Sun Enterprise 10000 Dynamic Reconfiguration Reference Manual

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Contents

CHAPTER

Maintenance Commands

NAME

Intro – Sun(tm) Enterprise(tm) 10000 DR administration

AVAILABILITY

Sun Enterprise 10000 servers only.

DESCRIPTION

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

Note - Execute commands shown here only in the SSP environment. One exception, `dr_daemon(1M)`, must be executed in the host environment of the Sun Enterprise 10000 server.

LIST OF COMMANDS

abort_attach(1M)	abort DR attach operation
abort_detach(1M)	abort DR detach operation
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dr_cmd_obp_info(1M)	show complete config on a system board in Tcl encoding
dr_cmd_print_brd_info(1M)	show board resource in tabular format
dr_cmd_print_obp_info(1M)	show system board info per OpenBoot(tm) Prom 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
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*

AVAILABILITY

Sun Enterprise 10000 servers only.

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. `abort_attach` leaves the board present, powered-on, and in no domain. It instructs the operating system running on the target domain specified by the SUNW_HOSTNAME environment variable to abandon the in-progress attach operation, then removes the board from the `domain_config` file and resets the Enterprise 10000 centerplane cluster mask registers and board domain mask registers. See `domain_config(4)` in the *Sun Enterprise 10000 SSP Reference Manual*.

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

The following options are supported.

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.

EXAMPLES

EXAMPLE 1 Using `abort_attach(1M)`

```
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

The following diagnostics are supported:

`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), init_attach(1M)

NAME

abort_detach – abort a DR Detach operation

SYNOPSIS

abort_detach *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

DESCRIPTION

Execute this command at the `dr(1M)` shell prompt to abort an attempt to DR Detach a board. You can execute `abort_detach` after the board has been successfully executed, resources on the designated system board are once again available to the operating system.

OPTIONS

The following options are supported.

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.

EXAMPLES

EXAMPLE 1 Using `abort_detach(1M)`

```
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

The following diagnostics are supported:

`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 the *Sun Enterprise 10000 SSP Reference Manual*) 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)

NAME

complete_attach – complete a DR Attach operation

SYNOPSIS

complete_attach *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

DESCRIPTION

Execute this command at the `dr(1M)` shell prompt to complete an attempt to DR Attach a board after successful execution of the of the `init_attach(1M)` command. `complete_attach` causes the operating system running 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

The following options are supported.

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.

EXAMPLES

EXAMPLE 1 Using `complete_detach(1M)`

```
dr> complete_attach 5


Completing attach for board 5


Board attachment completed successfully.
```

DIAGNOSTICS

The following diagnostics are supported:

`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), drshow(1M), init_attach(1M)

NAME

complete_detach – complete a DR detach operation

SYNOPSIS

complete_detach *sb* [force]

AVAILABILITY

Sun Enterprise 10000 servers only.

DESCRIPTION

Execute this command at the `dr(1M)` shell prompt to complete an attempt to DR Detach a board. The `drain(1M)` 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 domain 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 *Sun Enterprise 10000 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

The following options are supported.

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

`force` — Force the domain quiesce operation. See the *Sun Enterprise 10000 Dynamic Reconfiguration User's Guide* for a description of such conditions. You can use the `force` argument to force the quiesce in such situations.

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.

EXAMPLES

EXAMPLE 1 Using `complete_detach(1M)`

```
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

The following diagnostics are supported:

`Cannot COMPLETE detach until drain completes`

The drain operation is still in-progress. Use `drshow(1M)` to monitor the drain. After 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

AVAILABILITY

Sun Enterprise 10000 servers only.

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 *Sun Enterprise 10000 Dynamic Reconfiguration User's Guide* and `hostview(1M)` in the *Sun Enterprise 10000 SSP Reference Manual*.

When executed on the command line, `dr` connects to the domain specified by the SUNW_HOSTNAME environment variable. After this connection is established, `dr` displays the `dr>` prompt, which accepts the DR commands.

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

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.`

EXAMPLES

EXAMPLE 1 Using `dr(1M)`

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

```
e100001-ssp% domain_switch e100001



e100001-ssp% dr



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 procl: 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 forr 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

Sun Enterprise 10000 Dynamic Reconfiguration User's Guide

Sun Enterprise Server Alternate Pathing User's Guide

Sun Enterprise 10000 SSP User's Guide

domain_switch(1M), hostview(1M) in the *Sun Enterprise 10000 SSP Reference Manual*

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

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

syslog(3) in *man Pages(3): Library Routines* of the *SunOS Reference Manual*

NAME

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

AVAILABILITY

Sun Enterprise 10000 servers only.

DESCRIPTION

The low-level commands described here, which begin with `dr_cmd`, are available only in the DR shell, and are for use by service providers only. Service providers 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 to 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 *Sun Enterprise 10000 SSP Reference Manual*) is the preferred method of performing DR operations. Use the `dr(1M)` shell when the GUI-based Hostview application is unavailable.

CAUTION

Customers should not use these low-level commands, but should access DR through the DR GUI, as described in the *Sun Enterprise 10000 Dynamic Reconfiguration User's Guide*, or via the high-level DR commands (those without the `dr_cmd` prefix) described in this reference manual.

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*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

If `abort_attach(1M)` were unavailable for some reason, you could run `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

The following options are supported:

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

EXIT STATUS

If `abort_attach(1M)` 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*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

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

The following options are supported:

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_drain(1M)

NAME

dr_cmd_auto_config – run Solaris reconfig sequence on target domain

SYNOPSIS

dr_cmd_auto_config

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

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 in the `reconfig(1M)` man page.

SEE ALSO

reconfig(1M) in this Reference Manual

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

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

NAME

dr_cmd_c_attach – complete DR attach system board operation

SYNOPSIS

dr_cmd_c_attach *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

`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

The following options are supported:

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*

AVAILABILITY

Sun Enterprise 10000 servers only.

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_detach(1M)`, which performs the same functions, but with the added security of safeguards and checks.

DESCRIPTION

`dr_cmd_c_detach` completes a DR detach board operation. The designated system board should already have 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

The following options are supported:

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_drain(1M)

Sun Enterprise 10000 SSP User's Guide

NAME

dr_cmd_c_f_detach – force completion of DR detach system board operation

SYNOPSIS

dr_cmd_c_f_detach *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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_detach(1M)`, which performs the same functions, but with the added security of safeguards and checks.

DESCRIPTION

`dr_cmd_c_f_detach` completes a 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 *Sun Enterprise 10000 Dynamic Reconfiguration User's Guide* for more information on system quiesce, and ways to increase the safety of this dangerous command.

OPTIONS

The following options are supported:

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_drain(1M)

Sun Enterprise 10000 SSP User's Guide

NAME

dr_cmd_cpu_info – show processors on a system board in Tcl encoding

SYNOPSIS

dr_cmd_cpu_info *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

CAUTION

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

DESCRIPTION

`dr_cmd_cpu_info` queries the target domain and produces a list of the processors attached to the specified system board. This 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

The following options are supported:

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

AVAILABILITY

Sun Enterprise 10000 servers only.

CAUTION

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

DESCRIPTION

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_detach_allow – verify a system board can support DR detach

SYNOPSIS

dr_cmd_detach_allow *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

CAUTION

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

DESCRIPTION

`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 detach. If the board is not detachable, `dr_cmd_detach_allow` displays one or more diagnostic messages.

OPTIONS

The following options are supported:

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.

SEE ALSO

dr(1M)

Sun Enterprise 10000 SSP User's Guide

NAME

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

SYNOPSIS

dr_cmd_dev_info *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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

The following options are supported:

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 diagnosic 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*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

`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 *Ultra Enterprise 10000 SSP Reference Manual*.

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

OPTIONS

The following options are supported:

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 diagnosic 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_mem_info(1M)

Sun Enterprise 10000 SSP User's Guide

NAME

dr_cmd_drain_status – show state of in-progress memory drain.

SYNOPSIS

dr_cmd_drain_status *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

CAUTION

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

DESCRIPTION

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

The following options are supported:

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)

NAME

dr_cmd_eligible_attach – verify a system board is eligible for DR attach

SYNOPSIS

dr_cmd_eligible_attach *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

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

The following options are supported:

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)

Sun Enterprise 10000 SSP User's Guide

NAME

dr_cmd_eligible_detach – verify a system board is eligible for DR detach

SYNOPSIS

dr_cmd_eligible_detach *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

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

The following options are supported:

board 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 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)

Sun Enterprise 10000 SSP User's Guide

NAME

dr_cmd_init_attach – initiate DR attach system board operation

SYNOPSIS

dr_cmd_init_attach *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

`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 in the SUNW_HOSTNAME environment variable.

`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 *Sun Enterprise 10000 SSP Reference Manual*.) 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.

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

The following options are supported:

board 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 *Sun Enterprise 10000 SSP User's Guide*

NAME

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

SYNOPSIS

dr_cmd_mem_info *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

`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

The following options are supported:

board 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*

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

DESCRIPTION

`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

The following options are supported:

board 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 resource in tabular format

SYNOPSIS

dr_cmd_print_brd_info *sb flags*

AVAILABILITY

Sun Enterprise 10000 servers only.

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 reabable format.

DESCRIPTION

`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

EXAMPLE 1 Displaying the Processor and Memory Configuration

To display the processor and memory configuration, use the following command:

```
dr> dr_cmd_print_brd_info 5
```

To display all configuration information, use the following command:

```
dr> dr_cmd_print_brd_info 31
```

OPTIONS

The following options are supported:

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 OpenBoot(tm) Prom in tabular format

SYNOPSIS

dr_cmd_print_obp_info *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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 reabable format.

DESCRIPTION

`dr_cmd_print_obp_info` obtains 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

The following options are supported:

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

EXIT STATUS

If `dr_cmd_print_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_unsafe_info – show a domain's open, devices in tabular format

SYNOPSIS

dr_cmd_print_unsafe_info

AVAILABILITY

Sun Enterprise 10000 servers only.

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 reabable format.

DESCRIPTION

`dr_cmd_print_unsafe_info` queries the target domain to determine if any unsafe peripheral devices are open. (See the *Sun Enterprise 10000 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 stout.

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

AVAILABILITY

Sun Enterprise 10000 servers only.

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 reabable format.

DESCRIPTION

`dr_cmd_unsafe_dev_info` queries the target domain to determine if any unsafe peripheral devices are open. (See the *Sun Enterprise 10000 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

dr_daemon – Sun Enterprise 10000 DR daemon

SYNOPSIS

dr_daemon [–a]

AVAILABILITY

Sun Enterprise 10000 servers only. Execute this command only in the host - not SSP - environment.

DESCRIPTION

The `dr_daemon` is an RPC program that provides the interface to the Sun Enterprise 10000 Dynamic Reconfiguration (DR) driver, `dr(7)`. The Hostview and DR applications provide the user interface to DR. See `hostview(1M)` in the *Sun Enterprise 10000 SSP Reference Manual* and `dr(1M)` in the *Sun Enterprise 10000 Dynamic Reconfiguration Reference Manual*.

OPTIONS

–a
: Disable communications with the Alternate Pathing daemon. See `ap_daemon(1M)` in the *Sun Enterprise Server Alternate Pathing Reference Manual*.

Configuration Information

The `/platform/SUNW,Ultra-Enterprise-10000/lib/dr_daemon` RPC program name is DRPROG, its RPC program number is 300326, and its underlying protocol is TCP. It is invoked as an inetd server using the TCP transport. The UID required for access to the daemon is ssp. This UID can be a non-login UID.

The entry for the daemon in the `/etc/inetd.conf`

file is:

```
300326/4 tli rpc/tcp wait root /platform/SUNW,Ultra-Enterprise-10000/lib/dr_daemon
```

The daemon's only clients are Hostview and DR. Hostview provides a GUI interface; `dr(1M)` is a command-line interface for non-windowing environments. The DR daemon uses `syslog(3)` to report status and error messages, which are logged with the LOG_DAEMON facility and the LOG_ERR and LOG_NOTICE priorities.

The `dr_daemon` communicates via RPC with the Alternate Pathing (AP) daemon to notify the AP software when controllers are attached to and detached from the system, or to gather information about the system configuration. See `ap_daemon(1M)` in the *Sun Enterprise Server Alternate Pathing Reference Manual*.

SEE ALSO

Sun Enterprise 10000 Dynamic Reconfiguration User's Guide

Sun Enterprise Server Alternate Pathing User's Guide

`dr(7)` in this reference manual

`ap(1M)`, `ap_daemon(1M)` in the *Sun Enterprise Server Alternate Pathing Reference Manual*.

`dr(1M)` in the *Sun Enterprise 10000 Dynamic Reconfiguration Reference Manual*

`hostview(1M)`, `hpost(1M)` in the *Sun Enterprise 10000 SSP Reference Manual*

`add_drv(1M)`, `drvconfig(1M)`, `devlinks(1M)`, `disks(1M)`, `inetd(1M)`, `ports(1M)`, `tapes(1M)`, `prtconf(1M)`, `syslog(3)` in this reference manual

NAME

drain – start memory drain

SYNOPSIS

drain *sb* [*wait*]

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

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` returns only after the board has been fully drained, or `drain` detects an error. `drain` automatically displays the board status once before returning.

OPTIONS

The following options are supported:

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 the `dr_return` indicates that the drain (not just initiation of it) has completed successfully, and a 1 indicates that the drain has failed.

EXAMPLES

EXAMPLE 1 Using `drain(1M)`

```
ts4-ssp% domain_switch ts4
ts4-ssp% dr
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) in this reference manual

domain_switch(1M) in the *Sun Enterprise 10000 SSP Reference Manual*

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*]]

AVAILABILITY

Sun Enterprise 10000 servers only.

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.

OPTIONS

The following options are supported:

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) on 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 tthe 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` returns a character 0 result code in `dr_return`.

EXAMPLES

EXAMPLE 1 Using `drshow(1M)`

```
dr> drshow 1 IO

                          I/O Bus Controllers and Devices for Board 1

------------------------------- I/O Bus 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

------------------------------- I/O Bus 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)

Sun Enterprise 10000 Dynamic Reconfiguration User's Guide

NAME

drview – DR Graphical User Interface

SYNOPSIS

drview

AVAILABILITY

Sun Enterprise 10000 servers only.

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 the *Sun Enterprise 10000 SSP Reference Manual*.

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

SEE ALSO

hostview(1M) in the *Sun Enterprise 10000 SSP Reference Manual*.

Sun Enterprise 10000 SSP User's Guide

NAME

init_attach – initiate a DR attach operation

SYNOPSIS

init_attach *sb*

AVAILABILITY

Sun Enterprise 10000 servers only.

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 SUNW_HOSTNAME environment variable. 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.

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

The following options are supported:

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.

EXAMPLES

EXAMPLE 1 Using `init_attach(1M)`

```
ts4-ssp% domain_switch ts4
ts4-ssp% dr
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 jtab_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 procl: 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 ibexit: Centerplane connection tests...
phase final_config: Final configuration...
Configuring 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

The following diagnostics are supported:

`add_board_to_domain returns entry not found`

The target domain specified by the SUNW_HOSTNAME environment variable 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 to verify the contents of the `domain_config(4)` file. See the *Sun Enterprise 10000 SSP Reference Manual*.

`Board debut failed - return =` *`value`*

The debut utility has failed (see `obp_helper(1M)` in *Sun Enterprise 10000 SSP Reference Manual*). 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 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) in this Reference Manual

blacklist(4), domain_config(4), domain_status(1M), domain_switch(1M), postrc(4), redlist(4) in Section 4 of the *Sun Enterprise 10000 SSP Reference Manual*

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

NAME

reconfig – initiate auto-configuration sequence

SYNOPSIS

reconfig

AVAILABILITY

Sun Enterprise 10000 servers only.

WARNING

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

DESCRIPTION

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. This sequence consists of the following commands, shown here in the proper order: `drvconfig(1M)`, `devlinks`, `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.

EXAMPLES

EXAMPLE 1 Using `reconfig(1M)`

```
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) in this Reference Manual

drvconfig(1M), devlinks(1M), disks(1M), ports(1M), tapes(1M) in *man Pages(1M): System Administration Commands* of the *SunOS Reference Manual*.

CHAPTER

Device and Network Interfaces

NAME

Intro – DR special files

DESCRIPTION

This section describes DR files for your Sun Enterprise server.

LIST OF FUNCTIONS

dr(7)	dynamic reconfiguration driver

NAME

dr – Sun Enterprise 10000 Dynamic Reconfiguration driver

DESCRIPTION

The DR driver provides a pseudo-driver interface to sequencing dynamic attach and detach of Sun Enterprise 10000 system boards. This interface is provided via file system entry points referred to as *Attachment Points*. An attachment point exist for each possible system board slot in the Sun Enterprise 10000 server and takes the form of:

`/devices/pseudo/dr@0:slot` *X*

where *X* represents the physical slot number (0 to 15) for a particular system board.

The `dr` driver is actually designed as a general module for sequencing DR operations for different platforms, but it is currently supported only on the Sun Enterprise 10000. The `dr` driver works in conjunction with the `drmach(7)` "misc" module, which provides the platform-specific (Sun Enterprise 10000) DR sequencing and attributes.

Execution of DR operations on the Enterprise 10000 are actually performed by the `dr_daemon(1M)`. When performing either a DR Attach or DR Detach operation, `dr_daemon(1M)` makes the appropriate `ioctl(2)` system calls into the respective attachment point for that particular board. The general sequence of the `ioctl(2)` calls are as follows:

For DR Attach:

CONNECT OBP probes for the devices on the incoming board.

CONFIGURE Convert the device nodes into CF2 and make the respective resources available to the OS.

For DR Detach:

RELEASE Release usage of certain devices on the respective board.

UNCONFIGURE Remove respective devices from the operating system resource pool.

DISCONNECT Remove devices from the (OBP) device tree.

SEE ALSO

Sun Enterprise 10000 Dynamic Reconfiguration User's Guide

`add_drv(1M)`, `drvconfig(1M)`, `devlinks(1M)`, `disks(1M)`, `ports(1M)`, `tapes(1M)` in the *SunOS Reference Manual*