Dialogic® DSI Protocol Stacks
User Guide: Running DSI User Parts Over Dialogic® TX Series SS7 Boards
Copyright and Legal Notice

Copyright © 2009-2010 Dialogic Corporation. All Rights Reserved. You may not reproduce this document in whole or in part without permission in writing from Dialogic Corporation at the address provided below.

All contents of this document are furnished for informational use only and are subject to change without notice and do not represent a commitment on the part of Dialogic Corporation or its subsidiaries ("Dialogic"). Reasonable effort is made to ensure the accuracy of the information contained in the document. However, Dialogic does not warrant the accuracy of this information and cannot accept responsibility for errors, inaccuracies or omissions that may be contained in this document.

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH DIALOGIC® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN A SIGNED AGREEMENT BETWEEN YOU AND DIALOGIC, DIALOGIC ASSUMES NO LIABILITY WHATSOEVER, AND DIALOGIC DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF DIALOGIC PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT OF A THIRD PARTY.

Dialogic products are not intended for use in medical, life saving, life sustaining, critical control or safety systems, or in nuclear facility applications.

Due to differing national regulations and approval requirements, certain Dialogic products may be suitable for use only in specific countries, and thus may not function properly in other countries. You are responsible for ensuring that your use of such products occurs only in the countries where such use is suitable. For information on specific products, contact Dialogic Corporation at the address indicated below or on the web at www.dialogic.com.

It is possible that the use or implementation of any one of the concepts, applications, or ideas described in this document, in marketing collateral produced by or on web pages maintained by Dialogic may infringe one or more patents or other intellectual property rights owned by third parties. Dialogic does not provide any intellectual property licenses with the sale of Dialogic products other than a license to use such product in accordance with intellectual property owned or validly licensed by Dialogic and no such licenses are provided except pursuant to a signed agreement with Dialogic. More detailed information about such intellectual property is available from Dialogic's legal department at 9800 Cavendish Blvd., 5th Floor, Montreal, Quebec, Canada H4M 2V9. Dialogic encourages all users of its products to procure all necessary intellectual property licenses required to implement any concepts or applications and does not condone or encourage any intellectual property infringement and disclaims any responsibility related thereto. These intellectual property licenses may differ from country to country and it is the responsibility of those who develop the concepts or applications to be aware of and comply with different national license requirements.

Dialogic, Dialogic Pro, Brooktrout, Diva, Diva ISDN, Making Innovation Thrive, Video is the New Voice, DiaStar, Cantata, TruFax, SwitchKit, SnowShore, Eicon, Eicon Networks, NMS Communications, NMS (stylized), Eiconcard, SIPcontrol, TrustedVideo, Enet, EXS, Connecting to Growth, Fusion, Vision, PacketMedia, NaturalAccess, NaturalCallControl, NaturalConference, NaturalFax and Shiva, among others as well as related logos, are either registered trademarks or trademarks of Dialogic Corporation or its subsidiaries. Dialogic’s trademarks may be used publicly only with permission from Dialogic. Such permission may only be granted by Dialogic’s legal department at 9800 Cavendish Blvd., 5th Floor, Montreal, Quebec, Canada H4M 2V9. Any authorized use of Dialogic’s trademarks will be subject to full respect of the trademark guidelines published by Dialogic from time to time and any use of Dialogic’s trademarks requires proper acknowledgement.

Windows, Windows Server, and Windows Vista are registered trademarks of Microsoft Corporation in the United States and/or other countries. Other names of actual companies and products mentioned herein are the trademarks of their respective owners.

Any use case(s) shown and/or described herein represent one or more examples of the various ways, scenarios or environments in which Dialogic products can be used. Such use case(s) are non-limiting and do not represent recommendations of Dialogic as to whether or how to use Dialogic products.

Publication Date: February 2010

Document Number: U03DPK02, Issue 2
Contents

Revision History ................................................................. 4

1 Overview ............................................................................... 5
  1.1 Related Documentation .................................................. 5
  1.2 Scope ............................................................................. 5

2 Usage .................................................................................. 6
  2.1 Description ....................................................................... 6
  2.2 Configuration .................................................................... 7

3 Compatibility ....................................................................... 8

4 Installation .......................................................................... 9
  4.1 Dialogic® NaturalAccess™ Software Development Package Installation ........................................ 9
  4.2 Dialogic® NaturalAccess™ Signaling Software Installation ............................................................... 9
  4.3 Dialogic® DSI Development Package Installation ........................................................................... 9
  4.4 Dialogic® DSI Protocol Stacks Installation .................................................................................... 9
  4.5 Dialogic® DSI TXA Binary Installation ......................................................................................... 9

5 TXA Operation .................................................................... 10
  5.1 Description ....................................................................... 10
  5.2 Syntax ............................................................................... 10
  5.3 Command Line Options .................................................... 10
  5.4 Example ............................................................................ 11

Figures

Figure 1. Dialogic® DSI Protocol Stacks and Dialogic® NaturalAccess™ ISUP Layer Running on the Same Board. ........................................ 6
### Revision History

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>02-Feb-10</td>
<td>Clarification to Solaris (SPARC) installation.</td>
</tr>
<tr>
<td>1</td>
<td>02-Oct-09</td>
<td>Initial Release</td>
</tr>
</tbody>
</table>

**Note:** The current version of this User Guide can be found at: [http://www.dialogic.com/support/helpweb/signaling](http://www.dialogic.com/support/helpweb/signaling)
1 Overview

To expand the capabilities of existing deployments in the field, the Dialogic® DSI host-based SS7 User Part protocols have been made available to the users of the Dialogic® TX Series SS7 Boards (referred to herein as “TX Series” or “TX Series board”).

This increases the range of protocol stacks available to the TX Series user (in particular, the transaction-based protocols running above SCCP, which include the MAP, TCAP, ANSI-41, INAP and CAMEL V1-V4 offerings) and when combined with the ability to run these protocols on the host (with full access to the host’s resources / abilities) expands the range of applications a TX Series board can undertake using Dialogic products.

This is accomplished by the use of the TXA software module, which provides an adaption layer between the Dialogic® DSI Protocol Stacks and the TX Series MTP3 protocol running on the board enabling a DSI Protocol interfacing to MTP3 to be run on the host above the TX Series board while allowing ISUP to (optionally) still run on the board. The TX Series board continues to be configured using the existing interface, and the DSI Protocols are configured using config.txt or the DSI message-based interface.

1.1 Related Documentation

- TX 4000 Installation Manual 62334-14
- TX 4000C Installation Manual 62376-13
- NMS SS7 Configuration Manual 6464-28
- SS7 Health Management Developer’s Reference Manual 6689-17
- TX Utilities Manual 6437-19
- NMS MTP 3 Developer’s Reference Manual 6465-24
- Dialogic® Distributed Signaling Interface Components - Software Environment Programmer’s Manual – U10SSS

Current software and documentation supporting Dialogic® products is available at

http://www.dialogic.com/support/helpweb/signaling

1.2 Scope

This document describes the usage of the TXA software module, which allows the use of the Dialogic® DSI Protocol Stacks above Dialogic® TX Series SS7 Boards (TX4000, TX4000C and TX5000E).

It provides an overview of system configuration and gives details of other configuration commands which must be used.
2 Usage

2.1 Description

The TXA software module provides an adaption layer between the APIs of the DSI user part modules and the TX Series MTP3 layer.

The diagram below illustrates an example of a system where a current user ISUP application has been supplemented by the addition of two DSI user parts each running above a separate instance of the TXA software module.

![Diagram showing DSI Protocol Stacks and NaturalAccess ISUP Layer](image)

Figure 1. Dialogic® DSI Protocol Stacks and Dialogic® NaturalAccess™ ISUP Layer Running on the Same Board.
2.2 Configuration

The TX Series MTP2 / MTP3 and user parts are invoked and configured via the standard TX Series configuration files and utilities, e.g., ss7load, MTP3cfg1.txt etc.

The DSI user parts are invoked via the standard DSI gctload and system.txt files and configured via s7_mgt utility (and config.txt) or via the MSG configuration interface.

The TXA module is invoked and configured via system.txt using a command line interface (see section 5).
3 Compatibility

The TXA software module is compatible with Dialogic® NaturalAccess™ Signaling Software R5.1 or later, and it will work with the Linux, SPARC Solaris and Windows® Operating Systems supported by Dialogic® NaturalAccess™ R8.1 Development Software or later.
4 Installation

The TXA software module is used in an environment where the Dialogic® NaturalAccess™ Development and Signaling Software, the Dialogic® DSI Development Package and the relevant Dialogic® DSI User Parts are installed.

4.1 Dialogic® NaturalAccess™ Software Development Package Installation

Download the NaturalAccess Development Software for the appropriate operating system from


Install as per the installation instructions.

4.2 Dialogic® NaturalAccess™ Signaling Software Installation

Download the NaturalAccess Signaling Software package for the appropriate operating system from

http://www.dialogic.com/products/signalingip_ss7components/download/tx-5000.htm

Install as per the installation instructions.

Note: For Solaris (SPARC) installations the Signaling Software for SPARC Solaris(mixed mode) package is required.

4.3 Dialogic® DSI Development Package Installation

Download the DSI SS7 Development Package for the appropriate operating system from


Install as per the installation instructions.

4.4 Dialogic® DSI Protocol Stacks Installation

Download the required DSI Protocol Stacks for the appropriate operating system from


Install as per the installation instructions.

4.5 Dialogic® DSI TXA Binary Installation

The standalone TXA binary, which is one of the files distributed and installed as part of the Dialogic® DSI Development Package, should be configured as detailed in section 5.
5 TXA Operation

5.1 Description
The TXA software module provides the interface between the DSI messaging environment (GCT) and the TX Series environment (CPI). For details on the GCT environment refer to Dialogic® Distributed Signaling Interface Components - Software Environment Programmer's Manual – U10SSS.

5.2 Syntax
```
txa -mup=<user_mod_id> -var=<variant> -sio=<sio> [-m=<mod_id> -bid=<board_id> -nsap=<nsap> -ch=<channel> -mmgt=<mgmt_mod_id>]
```

5.3 Command Line Options
The TXA software module supports the following command line options:
- **-mup=<user module ID>**
  Specifies the GCT module identifier of the associated user part process. This parameter is mandatory.
- **-var=<variant>**
  Specifies the MTP3 protocol variant (and pointcode size) to be used by the user part. The valid variants are: ITU14, ANSI, ANSI88, JNTT, JTCC, ITU24 This parameter is mandatory.
- **-sio=<signaling information octet>**
  The signaling information octet field of the user part. This parameter is mandatory.
- **-m=<module ID>**
  Specifies the unique module identifier assigned to TXA for the GCT interprocess communication (IPC) environment. A message sent to this module ID will be converted into the corresponding TX Series primitive and passed to the TX Series board. The module ID must have a corresponding LOCAL entry in the hosts system.txt file and must not be in use by any other process on the host.
- **-bid=<board id>**
  The CP number of the TX Series board as reported by the txcpcfg utility.
- **-nsap=<network service access point>**
  The NSAP the TXA instance uses to connect to the network. See the NSAP parameter of the TX Series MTP3 configuration file.
-ch=<CPI channel>

The CPI entity ID TXA uses to communicate with the TX Series board. Application reserved entity IDs are in the range 0x20 to 0x7f and must be unique within the system.

-mmgt=<module ID>

GCT module ID of the management module.

5.4 Example

To interface the DSI SCCP user part (running as module 0x33) to the second TX Series board in a system, using an entity ID of 0x20 using the NATIONAL ANSI MTP3 protocol variant, the following line can be placed in the system.txt file:

FORK_PROCESS ./txa -mup=0x33 -var=ANSI -sio=0x83 -m=0x22 -bid=2 -nsap=1

The user part may then be configured using either using the s7_mgt utility or via messages.