
# These bits may be combined
# Examples: 0x11 - local maintenance blocking is set,
#           follow remote is set
#           0xC0 - inbound and outbound calls are disabled
#
# You may set those values as well decimal:
# Examples: 0x11 corresponds to 17
#           0xC0 corresponds to 192
#-----
#CIC OPC DPC LogContrNum Timeslot  Blocked
CC_TERMINAL_CONFIG_START
 1 129 130      1      1      0
 2 129 130      1      2      0
 3 129 130      1      3      0
 4 129 130      1      4      0
 5 129 130      1      5      0
 6 129 130      1      6      0
 7 129 130      1      7      0
 8 129 130      1      8      0
 9 129 130      1      9      0
10 129 130      1     10      0
11 129 130      1     11      0
12 129 130      1     12      0
13 129 130      1     13      0
14 129 130      1     14      0
15 129 130      1     15      0
17 129 130      1     17      0
18 129 130      1     18      0
19 129 130      1     19      0
20 129 130      1     20      0
21 129 130      1     21      0
22 129 130      1     22      0
23 129 130      1     23      0
24 129 130      1     24      0
25 129 130      1     25      0
26 129 130      1     26      0
27 129 130      1     27      0
28 129 130      1     28      0
29 129 130      1     29      0
30 129 130      1     30      0
31 129 130      1     31      0
CC_TERMINAL_CONFIG_END
#-----
#CC_PROVISIONING_END
#-----

```



```

#-----
#ISUP_PROVISIONING
#-----
ISUP_CIC_CONFIG_START
#   Status:  Delete  = 0, Add = 1
ISUP_CIC_CONFIG
      OPC      DPC      START_CIC      NUM_OF_CICS
      129      130      1      15
      129      130      17      15
ISUP_CIC_CONFIG_END
#-----
# Network Protection timer (ITU-T Q.764 T7)
# Started after the transmission of an IAM. Stopped when ACM is received.
# On expiry the connection is released.
# ITU-T Q.764 - Standard: 20-30 sec
# Implementation default: 20 sec
# If You require a different value, uncomment line and change value according
# ISUP_T7 20
#-----
#ISUP_PROVISIONING_END
#-----

#-----
#MTP3_PROVISIONING
#-----
MTP3_SELF_POINT_CODE_START
# PC: Self Point Code
# Type: Primary PC = 81, SECONDARY = 82 CAPABILITY CODE =83
# Point code of MTP3
# PC Nodecap Status
MTP3_SELF_POINT_CODE
#OPC      SPC_TYPE
129      81
MTP3_SELF_POINT_CODE_END
#-----
MTP3_DEST_POINT_CODE_START
# Destination Type Bitwise Usage:
#   Bit      Value      Definition
# Most Significant Bit 0Destination is DPC
#   1st Bit      1(0x01)      Adj DPC
#   2nd Bit      1(0x02)      Rem DPC
#   3rd Bit      0/1(0/0x04)  Brdcast_opt enable/disable
#   4th Bit      0/1(0/0x08)  dpc is mated_stp/non mated
# Status: Delete = 0, Add = 1
# DPC      Type  sls      Status
#-----
MTP3_DEST_POINT_CODE
DPC      Type  sls
130      1      1
MTP3_DEST_POINT_CODE_END
#-----
MTP3_LINK_START
# LINK_TYPE : Link Type A ...F , Value 1,2 ...6
MTP3_LINK
OPC DPC SLC MTP2_ID LOG_DATA_LINK_ID LINK_TYPE ROUTE_PARAM_LOG_LINK_ID
129 130 0 0 1 1 1
MTP3_LINK_END
#-----
MTP3_LINK_SET_START
#Put the information in following order
# (1)OPC (2)DPC (3)Num_Links (4)Num_Normal_Links
# (5)Broadcast_Option (6)Linkset_Option
# (7){Log_Link_Id, Link_State, Link_Priority} for each link
# (8) Log_Link_Set_Id
# Priority : 1 to XX
# LinkState : Active = 0, Inactive = 1
# Status: Delete = 0, Add = 1
# BRDCAST_OPT: enable: 0, disable: 1
MTP3_LINK_SET
opc dpc nlks nrml_lks bd_opt lset_opt lset_id lk_id lk_state lk_prio
129 130 1 1 0 0 1 1 0 0
MTP3_LINK_SET_END
#-----

```

```

MTP3_ROUTE_START
# ROUTE_TYPE Bitwise Usage:
#   Bit      Value      Definition
# Most Significant Bit 0/1 Destination is Route/CLUSTER Route
#   Ist Bit    1/2      Direct/Indirect Route
# DPC is a cluster if the route is a cluster route

MTP3_ROUTE
OPC  DPC  ROUTE_TYPE  LOG_LINKSET_ID  PRIORITY ROUTE_PARAM_LOG_ROUTE_ID
129 130   1           1              1          1
MTP3_ROUTE_END
#-----
# Overall MTP restart timer (ITU-T Q.704 T20)
# Started when first link of linkset is available.
# Time required to do the routing update.
# On expiry TRA message (traffic restart allowed) will be transmitted
# ITU-T Q.704 - Standard: 59-61 sec
# Implementation default: 59 sec
# If You require a different value, uncomment line and change value according
# MTP3_T20 59
#-----
#MTP3_PROVISIONING_END
#-----

#-----
#MTP2_PROVISIONING
#-----
# number of MTP2 signaling links
MTP2_NUM_LINKS 1
#-----
# Configuration of MTP2 links:
#
# MTP2_LOG_LINK_ID - MTP2 Link Id
# MTP2_ID          - MTP2 Id
# MTP2_CONTROLLER  - identifies the controller on which the link is set up
#                   (log-controller number)
# MTP2_TIMESLOT    - defines the timeslot of the link
# MTP2_MODE        - defines the MTP2 mode
#                   0 - normal mode
#                   1 - preventive mode
#-----
#MTP2_LOG_LINK_ID  MTP2_ID  MTP2_CONTROLLER  MTP2_TIMESLOT  MTP2_MODE
MTP2_LINK_CONFIG_START
1          0          1          16          0
MTP2_LINK_CONFIG_END
#-----
#MTP2_PROVISIONING_END
#-----

```

## Back to Back test

For the back-to-back test you need two systems. Below you will find two divaSS7.cfg configuration files for a back-to-back test. It has 1 SS7 link and 30 CICs.

**First divaSS7.cfg file**

```

#-----
# STACK_STANDARD_TYPE : Specifies the variant of the stack
# ITU= 1, ETSI=2
#-----
STACK_STANDARD_TYPE          1
#-----
# NETWORK_INDICATOR : Specifies the network indicator of ISUP and MTP3
# International 0 = 0, International 1 / SPARE = 1,
# National 0 = 2, National 1 (Reserved for national use) = 3
#-----
NETWORK_INDICATOR           2
#-----
# MTP3 and ISUP are communicating via (local) sockets with each other
# -> therefore the below paragraph is required
# MTP3_IP_ADDRESS            - IP of MTP3
# ISUP_IP_ADDRESS            - IP of ISUP
# MTP3_SERVER_PORT           - MTP3 server port to which the ISUP client is connecting
# ISUP_SERVER_PORT           - ISUP server port to which the MTP3 client is connecting
# MTP3_CLIENT_TO_ISUP_PORT   - MTP3 client port which connects to the ISUP server
# ISUP_CLIENT_TO_MTP3_PORT   - ISUP client port which connects to the MTP3 server
# all entries are required
#-----
MTP3_IP_ADDRESS               127.0.0.1
MTP3_SERVER_PORT              13000
MTP3_CLIENT_TO_ISUP_PORT      13100
ISUP_IP_ADDRESS               127.0.0.1
ISUP_SERVER_PORT              14000
ISUP_CLIENT_TO_MTP3_PORT      14100
#-----
# DEBUG MASKS
# set debug mask according to the definitions below
# debug information is written via standard log mechanism
# STATUS 0x00000001 - output STATUS (marked with 'S-')
# ERROR 0x00000002 - output ERRORS (marked with 'E-')
# WARN 0x00000004 - output WARNINGS (marked with 'W-')
# INFO 0x00000008 - output info (marked with 'I-')
# WRAPPER 0x00000010 - output details of the stack encapsulation (marked with 'A-')
# DETAIL 0x00000020 - output detail (creates a lot of output) (marked with 'V-')
# DATA 0x00000040 - output data (for data messages) (marked with 'D-')
# PERROR 0x00000080 - output pointer errors (marked with 'R-')
# NCCI_STM 0x00000100 - output Capi NCCI statemachine (marked with 'N-')
# PLCI_STM 0x00000200 - output Capi PLCI statemachine (marked with 'P-')
# CONT_STM 0x00000400 - output Capi Controller statemachine (marked with 'C-')
# MALLOC 0x00000800 - output memory allocation errors
#                      (creates a lot of output, do not use if not requested)
#                      (marked with 'M-')
# TIMER 0x00001000 - output timer handling
#                      (creates a lot of output, do not use if not requested)
#                      (marked with 'T-')
# in general a debug mask set to 0x00000007 should be sufficient
#-----
ISUP_CC_DEBUG_MASK 0x00000007 # set to STATUS|ERROR|WARN
MTP3_MTP2_DEBUG_MASK 0x00000007 # set to STATUS|ERROR|WARN
#-----

#-----
# Controller configuration
#-----
NUM_CONTROLLER 1
#LogControllerNum local law SerialN
#-----
CONTROLLER_CONFIG_START
1 local A 1300
CONTROLLER_CONFIG_END
#-----

#-----
#CC_PROVISIONING
#-----
# number of terminals configured/used
CC_NUM_TERMINALS 30
#-----

```

```

# length called party number
CC_LENGTH_CALLED_PARTY_NUMBER_START
0
CC_LENGTH_CALLED_PARTY_NUMBER_END
#-----
# initial state 0-PAUSE 1-ACTIVE
CC_INITIAL_STATE 0
#-----
#CIC OPC DPC LogContrNum Timeslot   Blocked
CC_TERMINAL_CONFIG_START
  1  129 130      1      1      0
  2  129 130      1      2      0
  3  129 130      1      3      0
  4  129 130      1      4      0
  5  129 130      1      5      0
  6  129 130      1      6      0
  7  129 130      1      7      0
  8  129 130      1      8      0
  9  129 130      1      9      0
 10  129 130      1     10      0
 11  129 130      1     11      0
 12  129 130      1     12      0
 13  129 130      1     13      0
 14  129 130      1     14      0
 15  129 130      1     15      0
 17  129 130      1     17      0
 18  129 130      1     18      0
 19  129 130      1     19      0
 20  129 130      1     20      0
 21  129 130      1     21      0
 22  129 130      1     22      0
 23  129 130      1     23      0
 24  129 130      1     24      0
 25  129 130      1     25      0
 26  129 130      1     26      0
 27  129 130      1     27      0
 28  129 130      1     28      0
 29  129 130      1     29      0
 30  129 130      1     30      0
 31  129 130      1     31      0
CC_TERMINAL_CONFIG_END
#-----
#CC_PROVISIONING_END
#-----
#-----
#ISUP_PROVISIONING
#-----
ISUP_CIC_CONFIG_START
#   Status:  Delete  = 0, Add = 1
ISUP_CIC_CONFIG
      OPC      DPC      START_CIC      NUM_OF_CICS
      129      130           1           15
      129      130          17           15
ISUP_CIC_CONFIG_END
#-----
#ISUP_PROVISIONING_END
#-----
#-----
#MTP3_PROVISIONING
#-----
MTP3_SELF_POINT_CODE_START
# PC: Self Point Code
# Type: Primary PC = 81, SECONDARY = 82 CAPABILITY CODE =83
# Point code of MTP3
# PC Nodecap Status
MTP3_SELF_POINT_CODE
#OPC      SPC_TYPE
129      81
MTP3_SELF_POINT_CODE_END
#-----
MTP3_DEST_POINT_CODE_START
# Destination Type Bitwise Usage:
#   Bit      Value      Definition

```

```

# Most Significant Bit 0      Destination is DPC
# 1st Bit 1(0x01)          Adj DPC
# 2nd Bit 1(0x02)          Rem DPC
# 3rd Bit 0/1(0/0x04)      Brdcast_opt enable/disable
# 4th Bit 0/1(0/0x08)      dpc is mated_stp/non mated
# Status: Delete = 0, Add = 1
# DPC Type Sls Status
#-----
MTP3_DEST_POINT_CODE
DPC Type sls
130 1 1
MTP3_DEST_POINT_CODE_END
#-----

MTP3_LINK_START
# LINK_TYPE : Link Type A ...F , Value 1,2 ...6
MTP3_LINK
OPC DPC SLC MTP2_ID LOG_DATA_LINK_ID LINK_TYPE ROUTE_PARAM_LOG_LINK_ID
129 130 0 0 1 1 1
MTP3_LINK_END
#-----
MTP3_LINK_SET_START
#Put the information in following order
# (1)OPC (2)DPC (3)Num_Links (4)Num_Normal_Links
# (5)Broadcast_Option (6)Linkset_Option
# (7){Log_Link_Id, Link_State, Link_Priority} for each link
# (8) Log_Link_Set_Id
# Priority : 1 to XX
# LinkState : Active = 0, Inactive = 1
# Status: Delete = 0, Add = 1
# BRDCAST_OPT: enable: 0, disable: 1
MTP3_LINK_SET
opc dpc nlks nrml_lks bd_opt lset_opt lset_id lk_id lk_state lk_prio
129 130 1 1 0 0 1 1 0 0
MTP3_LINK_SET_END
#-----
MTP3_ROUTE_START
# ROUTE_TYPE Bitwise Usage:
# Bit Value Definition
# Most Significant Bit 0/1 Destination is Route/CLUSTER Route
# 1st Bit 1/2 Direct/Indirect Route
# DPC is a cluster if the route is a cluster route
MTP3_ROUTE
OPC DPC ROUTE_TYPE LOG_LINKSET_ID PRIORITY ROUTE_PARAM_LOG_ROUTE_ID
129 130 1 1 1 1
MTP3_ROUTE_END
#-----
#MTP3_PROVISIONING_END
#-----

#-----
#MTP2_PROVISIONING
#-----
# number of MTP2 signaling links
MTP2_NUM_LINKS 1
#-----
# Configuration of MTP2 links:
#
# MTP2_LOG_LINK_ID - MTP2 Link Id
# MTP2_ID - MTP2 Id
# MTP2_CONTROLLER - identifies the controller on which the link is set up
# (log-controller number)
# MTP2_TIMESLOT - defines the timeslot of the link
# MTP2_MODE - defines the MTP2 mode
# 0 - normal mode
# 1 - preventive mode
#-----
#MTP2_LOG_LINK_ID MTP2_ID MTP2_CONTROLLER MTP2_TIMESLOT MTP2_MODE
MTP2_LINK_CONFIG_START
1 0 1 16 0
MTP2_LINK_CONFIG_END
#-----
#MTP2_PROVISIONING_END
#-----

```

**Second divaSS7.cfg file**

```

#-----
# STACK_STANDARD_TYPE : Specifies the variant of the stack
# ITU= 1, ETSI=2
#-----
STACK_STANDARD_TYPE          1
#-----
# NETWORK_INDICATOR : Specifies the network indicator of ISUP and MTP3
# International 0 = 0, International 1 / SPARE = 1,
# National 0 = 2, National 1 (Reserved for national use) = 3
#-----
NETWORK_INDICATOR           2
#-----
# MTP3 and ISUP are communicating via (local) sockets with each other
# -> therefore the below paragraph is required
# MTP3_IP_ADDRESS            - IP of MTP3
# ISUP_IP_ADDRESS            - IP of ISUP
# MTP3_SERVER_PORT           - MTP3 server port to which the ISUP client is connecting
# ISUP_SERVER_PORT           - ISUP server port to which the MTP3 client is connecting
# MTP3_CLIENT_TO_ISUP_PORT   - MTP3 client port which connects to the ISUP server
# ISUP_CLIENT_TO_MTP3_PORT   - ISUP client port which connects to the MTP3 server
# all entries are required
#-----
MTP3_IP_ADDRESS              127.0.0.1
MTP3_SERVER_PORT             13000
MTP3_CLIENT_TO_ISUP_PORT     13100
ISUP_IP_ADDRESS              127.0.0.1
ISUP_SERVER_PORT             14000
ISUP_CLIENT_TO_MTP3_PORT     14100
#-----
# DEBUG MASKS
# set debug mask according to the definitions below
# debug information is written via standard log mechanism
# STATUS 0x00000001 - output STATUS (marked with 'S-')
# ERROR 0x00000002 - output ERRORS (marked with 'E-')
# WARN 0x00000004 - output WARNINGS (marked with 'W-')
# INFO 0x00000008 - output info (marked with 'I-')
# WRAPPER 0x00000010 - output details of the stack encapsulation (marked with 'A-')
# DETAIL 0x00000020 - output detail (creates a lot of output) (marked with 'V-')
# DATA 0x00000040 - output data (for data messages) (marked with 'D-')
# PERROR 0x00000080 - output pointer errors (marked with 'R-')
# NCCI_STM 0x00000100 - output Capi NCCI statemachine (marked with 'N-')
# PLCI_STM 0x00000200 - output Capi PLCI statemachine (marked with 'P-')
# CONT_STM 0x00000400 - output Capi Controller statemachine (marked with 'C-')
# MALLOC 0x00000800 - output memory allocation errors
#                      (creates a lot of output, do not use if not requested)
#                      (marked with 'M-')
# TIMER 0x00001000 - output timer handling
#                      (creates a lot of output, do not use if not requested)
#                      (marked with 'T-')
# in general a debug mask set to 0x00000007 should be sufficient
#-----
ISUP_CC_DEBUG_MASK 0x000003FF # set to STATUS|ERROR|WARN|INFO
MTP3_MTP2_DEBUG_MASK 0x000003FF # set to STATUS|ERROR|WARN
#-----

#-----
# Controller configuration
#-----
NUM_CONTROLLER 1
#-----
#LogControllerNum local law SerialN
CONTROLLER_CONFIG_START
1 local A 1455
CONTROLLER_CONFIG_END
#-----

#-----
#CC_PROVISIONING
#-----
# number of terminals configured/used
CC_NUM_TERMINALS 30
#-----

```

```

# length called party number
CC_LENGTH_CALLED_PARTY_NUMBER_START
0
CC_LENGTH_CALLED_PARTY_NUMBER_END
#-----
# initial state 0-PAUSE 1-ACTIVE
CC_INITIAL_STATE 0
#-----
# Note: the order of the CIC definition is changed to avoid collisions
#CIC OPC DPC LogContrNum Timeslot Blocked
CC_TERMINAL_CONFIG_START
31 130 129 1 31 0
30 130 129 1 30 0
29 130 129 1 29 0
28 130 129 1 28 0
27 130 129 1 27 0
26 130 129 1 26 0
25 130 129 1 25 0
24 130 129 1 24 0
23 130 129 1 23 0
22 130 129 1 22 0
21 130 129 1 21 0
20 130 129 1 20 0
19 130 129 1 19 0
18 130 129 1 18 0
17 130 129 1 17 0
15 130 129 1 15 0
14 130 129 1 14 0
13 130 129 1 13 0
12 130 129 1 12 0
11 130 129 1 11 0
10 130 129 1 10 0
9 130 129 1 9 0
8 130 129 1 8 0
7 130 129 1 7 0
6 130 129 1 6 0
5 130 129 1 5 0
4 130 129 1 4 0
3 130 129 1 3 0
2 130 129 1 2 0
1 130 129 1 1 0
CC_TERMINAL_CONFIG_END
#-----
#CC_PROVISIONING_END
#-----

#-----
#ISUP_PROVISIONING
#-----
ISUP_CIC_CONFIG_START
# Status: Delete = 0, Add = 1
ISUP_CIC_CONFIG
      OPC      DPC      START_CIC      NUM_OF_CICS
      130      129      1      15
      130      129      17      15
ISUP_CIC_CONFIG_END
#-----
#ISUP_PROVISIONING_END
#-----

#-----
#MTP3_PROVISIONING
#-----
MTP3_SELF_POINT_CODE_START
# PC: Self Point Code
# Type: Primary PC = 81, SECONDARY = 82 CAPABILITY CODE =83
# Point code of MTP3
# PC Nodecap Status
MTP3_SELF_POINT_CODE
PC      SPC_TYPE
130      81
MTP3_SELF_POINT_CODE_END
#-----
MTP3_DEST_POINT_CODE_START

```

```

# Destination Type Bitwise Usage:
#   Bit          Value          Definition
# Most Significant Bit 0          Destination is DPC
# 1st Bit            1(0x01)      Adj DPC
# 2nd Bit            1(0x02)      Rem DPC
# 3rd Bit            0/1(0/0x04) Brdcast_opt enable/disable
# 4th Bit            0/1(0/0x08) dpc is mated_stp/non mated

# Status: Delete = 0, Add = 1
# DPC      Type  Sls      Status
#-----
MTP3_DEST_POINT_CODE
DPC      Type  Sls
129      1      1
MTP3_DEST_POINT_CODE_END
#-----

MTP3_LINK_START
# LINK_TYPE : Link Type A ...F , Value 1,2 ...6
MTP3_LINK
OPC  DPC  SLC  MTP2_ID  LOG_DATA_LINK_ID  LINK_TYPE  ROUTE_PARAM_LOG_LINK_ID
130 129   0    0          1              1          1
MTP3_LINK_END
#-----
MTP3_LINK_SET_START
#Put the information in following order
# (1)OPC (2)DPC (3)Num_Links (4)Num_Normal_Links
# (5)Broadcast_Option (6)Linkset_Option
# (7){Log_Link_Id, Link_State, Link_Priority} for each link
# (8) Log_Link_Set_Id
#   Priority : 1 to XX
#   LinkState : Active = 0, Inactive = 1
#   Status: Delete = 0, Add = 1
#   BRDCAST_OPT: enable: 0, disable: 1
MTP3_LINK_SET
opc dpc nlks nrml_lks bd_opt lset_opt lset_id lk_id lk_state lk_prio
130 129 1 1 0 0 1 1 0 0
MTP3_LINK_SET_END
#-----
MTP3_ROUTE_START
# ROUTE_TYPE Bitwise Usage:
#   Bit          Value          Definition
# Most Significant Bit 0/1      Destination is Route/CLUSTER Route
# 1st Bit            1/2      Direct/Indirect Route
# DPC is a cluster if the route is a cluster route
MTP3_ROUTE
OPC  DPC  ROUTE_TYPE  LOG_LINKSET_ID  PRIORITY  ROUTE_PARAM_LOG_ROUTE_ID
130 129 1 1 1 1
MTP3_ROUTE_END
#-----
#MTP3_PROVISIONING_END
#-----

#-----
#MTP2_PROVISIONING
#-----
# number of MTP2 signaling links
MTP2_NUM_LINKS 1
#-----
# Configuration of MTP2 links:
#
# MTP2_LOG_LINK_ID - MTP2 Link Id
# MTP2_ID          - MTP2 Id
# MTP2_CONTROLLER  - identifies the controller on which the link is set up
#                   (log-controller number)
# MTP2_TIMESLOT    - defines the timeslot of the link
# MTP2_MODE        - defines the MTP2 mode
#                   0 - normal mode
#                   1 - preventive mode
#-----
#MTP2_LOG_LINK_ID  MTP2_ID  MTP2_CONTROLLER  MTP2_TIMESLOT  MTP2_MODE
MTP2_LINK_CONFIG_START
1 0 1 16 0

```



```

MTP2_LINK_CONFIG_END
#-----
#MTP2_PROVISIONING_END
#-----

```

### Example: One SS7 link on one controller and 31 CICs on another controller

In this example, there are two 2MB trunks connected to the SS7 network. On the first trunk, one SS7 link is configured (controller 1) towards DPC=4119 and on the second trunk 31 CICs are configured (controller 2) towards DPC=3031:

```

#-----
# STACK_STANDARD_TYPE : Specifies the variant of the stack
# ITU= 1, ETSI=2
#-----
STACK_STANDARD_TYPE          1
#-----
# NETWORK_INDICATOR : Specifies the network indicator of ISUP and MTP3
# International 0 = 0, International 1 / SPARE = 1,
# National 0 = 2, National 1 (Reserved for national use) = 3
#-----
NETWORK_INDICATOR           2
#-----
# MTP3 and ISUP are communicating via (local) sockets with each other
# -> therefore the below paragraph is required
# MTP3_IP_ADDRESS             - IP of MTP3
# ISUP_IP_ADDRESS             - IP of ISUP
# MTP3_SERVER_PORT            - MTP3 server port to which the ISUP client is connecting
# ISUP_SERVER_PORT            - ISUP server port to which the MTP3 client is connecting
# MTP3_CLIENT_TO_ISUP_PORT    - MTP3 client port which connects to the ISUP server
# ISUP_CLIENT_TO_MTP3_PORT    - ISUP client port which connects to the MTP3 server
# all entries are required
#-----
MTP3_IP_ADDRESS               127.0.0.1
MTP3_SERVER_PORT              13000
MTP3_CLIENT_TO_ISUP_PORT      13100
ISUP_IP_ADDRESS               127.0.0.1
ISUP_SERVER_PORT              14000
ISUP_CLIENT_TO_MTP3_PORT      14100
#-----
# DEBUG MASKS
# set debug mask according to the definitions below
# debug information is written via standard log mechanism
# STATUS 0x00000001 - output STATUS (marked with 'S-')
# ERROR 0x00000002 - output ERRORS (marked with 'E-')
# WARN 0x00000004 - output WARNINGS (marked with 'W-')
# INFO 0x00000008 - output info (marked with 'I-')
# WRAPPER 0x00000010 - output details of the stack encapsulation (marked with 'A-')
# DETAIL 0x00000020 - output detail (creates a lot of output) (marked with 'V-')
# DATA 0x00000040 - output data (for data messages) (marked with 'D-')
# PERROR 0x00000080 - output pointer errors (marked with 'R-')
# NCCI_STM 0x00000100 - output Capi NCCI statemachine (marked with 'N-')
# PLCI_STM 0x00000200 - output Capi PLCI statemachine (marked with 'P-')
# CONT_STM 0x00000400 - output Capi Controller statemachine (marked with 'C-')
# MALLOC 0x00000800 - output memory allocation errors
#                      (creates a lot of output, do not use if not requested)
#                      (marked with 'M-')
# TIMER 0x00001000 - output timer handling
#                      (creates a lot of output, do not use if not requested)
#                      (marked with 'T-')
# in general a debug mask set to 0x00000007 should be sufficient
#-----
ISUP_CC_DEBUG_MASK 0x000003FF # set to STATUS|ERROR|WARN|INFO
MTP3_MTP2_DEBUG_MASK 0x000003FF # set to STATUS|ERROR|WARN
#-----
# Controller configuration
#-----
NUM_CONTROLLER 2
#-----
#LogControllerNum local law SerialN
CONTROLLER_CONFIG_START

```

```

1          local      A    1001
2          local      A    1084
CONTROLLER_CONFIG_END

#-----
#CC_PROVISIONING
#-----
CC_NUM_VIRTUAL_SIG_CONTROLLER 2
#LogControllerNum local law
CC_CONTROLLER_CONFIG_START
1          local      A
2          local      A
CC_CONTROLLER_CONFIG_END
#-----
CC_NUM_TERMINALS    31
#-----
CC_LENGTH_CALLED_PARTY_NUMBER_START
0
CC_LENGTH_CALLED_PARTY_NUMBER_END
#-----
# initial state 0-PAUSE 1-ACTIVE
CC_INITIAL_STATE 0
#-----
#CIC OPC DPC LogContrNum Timeslot   Blocked
CC_TERMINAL_CONFIG_START
1  7072 3031      2           1       0
2  7072 3031      2           2       0
3  7072 3031      2           3       0
4  7072 3031      2           4       0
5  7072 3031      2           5       0
6  7072 3031      2           6       0
7  7072 3031      2           7       0
8  7072 3031      2           8       0
9  7072 3031      2           9       0
10 7072 3031      2          10       0
11 7072 3031      2          11       0
12 7072 3031      2          12       0
13 7072 3031      2          13       0
14 7072 3031      2          14       0
15 7072 3031      2          15       0
16 7072 3031      2          16       0
17 7072 3031      2          17       0
18 7072 3031      2          18       0
19 7072 3031      2          19       0
20 7072 3031      2          20       0
21 7072 3031      2          21       0
22 7072 3031      2          22       0
23 7072 3031      2          23       0
24 7072 3031      2          24       0
25 7072 3031      2          25       0
26 7072 3031      2          26       0
27 7072 3031      2          27       0
28 7072 3031      2          28       0
29 7072 3031      2          29       0
30 7072 3031      2          30       0
31 7072 3031      2          31       0
CC_TERMINAL_CONFIG_END
#-----
#CC_PROVISIONING_END
#-----

#-----
#ISUP_PROVISIONING
#-----
ISUP_CIC_CONFIG_START
#   Status:  Delete  = 0, Add = 1
ISUP_CIC_CONFIG
OPC      DPC      START_CIC      NUM_OF_CICS
7072     3031      1             31
ISUP_CIC_CONFIG_END
#-----
#ISUP_PROVISIONING_END
#-----

```

```

#-----
#MTP3_PROVISIONING
#-----
MTP3_SELF_POINT_CODE_START
# PC: Self Point Code
# Type: Primary PC = 81, SECONDARY = 82 CAPABILITY CODE =83
# Point code of MTP3
# PC Nodecap Status
MTP3_SELF_POINT_CODE
PC      SPC_TYPE
7072    81
MTP3_SELF_POINT_CODE_END
#-----
MTP3_DEST_POINT_CODE_START
# Destination Type Bitwise Usage:
#   Bit      Value      Definition
# Most Significant Bit      0      Destination is DPC
# 1st Bit      1(0x01)      Adj DPC
# 2nd Bit      1(0x02)      Rem DPC
# 3rd Bit      0/1(0/0x04)Brdcst_opt enable/disable
# 4th Bit      0/1(0/0x08)dpc is mated_stp/non mated
# Status: Delete = 0, Add = 1
# DPC      Type  Sls      Status
#-----
MTP3_DEST_POINT_CODE
DPC      Type  sls
4119     1      1
3031     2      1
MTP3_DEST_POINT_CODE_END
#-----
MTP3_LINK_START
# LINK_TYPE : Link Type A ...F , Value 1,2 ...6
MTP3_LINK
OPC      DPC  SLC  MTP2_ID  LOG_DATA_LINK_ID  LINK_TYPE  ROUTE_PARAM_LOG_LINK_ID
7072    4119  0    0        1                1        1
MTP3_LINK_END
#-----
MTP3_LINK_SET_START
#Put the information in following order
# (1)OPC (2)DPC (3)Num_Links (4)Num_Normal_Links
# (5)Broadcast_Option (6)Linkset_Option
# (7){Log_Link_Id, Link_State, Link_Priority} for each link
# (8) Log_Link_Set_Id
# Priority : 1 to XX
# LinkState : Active = 0, Inactive = 1
# Status: Delete = 0, Add = 1
# BRDCAST_OPT: enable: 0, disable: 1
MTP3_LINK_SET
opc dpc nlks nrml_lks bd_opt lset_opt lset_id lk_id lk_state lk_prio
7072 4119 1 1 0 0 1 1 0 1
MTP3_LINK_SET_END
#-----
MTP3_ROUTE_START
# ROUTE_TYPE Bitwise Usage:
#   Bit      Value      Definition
# Most Significant Bit      0/1      Destination is Route/CLUSTER Route
# 1st Bit      1/2      Direct/Indirect Route
# DPC is a cluster if the route is a cluster route
MTP3_ROUTE
OPC      DPC  ROUTE_TYPE  LOG_LINKSET_ID  PRIORITY  ROUTE_PARAM_LOG_ROUTE_ID
7072    4119  1          1          1          1
7072    3031  2          1          2          2
MTP3_ROUTE_END
#-----
#MTP3_PROVISIONING_END
#-----

#-----
#MTP2_PROVISIONING
#-----
# number of MTP2 signaling links
MTP2_NUM_LINKS 1
#-----
# Configuration of MTP2 links:

```

```

#
# MTP2_LOG_LINK_ID - MTP2 Link Id
# MTP2_ID           - MTP2 Id
# MTP2_CONTROLLER  - identifies the controller on which the link is set up
#                   (log-controller number)
# MTP2_TIMESLOT    - defines the timeslot of the link
# MTP2_MODE         - defines the MTP2 mode
#                   0 - normal mode
#                   1 - preventive mode
#-----
#MTP2_LOG_LINK_ID  MTP2_ID    MTP2_CONTROLLER  MTP2_TIMESLOT  MTP2_MODE
MTP2_LINK_CONFIG_START
1                0          1                1            0
MTP2_LINK_CONFIG_END
#-----
#MTP2_PROVISIONING_END
#-----

```

## ISUP: List of messages

Type	Code	ISUP: Message type
ACM	06	Address Complete
ANM	09	Answer
BLA	15	Blocking Acknowledgement
BLO	13	Blocking
CCR	11	Continuity Check Request
CFN	2F	Confusion
CGB	18	Circuit Group Blocking
CGBA	1A	Circuit Group Blocking Acknowledgement
CGU	19	Circuit Group Unblocking
CGUA	1B	Circuit Group Unblocking Acknowledgement
CMC	1D	Call Modification Completed
CMR	1C	Call Modification Request
CMRJ	1E	Call Modification Reject
CON	07	Connect
COT	05	Continuity
CPG	2C	Call Progress
CQM	2A	Circuit Group Query
CQR	2B	Circuit Group Query Response
CRG	31	Charge information
DRS	27	Delayed Release
FAA	20	Facility Accepted
FAR	21	Facility Request
FOT	08	Forward Transfer
FRJ	1F	Facility Reject
GRA	17	Circuit Group Reset Acknowledgement
GRS	29	Circuit Group Reset
IAM	01	Initial Address Message

INF	04	Information
INR	03	Information Request
LPA	24	Loop Back Acknowledgement
OLM	30	Overload
PAM	28	Pass Along
REL	0C	Release
RES	0E	Resume
RLC	10	Release Complete
RSC	12	Reset Circuit
SAM	02	Subsequent Address Message
SUS	0D	Suspend
UBA	16	Unblocking Acknowledgement
UBL	14	Unblocking
UCIC	2E	Unequipped Circuit Identification Code
USR	2D	User to User Information
	0A	Reserved
	0B	Reserved
	0F	Reserved
	22	Reserved
	23	Reserved
	25	Reserved
	26	Reserved