

dsnet Overview

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Table of Contents

About This Manual	v
Changes Since Last Release	v
Related Documentation	v
Typographic Conventions	v
Developer Support	v
Overview	1
Installation	2
Common Options for the Various Clients	3
dsreset	4
dsedb - Debugger for EE	5
dsedb - Debugger for IOP	7
dsecons and dsicons	8
dsefilesv and dsifilesv	9
dsistart	10
dsilist	11
Boot Parameters	12

About This Manual

This is the Runtime Library Release 2.4.3 version of the *dsnet Overview* manual.

It describes the dsnet package, which contains a debugger, driver, manager, and other components for controlling a target (DTL-T10000).

Changes Since Last Release

- In "Boot Parameters ", the following descriptions have been added:

EE boot parameter	Description for bit6
IOP boot parameter	Description for bit6

Related Documentation

The "dsedb/dsidb Command Reference" provides detailed information regarding dsedb and dsidb commands and options.

Note: the Developer Support Web site posts current developments regarding documentation and also provides notice of future documentation releases and upgrades.

Typographic Conventions

Certain Typographic Conventions are used throughout this manual to clarify the meaning of the text:

Convention	Meaning
<code>courier</code>	Indicates literal program code.
<i>italic</i>	Indicates names of arguments and structure members (in structure/function definitions only).
medium bold	Indicates data types and structure/function names (in structure/function definitions only).
blue	Indicates a hyperlink.

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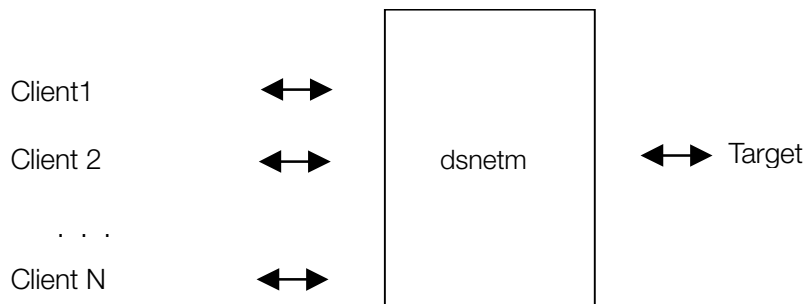
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Overview

dsnet is a package containing a debugger, driver, manager, and other components for controlling a target (DTL-T10000/DTL-T10000H).

The dsnet package implements various types of functions using dsnetm, which manages data transfers to and from the target, and client programs such as the debugger. The following figure shows the relationship between dsnetm, client, and the target.

Figure 1



Sockets are used for exchanging data between clients and dsnetm. Device files are used for direct data exchanges between dsnetm and the target.

Installation

If this package is installed correctly, the following files should be available under /usr/local/sce/bin.

Table 1

Command	Function
mrp	device driver loading script
dsnetm	dsnet manager
dsmcons	dsnet manager console
dsreset	reset client
dsstat	status client
dskill	kill client
dssim	dsnet simulator
dscomp	Communication port console
dsedb	EE debugger
dsecons	EE console server
dsefilesv	EE file server
dseping	EE ping client
dsidb	IOP debugger
dsicons	IOP console server
dsifilesv	IOP file server
dsiping	IOP ping client
dsflash	flash ROM update script
dsistart	IOP module start client
dsilist	IOP module list client

Common Options for the Various Clients

The -d option, which is common to the various client programs, is explained below.

Table 2

-d Option	Host Name	Port Number
-d <host>	<host>	8510
-d <host>[/<port_offset>]	<host>	8510 + <port_offset>
-d <host>[:<port>]	<host>	<port>
-d /<port_offset>	default-host	8510 + <port_offset>
-d :<port>	default-host	<port>
-d <host>[:+<port_offset>](*)	<host>	8510 + <port_offset>
-d :+<port_offset>(*)	default-host	8510 + <port_offset>

(*) This can be specified to maintain compatibility with previous versions.

The -d option is used to specify the host name and port of the dsnetm that is the communication destination.

If the -d option is not specified, the default port (8510) on the same machine (default_host) as the one where the client program was executed will be assumed.

dsreset

dsreset is a client program for resetting the entire target.

Execution Method

```
dsreset [-d <host>[:<port>]]
```

Option

Only the common option -d is available.

dsedb - Debugger for EE

dsedb is an instruction-level debugger, not an EE source-level debugger. It supports stdio and file access from the target. For more information about how to use dsedb, please refer to the "dsedb/dsidb Command Reference."

Execution Method

```
dsedb [<options>] <cmd> [<arg>]...
```

dsedb can also be directly executed by specifying the target program during startup such as:

```
dsedb run main.elf
```

Options

The main options of dsedb are shown below. Refer also to "6. dsedb Option Details" in the Command Reference.

Table 3

Option	Function
-d <host>[:<port>]	dsnetm host and port specification
-r	Reset target during startup
-nr	Do not reset target during startup
-nx	Do not execute autorun files during startup
-tex	Overwrite to enable target execution control
-ntex	Overwrite to disable target execution control
-ebootp <ebootp>	EE boot parameter initial value specification
-ibootp <ibootp>	IOP boot parameter initial value specification
-nokbd	Do not use keyboard when specifying <arg>...
-noexit	Do not exit when specifying <arg>...
-ncmv	Do not check version of manager
-p <port>	Remote console port specification

Usage Example

Normally, once dsedb is started, debugging is performed interactively as shown below.

```
$ dsedb -r           //Starts up debugger
...
dsedb S> help        //Displays command help
...
dsedb S> pload main.elf //Loads program
...
```

6 dsedb - Debugger for EE

```
dsedb S> bp main          //Sets breakpoint at main
dsedb S> run              //Executes program
...
at=00010000 v0=...
...
dsedb S> db 0x100000      //Dumps address 0x1000000
...
dsedb S> step             //Performs step execution
...
dsedb S> cont             //Performs continuous execution
... ^C                  //Forcibly interrupts execution with CTRL-C
dsedb S> dr               //Displays registers
dsedb S> reset            //Resets target
dsedb S> quit             //Quits dsedb
$
```

dsidb - Debugger for IOP

dsidb is a debugger that has the IOP as its target. Although dsidb is used in almost an identical manner as dsedb, some commands are unique to dsidb and others have different specifications because of differences between the EE and IOP.

Execution Method

```
dsidb [<options>] <cmd> [<arg>]...
```

dsecons and dsicons

dsecons and dsicons are console programs that serve as the destinations of TTY I/O from the target program. The default handling of TTY I/O for dsecons/dsicons is shown below.

TTY output (screen display)

- Display all ETTY in units of lines. (dsecons)
- Display all ITTY in units of lines. (dsicons)

TTY input (key input)

- Send key input using ETTY when a prompt does not display while run, cont are executing. (dsecons)
- Send key input using ITTY when a prompt does not display while mstart is executing. (dsicons)

It is necessary to use dsecons and dsicons when you want a display without line units or when you want key input other than ETTY(dsecons), ITTY(dsicons).

To use dsecons or dsicons and prohibit TTY I/O handling by dsecons or dsicons, set the following line in the dsecons startup file (~/.dseconsrc or ~/.dseconsrc) or the dsicons startup file (~/.dsiconsrc or ~/.dsiconsrc).

option tty_mask=0

Execution Method

- dsecons [-d <host>[:<port>]] [-e <escape>] -nokbd -ns [0-9k]...
- dsicons [-d <host>[:<port>]] [-e <escape>] -nokbd -ns [0-9k]...

Options

TTY supports the following 11 protocols each for the EE and for the IOP.

- ETTY, E1TTY, ..., E9TTY, ETTY
- ITTY, I1TTY, ..., I9TTY, ITTY

The argument [0-9k]... specifies which of these protocols are to be used. This argument is used as shown below.

Table 4

Specification	Protocols
dsecons 1 2 3	E1TTY,E2TTY,E3TTY
dsecons 1-3 k	E1TTY,E2TTY,E3TTY,ETTY

When this argument is specified, dsecons or dsicons receives only the specified protocols and displays the received data on the screen.

When this argument isn't specified, dsecons or dsicons receives all 11 protocols and displays the received data on the screen. The protocol that is specified first is used to send keyboard input data to the target. If this argument isn't specified, ETTY (dsecons) or ITTY (dsicons) is used to send keyboard input data.

If the -nokbd option is specified, all keyboard input other than <escape> is ignored.

If the -ns option is specified, error messages from the Remote File Access server are not displayed.

The -e option is the escape key specification. When the keyboard input is <escape>, the console program terminates. All other keyboard input is sent to the target program as standard input. The default value of <escape> is CTRL-] (0x1d). To specify a control code for <escape>, prepend a caret "^" in front of the character. For example, specify "-e ^C".

dsefilesv and dsifilesv

dsefilesv and dsifilesv are file server programs for processing Remote File Access requests that are sent from the target program. Since dsedb and dsidb normally process Remote File Access requests, dsefilesv and dsifilesv need not be used except when you want to make the current directory during Remote File Access a fixed location that does not depend on the current directory of dsedb or dsidb.

To use dsefilesv or dsifilesv, you must inhibit Remote File Access processing by dsedb or dsidb. This can be done by setting the following line in the dsedb startup file (~/.dsedbrc or ~/.dsedbrc) or the dsidb startup file (~/.dsidbrc or ~/.dsidbrc).

```
option file_priority=-1
```

Execution Method

```
dsefilesv [-d <host>[:<port>]] [-i][-c <cmd>][-t <sec>]
```

```
dsifilesv [-d <host>[:<port>]] [-i][-c <cmd>][-t <sec>]
```

Unless the -i option is specified, dsefilesv or dsifilesv will operate in the background.

To terminate dsefilesv or dsifilesv, use the kill command.

Options

If the -c <cmd> option is specified, the specified shell command (<cmd>) will be executed, and the program will terminate when the following conditions are satisfied.

- a. All files that were opened according to Remote File Access are closed.
- b. The shell command (<cmd>) has ended.
- c. The status described in (a) has continued for the number of seconds (default: 1 second) that was specified according to -t <sec>.

dsistart

dsistart starts execution of an IOP program module.

Execution Method

dsistart [<options>] <fname> [<arg>...]

dsistart passes the specified arguments <arg>... to the specified program module <fname>, starts execution of the module, and waits until a Removed or Resident termination report arrives from the IOP.

Options

Table 5

Option Name	Explanation
-d <host>[:<port>]	dsnetm host and port specification
-v	Display send/receive packet
-ncmv	Do not check version of manager
-nt	Do not handle I[0-9K]TTYP
-nf	Do not handle DRFP1
-ns	Do not display errors from Remote File Access server

dsilist

dsilist displays a list of program modules that are loaded in IOP memory.

Execution Method

```
dsilist [-d <host>[:<port>]] [-v] [-l] [-ncmv]
```

Options

Table 6

Option Name	Explanation
-d <host>[:<port>]	dsnetm host and port specification
-v	Display send/receive packet
-l	Display in long format
-ncmv	Do not check version of manager

Boot Parameters

The dsreset command and the dsedb/dsidb reset commands have two parameters. Both parameters are numeric values. The first numeric value is the EE boot parameter, and the second numeric value is the IOP boot parameter.

The EE boot parameter is currently defined as follows.

Table 7

Bit	Explanation
bit 0	Workaround for the EE memory controller bug 0 Disable workaround for the EE memory controller bug 1 Enable workaround for the EE memory controller bug
bit 1	Startup from disk 0 Do not start up from disk 1 Start up from disk
bit 2	Reserved bit 0 Fixed
bit 3	Reserved bit 0 Fixed
bit 4	Component video output 0 RGB 1 Y/CrCb
bit 5	Memory size for EE kernel processing 0 128 MB 1 32 MB The user is not prohibited from accessing memory beyond 32 MB. When the EE kernel API LoadExecPS2 function is called, the memory space up to 32MB is cleared to 0. Also, all 128MB are cleared to zero at reset.
bit 6	Stack check function for each thread on the EE kernel 0 Invalid 1 Valid When valid, the stack is checked to see whether or not it is insufficient when switching to another thread.

For information on the workaround for the EE memory controller bug, see the “EE Memory Controller Bug” tech note on the developer support website. For information on starting up from disk, see the document “Disk Startup on the DTL-T10000.”

IOP boot parameters are defined as follows.

Table 8

Bit	Description
bit 0	Start EE (Initialize SIF) 1 Start EE (initialize SIF) 0 Do not start EE (do not initialize SIF)
bit 1	FILEIO Services 0 Do not perform FILEIO services 1 Perform FILEIO services
bit 2	Reserved 0 Always 0
bit 3	Reserved 0 Always 0
bit 4	TTY (printf output) 0 ON 1 OFF
bit 5	host file access 0 enabled 1 disabled
bit 6	Prohibit deci communication with the EE (use of commands such as dsedb will also not be possible)
bit 7	Memory size after IOP replacement 0 8MB 1 2MB If replacement not performed, size remains at 8 MB.
bit 8	Replacement mode 0 Development mode - Most current IOP debugging environment. - DTL-T10000 flash must match library version on disk. 1 Test mode - IOP debugger supported at level of release 1.3.4 functionality (1/19/00 release). - DTL-T10000 flash need not match library version on disk.

The FILEIO service is a service program that runs on the IOP that supports file I/O requests from the EE.

The following are some examples of typical settings.

Table 9

Sample setting	Description
% dsreset 0 0	Start EE, IOP simultaneously.
% dsreset 0 3	Start only IOP (not EE).
% dsreset 0 2	Do not perform FILEIO services.
% dsreset 2 0	Start EE, IOP simultaneously, start up from disk. Run IOP in 8 MB development mode.
% dsreset 0 80	Start EE, IOP simultaneously. Run IOP in 2 MB development mode.
% dsreset 2 180	Start EE, IOP simultaneously, start up from disk. Run IOP in 2 MB test mode.
% dsreset 2 100	Start EE, IOP simultaneously, start up from disk. Run IOP in 8 MB test mode.