Dialogic

# Dialogic® Diva® softSS7 Software for Linux version 1.5.2

Reference Guide

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www.dialogic.com

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    - 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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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 the Dialogic® Diva® softSS7 software.

This guide is structured as follows:

| Section | Contents |
|---|---|
| About The Dialogic® Diva® softSS7 Software | The Dialogic® Diva® softSS7 features and supported Dialogic® Diva® Media Boards. |
| Preparing The Dialogic® Diva® Media Boards | Preparations before using the Diva softSS7 software. |
| Installing The Dialogic® Diva® softSS7 Software | Installation of the Diva softSS7 software. |
| Software Configuration | Modifications in the Dialogic® Diva® Configuration Wizard, activation and installation of the license file. |
| Starting The Dialogic® Diva® softSS7 Software | Start and verification of the Diva softSS7 software. |
| Tracing | Creation of traces with the Diva Configuration Wizard. |
| Uninstalling | Uninstallation of the Diva softSS7 software. |
| Issues While Running The Dialogic® Diva® softSS7 Software | How to solve problems with the Diva softSS7 software. |
| Glossary | Common terms in the SS7 environment. |
| Appendix | Examples and explanation of the default Dialogic® 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 have connectivity over the SS7 signaling network and still be able to use applications with standard programming interfaces like CAPI and the Dialogic® Diva® SDK.

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

### Dialogic® Diva® softSS7 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
- 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 mask
  - via 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
- 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 software.
- 24-bit point code support as used in China

### Supported hardware

The Dialogic® Diva® softSS7 software supports the following Dialogic® Diva® 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:**

- Diva V-2PRI/E1/T1
- Diva V-4PRI/E1/T1

# 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 software version 8.5. You can download the files for installing the software from the Dialogic web site at:

http://www.dialogic.com/worldwide/products/MediaGateways

The online Dialogic® Diva® System Release 8.5LIN Reference Guide provides help for the installation of the software. You can download it from the Dialogic web site at:

http://www.dialogic.com/worldwide/support/docs.htm

The drivers of the Diva softSS7 software are installed together with the Dialogic® Diva® drivers.

# CHAPTER 3

## Installing The Dialogic® Diva® softSS7 Software

The Dialogic® Diva® softSS7 software drivers are provided together with the Dialogic® Diva® System Release software. If you upgrade from an former version and have not changed the folder structure, the configuration of that version is used.

To install the Diva softSS7 software, do the following:

1. Execute the following command: `# ./Diva4Linux_installer-<build number>.bin`.

2. During the installation, you will be asked to accept the End-User License Agreement and to confirm the installation.
3. After the installation is complete, press the **Return** button to finish the installation.
4. Follow the instructions shown in the graphic above:
   - Start the Dialogic® Diva® Build Wizard (`cd /usr/lib/opendiva/divas/src; ./Build`) to build and install drivers for Dialogic® Diva® ISDN Media Boards.
   - Start the Dialogic® Diva® Configuration Wizard (`/usr/lib/opendiva/divas/Config`) to detect and configure all installed Diva ISDN Media Boards.
   - Start the Dialogic® Diva® HTTP Configuration Server at port 10005. To enable web interface access, set password in the file `/usr/lib/opendiva/divas/httpd/login/login`

You can now configure the Diva softSS7 software as described in Software Configuration on page 13.

# CHAPTER 4

## Software Configuration

After you have installed the Dialogic® Diva® System Release software as described in Installing The Dialogic® Diva® softSS7 Software on page 11, open the Dialogic® Diva® Configuration Wizard to make some necessary changes. You can either use:

- the Dialogic® Diva® Configuration web interface as described on page 17, or
- the Diva Configuration Wizard as described page 20.

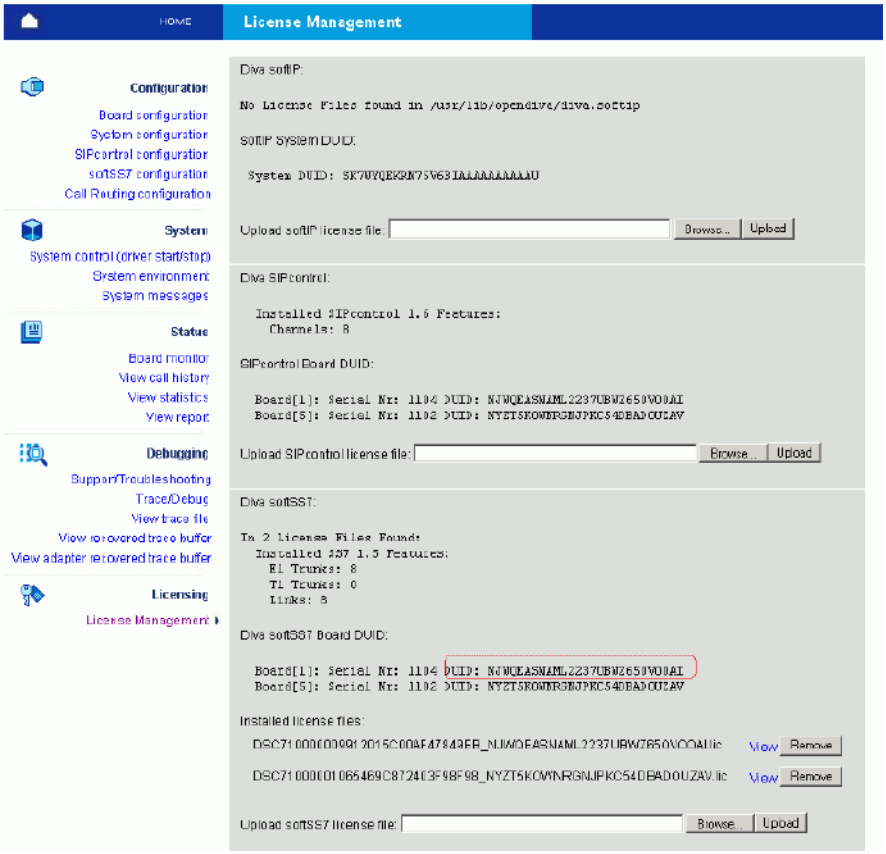
Before you start to configure the necessary settings, activate the license file as described below.

### 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, you need to activate your license via the Dialogic web portal. The license activation procedure is different in the web interface (see below) than in the Diva Configuration Wizard (see page 14).

#### License activation in the Dialogic® Diva® Configuration web interface

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:
   - Open the web interface and under **System control (driver start/stop)** click **Start** to start the drivers.
   - Click **License Management** on the left side of the web interface to open the dialog with the license overview. The DUID is only displayed, if the driver is started.
   - Copy the DUID number of the Diva softSS7 software to the clipboard.




4. If you need to do the web activation using another computer, open an editor, paste the DUID, and save the file.

5. Paste the Device Unique ID from the **License Management** section into the web site.
6. Follow the remaining instructions.
7. The license file will be generated and sent to the email address you entered. Save the license file.
8. Open the **License Management** dialog again.
9. In this dialog, go to **Diva softSS7** and click **Browse** next to **Upload softSS7 license file**.
10. Go to the directory in which you saved the license file and click **Open**.
11. Click **Upload**, to activate the license file.

### License activation in the Dialogic® Diva® Configuration Wizard

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:

- Go to /usr/lib/opendiva/divas and execute following command `# ./licman -ss7` to start the Dialogic® Diva® License Manager. In order to see the DUID, you need to start the driver first.

```
[root@tick divas]# ./licman -h

usage:
  licman  <Option[s]> [-v]

 licman -ss7      : SS7 Licensing: show all installed Boards DUID
 licman -sctrl    : SIPcontrol Licensing: show all installed Boards     DUID
 licman -sip      : SOFTIP Licensing: show System DUID
 licman -crd      : CARD Features Licensing: show Card UID
 licman -i <Licence File> <Target Directory>
    Verify the license and install it to target directory
 licman -p <Target Directory>
    Verify the  licenses in the Install dir and list all valid features
 licman -g <Board Serial Number>
          Generate an ISDN Boards DUID from its Serial Number
 licman -b
           Show the License Manager Build Numbers
 licman -e <Licence File>
           Evaluate License File
 option -v anyplace: verbose mode

[root@tick divas]# ./licman -ss7
  Board[1]: Serial Nr: 1455 DUID: NBIN7S23RMXUWF2IMWFDERSKGAG
[root@tick divas]#
```

- In the Diva License Manager, the serial numbers and DUIDs are displayed for the installed Dialogic® Diva® Media Boards.

4. Copy and paste the Device Unique ID from the Diva 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. The license file you receive as an attachment of an email that will look similar to this example: SC71000_000093_N13ZC4VYX22PR4NHG3UVDP1T2AJ.lic
7. Copy the license file to the computer where you installed the Diva softSS7 software, for example `/home/ss7`.
8. The License Manager is located in the directory `/usr/lib/opendiva/divas`.
9. To install the license enter the following command:

   `# ./licman -i <License File> <Target Directory>`

   The target directory is `/usr/lib/opendiva/divas.ss7`.

   In the example below, the license file is located in `/home/ss7/`.

```
[root@tick divas]# ./licman -i /home/ss7/DSC7100000088369812 62AF8557C5B_NBIN7S23RMXUWF2IMWFDERSKGAG.lic /usr/lib/opendiva/divas.ss7/
Signature is OK
  Product DSC7
  Version 1000
  Duid NBIN7S23RMXUWF2IMWFDERSKGAG
  Created 2007-02-02
  Name DSC7_SS7_Link
  Expires 3000-01-01
  Value 8


  Product DSC7
  Version 1000
  Duid NBIN7S23RMXUWF2IMWFDERSKGAG
  Created 2007-02-02
  Name DSC7_SS7_E1_Trunk
  Expires 3000-01-01
  Value 1


[root@tick divas]#
```

**10.** To read the license, you need to execute the following command:

`/usr/lib/opendiva/divas/ licman -e /home/ss7/ <name of your license file>`

The name of your license file is similar to: `DSC71000_000192_ NCZ3QSHC1RAH1524V3YEH4MNSAU.lic` and the marked section in the graphic shows you where to find it.

**11.** The License Manager also shows the enabled SS7 link, the DCS7_SS7_Link value, and the expiration date of the license file.

**12.** With the command: `/usr/lib/opendiva/divas/licman –p /usr/lib/opendiva/divas.ss7/ -v` you can verify how many licenses, ss7 links, and E1 trunks are installed.

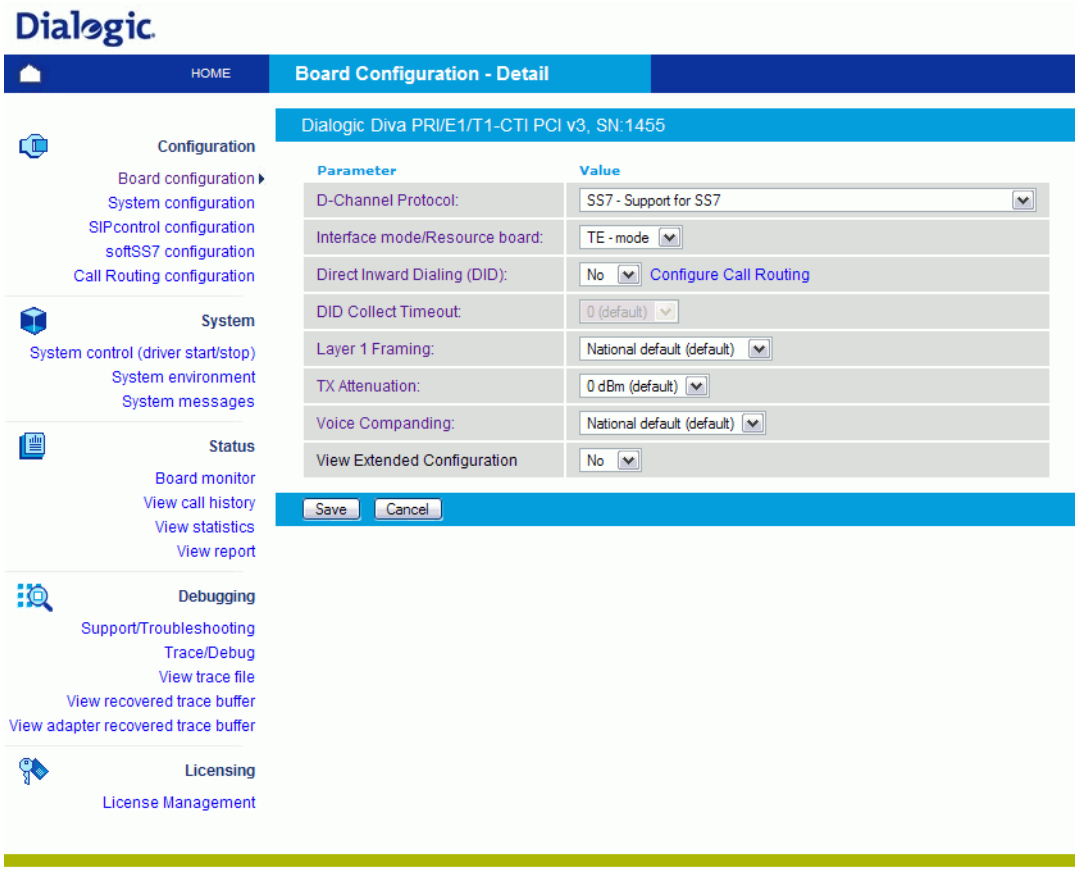
```
[root@tick divas]# ./licman -h

usage:
  licman  <Option[s]> [-v]

 licman -ss7      : SS7 Licensing: show all installed Boards DUID
 licman -sctrl    : SIPcontrol Licensing: show all installed Boards     DUID
 licman -sip      : SOFTIP Licensing: show System DUID
 licman -crd      : CARD Features Licensing: show Card UID
 licman -i <Licence File> <Target Directory>
    Verify the license and install it to target directory
 licman -p <Target Directory>
    Verify the  licenses in the Install dir and list all valid features
 licman -g <Board Serial Number>
         Generate an ISDN Boards DUID from its Serial Number
 licman -b
          Show the License Manager Build Numbers
 licman -e <Licence File>
          Evaluate License File
 option -v anyplace: verbose mode

[root@tick divas]# ./licman -p /usr/lib/opendiva/divas.ss7/ -v
Current AKI File: DSC7100000088369812 62AF8557C5B_NBIN7S23RMXUWF2IMWFDERSKGAG.lic
CertFile: /usr/lib/eicon/divas.ss7/akirootcert.pem
GetFeatures from File   DSC7100000088369812 62AF8557C5B_NBIN7S23RMXUWF2IMWFDERSKGAG.lic
Product: DSC7
In 1 License Files Found:
  Installed SS7 1.5 Features:
    E1 Trunks: 1
    T1 Trunks: 0
    Links: 8
[root@tick divas]#
```

### Configuration in the Dialogic® Diva® Configuration web interface

You can configure the necessary settings in the Diva Configuration web interface.

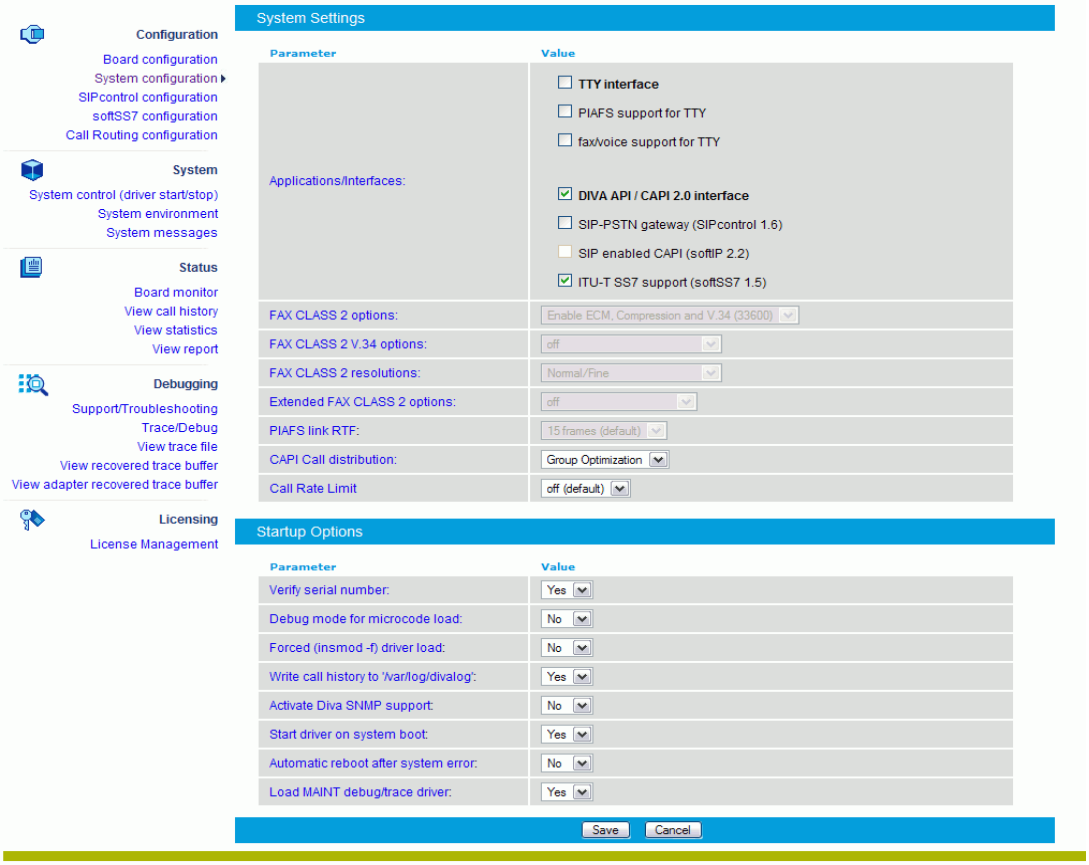
1. Open the Diva Configuration Wizard web interface and select **Board Configuration**.
2. Click the board icon of the Dialogic® Diva® Media Board that you want to configure.

3. Select **SS7 - Support for SS7** as D-channel protocol to enable the SS7 protocol.




4. If the network provides the clock for the signaling, the **Interface Mode** should be set to **TE - mode**.
5. Depending on your network you can either switch CRC4 on or off.
6. The default setting for **Layer 1 framing** is **National default**.
7. The rest of the settings are default Diva Media Board settings.
8. After you have made the above changes to your configuration, click **Save** to save the changes. The settings are saved in the "divas_cfg.rc" file.
9. Restart your Diva Media Board. To do so, click the **System control (driver start/stop)** link and under **Driver Status** click **Stop** and then **Start**.

**10.** Set the Diva softSS7 software to start automatically at start-up. To do so, click the **System configuration** link, enable **ITU-T SS7 support (softSS7 1.5)** and set **Start driver on system boot** to **Yes**.

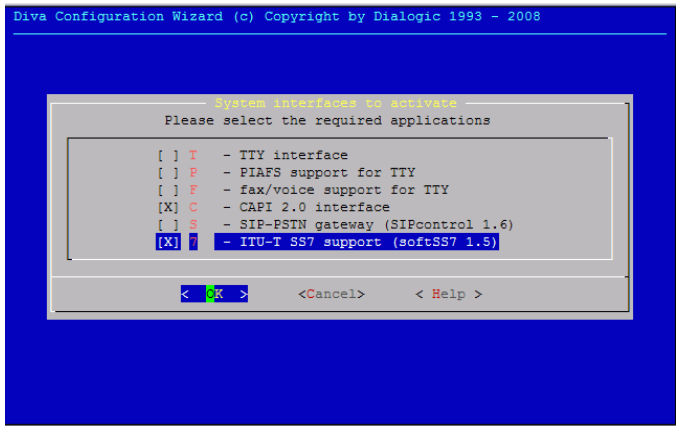


### Configuration with the Dialogic® Diva® Configuration Wizard

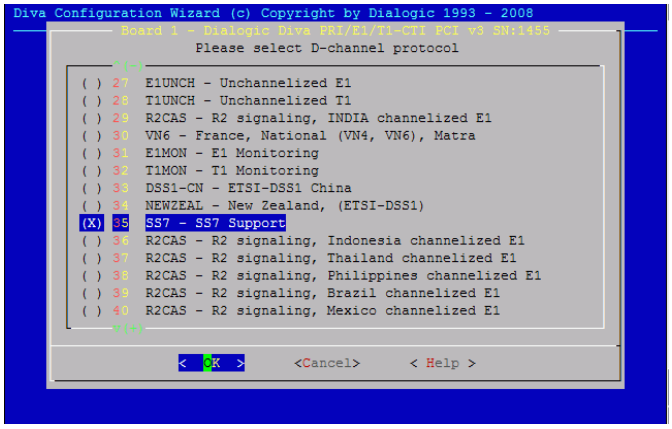
1. To start the Diva Configuration Wizard, execute the following command:

   ```
   # /usr/lib/opendiva/divas/Config
   ```

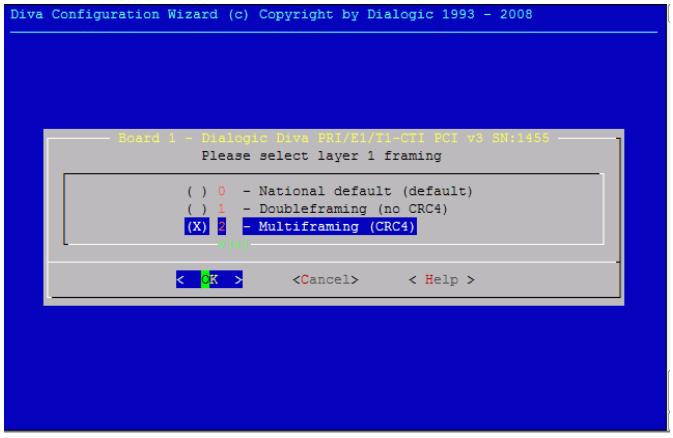
2. Install the license file as described in Activate the license on page 13.
3. Set the interface type to **ITU-T SS7 support (softSS7 1.5)** and select **CAPI 2.0 interface**.



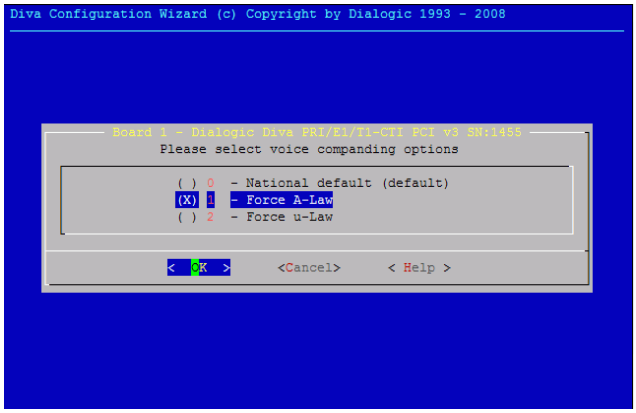

4. Set the D-Channel protocol to **SS7 - SS7 Support**.



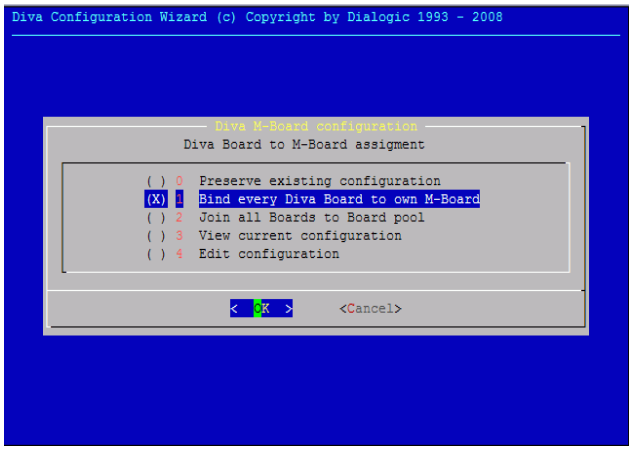

5. Depending on the Telco's network, select as layer 1 framing either **Multiframing (CRC4)** or **Doubleframing (no CRC4)**.



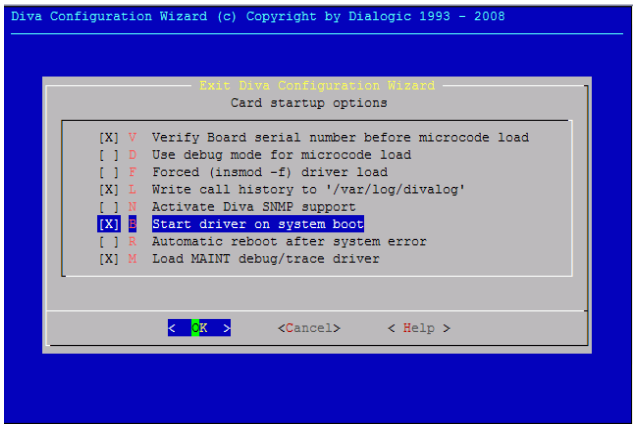
6. Set the voice companding option as specified by the operator. For Europe, A-law is normally used.




7. Save the changes and select **Bind every Diva Board to own M-Board**.




8. Select **Start driver on system boot** to automatically start the Dialogic® Diva® SS7 software at start-up.




For a complete overview of the settings, see the Dialogic® Diva® Configuration Wizard settings for the Dialogic® Diva® softSS7 software on page 46.

### Test the Dialogic® Diva® Media Board

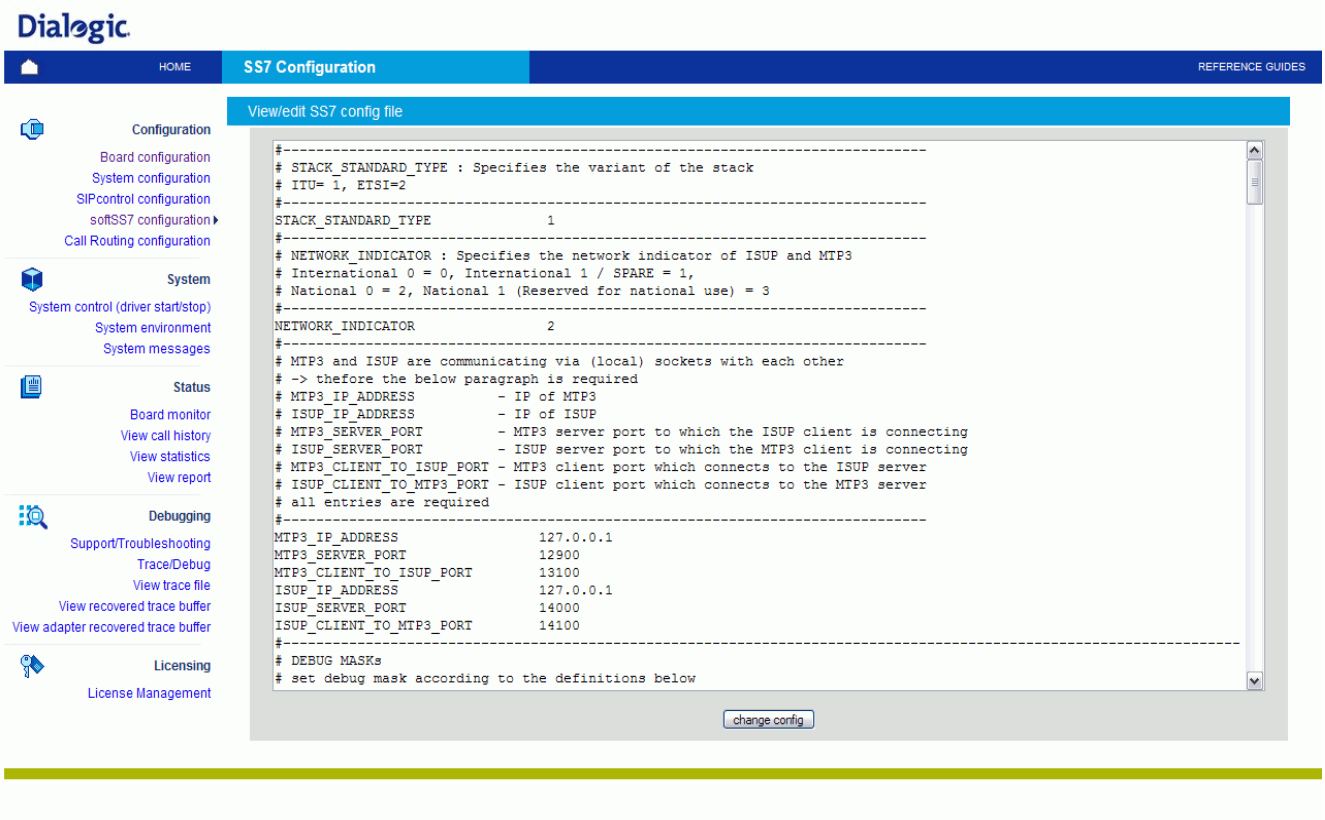
After the restart of the system, plug the 2MB trunk into one port of your Diva Media Board. If the red LED of this port is turned off, your configuration is working properly from the hardware point of view. If the red LED remains lit, make sure that the other end of the cable is properly connected to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

### 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 it remains lit, you need to verify the configuration with help of the Diva Configuration web interface or the Diva Configuration Wizard.

## Change the Dialogic® Diva® softSS7 sofware 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 either in the Dialogic® Diva® Configuration web interface




or in a text editor when opening it from `/usr/lib/opendiva/divas.ss7`.

See the Appendix on page 32 for a more detailed description of this file.

# 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. Got to `/usr/lib/opendiva/divas.ss7`.
2. Start the Diva softSS7 software with the command `# ./StartSoftSS7`, which starts the `./ss7_mtp3_cmtp2_stack` and `./ss7_isup_cc_stack` processes.

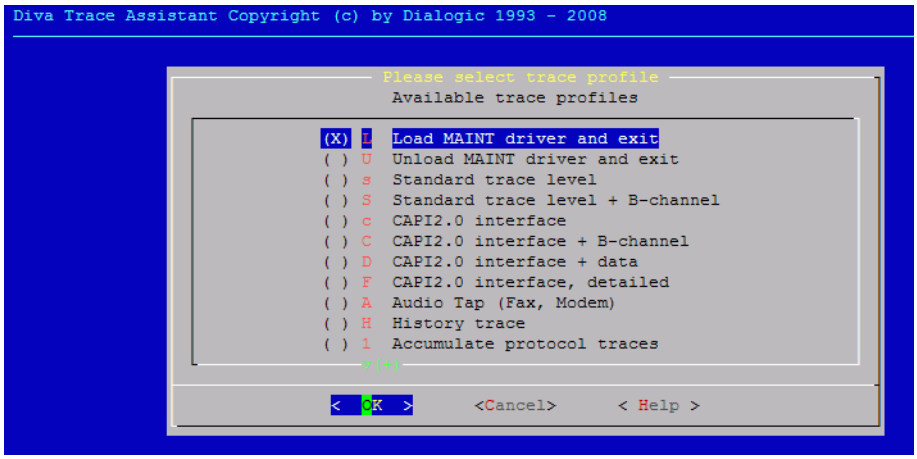
```
[root@tick divas.ss7]# ./StartSS7
Starting Diva softSS7 ... 18437 ?        00:00:00 ss7_isup_cc_sta
OK
[root@tick divas.ss7]# ps -ef | grep ss7
root     18434     1  0 19:05 ?        00:00:00 ./ss7_mtp3_cmtp2_stack
root     18437     1  0 19:05 ?        00:00:00 ./ss7_isup_cc_stack
root     18442 16578  0 19:06 pts/0    00:00:00 grep ss7
[root@tick divas.ss7]# ./StopSS7
[root@tick divas.ss7]# ps -ef | grep ss7
root     18447 16578  0 19:06 pts/0    00:00:00 grep ss7
[root@tick divas.ss7]#
```

3. To stop the Diva softSS7 software you need to execute the `StopSS7` script as shown in the graphic above.

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

To verify if the Diva SS7 software starts up properly, you can use the following commands, before you start it.

1. Enable Diva tracing. Go to `/usr/lib/opendiva/divas` and type in `# ./Trace`. Click **OK**.




2. List the available trace possibilities with the command `divactrl ditrace -l` .

3. Since only the SS7 information is relevant, you need to disable the other information elements, by setting their trace masks on zero. To do so, use the command `divactrl ditrace -d 1,2,3,4 -m 0x0`.

```
[root@tick divas]# ./divactrl ditrace -l

 ------------------------------------------------------
  ditrace, BUILD (108-22[108-120]-Feb 26 2008-17:11:43)
 ------------------------------------------------------
   0:00:00.000 01 - DIDD(3.0)
   0:00:00.000 02 - DIVAS(2.0)
   0:00:00.000 03 - MAINT(3.1)
   0:00:04.348 04 - ADAPTER:1 SN:1455
   0:00:05.824 05 - User IDI(2.0)
   0:00:05.856 06 - MTPX(108-344-SRC)
   0:00:06.870 07 - CAPI20(2.0)
 ------------------------------------------------------
[root@tick divas]# ./divactrl ditrace -d 1,2,3,4,5,6,7 -m 0x0
[root@tick divas]# ./divactrl ditrace -p > trace.txt &
[1] 9484
[root@tick divas]# tail -f trace.txt
```

4. The default trace masks for the Diva softSS7 software are saved in the divaSS7.cfg configuration file. The default masks for tracing are:

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

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

5. Write the output from the trace to a file, `divactrl ditrace -p > [file-name]`. In the above graphic, the trace is written to a file named trace.txt.

6. Do a tail `-f [file-name]` and start the Diva softSS7 software.

```
3:25:14.678 L F S-CMTP2[1]: Changing state time Thu Feb 28 18:07:14 2008
3:25:14.679 L F S-CMTP2[2]: RX - MTP2_TO_MTP3_InService
3:25:14.679 L F S-CMTP2[2]: Changing state to IN_SERVICE
3:25:14.679 L F S-CMTP2[2]: Changing state time Thu Feb 28 18:07:14 2008
3:25:14.681 L F S-CMTP2[3]: RX - MTP2_TO_MTP3_InService
3:25:14.681 L F S-CMTP2[3]: Changing state to IN_SERVICE
3:25:14.681 L F S-CMTP2[3]: Changing state time Thu Feb 28 18:07:14 2008
3:25:14.681 L F S-CMTP2[4]: RX - MTP2_TO_MTP3_InService
3:25:14.681 L F S-CMTP2[4]: Changing state to IN_SERVICE
3:25:14.681 L F S-CMTP2[4]: Changing state time Thu Feb 28 18:07:14 2008
3:25:14.733 L F S-MTP23: Alarm/Event reported for LINK 3 : status  NOT AVAILABLE (0x80000000)
3:25:14.733 L F S-MTP23: Alarm/Event reported for SELF PC : status  RESTARTING
3:25:14.733 L F S-MTP23: Alarm/Event reported for ROUTE 1 : status  AVAILABLE (ROUTE)
3:25:14.733 L F S-MTP23: Alarm/Event reported for ROUTE 1 : status  AVAILABLE (ROUTE)
3:25:14.733 L F S-MTP23: Alarm/Event reported for LINK 3 : status  AVAILABLE (0x00000000)
3:25:14.733 L F S-MTP23: Alarm/Event reported for ROUTE 1 : status  AVAILABLE (ROUTE)
3:25:14.737 L F S-MTP23: Alarm/Event reported for LINK 4 : status  NOT AVAILABLE (0x80000000)
3:25:14.737 L F S-MTP23: Alarm/Event reported for ROUTE 1 : status  AVAILABLE (ROUTE)
3:25:14.737 L F S-MTP23: Alarm/Event reported for LINK 4 : status  AVAILABLE (0x00000000)
3:25:14.738 L F S-MTP23: Alarm/Event reported for LINK 1 : status  NOT AVAILABLE (0x80000000)
3:25:14.738 L F S-MTP23: Alarm/Event reported for ROUTE 1 : status  AVAILABLE (ROUTE)
3:25:14.738 L F S-MTP23: Alarm/Event reported for LINK 1 : status  AVAILABLE (0x00000000)
3:25:14.739 L F S-MTP23: Alarm/Event reported for LINK 2 : status  NOT AVAILABLE (0x80000000)
3:25:14.739 L F S-MTP23: Alarm/Event reported for ROUTE 1 : status  AVAILABLE (ROUTE)
3:25:14.739 L F S-MTP23: Alarm/Event reported for LINK 2 : status  AVAILABLE (0x00000000)
3:25:20.732 L F S-MTP23: Alarm/Event reported for SELF PC : status  ACCESSIBLE
3:25:20.732 L F S-MTP23: Alarm/Event reported for DPC 130: status  ACCESSIBLE
3:25:20.732 L 10 S-CC: isup_resume_ind - for DPC:130
3:25:20.732 L 10 S-CC: cc_term_set_term_active_state_by_DPC - set 244 terminals for DPC 130 into ACTIVE
3:25:20.732 L 10 S-CC/01/: isup_resume_ind - state from 0000:0000:0000:0000:0000:0000:0000:0000 to 0111:1111:1111:1111:0111:1111:1111:1111
3:25:20.732 L 10 S-CC/02/: isup_resume_ind - state from 0000:0000:0000:0000:0000:0000:0000:0000 to 0111:1111:1111:1111:1111:1111:1111:1111
3:25:20.732 L 10 S-CC/03/: isup_resume_ind - state from 0000:0000:0000:0000:0000:0000:0000:0000 to 0111:1111:1111:1111:1111:1111:1111:1111
3:25:20.732 L 10 S-CC/04/: isup_resume_ind - state from 0000:0000:0000:0000:0000:0000:0000:0000 to 0111:1111:1111:1111:0111:1111:1111:1111
3:25:20.732 L 10 S-CC/05/: isup_resume_ind - state from 0000:0000:0000:0000:0000:0000:0000:0000 to 0111:1111:1111:1111:0111:1111:1111:1111
3:25:20.732 L 10 S-CC/06/: isup_resume_ind - state from 0000:0000:0000:0000:0000:0000:0000:0000 to 0111:1111:1111:1111:1111:1111:1111:1111
3:25:20.732 L 10 S-CC/07/: isup_resume_ind - state from 0000:0000:0000:0000:0000:0000:0000:0000 to 0111:1111:1111:1111:1111:1111:1111:1111
3:25:20.732 L 10 S-CC/08/: isup_resume_ind - state from 0000:0000:0000:0000:0000:0000:0000:0000 to 0111:1111:1111:1111:0111:1111:1111:1111
```

# CHAPTER 6

## Tracing

Trace information will be written via the standard Dialogic® Diva® trace utilities. To enable tracing for the Dialogic® Diva® softSS7 software, you have to make sure that the following entries are included 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
```

To enable a complete trace for the Diva softSS7 software, you can change your trace mask to:

```
ISUP_CC_DEBUG_MASK   0x000003FF
MTP3_MTP2_DEBUG_MASK 0x000003FF
```

Please see the Appendix on page 32 for a complete description of the debug mask. If you need to make changes to the "divaSS7.cfg" file, you need to stop the Diva softSS7 software and start it again.

If you only want to trace on SS7 level, you need to disable the other categories. See also Verify if Dialogic® Diva® softSS7 software is running on page 23 for more information.

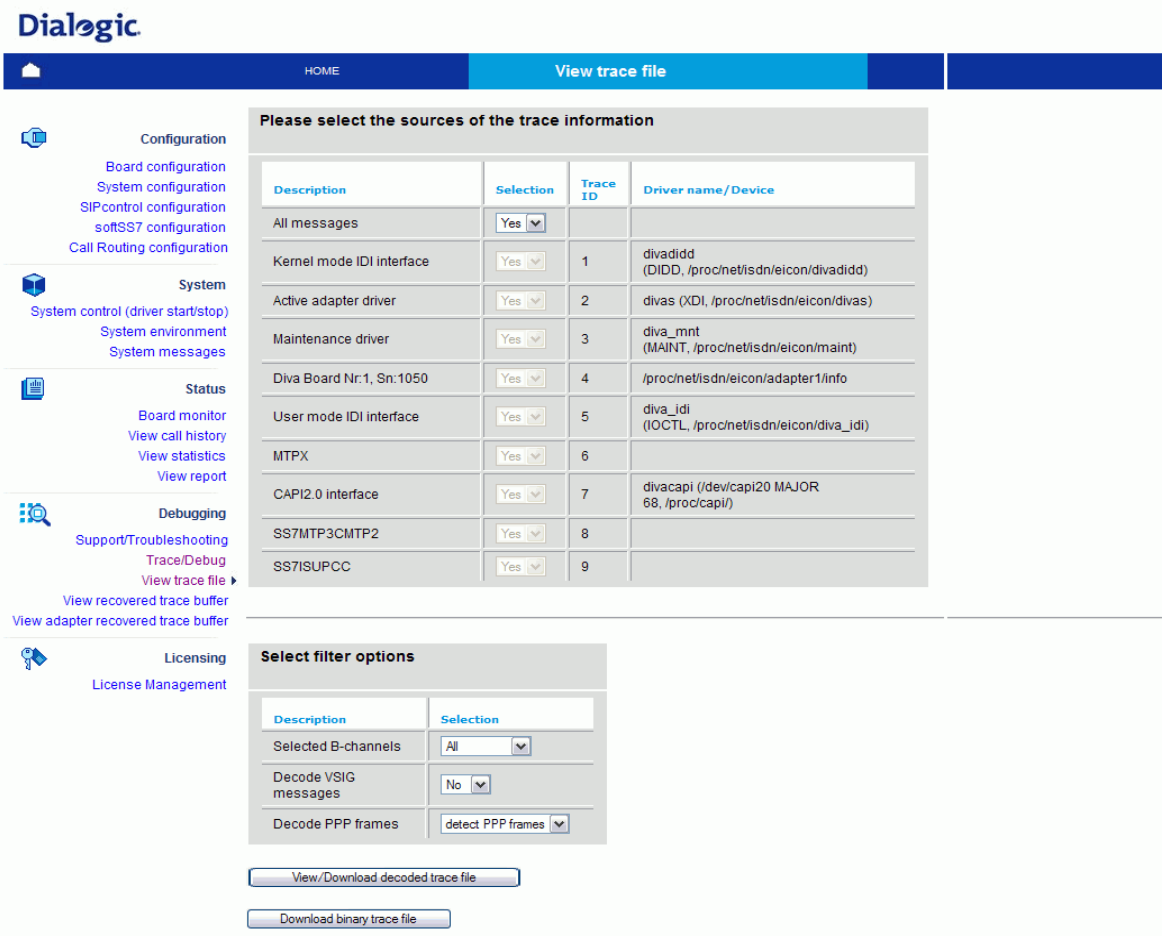
The following sections describes the tracing with the Dialogic® Diva® Configuration web interface.

### Tracing with the Dialogic® Diva® Configuration web interface

1. Start the Diva Configuration web interface and click **Trace/Debug** on the left hand side to open the Dialogic® Diva® Trace Wizard.
2. Keep the default settings and click **Start**.
3. To stop the tracing, click **Stop trace process and retrieve compressed trace file**.

   **Note:** If you use the Diva Trace Wizard at start-up, keep in mind that the whole start-up procedure for the Diva softSS7 software takes about 70 seconds. Therefore, wait at least 70 seconds before you click **Stop trace process and retrieve compressed trace file**.
4. You can also make traces when the stack is up and running, but the trace information depends on the settings you made in the trace mask in the divaSS7.cfg file. If you make changes to these trace settings, you need to restart Diva softSS7 software.

5. After you stopped the trace process, you can view and/or download the trace file and select with the trace viewer the components you want to see in your trace file. For the Dialogic® Diva® softSS7 software, set the MTP2/MTP3 and ISUP components to **Yes** and the rest to **No**.




6. Click one of the buttons to view and/or download the trace file.

### Dynamic tracing

Below are some examples for the MTP process on how to enable/disable the Diva softSS7 software tracing dynamically. If you change the -c 1010 to -c 1011, you are setting the debug masks for the ISUP process. For a full description about the trace mask, see the description in the divaSS7.cfg configuration file. After setting the trace masks for the ISUP and MTP processes, you can than use the Dialogic® Diva® Trace tool as described in Tracing with the Dialogic® Diva® Configuration web interface on page 25 or use the command line interface as described in Verify if Dialogic® Diva® softSS7 software is running on page 23.

```
[root@tick divas]# ./divactrl mantool -L
6:{1,1004,101,1000,1010,1011}


[root@tick divas]# ./divactrl mantool -c 1010 -r"Debug"
I: adapter 1010 selected
Management Interface B-Channel State Trace utility for Diva cards
BUILD (108-22-Feb 26 2008-17:11:43)
Copyright (c) 1991-2008 Dialogic


-w------hit-[debug_mask .................] = 0x3ff
--------fn -[DebugStop ..................]

[root@tick divas]# ./divactrl mantool -c 1010 -w"Debug\debug_mask=0x0"
I: adapter 1010 selected
Management Interface B-Channel State Trace utility for Diva cards
```

```
BUILD (108-22-Feb 26 2008-17:11:43)
Copyright (c) 1991-2008 Dialogic


[root@tick divas]# ./divactrl mantool -c 1010 -r"Debug"
I: adapter 1010 selected
Management Interface B-Channel State Trace utility for Diva cards
BUILD (108-22-Feb 26 2008-17:11:43)
Copyright (c) 1991-2008 Dialogic


-w------hit-[debug_mask .................] = 0x0
--------fn -[DebugStop ..................]


[root@tick divas]# ./divactrl mantool -c 1010 -w"Debug\debug_mask=3ff"
I: adapter 1010 selected
Management Interface B-Channel State Trace utility for Diva cards
BUILD (108-22-Feb 26 2008-17:11:43)
Copyright (c) 1991-2008 Dialogic

[root@tick divas]# ./divactrl mantool -c 1010 -r"Debug"
I: adapter 1010 selected
Management Interface B-Channel State Trace utility for Diva cards
BUILD (108-22-Feb 26 2008-17:11:43)
Copyright (c) 1991-2008 Dialogic


-w------hit-[debug_mask .................] = 0x3ff
--------fn -[DebugStop ..................]
```

# CHAPTER 7

## Uninstalling

**Note:** There is no separate Dialogic® Diva® softSS7 software uninstaller provided. The software is uninstalled together with the Dialogic® Diva® System Release software.

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

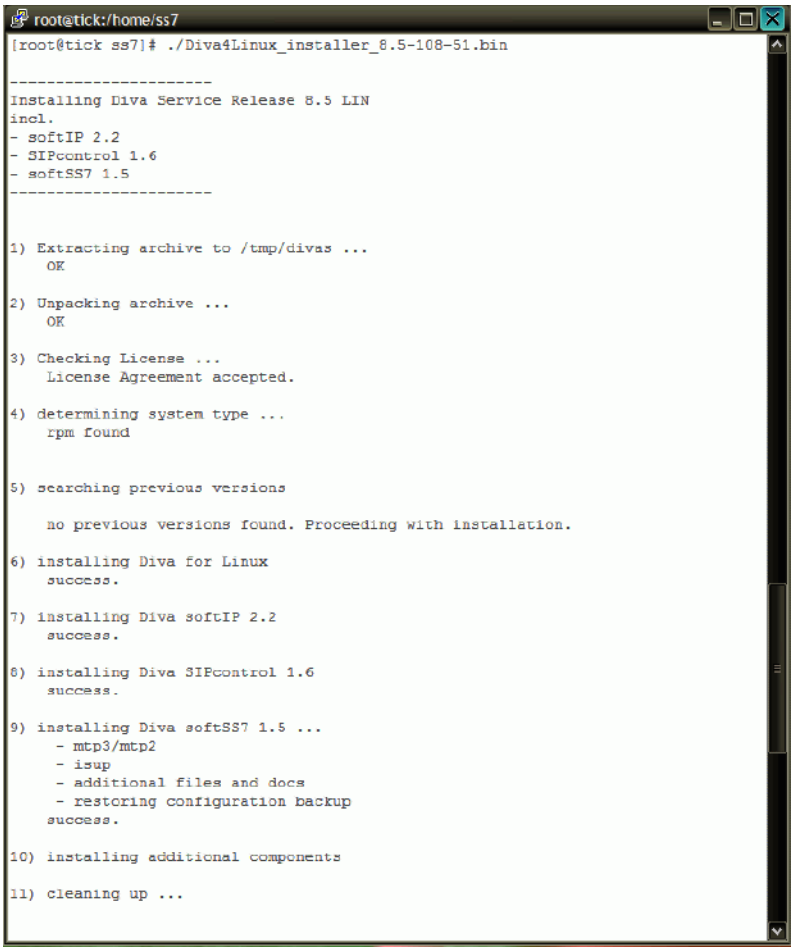
1. Open a terminal and go to `/usr/lib/opendiva/divas` and change the file Diva4Linux_uninstaller.sh to an executable
   `# chmod a+x Diva4Linux_uninstaller.sh`.
2. Stop the Dialogic® Diva® driver with `# ./Stop`
3. Execute the script `Diva4Linux_uninstaller.sh`. While executing the script you will be asked:
   - If you would like to uninstall the Dialogic® Diva® SoftIP software, the Dialogic® Diva® SIPcontrol™ software (when these products are installed). Answer **No** if you do not want to uninstall these products or press **Yes** to confirm that you want to remove these software products.
   - If you want to uninstall the Diva softSS7 software, press **Yes** to confirm.
   - For the Dialogic® Diva® System Release software, answer **NO** if you do not want to uninstall or press **Yes** to confirm that you want to remove this software product.
4. The license files and configuration files are saved:
   - Diva softSS7 software binaries are removed and license and the configuration files are copied to: `/usr/lib/opendiva/divas.ss7`

     `DSC71000_**********_*******.lic`

     `divaSS7.cfg.rpmsave`
   - Dialogic® Diva® Media Board licenses are saved in `/usr/lib/opendiva/licenses.saved.by.divas4linux`
   - Dialogic® Diva® Media Board configuration is copied to `/usr/lib/opendiva/divas_cfg.rc.saved.by.divas4linux`
   - Dialogic® Diva® softIP software configuration and licenses are saved in `/usr/lib/opendiva/diva.softip`
   - Dialogic® Diva® SIPcontrol™ software configuration and licenses are saved in `/usr/lib/opendiva/diva.sipcontrol`
5. If you decide to reinstall the software, these files will be restored.

Your Diva softSS7 software is now removed.

You can also use the above procedure for upgrades. When you install your new Diva softSS7 software, the backup license file and the Dialogic® Diva® softSS7 configuration files are automatically copied back as shown in the graphic below.



# CHAPTER 8

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

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

**Note:** When contacting support, you will be asked to provide traces of your Dialogic® Diva® softSS7 software application as well as of the CAPI and the Dialogic® Diva® Media Board. For more information, see Tracing on page 25.

# 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

The Appendix provides examples and explanations of the default Dialogic® Diva® softSS7 software configuration file (divaSS7.cfg).

```
#-------------------------------------------------------------------------------
# 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
#      Ist 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
#      Ist 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
#-------------------------------------------------------------------------------
#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
#    Ist 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
#      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
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:

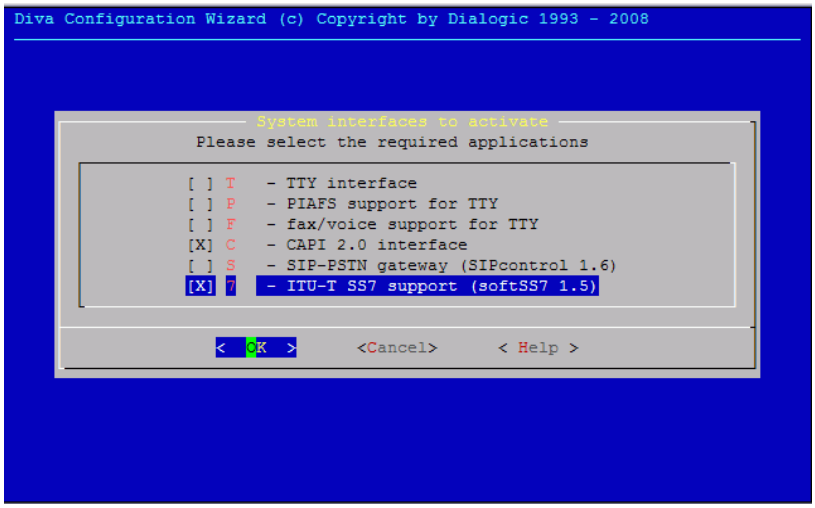
```
#-------------------------------------------------------------------------------
# STACK_STANDARD_TYPE : Specifies the variant of the stack
# ITU= 1, ETSI=2
#-------------------------------------------------------------------------------
STACK_STANDARD_TYPE             1
#-------------------------------------------------------------------------------
# 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
```

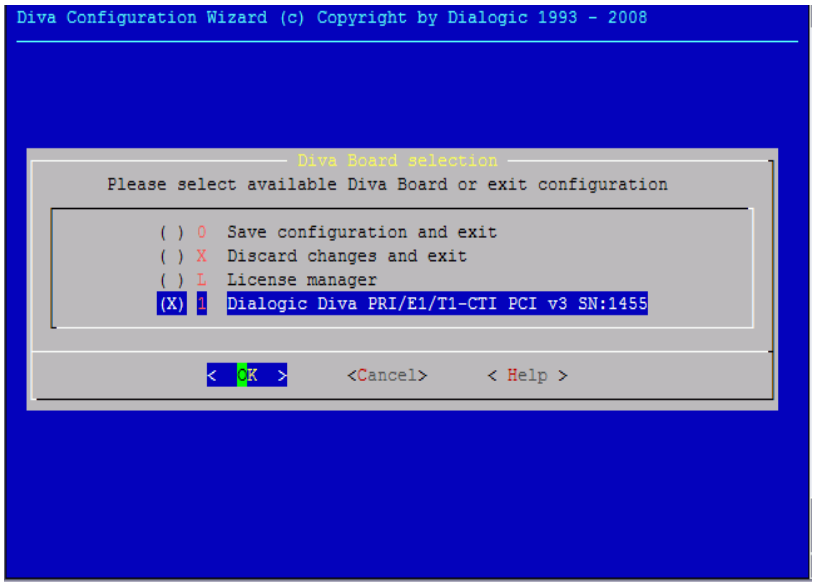
```
CONTROLLER_CONFIG_START
1               local      A   1001
2               local      A   1084
CONTROLLER_CONFIG_END

#-------------------------------------------------------------------------------
#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
#-------------------------------------------------------------------------------
```

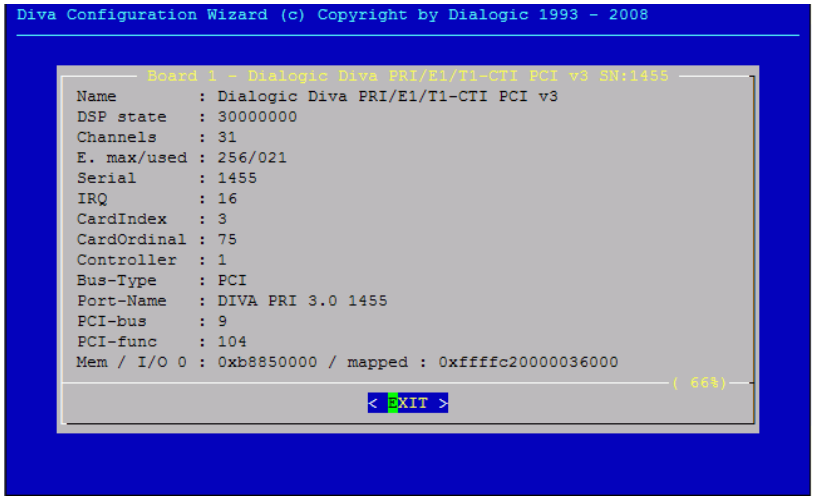
```
#-------------------------------------------------------------------------------
#MTP3_PROVISIONING
#-------------------------------------------------------------------------------
MTP3_SELF_POINT_CODE_START
# PC: Self Point Code
# Type:  Primary PC = 81, SECONDARY = 82 CAPABILITY CODE =83
# Point 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
#    Ist 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
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
#      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
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
#-------------------------------------------------------------------------------
```

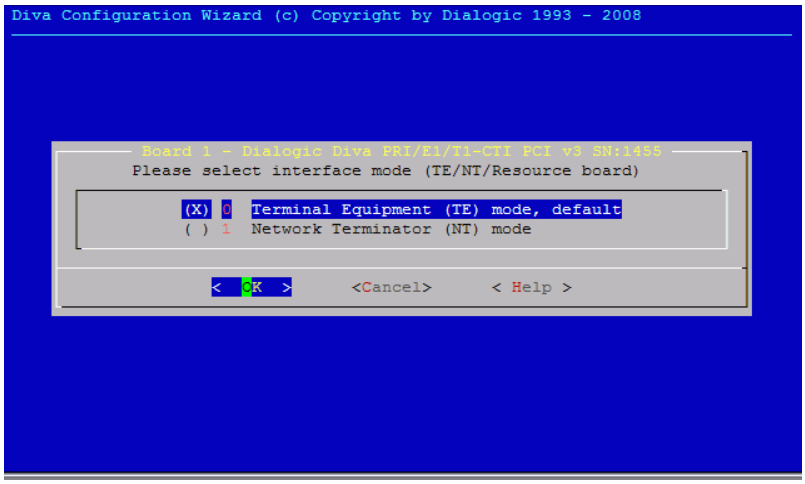
```
# Configuration of MTP2 links:
#
# MTP2_LOG_LINK_ID - MTP2 Link Id
# MTP2_ID          - MTP2 Id
# MTP2_CONTROLLER  - identifies the controller on which the link is set up
#                    (log-controller number)
# MTP2_TIMESLOT    - defines the timeslot of the link
# MTP2_MODE        - defines 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
#-------------------------------------------------------------------------------
```

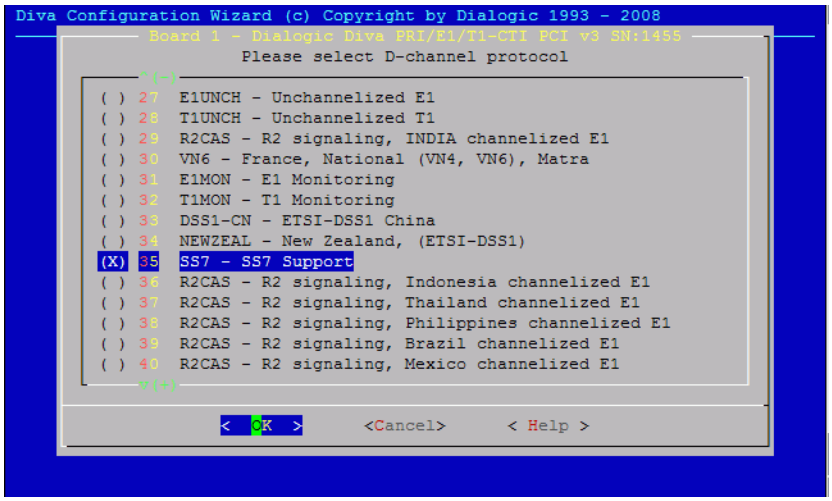
### Dialogic® Diva® Configuration Wizard settings for the Dialogic® Diva® softSS7 software

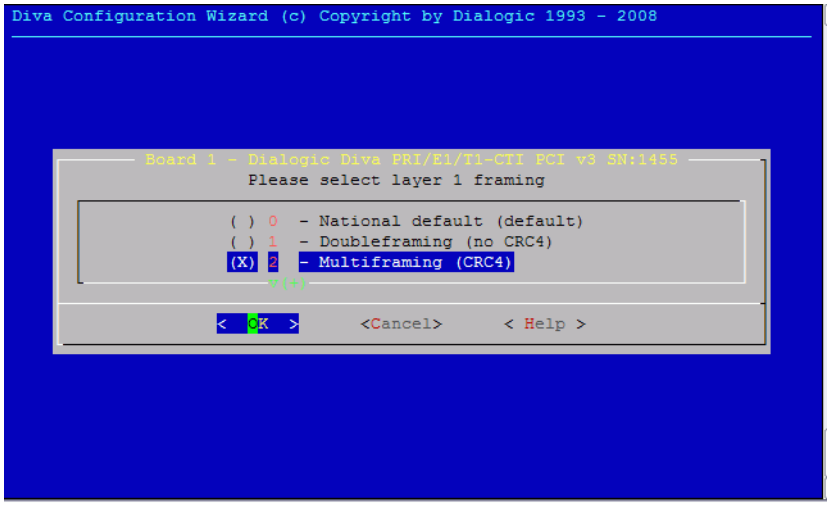


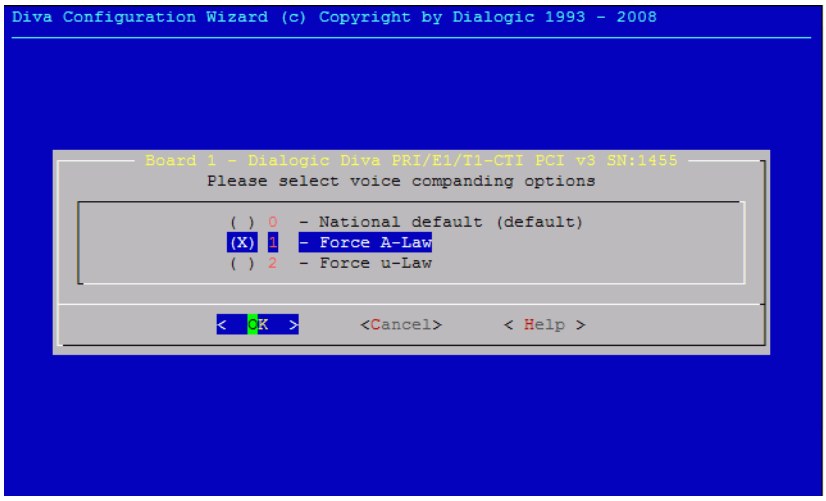



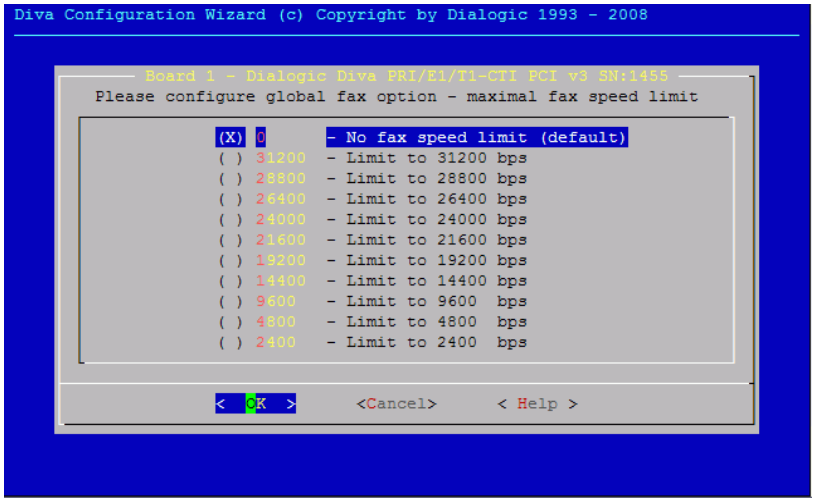

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Name : Dialogic Diva PRI/E1/T1-CTI PCI v3
DSP state : 30000000
Channels : 31
E. max/used : 256/021
Serial : 1455
IRQ : 16
CardIndex : 3
CardOrdinal : 75
Controller : 1
Bus-Type : PCI
Port-Name : DIVA PRI 3.0 1455
PCI-bus : 9
PCI-func : 104
Mem / I/O 0 : 0xb8850000 / mapped : 0xffffc20000036000
( 66%)
< EXIT >

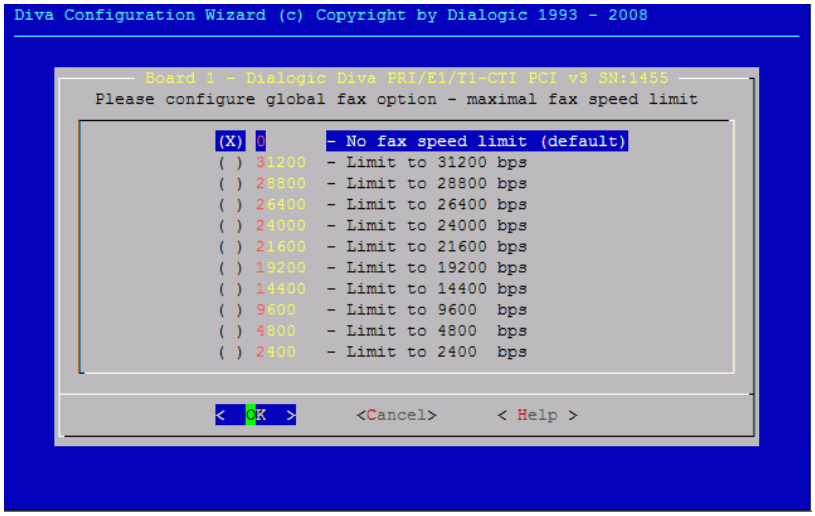

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please select interface mode (TE/NT/Resource board)
(X) 0 Terminal Equipment (TE) mode, default
( ) 1 Network Terminator (NT) mode
< OK > <Cancel> < Help >

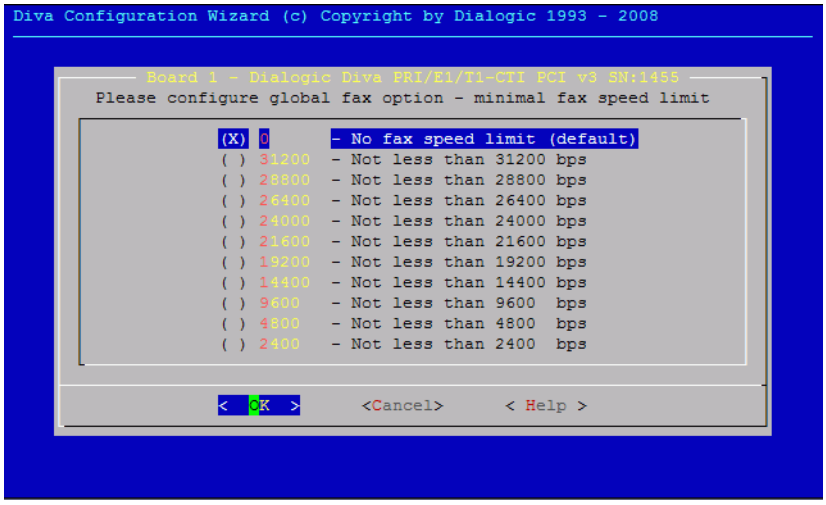

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please select D-channel protocol
( ) 27 E1UNCH - Unchannelized E1
( ) 28 T1UNCH - Unchannelized T1
( ) 29 R2CAS - R2 signaling, INDIA channelized E1
( ) 30 VN6 - France, National (VN4, VN6), Matra
( ) 31 E1MON - E1 Monitoring
( ) 32 T1MON - T1 Monitoring
( ) 33 DSS1-CN - ETSI-DSS1 China
( ) 34 NEWZEAL - New Zealand, (ETSI-DSS1)
(X) 35 SS7 - SS7 Support
( ) 36 R2CAS - R2 signaling, Indonesia channelized E1
( ) 37 R2CAS - R2 signaling, Thailand channelized E1
( ) 38 R2CAS - R2 signaling, Philippines channelized E1
( ) 39 R2CAS - R2 signaling, Brazil channelized E1
( ) 40 R2CAS - R2 signaling, Mexico channelized E1
< OK > <Cancel> < Help >

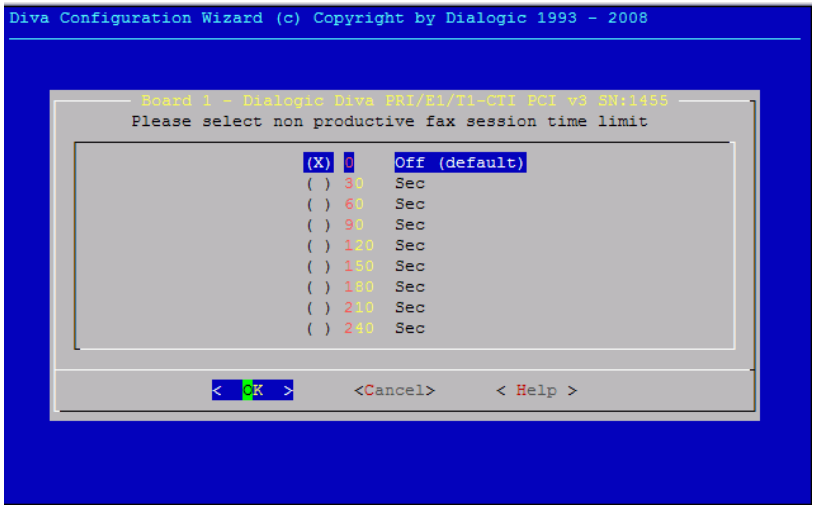

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please select layer 1 framing
( ) 0 - National default (default)
( ) 1 - Doubleframing (no CRC4)
(X) 2 - Multiframing (CRC4)
< OK >
<Cancel>
< Help >

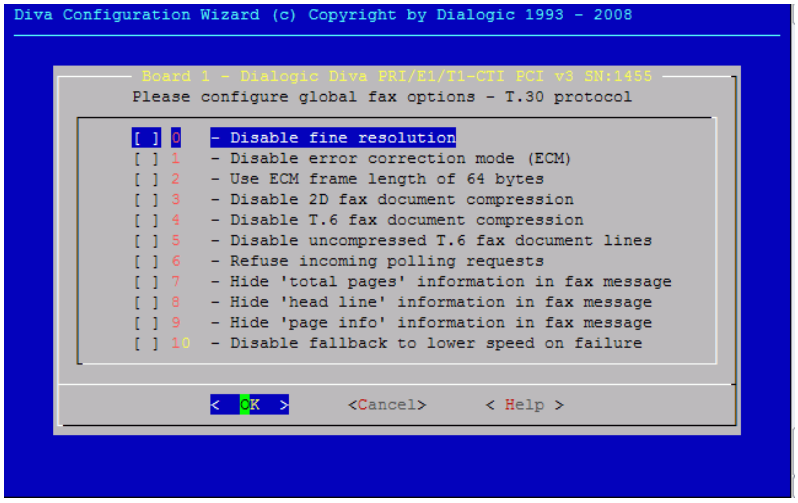

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please select voice companding options
( ) 0 - National default (default)
(X) 1 - Force A-Law
( ) 2 - Force u-Law
< OK >
<Cancel>
< Help >

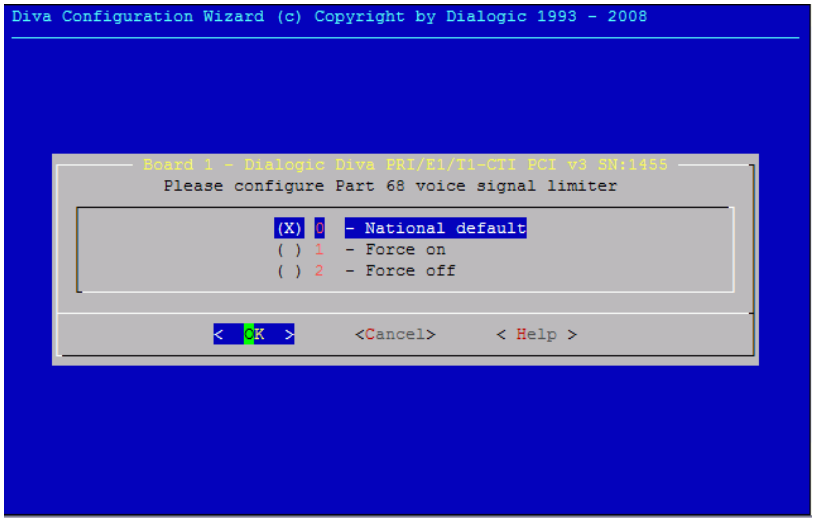

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please configure global fax option - maximal fax speed limit
(X) 0 - No fax speed limit (default)
( ) 31200 - Limit to 31200 bps
( ) 28800 - Limit to 28800 bps
( ) 26400 - Limit to 26400 bps
( ) 24000 - Limit to 24000 bps
( ) 21600 - Limit to 21600 bps
( ) 19200 - Limit to 19200 bps
( ) 14400 - Limit to 14400 bps
( ) 9600 - Limit to 9600 bps
( ) 4800 - Limit to 4800 bps
( ) 2400 - Limit to 2400 bps
< OK >
<Cancel>
< Help >

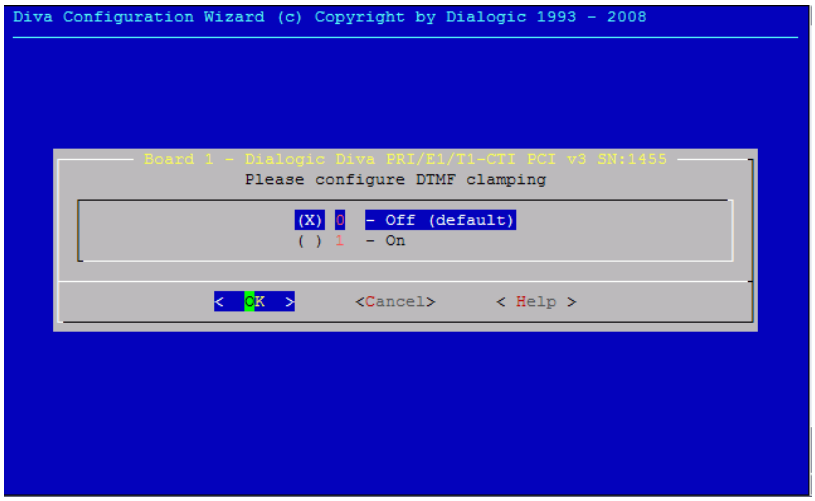

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please configure global fax option - maximal fax speed limit
(X) 0 - No fax speed limit (default)
( ) 31200 - Limit to 31200 bps
( ) 28800 - Limit to 28800 bps
( ) 26400 - Limit to 26400 bps
( ) 24000 - Limit to 24000 bps
( ) 21600 - Limit to 21600 bps
( ) 19200 - Limit to 19200 bps
( ) 14400 - Limit to 14400 bps
( ) 9600 - Limit to 9600 bps
( ) 4800 - Limit to 4800 bps
( ) 2400 - Limit to 2400 bps
< OK >
<Cancel>
< Help >

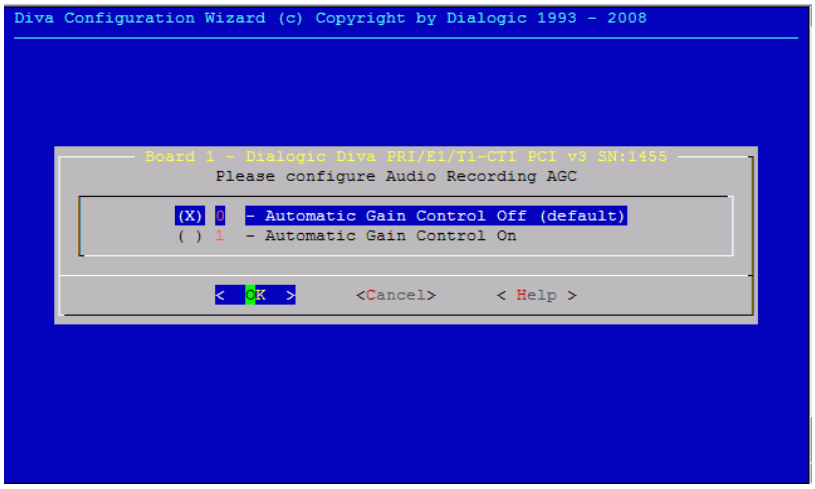

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please configure global fax option - minimal fax speed limit
(X) 0 - No fax speed limit (default)
( ) 31200 - Not less than 31200 bps
( ) 28800 - Not less than 28800 bps
( ) 26400 - Not less than 26400 bps
( ) 24000 - Not less than 24000 bps
( ) 21600 - Not less than 21600 bps
( ) 19200 - Not less than 19200 bps
( ) 14400 - Not less than 14400 bps
( ) 9600 - Not less than 9600 bps
( ) 4800 - Not less than 4800 bps
( ) 2400 - Not less than 2400 bps
< OK >
<Cancel>
< Help >

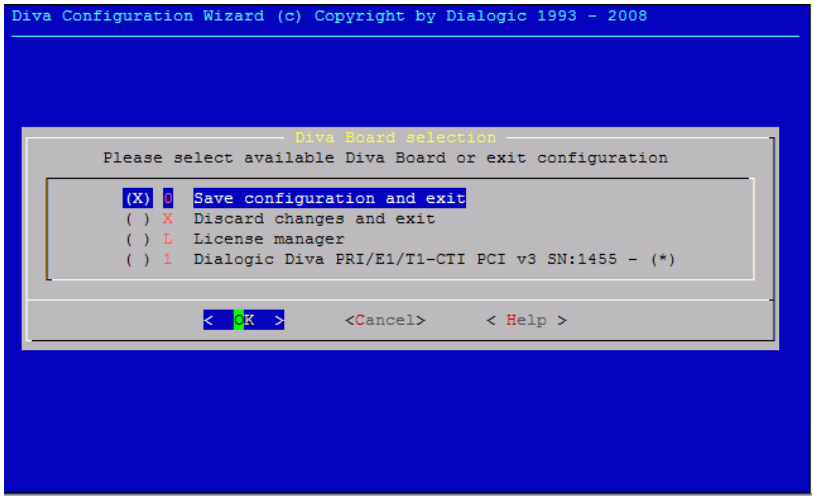

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please select non productive fax session time limit
(X) 0 Off (default)
( ) 30 Sec
( ) 60 Sec
( ) 90 Sec
( ) 120 Sec
( ) 150 Sec
( ) 180 Sec
( ) 210 Sec
( ) 240 Sec
< OK >
<Cancel>
< Help >

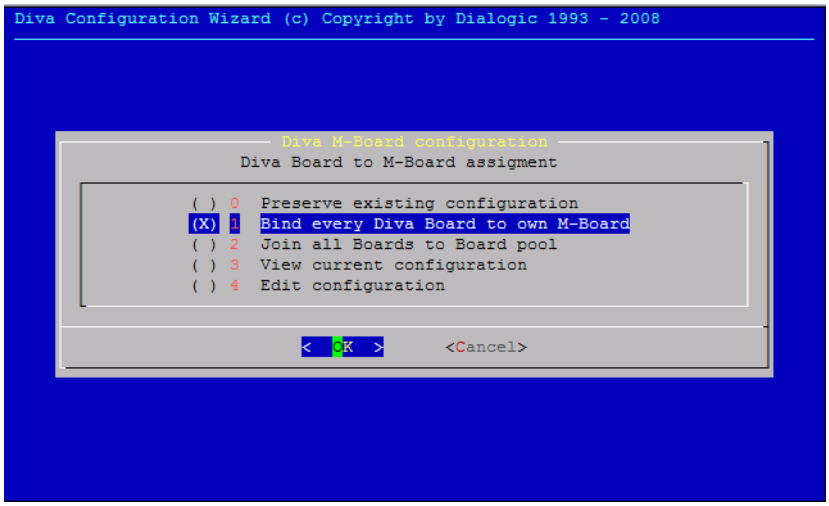

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please configure global fax options - T.30 protocol
[ ] 0 - Disable fine resolution
[ ] 1 - Disable error correction mode (ECM)
[ ] 2 - Use ECM frame length of 64 bytes
[ ] 3 - Disable 2D fax document compression
[ ] 4 - Disable T.6 fax document compression
[ ] 5 - Disable uncompressed T.6 fax document lines
[ ] 6 - Refuse incoming polling requests
[ ] 7 - Hide 'total pages' information in fax message
[ ] 8 - Hide 'head line' information in fax message
[ ] 9 - Hide 'page info' information in fax message
[ ] 10 - Disable fallback to lower speed on failure
< OK >
<Cancel>
< Help >

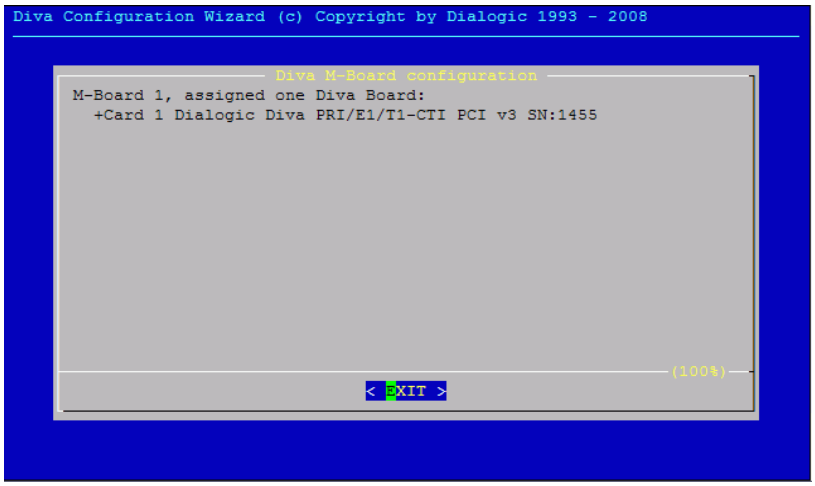

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please configure Part 68 voice signal limiter
(X) 0 - National default
( ) 1 - Force on
( ) 2 - Force off
< OK >
<Cancel>
< Help >

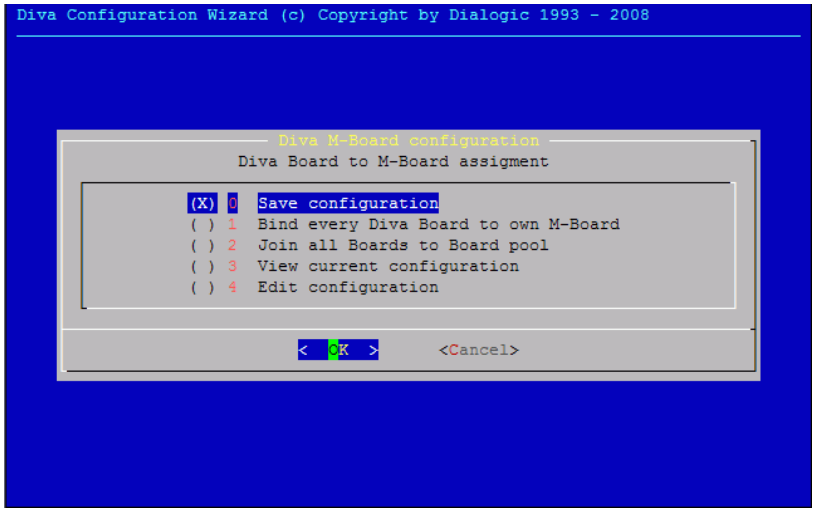

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please configure DTMF clamping
(X) 0 - Off (default)
( ) 1 - On
< OK >
<Cancel>
< Help >

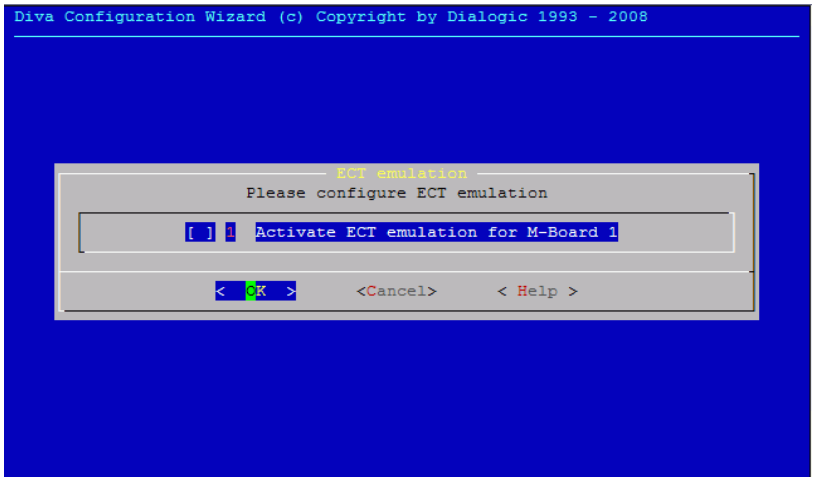

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Board 1 - Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
Please configure Audio Recording AGC
(X) 0 - Automatic Gain Control Off (default)
( ) 1 - Automatic Gain Control On
< OK >
<Cancel>
< Help >

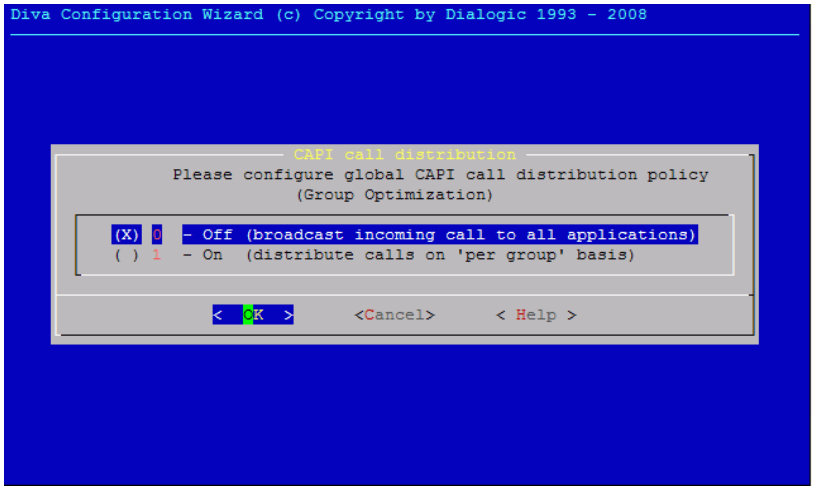

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Diva Board selection
Please select available Diva Board or exit configuration
(X) 0 Save configuration and exit
( ) X Discard changes and exit
( ) L License manager
( ) 1 Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455 - (*)
< OK >
<Cancel>
< Help >

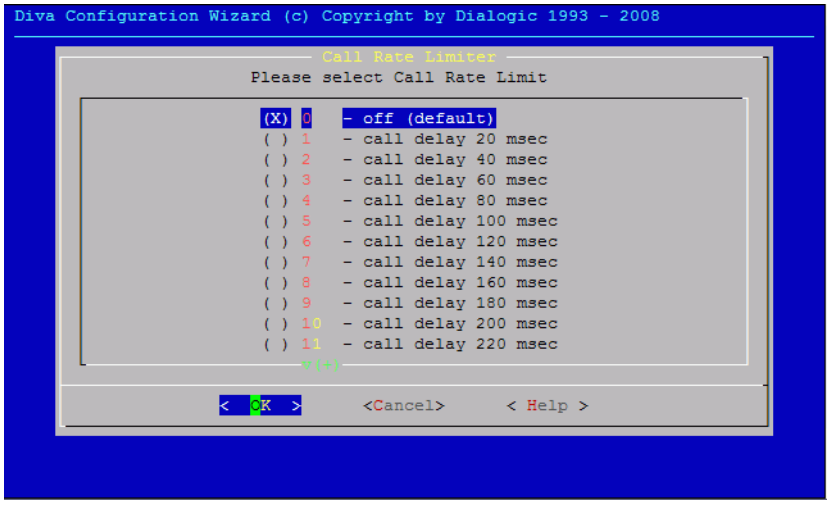

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Diva M-Board configuration
Diva Board to M-Board assigment
( ) 0 Preserve existing configuration
(X) 1 Bind every Diva Board to own M-Board
( ) 2 Join all Boards to Board pool
( ) 3 View current configuration
( ) 4 Edit configuration
< OK >
<Cancel>

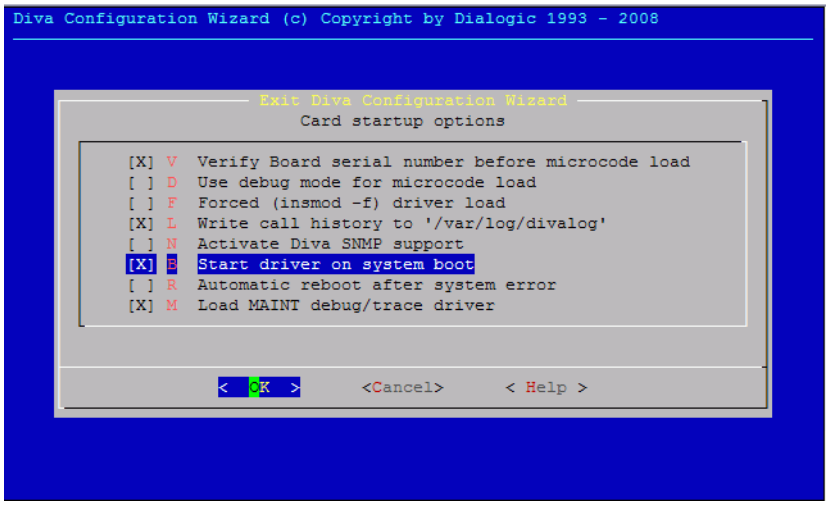

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Diva M-Board configuration
M-Board 1, assigned one Diva Board:
+Card 1 Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455
(100%)
< EXIT >

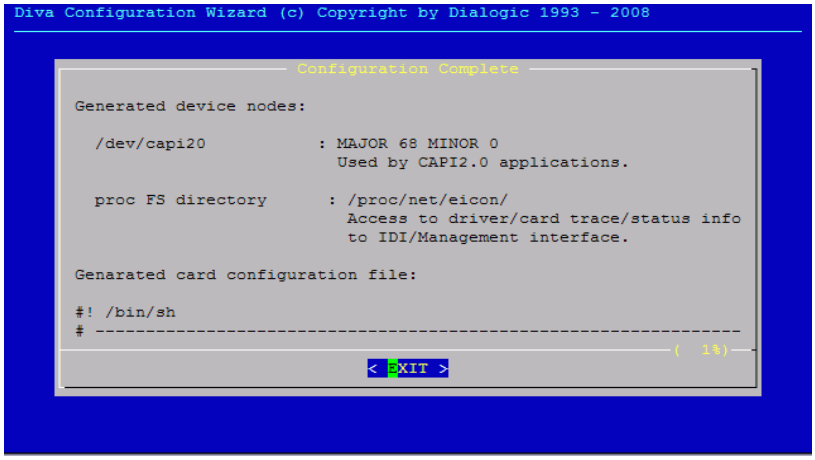

Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Diva M-Board configuration
Diva Board to M-Board assigment
(X) 0 Save configuration
( ) 1 Bind every Diva Board to own M-Board
( ) 2 Join all Boards to Board pool
( ) 3 View current configuration
( ) 4 Edit configuration
< OK >
<Cancel>


Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
ECT emulation
Please configure ECT emulation
[ ] 1 Activate ECT emulation for M-Board 1
< OK >
<Cancel>
< Help >


Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
CAPI call distribution
Please configure global CAPI call distribution policy
(Group Optimization)
(X) 0 - Off (broadcast incoming call to all applications)
( ) 1 - On (distribute calls on 'per group' basis)
< OK >
<Cancel>
< Help >


Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Call Rate Limiter
Please select Call Rate Limit
(X) 0 - off (default)
( ) 1 - call delay 20 msec
( ) 2 - call delay 40 msec
( ) 3 - call delay 60 msec
( ) 4 - call delay 80 msec
( ) 5 - call delay 100 msec
( ) 6 - call delay 120 msec
( ) 7 - call delay 140 msec
( ) 8 - call delay 160 msec
( ) 9 - call delay 180 msec
( ) 10 - call delay 200 msec
( ) 11 - call delay 220 msec
< OK >
<Cancel>
< Help >


Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Exit Diva Configuration Wizard
Card startup options
[X] V Verify Board serial number before microcode load
[ ] D Use debug mode for microcode load
[ ] F Forced (insmod -f) driver load
[X] L Write call history to '/var/log/divalog'
[ ] N Activate Diva SNMP support
[X] B Start driver on system boot
[ ] R Automatic reboot after system error
[X] M Load MAINT debug/trace driver
< OK >
<Cancel>
< Help >


Diva Configuration Wizard (c) Copyright by Dialogic 1993 - 2008
Configuration Complete
Generated device nodes:
/dev/capi20 : MAJOR 68 MINOR 0
Used by CAPI2.0 applications.
proc FS directory : /proc/net/eicon/
Access to driver/card trace/status info
to IDI/Management interface.
Genarated card configuration file:
#! /bin/sh
# ----------
( 1%)
< EXIT >

```
Update CFGLib information ... succeeded
Load Diva MAINT debug/trace driver ... OK
Check Diva configuration ... succeeded, look for changes now

  Successfully updated configuration of Diva M-Adapter driver
 Please RESTART Dialogic Diva PRI/E1/T1-CTI PCI v3 SN:1455 to activate new confi
guration
  Successfully updated configuration of Diva TTY driver
  Successfully updated configuration of Diva CAPI driver
```

### 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 Modifiaction Request |
| CMRJ | 1E | Call Modification Reject |
| CON | 07 | Connect |
| COT | 05 | Continuity |
| CPG | 2C | Call Progress |
| CQM | 2A | Circuit Group Query |
| CQR | 2B | Ciruit Group Query Response |
| CRG | 31 | Charge Information |
| DRS | 27 | Delayed Information |
| FAA | 21 | Facility Accepted |
| FAR | 21 | Facility Request |
| FOT | 08 | Forward Transfer |
| FRJ | 1F | Facility Reject |
| GRA | 17 | Circuit Grout 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 Achknowledgement |
| UBL | 14 | Unblocking |
| UCIC | 2E | Unequipped Circuit Identification Code |
| USR | 2D | User to User Information |
| | 0A | Reserved |
| Type | Code | ISUP Message Type |
| | 0B | Reserved |
| | 0F | Reserved |
| | 22 | Reserved |
| | 23 | Reserved |
| | 25 | Reserved |
| | 26 | Reserved |