DR Administration Commands

NAME

Intro – Sun™ Enterprise™ 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.

- **abort_attach**(1M) abort DR attach operation
- **abort_detach**(1M) abort DR detach operation
- **complete_attach**(1M) complete DR attach operation
- **complete_detach**(1M) complete DR detach operation
- **dr**(1M) initiate dynamic reconfiguration shell
- **dr.service**(1M) low-level DR commands for service providers
- **dr_cmd_a_attach**(1M) abort DR attach system board operation
- **dr_cmd_a_detach**(1M) abort DR detach system board operation
- **dr_cmd_auto_config**(1M) run Solaris reconfig sequence on target domain
- **dr_cmd_c_attach**(1M) complete DR attach system board operation
- **dr_cmd_c_detach**(1M) complete DR detach system board operation
- **dr_cmd_c_f_detach**(1M) force completion of DR detach system board operation
- **dr_cmd_cpu_info**(1M) show processors on a system board in Tcl encoding
- **dr_cmd_debug**(1M) toggle DR library-level debugging
- **dr_cmd_detach_allow**(1M) verify a system board can support DR detach
- **dr_cmd_dev_info**(1M) show devices on a system board in Tcl encoding
- **dr_cmd_drain**(1M) start memory drain on a system board
- **dr_cmd_drain_status**(1M) show state of in-progress memory drain
- **dr_cmd_eligible_attach**(1M) verify a system board is eligible for DR attach
- **dr_cmd_eligible_detach**(1M) verify a system board is eligible for DR detach
- **dr_cmd_init_attach**(1M) initiate DR attach system board operation
- **dr_cmd_mem_info**(1M) show memory configuration on a system board in Tcl encoding
- **dr_cmd_obp_info**(1M) show complete config on a system board in Tcl encoding
- **dr_cmd_print_brd_info**(1M) show system board resources in tabular format
- **dr_cmd_print_obp_info**(1M) show system board info per OpenBoot™ 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

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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 Ultra 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
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), init_attach(1M)
abort_detach (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 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.

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 the Ultra 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)
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), 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) 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 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  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 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.
  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 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 Ultra 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.

**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% 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.
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
Sun Enterprise 10000 Dynamic Reconfiguration User's Guide
Sun Enterprise Servers Alternate Pathing User's Guide
Ultra Enterprise 10000 SSP User's Guide
domain_switch(1M), hostview(1M) in the Ultra 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 the man Pages(3): Library Routines of the SunOS Reference Manual
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<th>NAME</th>
<th>dr.service – low-level DR commands for service providers</th>
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| 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.  
  
  **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.  
  
  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 *Ultra 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. |
| 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.

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

If abortAttach(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 abortAttach(1M).

SEE ALSO  dr(1M), dr_cmd_init_attach(1M), dr_cmd_c_attach(1M)
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<td>Sun Enterprise 10000 servers only.</td>
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<tr>
<td>DESCRIPTION</td>
<td>Caution: Do not use this command, which runs in the DR shell; it is included here only for completeness. Instead, use <code>abort_detach(1M)</code>, which performs the same functions, but with the added security of safeguards and checks. You can run <code>dr_cmd_a_detach</code> after draining a system board via <code>dr_cmd_drain(1M)</code> but before that board has been completely detached.</td>
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<tr>
<td>OPTIONS</td>
<td><code>sb</code> The board number (0 to 15) of the system board whose detach is being aborted.</td>
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<tr>
<td>EXIT STATUS</td>
<td>If <code>dr_cmd_a_detach</code> succeeds it returns a 0 result code in the <code>dr_return</code> 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 <code>dr_return</code> uninitialized. In such cases, the <code>dr_return</code> error code is meaningless. See <code>dr(1M)</code> for more information concerning return codes.</td>
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| SEE ALSO     | `dr(1M), dr_cmd_drain(1M)` 

*Ultra Enterprise 10000 SSP User’s Guide*
NAME  dr_cmd_auto_config – run Solaris reconfig sequence on target domain

SYNOPSIS  dr_cmd_auto_config

AVAILABILITY  Sun Enterprise 10000 servers only.

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 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.

**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`

AVAILABILITY  

Sun Enterprise 10000 servers only.

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_drain(1M)`

**Ultra 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.

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 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  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)

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<th>dr_cmd_cpu_info – show processors on a system board in Tcl encoding</th>
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<tr>
<td><strong>SYNOPSIS</strong></td>
<td><strong>dr_cmd_cpu_info</strong> <em>sb</em></td>
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<td><strong>AVAILABILITY</strong></td>
<td>Sun Enterprise 10000 servers only.</td>
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</table>
| **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
```

### AVAILABILITY
Sun Enterprise 10000 servers only.

### 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_detach_allow` – verify a system board can support DR detach

**SYNOPSIS**

`dr_cmd_detach_allow sb`

**AVAILABILITY**

Sun Enterprise 10000 servers only.

**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)`,

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<table>
<thead>
<tr>
<th>NAME</th>
<th>dr_cmd_dev_info – show devices on a system board in Tcl list encoding</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYNOPSIS</td>
<td><strong>dr_cmd_dev_info</strong> sb</td>
</tr>
<tr>
<td>AVAILABILITY</td>
<td>Sun Enterprise 10000 servers only.</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td><strong>Note:</strong> This command, which runs in the DR shell, produces output in a</td>
</tr>
<tr>
<td></td>
<td>form suitable for the <strong>drview</strong>(1M) application, not the interactive</td>
</tr>
<tr>
<td></td>
<td>user. Use <strong>drshow</strong>(1M) instead to view device information.</td>
</tr>
<tr>
<td>OPTIONS</td>
<td><strong>sb</strong> The board number (0 to 15) of the target system board.</td>
</tr>
<tr>
<td>EXIT STATUS</td>
<td>If <strong>dr_cmd_dev_info</strong> succeeds it returns a 0 result code in the <strong>dr_return</strong> global variable. If it fails, it returns a 1 and displays diagnostic messages.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Tcl parsing errors prevent DR commands from running which, in turn, leaves <strong>dr_return</strong> uninitialized. In such cases, the <strong>dr_return</strong> error code is meaningless. See <strong>dr</strong>(1M) for more information concerning return codes.</td>
</tr>
<tr>
<td>SEE ALSO</td>
<td><strong>dr</strong>(1M), <strong>dr_cmd_cpu_info</strong>(1M), <strong>dr_cmd_mem_info</strong>(1M)</td>
</tr>
</tbody>
</table>
dr_cmd_drain (1M)  DR Administration Commands

NAME    dr_cmd_drain – start memory drain on a system board.

SYNOPSIS   dr_cmd_drain sb

AVAILABILITY  Sun Enterprise 10000 servers only.

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_confg file on the SSP. (See domain_confg(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      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_mem_info(1M)

Ultra 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.

### 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)`
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.

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)  

Ultra 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.

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 ineli-
gible board may cause a system failure.

Use dr_cmd_eligible_detach to verify that a system board is eligible for a detach opera-
tion 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 sys-
tem 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 infor-
mation concerning return codes.

SEE ALSO  dr(1M)

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<table>
<thead>
<tr>
<th>NAME</th>
<th>dr_cmd_init_attach – initiate DR attach system board operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYNOPSIS</td>
<td>dr_cmd_init_attach sb</td>
</tr>
<tr>
<td>AVAILABILITY</td>
<td>Sun Enterprise 10000 servers only.</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td><strong>Caution:</strong> 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 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 Ultra 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 center-plane 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.</td>
</tr>
<tr>
<td>OPTIONS</td>
<td>sb The board number (0 to 15) of the system board to be attached.</td>
</tr>
<tr>
<td>EXIT STATUS</td>
<td>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. <strong>Note:</strong> 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.</td>
</tr>
<tr>
<td>DIAGNOSTICS</td>
<td>See DIAGNOSTICS on init_attach(1M).</td>
</tr>
<tr>
<td>SEE ALSO</td>
<td>Ultra Enterprise 10000 SSP User’s Guide</td>
</tr>
</tbody>
</table>
**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.

**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 |
| **AVAILABILITY** | Sun Enterprise 10000 servers only. |
| **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

**AVAILABILITY**
Sun Enterprise 10000 servers only.

**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:

<table>
<thead>
<tr>
<th>Flag Value</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Processor information</td>
</tr>
<tr>
<td>2</td>
<td>Controller and peripheral information</td>
</tr>
<tr>
<td>4</td>
<td>Memory configuration</td>
</tr>
<tr>
<td>8</td>
<td>Memory cost information</td>
</tr>
<tr>
<td>16</td>
<td>Memory drain status</td>
</tr>
</tbody>
</table>

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 OpenBoot™ Prom in tabular format

SYNOPSIS  dr_cmd_print_obp_info sb

AVAILABILITY  Sun Enterprise 10000 servers only.

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_brnd_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

AVAILABILITY  Sun Enterprise 10000 servers only.

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 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 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
AVAILABILITY Sun Enterprise 10000 servers only.
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 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.
# drain (1M)

## 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` 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% 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 Ultra 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

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

```bash
dr> drshow 1 IO
```

I/O Bus Controllers and Devices for Board 1

<table>
<thead>
<tr>
<th>device</th>
<th>opens</th>
<th>name</th>
<th>usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>sd0</td>
<td>0</td>
<td>/dev/dsk/c0t0d0s0</td>
<td></td>
</tr>
<tr>
<td>sd1</td>
<td>26</td>
<td>/dev/dsk/c0t1d0s0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>/dev/dsk/c0t1d0s1</td>
<td>swap, /tmp</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>/dev/dsk/c0t1d0s3</td>
<td>var</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>/dev/dsk/c0t1d0s5</td>
<td>/opt</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>/dev/dsk/c0t1d0s6</td>
<td>/usr</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>/dev/dsk/c0t1d0s7</td>
<td>/export</td>
</tr>
<tr>
<td>sd2</td>
<td>0</td>
<td>/dev/dsk/c0t2d0s0</td>
<td></td>
</tr>
<tr>
<td>sd3</td>
<td>0</td>
<td>/dev/dsk/c0t3d0s1</td>
<td>swap, /tmp</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>/dev/dsk/c0t3d0s7</td>
<td>xfer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>device</th>
<th>opens</th>
<th>name</th>
<th>usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>qe0</td>
<td>qe0</td>
<td></td>
<td>ts4 (129.153.49.118)</td>
</tr>
<tr>
<td>qe1</td>
<td>qe1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>qe2</td>
<td>qe2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>qe3</td>
<td>qe3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SEE ALSO

`dr(1M)`

*Sun Enterprise 10000 Dynamic Reconfiguration User’s Guide*
<table>
<thead>
<tr>
<th><strong>NAME</strong></th>
<th>drview – DR Graphical User Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SYNOPSIS</strong></td>
<td>drview</td>
</tr>
<tr>
<td><strong>AVAILABILITY</strong></td>
<td>Sun Enterprise 10000 servers only.</td>
</tr>
<tr>
<td><strong>DESCRIPTION</strong></td>
<td>drview is the Graphical User Interface (GUI) for Dynamic Reconfiguration (DR). Do not invoke it directly; it is automatically initiated by Hostview. See <strong>hostview</strong>(1M) in the <em>Ultra Enterprise 10000 SSP Reference Manual</em>. For more information about Hostview see the <em>Ultra Enterprise 10000 SSP User’s Guide</em> and for more information about drview see the <em>Sun Enterprise 10000 Dynamic Reconfiguration User’s Guide</em>.</td>
</tr>
<tr>
<td><strong>SEE ALSO</strong></td>
<td><strong>hostview</strong>(1M) in the <em>Ultra Enterprise 10000 SSP Reference Manual</em>.</td>
</tr>
</tbody>
</table>

*Ultra 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
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% 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 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 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 procemem2: 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 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 *Ultra Enterprise 10000 SSP Reference Manual*.

Board debut failed - return = value
The debut utility has failed (see `obp_helper(1M)` in *Ultra 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 Ultra 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.

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. This sequence consists of the following commands, shown here in the proper order:
`drvconfg(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)` in this Reference Manual

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