Cray Linux Environment™ (CLE) Software Release Overview Supplement

S–2497–4201

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Software Enhancements [1]

Cray Linux Environment (CLE) 4.2 software update release packages provide bug fixes and a limited set of software enhancements or features. This chapter provides an overview of software enhancements that are introduced in each update release.

Software enhancements and features that were introduced with the initial or base CLE 4.2 release are described in *Cray Linux Environment (CLE) Software Release Overview*.

1.1 Software Enhancements in CLE 4.2.UP01

1.1.1 Batch Process and Memory Limits (Torque Only)

CLE provides a new daemon for Torque MOM nodes called `batchlimitd`. It is used in order to avoid a potentially harmful proliferation of processes (e.g., *fork bomb*) that some jobs may create, resulting in OOM conditions and unstable or crashed nodes. `batchlimitd` allows administrators to tune these limits in the configuration file.

For more information, see the `batchlimitd` man page included with this release (PDF is included) and the default configuration file located at `/etc/opt/cray/batchlimitd/batchlimitd.conf` on the boot and SDB nodes.

1.1.2 Fast Compute Node Reboot

Fast Compute Node Reboot (FCNR) is an option of the `xtbootsys` command that reboots compute nodes without bouncing them, reducing the time needed for reboots. FCNR addresses a specific problem: when memory fragmentation reaches a level that prevents allocation of huge pages. Do not use FCNR as a general method of rebooting nodes.

The intended means of calling FCNR is through the configurations of Node Health Checker and the SMW daemon `dumpd`. The `xtbootsys` command syntax for use of FCNR specifies the `--fast` option:

```
% xtbootsys --reboot --fast [node_list]
```

For more information about FCNR, see *Managing System Software for the Cray Linux Environment*.

1.1.3 ALPS aprun Client Exclusion Lists

The `aprun` client command is modified to allow users to exclude nodes on a per-application instance basis using the `-E`, `--exclude-node-list` or `--exclude-node-list-file` options. In very rare cases, it is useful to have the option to exclude a certain node or list of nodes from application placement. For example, a node has not yet been marked into a `DOWN` state but otherwise known as "bad."

1.2 Bugs Addressed Since the Last Release

The list of customer-filed bug reports that were closed with CLE 4.2 releases is included in the *CLE 4.2 Errata* specific to this release package.

1.3 Compatibilities and Differences

The *README* document that is included with the release package describes compatibility issues and functionality changes that you should be aware of before you install a CLE 4.2 update release on a Cray system that was running an earlier version of the CLE 4.2 release.

The *README* document also includes additional documentation or changes to the documentation identified after the documentation for this release was packaged.

Support Requirements [2]

2.1 Supported Cray System Hardware Platforms

The CLE 4.2.UP01 update release supports Cray XE and Cray XK systems.

2.2 Supported Software Upgrade Path

The CLE 4.2.UP01 release supports initial system installations and upgrade installations from CLE 4.2.UP00 and CLE 4.1 release packages.

2.2.1 System Management Workstation (SMW) Requirements

You must be running the SMW 7.0.UP03 release or later before you install the CLE 4.2.UP01 update release package. For additional information, see the SMW *README* document included with the SMW release package.

2.3 Binary Compatibility

The language in the binary compatibility statement in *Cray Linux Environment (CLE) Software Release Overview* remains accurate.

2.4 Additional Software Requirements

2.4.1 Release Level Requirements for Other Cray Software Products

Note: Upgrading to the latest Cray XE and Cray XK Programming Environments Release is recommended. For release information, see the *Cray Programming Environments Installation Guide*, the *Cray Programming Environment User's Guide*, and the release notes.

Support for other Cray software products is provided in the form of updates to the latest released version only. Unless otherwise noted in the associated release documentation, Cray recommends that you continue to upgrade these releases as updates become available.

2.4.2 Third-party Software Requirements

Cray Linux Environment (CLE) Software Release Overview includes a section that lists third-party software requirements for the CLE 4.2 release; this information applies to CLE 4.2 update packages with the following exceptions:

- Updated information regarding supported and certified batch system software release levels is available on the CrayPort website at http://crayport.cray.com. Click on **3rd Party Batch SW** in the menu bar.

Documentation [3]

3.1 Cray-developed Books Provided with This Release

Table 1 lists the books provided with the CLE 4.2.UP01 release and indicates which books are new or revised with this update release. The most recent version of each book is provided with the release package.

For information about additional documentation resources and accessing documentation, see *Cray Linux Environment (CLE) Software Release Overview* (S–2425–42), which is also provided with the release package.

Table 1. Books Provided with This Release

Book Title	Most Recent Document	Updated
Cray Linux Environment (CLE) Software Release Overview Supplement (this document)	S–2497–4201	Yes
Cray Linux Environment (CLE) Software Release Overview	S–2425–42	No
Installing and Configuring Cray Linux Environment (CLE) Software	S–2444–4201	Yes
Managing System Software for the Cray Linux Environment	S–2393–4201	Yes
Managing Lustre for the Cray Linux Environment (CLE)	S–0010–4201	Yes
Introduction to Cray Data Virtualization Service	S–0005–5003	No
Writing a Node Health Checker (NHC) Plugin Test	S–0023–5002	No
Workload Management and Application Placement for the Cray Linux Environment	S–2496–42	No
Using the GNI and DMAPP APIs	S–2446–42	No
Using Compute Unit Affinity on Cray Systems	S–0030–5002	No
Using Balanced Injection in Cray Systems	S–0040–A	No
Installing Cray Linux Environment (CLE) Support Package on esLogin Nodes	S–2528–4201	Yes

3.2 Changed Cray Man Pages

- `cnselect`(1): added `-a` option; added `-l` option fields `processor_status`, `alloc_mode`, `x_coord`, and `y_coord` ; removed `-l coremask` argument; added `.rparen.` and `.lparen.` query expression operators for the `-e` option.
- `aprun`(1): changed `-ss` option text; added `APRUN_XFER_STACK_LIMIT` option;
- `xtnodestat`(1): Added reference for the wait state, `W`.