Dynamic Reconfiguration Reference Manual

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NAME

Intro – Ultra Enterprise 10000 SSP administration

DESCRIPTION

This section describes commands, scripts, and programs executed in the Enterprise 10000 SSP and Dynamic Reconfiguration (DR) environments.

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dr_cmd_print_obp_info(1M)	show system board info per OBP in tabular format
dr_cmd_print_unsafe_info(1M)	show a domain's open, unsafe devices in tabular format
dr_cmd_unsafe_dev_info(1M)	show a domain's open, unsafe devices in TCL encoding
drain(1M)	start memory drain

drdeinit(1M)	dismantle and terminate DR connections
drinit(1M)	initiate a DR operation
drshow(1M)	display DR and board resource info
drview(1M)	DR Graphical User Interface
init_attach(1M)	initiate DR Attach operation
reconfig(1M)	initiate auto-configuration sequence

NAME

abort_attach – abort a DR Attach operation

SYNOPSIS

abort_attach *sb*

DESCRIPTION

Execute this command at the **dr**(1M) shell prompt to return the specified board to its original condition after completion of an **init_attach**(1M) operation. That is, it leaves the board present, powered-on, and in no domain. **abort_attach** notifies the operating system running on the target domain specified earlier by the **drinit**(1M) command to abandon the in-progress attach operation. It then removes the board from the **domain_config**(4) file (in *man Pages(4): Ultra Enterprise 10000 SSP File Formats*) and resets the Enterprise 10000 centerplane cluster mask registers and board domain mask registers.

You should run **abort_attach** after **init_attach**(1M) has successfully completed, and instead of the **complete_attach**(1M) command.

If executing **abort_attach** fails to abort the operation, try repeating the attempt at a later time, or contact your service provider.

OPTIONS

sb The board number (0 to 15) of the system board not to be attached.

EXIT STATUS

If successful, **abort_attach** returns a 0 in the **dr_return** global variable; if not, it returns a 1, along with one or more diagnostic messages.

EXAMPLE

```
dr> abort_attach 5
Aborting attach board 5 to domain ts4.
Processors on board 5 reset.
Removing board 5 from domain_config file.
Board 5 placed into loopback.
Abort attach board successful.
dr>
```

DIAGNOSTICS

`Failed to abort board attachment`

Repeat the **abort_attach** command at a later time, or contact your service provider.

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO

dr(1M), **drinit**(1M), **init_attach**(1M)

NAME

abort_detach – abort a DR Detach operation

SYNOPSIS

abort_detach *sb*

DESCRIPTION

Execute this command at the **dr**(1M) shell prompt to abort an attempt to DR Detach a board.

Note: **drinit**(1M) must be executed before you can execute **abort_detach**.

You can execute **abort_detach** after the board has been asked to drain and before it has been completely detached. After **abort_detach** has been successfully executed, resources on the designated system board are once again available to the operating system.

Before issuing the **abort_detach** command, you must contact the designated domain via the **drinit**(1M) command.

OPTIONS

sb The board number (0 to 15) of the system board not to be detached.

EXIT STATUS

If successful, **abort_detach** returns a 0 in the **dr_return** global variable; if not, it returns a 1, along with one or more diagnostic messages.

EXAMPLE

```
dr> abort_detach 4
Aborting detach board 4
Returning board to domain_config.
Adding board 4 to domain_config file.
Abort board detach completed successfully.
```

DIAGNOSTICS

`FAILED to restore domain_config file`
`Retry the ABORT board detach at a later time`

The attempt to restore the board number to the target domain board list in the **domain_config**(4) file (in *man Pages(4): Ultra Enterprise 10000 SSP File Formats*) has failed. This may be a temporary condition, so try the **abort_detach** again at a later time.

`Failed to abort board detach`

The operating system on the target domain was unable to restore the board to full operation. This may be a temporary condition, so try the **abort_detach** again at a later time.

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO

complete_attach(1M), **dr**(1M), **drain**(1M), **drinit**(1M)

NAME

complete_attach – complete a DR Attach operation

SYNOPSIS

complete_attach *sb*

DESCRIPTION

Execute this command at the **dr**(1M) shell prompt to complete an attempt to DR Attach a board after successful execution of the **init_attach**(1M) command. **complete_attach** causes the operating system on the target domain to dynamically add the resources (processors, memory, and I/O devices) from the specified board to the running system. If a problem that prevents attachment of any device present on the board occurs, that problem is logged in the system message buffer of the target domain. To display a list of the devices that were successfully attached, execute the **drshow**(1M) command to display the current system configuration for the board.

OPTIONS

sb The board number (0 to 15) of the system board to be attached to the target domain.

EXIT STATUS

If successful, **complete_attach** returns a 0 in the **dr_return** global variable; if not, it returns a 1, along with one or more diagnostic messages.

EXAMPLE

```
dr> complete_attach 5
Completing attach for board 5
Board attachment completed successfully.
```

DIAGNOSTICS

`Failed during final state transition`

The operation failed during the final stage of attachment. Check that the DR daemon is still running on the target domain, and that the network is operational. To recover from the failure, repeat the **complete_attach** operation or execute an **abort_attach**(1M).

`Failed to complete attach board`

The operating system on the target domain was unable to attach the board. Repeat the **complete_attach** operation at a later time or execute the **abort_attach**(1M) command.

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO

dr(1M), **drinit**(1M), **drshow**(1M), **init_attach**(1M)

NAME

complete_detach – complete a DR Detach operation

SYNOPSIS

complete_detach *sb* [**force**]

DESCRIPTION

Execute this command at the **dr**(1M) shell prompt to complete an attempt to DR Detach a board. The **drain**(1M) command must have been previously executed and the drain operation must have completed before **complete_detach** can proceed. You can use the **drshow**(1M) command to check the status of the drain operation.

A board can be detached only after all use of its devices has ceased. DR automatically terminates the use of memory and network devices and, in almost all cases, processors; but you must terminate use of the board's I/O devices.

You can use the **drshow**(1M) command to list the devices in use on the board.

If the detaching board contains non-pageable kernel or OBP memory, the domain is quiesced during the **complete_detach** operation. The quiesce operation may fail due to *forcible* conditions. See the *Dynamic Reconfiguration User's Guide* for a description of such conditions. You can use the **force** argument to force the quiesce in such situations.

OPTIONS

sb The board number (0 to 15) of the system board to be detached.

force Force the domain quiesce operation. See the *Dynamic Reconfiguration User's Guide* for information about forcing a quiesce.

EXIT STATUS

If successful, **complete_detach** returns a 0 in the **dr_return** global variable; if not, it returns a 1, along with one or more diagnostic messages.

EXAMPLE

```
dr> complete_detach 5
Completing detach of board 5.
Operating System has detached the board.
Processors on board 5 reset.
Board 5 placed into loopback.
Board detachment completed successfully.
```

DIAGNOSTICS

`Cannot COMPLETE detach until drain completes`

The drain operation is still in-progress. Use **drshow**(1M) to monitor the drain. Once it has completed, repeat the **complete_detach** command.

```
Board detachment failed
Retry the COMPLETE or ABORT the operation
```

A condition on the target domain's operating system has prevented the detach from completing. Retry the operation at a later time, or use **abort_detach**(1M) to abort the detach.

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO **abort_detach**(1M), **dr**(1M), **drain**(1M), **drshow**(1M)

NAME

dr – initiate dynamic reconfiguration shell

SYNOPSIS

dr

DESCRIPTION

The **dr** command initiates the Dynamic Reconfiguration (DR) shell, a Tcl application (see NOTES, below) with DR command extensions. You can use the **dr** shell to logically attach or detach a system board to or from an Enterprise 10000 domain from the command line or via a script.

Note: Whenever possible, use the DR GUI via Hostview to execute Dynamic Reconfiguration operations. Use the **dr** shell when you cannot run Hostview; for example, if you need to run DR over a dial-up connection. For more information see the *Dynamic Reconfiguration User's Guide* and **hostview**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*.

When executed on the command line, **dr** displays the **dr>** prompt, which accepts the DR commands listed in **Intro**(1M).

Note: To see the list of DR commands while not using AnswerBook, execute **man Intro** on the SSP when logged in as user ssp.

es.PP You can quit the **dr** shell at any time by typing **exit** or **Control-d**.

Caution: Do not execute any of the DR commands that begin with **dr_cmd_**; these are low-level commands that are for use only by authorized service personnel under special circumstances, as described in **dr.service**(1M).

To minimize the risk of unintended DR operations, start this shell only when you are ready to execute DR commands and exit it as soon as you are done.

The DR commands return error status in the global Tcl variable **dr_return**. Normally, Tcl commands return both output and status together, which can be confusing and difficult to parse from within scripts. You can, however, execute the DR command **set dr_return** to display **dr_return** after executing each DR command, to determine command success or failure. Though, under most circumstances, the diagnostic messages output by the **dr** shell clearly indicate success or failure.

Note: Type **help** at the **dr** shell prompt (`dr>`) to access DR's quick-reference help guide.

EXAMPLE

The following example performs a DR Attach of Board 2 to the domain named 'e100001'. After **complete_detach**(1M) has successfully completed **dr** displays the result code stored in **dr_return**.

```
e100001-ssp% dr

dr> drinit e100001
Checking environment...
```

```
Initializing SSP SNMP MIB...
Establishing communication with DR daemon...

e100001: System Status - Summary

BOARD #: 2 3 5 6 physically present.
BOARD #: 0 1 4 being used by the system.

dr> init_attach 2
Initiate attaching board 2

phase init_reset: Initial system resets...

phase jtag_integ: JTAG probe and integrity test...
phase mem_probe: Memory dimm probe...
phase jtag_bbsram: JTAG basic test of bootbus sram...
phase proc1: Initial processor module tests...
phase pc/cic_reg: PC and CIC register tests...
phase dtag: CIC DTAG tests...
phase mem: MC register and memory tests...
phase procmem: Processor vs. memory tests...
phase xcall: Interprocessor interrupt tests...
phase io: I/O controller tests...
Skipping phase ecc: Proc ecc vs. memory tests...
phase final_config: Final configuration...
Creating OBP handoff structures...
Configured in 3F with 3 processors, 0 SBus cards, 1024 MBytes memory.
Boot processor is 4.0 = 8
POST execution time 1:23
hpost is complete.
/opt/SUNWssp/bin/obp_helper
Master cpu is 8
Slave cpus initialization:
Slave cpus initialization OK
board debut utility complete.

Board attachment initiated successfully.

Ready to COMPLETE board attachment.

dr> complete_attach 2
Completing attach for board 2
Board attachment completed successfully.

dr> set dr_return
```

```
0
dr> exit
e100001-ssp%
```

NOTES

Tcl (Tool command language) is a simple scripting language for controlling and extending applications. You do not need Tcl knowledge to use the **dr** shell. However, if you wish to write Tcl scripts or just want more information about Tcl, a good reference is *Tcl and the Tk Toolkit* by John K. Ousterhout, published by Addison-Wesley Publishing Company.

As a Tcl application, **dr** checks for certain types of syntax errors and, if it finds one, aborts without executing the **dr** shell command. For example, if you specify an argument with a command that does not require one, **dr** prints a usage error message and aborts. **dr** updates **dr_return** only upon completion of a **dr** command. If the command does not complete, as in our example above, **dr** does not update **dr_return**.

SEE ALSO

Dynamic Reconfiguration User's Guide

Alternate Pathing 2.0 User's Guide

Ultra Enterprise 10000 SSP 3.0 User's Guide

hostview(1M) in the *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*

dr(7) in the *Solaris Reference Manual for SMCC-Specific Software*

add_drv(1M), **drvconfig**(1M), **devlinks**(1M), **disks**(1M), **inetd**(1M), **ports**(1M), **prtconf**(1M), **tapes**(1M) in the *man Pages(1M): System Administration Commands*

syslog(3) in the *man Pages(3): Library Routines*

NAME

dr.service – low-level DR commands for service providers

SYNOPSIS

dr (to open the DR shell)

DESCRIPTION

Caution: Customers should not use these low-level commands, but should access DR through the DR GUI, as described in the *Dynamic Reconfiguration User's Guide*, or via the high-level DR commands, which are described in *man Pages(1M): DR Administration Commands*.

The low-level commands described here, which are available only in the DR shell, are for use by service providers only, who should use them only when they need a finer level of control to debug failing DR operations, or when they cannot access the DR GUI.

The DR shell provides commands that directly map to **libdr.so** function calls. Executing this command set gives the caller a finer level of control over DR operations, but introduces additional risk of error due to fewer safeguards.

Note that DR operations can fail or be denied by the operating system for numerous reasons. Often, specific user action is required to complete a DR sequence. For this reason, Sun cautions against the use of automated DR scripts. The Hostview interface (see **hostview**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*) is the preferred method of performing DR operations. Use the **dr**(1M) shell when the GUI-based Hostview application is unavailable.

SHELL COMMANDS

The low-level shell commands are those that begin with **dr_cmd_** . See **Intro**(1M).

EXIT STATUS

The DR shell low-level command set generally returns an exit code in the **dr_return** global variable. Upon return from each of the DR commands, this variable can be tested for success or failure.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

NAME

dr_cmd_a_attach – abort DR attach system board operation

SYNOPSIS

dr_cmd_a_attach *sb*

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use **abort_attach**(1M), which performs the same functions, but with the added security of safeguards and checks.

If **abort_attach**(1M) were unavailable for some reason, you could run **dr_cmd_a_attach** after a system board has been successfully init attached via **dr_cmd_init_attach**(1M) and before the board has been completely attached via the **dr_cmd_c_attach**(1M). **dr_cmd_a_attach** returns the board to the state it was in prior to the **dr_cmd_init_attach**(1M) operation; that is, present, powered-on, and in no domain.

dr_cmd_a_attach instructs the operating system running on the target domain to abandon the in-progress attach operation, removes the system board from the **domain_config** file, and resets the Enterprise 10000 server's centerplane shared memory mask registers and board domain mask registers.

Some conditions that are transparent to the user may cause an abort failure. Therefore, if **dr_cmd_a_attach** fails to complete the abort successfully, try executing it again at a later time.

OPTIONS

sb The system board number (0 to 15) for the abort attach operation.

EXIT STATUS

If **dr_cmd_a_attach** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** on **abort_attach**(1M).

SEE ALSO

dr(1M), **dr_cmd_init_attach**(1M), **dr_cmd_c_attach**(1M)

NAME

dr_cmd_a_detach – abort DR detach system board operation

SYNOPSIS

dr_cmd_a_detach *sb*

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use **abort_detach**(1M), which performs the same functions, but with the added security of safeguards and checks.

You can run **dr_cmd_a_detach** after draining a system board via **dr_cmd_drain**(1M) but before that board has been completely detached.

OPTIONS

sb The board number (0 to 15) of the system board whose detach is being aborted.

EXIT STATUS

If **dr_cmd_a_detach** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** in **abort_detach**(1M)

SEE ALSO

dr(1M), **dr_cmd_init**(1M), **dr_cmd_drain**(1M)

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NAME

dr_cmd_auto_config – run Solaris reconfig sequence on target domain

SYNOPSIS

dr_cmd_auto_config

DESCRIPTION

Caution: Do not use this command; use **reconfig**(1M) instead. Only authorized service providers should use **dr_cmd_auto_config**, which runs in the DR shell, and only when they cannot use **reconfig**(1M). Performing this operation may cause device files to be remapped and known devices to be renamed.

The system administrator would normally run **dr_cmd_auto_config** after a new system board has been attached to a running domain to make the devices on the boards available immediately. The automatic configuration on Solaris consists of the following SunOS commands, in the order shown:

drvconfig(1M), **devlinks**(1M), **disks**(1M), and **tapes**(1M).

EXIT STATUS

If **dr_cmd_auto_config** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** on the **reconfig**(1M) man page.

SEE ALSO

reconfig(1M) in this Reference Manual

dr_daemon (1M) in the *Solaris Reference Manual for SMCC-Specific Software*

drvconfig(1M), **devlinks**(1M), **disks**(1M), **ports**(1M), **tapes**(1M) in *man Pages(1M): System Administration Commands*

NAME

dr_cmd_c_attach – complete DR attach system board operation

SYNOPSIS

dr_cmd_c_attach *sb*

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness, and is dangerous. Instead, use **complete_attach**(1M), which performs the same functions, but with the added security of safeguards and checks.

dr_cmd_c_attach completes the DR attach board operation started by **dr_cmd_init_attach**(1M). The designated system board should already have been successfully Init Attached via **dr_cmd_init_attach**(1M). The complete attach operation causes the operating system on the target domain to dynamically add the resources from this system board (processors, memory, and I/O devices) to the running system. If a problem occurs, preventing attachment of any device present on the board, the problem is logged in the system message buffer of the target domain.

OPTIONS

sb The board number (0 to 15) of the system board being attached.

EXIT STATUS

If **dr_cmd_c_attach** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** on **complete_attach**(1M).

SEE ALSO

dr(1M), **dr_cmd_init_attach**(1M)

NAME

dr_cmd_c_detach – complete DR detach system board operation

SYNOPSIS

dr_cmd_c_detach *sb*

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is dangerous and included here only for completeness. Instead, use **complete_detach**(1M), which performs the same functions, but with the added security of safeguards and checks.

dr_cmd_c_detach completes a DR detach board operation. The designated system board should have previously been drained via **dr_cmd_drain**(1M).

You can detach a system board only when none of its devices is in use. DR automatically terminates the use of memory, processors (in almost all cases), and network devices on the board. But the administrator must make certain that all use of the board's I/O devices has ceased. You can use **drshow**(1M) to list the devices in use on a given system board.

OPTIONS

sb The board number (0 to 15) of the system board being detached.

EXIT STATUS

If **dr_cmd_c_attach** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** on **complete_detach**(1M).

SEE ALSO

dr(1M), **dr_cmd_init**(1M), **dr_cmd_drain**(1M)

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NAME

dr_cmd_c_f_detach – force completion of DR detach system board operation

SYNOPSIS

dr_cmd_c_f_detach *sb*

DESCRIPTION

Caution: Do not use this command, which is dangerous and runs in the DR shell; it is included here only for completeness. Instead, use **complete_detach**(1M), which performs the same functions, but with the added security of safeguards and checks.

dr_cmd_c_f_detach completes the DR detach board operation, using a forcible domain quiesce. See the **Caution**, above. Use this command when you need to force the system to complete a detach operation, when the system board to be detached contains unsafe devices that are open, but not in use. See the *Dynamic Reconfiguration User's Guide* for more information on system quiesce, and ways to increase the safety of this dangerous command.

OPTIONS

sb The board number (0 to 15) of the system board to be detached.

EXIT STATUS

If **dr_cmd_c_f_detach** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** on **complete_detach**(1M).

SEE ALSO

dr(1M), **dr_cmd_init**(1M), **dr_cmd_drain**(1M)

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NAME

dr_cmd_cpu_info – show processors on a system board in Tcl encoding

SYNOPSIS

dr_cmd_cpu_info *sb*

DESCRIPTION

Caution: This command, which runs in the DR shell, produces output in a form suitable for the **drview**(1M) application, not the interactive user.

dr_cmd_cpu_info queries the target domain and produces a list of the processors attached to the specified system board. The list is returned in a Tcl format, and is used by the **drview**(1M) application.

Since the Tcl list is not readily accessible to an interactive user, you should use **drshow**(1M) instead to acquire processor information.

OPTIONS

sb The board number (0 to 15) of the target system board.

EXIT STATUS

If **dr_cmd_cpu_info** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

SEE ALSO

dr(1M), **dr_cmd_mem_info**(1M), **dr_cmd_dev_info**(1M)

NAME

dr_cmd_debug – toggle DR library-level debugging

SYNOPSIS

dr_cmd_debug

DESCRIPTION

Caution: Only authorized service providers should use this command, which runs in the DR shell.

When switched on, **dr_cmd_debug** provides significantly more detailed information about DR operations performed via **dr**(1M). **dr_cmd_debug** is set up as a toggle; execute it once to turn it on, and again to turn it off. Initially, it is set to 0, or off.

The service provider may find **dr_cmd_debug** very useful when diagnosing a DR-related failure. Activate debugging prior to executing any commands related to DR Attach or DR Detach.

EXIT STATUS

dr_cmd_debug always returns a 0 character in the **dr_return** global Tcl variable.

SEE ALSO

dr(1M)

NAME

dr_cmd_deinit – dismantle and terminate DR connections

SYNOPSIS

dr_cmd_deinit

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use **drdeinit**(1M), which performs the same functions, but with the added security of safeguards and checks.

dr_cmd_deinit terminates communication between the **dr_daemon**(1M) running on the Enterprise 10000 domain selected by the previous **dr_cmd_init**(1M) command, and the SNMP Agent running on the SSP. (See **dr_daemon**(1M) in the *Solaris Reference Manual for SMCC-Specific Software* and **snmpd**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*.) **dr_cmd_deinit** must be called before a new DR operation is initiated on a different domain.

DR automatically executes **dr_cmd_deinit** when the **dr**(1M) command is exited after completion of a DR operation.

This command is equivalent to **drdeinit**(1M).

EXIT STATUS

If **dr_cmd_deinit** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

SEE ALSO

dr(1M), **dr_cmd_init**(1M), **drdeinit**(1M)

NAME

dr_cmd_detach_allow – verify a system board can support DR detach

SYNOPSIS

dr_cmd_detach_allow *sb*

DESCRIPTION

Caution: Only authorized service providers should use this command, which runs in the DR shell.

dr_cmd_detach_allow queries the operating system running on the target domain about any conditions that may prevent the system board from being successfully detached. If the board is not detachable, **dr_cmd_detach_allow** displays one or more diagnostic messages.

OPTIONS

sb The board number (0 to 15) of the system board to be queried.

EXIT STATUS

If **dr_cmd_detach_allow** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

SEE ALSO

dr(1M), **dr_cmd_init**(1M)

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NAME

dr_cmd_dev_info – show devices on a system board in Tcl list encoding

SYNOPSIS

dr_cmd_dev_info *sb*

DESCRIPTION

Note: This command, which runs in the DR shell, produces output in a form suitable for the **drview**(1M) application, not the interactive user. Use **drshow**(1M) instead to view device information.

dr_cmd_dev_info checks the target domain for peripheral devices attached to the specified system board and returns the information in a Tcl list encoding, which is used by the **drview**(1M) application.

OPTIONS

sb The board number (0 to 15) of the target system board.

EXIT STATUS

If **dr_cmd_dev_info** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

SEE ALSO

dr(1M), **dr_cmd_cpu_info**(1M), **dr_cmd_mem_info**(1M)

NAME

dr_cmd_drain – start memory drain on a system board.

SYNOPSIS

dr_cmd_drain *sb*

DESCRIPTION

Caution: This command, which runs in the DR shell, is dangerous; do not use it. It is included here only for completeness. Instead, use the **drain**(1M) command, which performs the same functions, but with the added security of safeguards and checks.

dr_cmd_drain determines the best way to vacate memory physically located on the designated system board. It may simply flush the memory, or copy it to memory available on another system board in the same domain. If a suitable target memory for the memory copy is not available when the **dr_cmd_drain** command is invoked, the request is denied. If the unavailability is due to run-time conditions and system load, you should retry the **dr_cmd_drain** operation at a later time.

The **dr_cmd_drain** operation also removes the system board from the target domain's board list in the **domain_config**(4) file on the SSP. (See **domain_config**(4) in the *man Pages(4): Ultra Enterprise 10000 SSP File Formats*.)

dr_cmd_drain begins execution, then quickly exits. Use **drshow**(1M) to monitor its progress.

OPTIONS

sb The board number (0 to 15) of the system board to be drained.

EXIT STATUS

If **dr_cmd_drain** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** on **drain**(1M).

SEE ALSO

dr_cmd_init(1M), **dr_cmd_mem_info**(1M)

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NAME

dr_cmd_drain_status – show state of in-progress memory drain

SYNOPSIS

dr_cmd_drain_status *sb*

DESCRIPTION

Caution: Only authorized service providers should use this command, which runs in the DR shell.

Use **dr_cmd_drain_status** to monitor a drain-in-progress. It displays a table of current information about the drain. DR cannot complete a detach until all the memory on a system board has been successfully drained.

OPTIONS

sb The board number (0 to 15) of the system board being drained.

EXIT STATUS

If **dr_cmd_drain_status** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

SEE ALSO

dr(1M), **dr_cmd_init**(1M)

NAME

dr_cmd_eligible_attach – verify a system board is eligible for DR attach

SYNOPSIS

dr_cmd_eligible_attach *sb*

DESCRIPTION

Caution: Only authorized service providers should use this command, which runs in the DR shell. Service providers: Be sure to run this eligibility check prior to initiating any DR attach activity when using the low-level DR shell command set. Initiating an attach operation on an ineligible board may cause a system failure.

Use **dr_cmd_eligible_attach** to verify that a system board is eligible for an attach operation before using **dr_cmd_init_attach**(1M) to begin the Init Attach.

OPTIONS

board The board number (0 to 15) of the system board to be checked.

EXIT STATUS

dr_cmd_eligible_attach returns one of the following result codes to the **dr_return** global Tcl variable:

y The specified system board is eligible to be attached.

n The specified system board is not eligible to be attached. **dr_cmd_eligible_attach** sends additional information to stdout.

sb The specified system board is not eligible to be attached because system board *sb* (0 to 15), a different system board in the target domain, is in an intermediate DR Attach state. That DR Attach operation must be completed before you can initiate a DR operation on another board (such as the one specified).

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

SEE ALSO

dr(1M), **dr_cmd_init**(1M)

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NAME

dr_cmd_eligible_detach – verify a system board is eligible for DR detach

SYNOPSIS

dr_cmd_eligible_detach *sb*

DESCRIPTION

Caution: Only authorized service providers should use this command, which runs in the DR shell. Service providers: Be sure to run this eligibility check prior to initiating any DR detach activity when using the low-level DR shell command set. Initiating a detach operation on an ineligible board may cause a system failure.

Use **dr_cmd_eligible_detach** to verify that a system board is eligible for a detach operation before using **dr_cmd_drain**(1M) to begin a DR drain operation.

OPTIONS

sb The board number (0 to 15) of the system board to be checked.

EXIT STATUS

dr_cmd_eligible_detach returns one of the following result codes to the **dr_return** global Tcl variable:

y The specified system board is eligible to be detached.

n The specified system board is not eligible to be detached. **dr_cmd_eligible_detach** sends additional information to stdout.

sb_number The specified system board is not eligible to be detached because system board *sb* (0 to 15), a different system board in the target domain, is in an intermediate DR Detach state. That DR Detach operation must be completed before you can initiate a DR operation on another board (such as the one specified).

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

SEE ALSO

dr(1M), **dr_cmd_init**(1M)

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NAME

dr_cmd_init – initiate a DR operation on a domain

SYNOPSIS

dr_cmd_init *domain* [**tcl | tk**]

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use **drinit**(1M), which performs the same functions, but with the added security of safeguards and checks.

dr_cmd_init initializes the Tcl/Tk to DR interface, arranges for all DR-related output to be handled in an appropriate manner, and displays all initial board states. **dr_cmd_init** must be the first command run as part of a sequence of commands for a DR operation. It initializes links to both the **dr_daemon**(1M) on the host and the Agent on the SSP. See **dr_daemon**(1M) in the *Solaris Reference Manual for SMCC-Specific Software* and **snmpd**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*.

This command is equivalent to **drinit**(1M).

OPTIONS

domain The host domain on which to the DR operation is to be executed.

tcl | tk If you specify **tcl**, stderr and stdout messages are handled normally. If you specify **tk**, they are redirected to an internal buffer, which can be passed to the Tk widgets for display. If you specify neither, the DR shell correctly chooses a suitable default based on **argv**[**0**].

EXIT STATUS

If **dr_cmd_init** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** in **drinit**(1M).

SEE ALSO

dr_daemon(1M) in the *Solaris Reference Manual for SMCC-Specific Software* and **snmpd**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*

NAME

dr_cmd_init_attach – initiate DR attach system board operation

SYNOPSIS

dr_cmd_init_attach *sb*

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is dangerous, and is included here only for completeness. Instead, use **init_attach**(1M), which performs the same functions, but with the added security of safeguards and checks.

dr_cmd_init_attach begins a DR attach board operation. DR does not screen the target domain for intermediate system boards as it does with the **init_attach**(1M) command and through Hostview.

dr_cmd_init_attach is a low-level command for use only by trained service personnel for diagnosing DR-related system problems. The designated system board should be present, powered-on, and currently in no domain. **dr_cmd_init_attach** diagnoses, then debuts the system board to the Enterprise 10000 target domain specified via **dr_cmd_init**(1M) command.

dr_cmd_init_attach adds the system board to the system board list in the SSP's **domain_config** file. (See **domain_config**(4) in *man Pages(4): Ultra Enterprise 10000 SSP File Formats*.) DR then prepares the board's resources (processors, memory, and I/O controllers) for attachment by the operating system, and the Enterprise 10000 server's centerplane is reconfigured such that the board is visible to the target domain.

You must run **dr_cmd_init**(1M) prior to running **dr_cmd_init_attach**.

After **dr_cmd_init_attach** completes successfully, you can execute **dr_cmd_c_attach**(1M) to complete the attach operation, or **dr_cmd_a_attach**(1M) to abort it.

OPTIONS

sb The board number (0 to 15) of the system board to be attached.

EXIT STATUS

If **dr_cmd_init_attach** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

DIAGNOSTICS

See **DIAGNOSTICS** on **init_attach**(1M).

SEE ALSO

dr_cmd_init(1M)

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NAME

dr_cmd_mem_info – show memory config on a system board in Tcl encoding

SYNOPSIS

dr_cmd_mem_info *sb*

DESCRIPTION

Caution: Do not use this command. It returns information in Tcl encoding, which is understood by the **drview**(1M) application, but is not intended for direct viewing by users. Instead, use the **drshow**(1M) command.

dr_cmd_mem_info queries the target domain for memory attached to this system board, returning the information in a Tcl list encoding, which then is used by the **drview**(1M) application.

OPTIONS

sb The board number (0 to 15) of the system board to be checked.

EXIT STATUS

If **dr_cmd_mem_info** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

SEE ALSO

dr(1M)

NAME

dr_cmd_obp_info – show complete config of a system board in Tcl encoding

SYNOPSIS

dr_cmd_obp_info *sb*

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it displays information in Tcl encoding, which is understood by the **drview**(1M) application, but is not intended for direct viewing by the interactive user. Instead, use **drshow**(1M) to view this information.

dr_cmd_obp_info displays the complete board configuration, including processors, memory and I/O devices, of a system board that has been Init Attached to a domain (that is, probed by OBP), but is not yet completely attached. See the **Caution**, above.

OPTIONS

sb The board number (0 to 15) of the target system board.

EXIT STATUS

If **dr_cmd_obp_info** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

NAME

dr_cmd_print_brd_info – show board resources in tabular format

SYNOPSIS

dr_cmd_print_brd_info *sb flags*

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use **drshow**(1M), which presents the information in a more readable format.

dr_cmd_print_brd_info obtains configuration information about the specified attached system board. The *flags* option specifies the information this command is to display, in the form of a bitstring, as follows:

```
Flag Value   Display
----------   -------
   1         Processor information
   2         Controller and peripheral information
   4         Memory configuration
   8         Memory cost information
  16         Memory drain status
```

You can obtain multiple displays by OR'ing (summing) the above decimal values. All displays are in a readable, tabular format.

EXAMPLES

To display the Processor and Memory configuration:

```
dr> dr_cmd_print_brd_info 5
```

To display all configuration information:

```
dr> dr_cmd_print_brd_info 31
```

OPTIONS

sb The board number (0 to 15) of the target system board.

flags A bitstring in decimal that represents the desired information.

EXIT STATUS

If **dr_cmd_print_brd_info** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

NAME

dr_cmd_print_obp_info – show system board info per OBP in tabular format

SYNOPSIS

dr_cmd_print_obp_info *sb*

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use **drshow**(1M), which presents the information in a more readable format.

dr_cmd_print_brd_info obtains system board configuration information from OpenBoot, then displays that information in a tabular format. Use this command to interrogate a system board that has been Init Attached, but not yet Complete Attached.

OPTIONS

sb The board number (0 to 15) of the target system board.

EXIT STATUS

If **dr_cmd_print_obp** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

NAME

dr_cmd_print_unsafe_info – show a domain's open, unsafe devices in tabular format

SYNOPSIS

dr_cmd_print_unsafe_info

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use **drshow**(1M), which displays the information in a more readable format.

dr_cmd_print_unsafe_info queries the target domain to determine if any unsafe peripheral devices are open. (See the *Dynamic Reconfiguration User's Guide* for more information concerning DR unsafe devices.) If it finds that any such devices are open, it sends that information to stdout.

If **dr_cmd_print_unsafe_info** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

NAME

dr_cmd_unsafe_dev_info – show a domain's open, unsafe devices in TCL encoding

SYNOPSIS

dr_cmd_unsafe_dev_info

DESCRIPTION

Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use **drshow**(1M), which displays the information in a more readable format.

dr_cmd_unsafe_dev_info queries the target domain to determine if any unsafe peripheral devices are open. (See the *Dynamic Reconfiguration User's Guide* for more information concerning DR unsafe devices.) If it finds that any such devices are open, it returns that information in a Tcl list encoding, which is used by the **drview**(1M) application.

If **dr_cmd_unsafe_dev_info** succeeds it returns a 0 result code in the **dr_return** global variable. If it fails, it returns a 1 and displays diagnostic messages.

Note: Tcl parsing errors prevent DR commands from running which, in turn, leaves **dr_return** uninitialized. In such cases, the **dr_return** error code is meaningless. See **dr**(1M) for more information concerning return codes.

NAME

drain – start memory drain

SYNOPSIS

drain *sb* [*wait*]

DESCRIPTION

The **drain** command, which you execute from the **dr**(1M) prompt, is the first of a two-step procedure for DR detaching a system board. The primary function of the **drain** command is to determine how the memory physically located on the designated board should be vacated. This memory may be simply flushed, or it may be copied to memory available on another system board in the same domain.

> **Note:** A connection to an Enterprise 10000 domain must have been established, via the **drinit**(1M) command, before you can execute the **drain** command.

If a suitable target memory for the memory copy is not available when the drain command is invoked, the request is denied. If the unavailability is due to run-time conditions and system load, you can retry the drain operation at a later time.

The **drain** command starts the drain operation, and then returns. The drain may take several minutes to complete. You can execute **drshow** *sb* **DRAIN** to monitor its progress; see **drshow**(1M). Or, you can specify the **wait** option, and the **drain** command returns only after the board has been fully drained, or **drain** detects an error. **drain** automatically displays the board status once before returning.

OPTIONS

sb The board number (0 to 15) of the system board to be drained.

wait Poll the DR daemon every 5 seconds and return to the caller only after the drain completes. This option is useful when the drain is performed by a script. This option is case-insensitive.

EXIT STATUS

Upon successful initiation of the drain, **drain** returns a 0 in the **dr_return** global variable; if the initiation fails, it returns a 1. If **wait** is specified, a 0 in **dr_return** indicates that the drain (not just initiation of it) has completed successfully, and a 1 indicates that the drain has failed.

EXAMPLE

```
ts4-ssp% dr
dr> drinit ts4
Checking environment...
Establishing Control Board Server connection...
Initializing SSP SNMP MIB...
Establishing communication with DR daemon...

                ts4: System Status - Summary

BOARD #: 1 3 4 5 being used by the system.

dr> drain 5
Removing board 5 from domain_config file.
```

```
Start draining board 5.
Board drain started.  Retrieving System Info...

          Bound Processes for Board 5

cpu   user  sys  procs
---   ----  ---  -----
 20     0    1
 21     0    1
 22     0    1
 23     0    1

No active IO devices.

          Memory Drain for Board 5 - IN PROGRESS

Reduction            = 1024 MBytes
Remaining in System  = 2048 MBytes
Percent Complete     = 0% (1048576 KBytes remaining)

Drain operation started at Sun Sep 15 22:50:57 1996
Current time         Sun Sep 15 22:50:57 1996
Memory Drain is in progress. When Drain has finished,
you may COMPLETE the board detach.
```

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO

dr(1M), **drinit**(1M)

NAME

drdeinit – dismantle and terminate DR connections

SYNOPSIS

drdeinit

DESCRIPTION

Execute this command at the **dr**(1M) shell prompt to disconnect communications between the **dr_daemon**(1M) running on the Enterprise 10000 domain previously specified by the **drinit**(1M) command and the SNMP agent running on the SSP. (See **dr_daemon**(1M) in the *Solaris Reference Manual for SMCC-Specific Software* and **snmpd**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*.) **drdeinit** must be called before a new DR operation is initiated on a different domain. You can omit the call to **drdeinit** if you exit the **dr**(1M) shell, as the termination is done automatically in this case.

EXIT STATUS

If successful, **drdeinit** returns a 0 in the **dr_return** global variable; if not, it returns a 1, along with one or more diagnostic messages.

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO

dr(1M), **drinit**(1M) in this Reference Manual

dr_daemon(1M) in the *Solaris Reference Manual for SMCC-Specific Software*

snmpd(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*

NAME

drinit – initiate a DR operation

SYNOPSIS

drinit *domain*

DESCRIPTION

Execute this command at the **dr**(1M) shell prompt to initialize the DR subsystem. **drinit** opens connections to both the **dr_daemon**(1M) running on the Enterprise 10000 host and the SNMP Agent running on the SSP, and displays all initial board states relative to the designated domain.See **dr_daemon**(1M) in the *Solaris Reference Manual for SMCC-Specific Software* and **snmpd**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*.

Note: **drinit** must be the first DR command issued after execution of the **dr**(1M) command.

OPTIONS

domain Execute the DR operation in the specified *domain*.

EXIT STATUS

If successful, **drinit** returns a 0 in the **dr_return** global variable; if not, it returns a 1, along with one or more diagnostic messages.

EXAMPLES

```
ts4-ssp% dr
dr> drinit ts4
Checking environment...
Establishing Control Board Server connection...
Initializing SSP SNMP MIB...
Establishing communication with DR daemon...

       ts4: System Status - Summary

BOARD #: 5 physically present.
BOARD #: 1 3 4 being used by the system.
dr>
```

DIAGNOSTICS

```
No 'SUN_...' environment variable defined
Environment initialization failed. Unable to continue
```

One or more required environment variables were not present in the execution environment. See the *Ultra Enterprise 10000 SSP 3.0 User's Guide* for a list of the required environment symbols.

```
Error: can't communicate with DR daemon
RPC setup failure. Check DR host daemon. Unable to continue
```

The **dr_daemon**(1M) on the specified domain could not be contacted. Verify that the **dr_daemon**(1M) process is running on the target domain, and that a **dr_daemon**(1M) entry appears in the **inetd.conf**(4) file. See **dr_daemon**(1M) in the *Solaris Reference Manual for SMCC-Specific Software* and **inetd.conf**(4) in *man Pages(4): File Formats*.

`SNMP error - can't acquire handle for SNMP agent`

The SNMP Agent on the SSP is not responding.

`Can't change rpc timeout`

drinit was unable to lengthen the default RPC timeout.

`No target domain has been established for DR operation`

The required *domain* argument was not specified.

`cbs_connect() failed, returned 0`
`Unable to connect to Control Board Server`

You have specified an unknown or incorrect domain name. Try again with a valid name.

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO

dr(1M), **drdeinit**(1M) in this Reference Manual

dr_daemon(1M) in the *Solaris Reference Manual for SMCC-Specific Software*

inetd.conf(4) in *man Pages(4): File Formats*

NAME

drshow – display DR and board resource information

SYNOPSIS

drshow UNSAFE [*interval* [*count*]
drshow *sb* [*report_type*] [*interval* [*count*]]
drshow ALL [*report_type*] [*interval* [*count*]]

DESCRIPTION

drshow displays board-level and system-level resources and information about DR. It presents the displays in a tabular format.

drshow can sample at a specified interval (in seconds), for a given number of times. This polling capability is especially useful to monitor an in-progress drain operation.

Note: **drinit**(1M) must be run before **drshow**.

OPTIONS

See the **SYNOPSIS** line for acceptable combinations.

UNSAFE Display all unsafe devices that are open throughout the domain.

sb The board number (0 to 15) of the target domain.

ALL Report the requested information for all active system boards in the domain. You can specify this keyword with one (and only one) of the following report types: **CPU**, **IO**, or **MEM.**

report_type The type of information to be displayed. Specify *report_type* as one of the following keywords. Note that all keyword arguments are case-insensitive.

- **CPU** Show processor information for the board (default)
- **DRAIN** Show the progress of any active drain operation
- **IO** Show the devices attached to this board
- **OBP** Display the board configuration as OBP sees it. The OBP display can be used on a board that has been init-attached, and not yet complete-attach'ed. The OBP display may not be as accurate as the CPU / MEM / IO displays for boards in use.
- **MEM** Show the memory configuration of this board

interval The frequency, in seconds, with which **drshow** is to repeat the display.

count The number of times **drshow** is to repeat the display.

NOTES

Exercise caution when using repeating displays. The only way to prematurely stop one is by hitting **Control-C**, which terminates the DR shell.

EXIT STATUS

drshow always returns a character 0 result code in **dr_return**.

EXAMPLE

```
dr> drshow 1 IO

                SBus Controllers and Devices for Board 1

-------------------------- Sbus 1 : Slot 0 : esp0 --------------------------

device    opens  name                    usage
------    -----  ----                    -----
sd0           0   /dev/dsk/c0t0d0s0
sd1          26   /dev/dsk/c0t1d0s0       /
              0   /dev/dsk/c0t1d0s1       swap, /tmp
              9   /dev/dsk/c0t1d0s3       /var
              1   /dev/dsk/c0t1d0s5       /opt
             18   /dev/dsk/c0t1d0s6       /usr
              1   /dev/dsk/c0t1d0s7       /export
sd2           0   /dev/dsk/c0t2d0s0
sd3           0   /dev/dsk/c0t3d0s1       swap, /tmp
              0   /dev/dsk/c0t3d0s7       /xfer

-------------------------- Sbus 1 : Slot 1 : qec0 --------------------------

device    opens  name                    usage
------    -----  ----                    -----
qe0               qe0                     ts4 (129.153.49.118)
qe1               qe1
qe2               qe2
qe3               qe3
```

SEE ALSO

dr(1M), **drinit**(1M)

Dynamic Reconfiguration User's Guide

NAME

drview – DR Graphical User Interface

SYNOPSIS

drview

DESCRIPTION

drview is the Graphical User Interface (GUI) for Dynamic Reconfiguration (DR). Do not invoke it directly; it is automatically initiated by Hostview. See **hostview**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*.

For more information about Hostview see the *Ultra Enterprise 10000 SSP 3.0 User's Guide*, and for more information about drview see the *Dynamic Reconfiguration User's Guide*.

SEE ALSO

hostview(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*.

Ultra Enterprise 10000 SSP 3.0 User's Guide

NAME

init_attach – initiate a DR Attach operation

SYNOPSIS

init_attach *sb*

DESCRIPTION

Execute this command at the **dr**(1M) shell prompt to begin a DR Attach operation. The system board to be attached must be present, powered-on, and currently in no domain. It is diagnosed and debuted to the Enterprise 10000 target domain specified by the **drinit**(1M) command. Upon completion of the **init_attach,** the board's resources – processors, memory, and I/O controllers – are prepared for attachment by the operating system. The board is added to the board list in the SSP's **domain_config**(4) file, and the Enterprise 10000 centerplane is reconfigured such that the board is visible to the target domain.

Note: **drinit** must be run before **init_attach**.

Upon successful completion of **init_attach** you can use **complete_attach**(1M) to complete the attach operation or **abort_attach**(1M) to abort it.

OPTIONS

sb The board number (0 to 15) of the system board to be attached.

EXIT STATUS

If successful, **init_attach** returns a 0 in the **dr_return** global variable; if not, it returns a 1, along with one or more diagnostic messages.

EXAMPLE

```
ts4-ssp% dr
dr> drinit ts4
Checking environment...
Establishing Control Board Server connection...
Initializing SSP SNMP MIB...
Establishing communication with DR daemon...

        ts4: System Status - Summary

BOARD #: 5 physically present.
BOARD #: 1 3 4 being used by the system.

dr> init_attach 5
Initiate attaching board 5 to domain ts4.
Adding board 5 to domain_config file.
/opt/SUNWssp/bin/hpost -H20,4
Opening SNMP server library...

Reading centerplane asics to obtain bus configuration...
Bus configuration established as 3F.
phase cplane_isolate: CP domain cluster mask clear...
phase init_reset: Initial system resets...
phase jtag_integ: JTAG probe and integrity test...
```

```
phase mem_probe: Memory dimm probe...
phase iom_probe: I/O module type probe...
phase jtag_bbsram: JTAG basic test of bootbus sram...
phase proc1: Initial processor module tests...
phase pc/cic_reg: PC and CIC register tests...
phase dtag: CIC DTAG tests...
phase mem: MC register and memory tests...
phase io: I/O controller tests...
phase procmem2: Processor vs. memory II tests...
phase lbexit: Centerplane connection tests...
phase final_config: Final configuration...
Configuring in 3F, FOM = 1024.00: 4 procs, 2 SCards, 1024 MBytes.
Creating OBP handoff structures...
Configured in 3F with 4 processors, 2 SBus cards, 1024 MBytes memory.
Interconnect frequency is  83.273 MHz, from SNMP MIB.
Processor    frequency is 166.589 MHz, from SNMP MIB.
Boot processor is 5.0 = 20
POST (level=16, verbose=20, -H4,0020) execution time 3:50
hpost is complete.
obp_helper -H -m20
Board debut complete.
Reconfiguring domain mask registers.
Probing board resources.
Board attachment initiated successfully.

Ready to COMPLETE board attachment.

dr>
```

DIAGNOSTICS

`add_board_to_domain returns entry not found`

The target domain selected by the **drinit**(1M) command is not properly listed in the **domain_config**(4) file. Check the **domain_config**(4) file, then try the operation again at a later time.

`add_board_to_domain returns entry not found`
`Unable to locate domain` *target domain* `in domain_config file.`

DR was unable to locate an entry for the current target domain. Use the **domain_status**(1M) command (described in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*) to verify the contents of the **domain_config**(4) file (described in *man Pages(4): Ultra Enterprise 10000 SSP File Formats*).

`Board debut failed – return =` *value*

The debut utility has failed (see **obp_helper**(1M) in *man Pages(1M): Ultra Enterprise 10000 SSP Administration Commands*). Consult the SSP message files for information regarding the failure.

`Board` *brd* is a member of a foreign hardware domain.

The board you are trying to attach has been identified as a member of another domain on this platform, which prevents it from being attached to the designated target domain. You must remove this board from the other domain before initiating an attach.

`Board` *brd* `is not eligible for attach`

One or more conditions is preventing this board from being attached to the target domain. The board must be physically present, powered on, and not a member of any domain to be eligible for attachment.

`Board may be Black or Red listed.`

If this board is blacklisted or redlisted, it cannot be attached. Check the **postrc**(4) file for the location of the **blacklist**(4) and **redlist**(4) files.

`DR Error: State for board` *brd* `can't be determined.`

During initial domain contact an unexpected board condition was detected by **dr_daemon**(1M). (See **dr_daemon**(1M) in the *Solaris Reference Manual for SMCC-Specific Software*.) Check the system log on the host for more information.

`Error executing` *command*

dr(1M) executed the indicated command, but it returned a failure indication. If the error message specifies a specific action you must take, do so, then retry the command. Otherwise, simply retry the **init_attach** operation at a later time. If that attempt fails, call your service provider.

`FAD error detected, retrying...`

A transient failure occurred during updating of the **domain_config**(4) file has been. **init_attach** will retry the operation. If all retries fail, consult the SSP messages files for more information.

`Failed to initiate board attachment`

The **init_attach** operation on the target domain has failed.

`Unable to execute` *command*

dr(1M) could not execute the indicated command. Check that the program file exists and is assigned the appropriate modes.

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO

dr(1M), **drinit**(1M) in this Reference Manual

blacklist(4), **domain_config**(4), **domain_status**(1M), **postrc**(4), **redlist**(4) in *man Pages(4): Ultra Enterprise 10000 SSP File Formats*

dr_daemon(1M) in the *Solaris Reference Manual for SMCC-Specific Software*

NAME

reconfig – inititate auto-configuration sequence

SYNOPSIS

reconfig

DESCRIPTION

Warning: This command can remap device files and cause the renaming of known devices. Use it with extreme caution.

Execute this command at the **dr**(1M) shell prompt after a new board has been attached to a running domain to make the board's devices immediately available for use.

reconfig executes the standard Solaris configuration sequence in the target domain (see **drinit**(1M), which consists of the following commands, shown here in the proper order: **drvconfig**(1M), **devlinks**(1M), **disks**(1M), **ports**(1M), and **tapes**(1M).

EXIT STATUS

reconfig returns a 0 in the **dr_return** global variable upon success, or a 1 upon failure.

EXAMPLE

```
dr> reconfig
Reconfiguration of devices in progress...
Reconfiguration completed successfully.
```

DIAGNOSTICS

`Reconfiguration failed`

One or more of the Enterprise 10000 domain's reconfiguration commands has failed. Check the **/var/adm/messages** file on the Enterprise 10000 domain.

NOTES

If DR detects a usage syntax error, it immediately aborts the **dr**(1M) command, displays the **dr**(1M) shell prompt, and leaves **dr_return** unmodified. See **dr**(1M).

SEE ALSO

dr(1M), **drinit**(1M) in this Reference Manual

drvconfig(1M), **devlinks**(1M), **disks**(1M), **ports**(1M), **tapes**(1M) in the *man Pages(1M): System Administration Commands*