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Pivotal Greenplum® Command Center 3.1.1 Release Notes

Greenplum Command Center version: 3.1.1

Greenplum Workload Manager version: 1.7.2

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About This Release

Pivotal Greenplum Command Center release 3.1.1 contains Greenplum Command Center release 3.1.1 and Greenplum Workload Manager release 1.7.2.

See [Enhancements and Changes in Greenplum Command Center 3.1.1](#) for information about new features and improvements in the Greenplum Command Center 3.1.0 release.

See [Enhancements and Changes in Greenplum Workload Manager 1.7.2](#) for information about new features and improvements in the Workload Manager 1.7.2 release.

Supported Platforms

Greenplum Command Center may be installed on the following platforms:

- Red Hat Enterprise Linux 5, 6, or 7, 64-bit
- CentOS 5, 6, or 7, 64-bit
- SUSE Linux Enterprise 11SP4, 64-bit
- Greenplum Database 4.3.x or 5.x

Greenplum Workload Manager may be installed on the following platforms:

- Red Hat Enterprise Linux 5.5+ or 6, 64-bit
- CentOS 5.5+ or 6, 64-bit
- Greenplum Database 4.3.x

Pivotal Documentation

Pivotal Greenplum Command Center and Pivotal Greenplum Workload Manager documentation is available on the Pivotal Documentation site at <http://gpcc.docs.pivotal.io/> [↗](#).

About Pivotal Greenplum Command Center

Pivotal Greenplum Command Center (GPCC) is a management tool for Pivotal Greenplum Database. GPCC monitors query activity and system performance metrics. Pivotal Greenplum Command Center is an interactive graphical web application that can be installed on the master host and used to view and interact with the collected system data from Greenplum Database.

Greenplum Database is a requirement for operating Command Center because Command Center relies on information stored in the Greenplum gpperfmon database. Greenplum Database includes data collection agents that run on the Greenplum Database master host and each segment host. The agents collect data about queries and system utilization and send them to the Greenplum master host at regular intervals. Data stored in the gpperfmon database can be accessed through the Command Center web application or with SQL queries.

Enhancements and Changes in Greenplum Command Center 3.1.1

Greenplum Command Center 3.1.1 contains the following enhancements:

- Fixed a bug introduced in 3.1.0 that refused passwords with special characters

- Fixed a bug introduced in 3.1.0 that prevented long pages from scrolling
- More robust hostname detection for Host Metrics and Storage Status

New Known Issues:

- When multiple queries are submitted as a single statement, cannot run explain because all queries in the statement are included in query text (gpperfmon issue)
- Line breaks in queries are not preserved in query history (gpperfmon issue)

Enhancements and Changes in Greenplum Command Center 3.1.0

Greenplum Command Center release 3.1.0 contains the following new features and enhancements:

- Manage Command Center user roles in the **Administration > Permissions** view.
- New Command Center permission levels “Basic” and “Operator Self Only”.
- View and edit the Greenplum Database `pg_hba.conf` authentication configuration file in the new **Administration > Authentication** view.
- View recent messages from the Greenplum Database `pg_log` file in the **Alerts** panel on the **Dashboard**.
- On the **Cluster Metrics** view, you can choose metrics to show or hide.
- Clusters on the Multi-cluster page can be protected by adding a list of allowed roles to the clusters’ entries in the Multi-cluster configuration file.
- The installer provides an option to install the Command Center software on the standby master.
- OpenSSL libraries are no longer bundled with Greenplum Command Center. The web server continues to support SSL connections and user authentication. However, the `gpccmdr --setup` command no longer provides an option to generate a self-signed certificate. You must install your own server certificate and import it when you create a Command Center instance.
- Experimental support for authenticating Command Center users with Kerberos. If you want to use this feature, please work with Pivotal to ensure that it is correct for your environment.
- Support for Greenplum Command Center with a Greenplum Database 5.x system.

Enhancements and Changes in Greenplum Command Center 3.0.1

Greenplum Command Center release 3.0.1 addresses the following issues in Greenplum Command Center release 3.0.0:

- Hosts with hostnames changed since the initial Greenplum Database installation not appearing in host and cluster metrics
- Manual 4-digit entry into History time fields
- Temporary display of zero value for cluster metrics when under high load
- Count and sort in History queries grid
- `gpccmdr --restart` not reliably bringing gpmomws back up
- `gpccmdr --version`
- History charts can cut off edges of timespan

Enhancements and Changes in Greenplum Command Center 3.0.0

The Greenplum Command Center software is brand new for this release. A native HTML5 front-end and Go backend replace the previous Flash and Python application.

New Technology

- Native HTML5 frontend – no Flash, no browser plugin required
- Completely new backend written in [Go](#)
- Same data collection agents, same gpperfmon database schema – no corresponding changes in Greenplum Database

New Upgrade Process

- Preserve your instance configurations with the new `gpccmdr --migrate` command option

New Console UI

- Reorganized Dashboard view
- More responsive Query Monitor and Query Details views
- Host Metrics view with new skew severity indication
- Cluster Metrics view with synchronized charts
- History browser view featuring user-defined timespan, integrated charts and query list, pan and zoom timeframe
- System monitoring views for Storage and Segment status

GPCC 2.x features not carried over into 3.0

NOTE: you can continue to run 2.x on a separate port to access these features until they are reintroduced in a future GPCC 3.x release. See [Running GPCC 2.x in Parallel with 3.x](#) for instructions to configure this setup.

- Manage resource queues
- Workload management
- Stop and start Greenplum Database
- Recover and rebalance segments
- Usage report
- Display DCA hardware health
- Log alerts
- System detail by metric view

Greenplum Command Center Compatibility

Pivotal Greenplum Command Center is currently certified for the EMC Data Computing Appliance (DCA) and Greenplum Database software-only environments. Command Center monitors the following for each environment:

Greenplum Data Computing Appliance

- Greenplum Database Module 4.3.x

If you have been using Greenplum's earlier monitoring tool, Performance Monitor, with an older DCA release, we recommend you upgrade to a supported version of DCA.

Greenplum Database (Software-only Environments)

- Greenplum Database 4.3.x
- Greenplum Database 5.x

Command Center Installation and Upgrade Instructions

There is now an upgrade path for all 1.x, 2.x, and 3.x versions. See `gpcmdr --migrate` for details.

DCA and Greenplum Database Software-only

Instructions for installing, configuring, and upgrading your system for Pivotal Greenplum Command Center are provided in the latest [Pivotal Greenplum Command Center Documentation](#).

Greenplum Command Center Resolved Issues

The following table lists issues that were resolved in Pivotal Greenplum Command Center 3.x.

Issue	Description	Fixed In
ZD-39405	Systems with segment host names that changed since GPDB initialization were not shown in cluster metrics.	3.0.1
CMDR-1999	Failed to start instance without setting of PGHOST and PGPORT.	3.0.0
CMDR-1910	GPCC hangs on "Loading" because request to "/api" does not respond.	3.0.0
CMDR-1996	Orphaned instances after upgrade	3.0.0
PT-87736724	The Command Center installer does not have support to upgrade existing Command Center instances when upgrading to a new release.	3.0.0
CMDR-2008	In GPCC release 3.1.0, the Command Center console does not accept special characters in passwords. Only alphanumeric characters and the tilde (~) and underscore (_) characters are recognized.	3.1.1

Greenplum Command Center Known Issues

This section lists the known issues in Pivotal Greenplum Command Center 3.x.

Issue	Description
CMDR-297	Heavy workload on the Greenplum Database can affect responsiveness. The refresh rate of the Command Center user interface can be adversely affected by simultaneous heavy workload on the underlying Greenplum Database.
142650749	When multiple queries are submitted as a single statement, cannot run explain because all queries in the statement are included in query text. (gpperfmon issue)

About Pivotal Greenplum Workload Manager

Greenplum Workload Manager services collect query execution data and real-time system statistics on each segment host. The Workload Manager rules engine allows you to create rules that specify criteria that trigger an action, for example terminating a query that runs longer than a specified time or consumes too many resources on a segment host.

Real-time query performance can be viewed in the Workload Manager `gptop` curses-based GUI.

Enhancements and Changes in Greenplum Workload Manager 1.7.2

The following are changes in Greenplum Workload Manager 1.7.2.

Timezone aware dates and times

The timestamps in the `gp_wlm_events` table now display using the timezone set in the database session. Previously, they displayed in UTC regardless of the timezone setting. In psql, use the `SHOW TIME ZONE;` and `SET TIME ZONE '<your_timezone>;'` commands to see and set the timezone.

Reduced frequency of transaction ID (XID) creation

Workload Manager frequently queries the Greenplum database to collect statistics from the catalog tables. To reduce the need for frequent VACUUM execution and to avoid transaction ID wraparound, certain Workload Manager queries now execute within explicit BEGIN/END transactions.

Enhancements and Changes in Greenplum Workload Manager 1.7.0

The following are enhancements and changes in Greenplum Workload Manager 1.7.0.

SUSE Linux 11

Support is added for running Greenplum Workload Manager on SUSE Linux 11.

The Greenplum Command Center installer now includes separate installers for RHEL and SUSE platforms. The installer files have names in the format `gp-wlm-<version>-<platform>.bin`, where `<version>` is the Workload Manager release number and `<platform>` is the identifier for the Linux distribution and architecture.

Changes to `gp_wlm_events` View

The `gp_wlm_events` view is changed to include additional fields so that a base set of datums is available in each event row. Additional datums referenced in the rule expression are added to the view's `context` column.

See [Querying Workload Manager Event Data](#) for the new `gp_wlm_events` structure and examples.

After you upgrade Workload Manager, you must run the `manage-event-tables.sh` script to recreate the external tables and `gp_wlm_events` view with the new structure. See [Recreate the `gp_wlm_events` External Tables and View](#) for instructions.

Enhancements and Changes in Greenplum Workload Manager 1.6.0

The following are enhancements and changes in Greenplum Workload Manager 1.6.0.

Improved Hostname Handling

During startup, the runtime framework detects and ignores duplicate hostnames. Duplicate hostnames are hostnames that resolve to the same machine.

Improved Response to Cancel Query

The amount of time Workload Manager takes to respond to a query cancellation request has been reduced to a minimum so that the request is delivered to Greenplum Database without delay.

Enhancements and Changes in Greenplum Workload Manager 1.5.0

The following are enhancements and changes in Greenplum Workload Manager 1.5.0.

Removed Option to Install Workload Manager with `gpcmdr` Command

The Greenplum Command Center 2.4.0 `gpcmdr --setup` utility no longer offers to install Greenplum Workload Manager. Workload Manager must be installed using its installer, `gp-wlm-<version>-<platform>.bin`, which is located in the Command Center installation directory. See [Installing Greenplum Workload Manager](#) for installation instructions.

Publishing Connections and Sessions

By default, Workload Manager now publishes information about idle Greenplum Database sessions. An idle session represents a client connection without an active or queued query.

To create a rule that is triggered by idle transactions, `session_id:host:pid:current_query = "<IDLE>"` in the when clause. For example, the following message records a message when an idle `psql` session is detected.

```
gpdb_record(message="Idle PSQL session")
when host:pid:current_query = "<IDLE>" and host:pid:name = "psql"
```

In Workload Manager 1.0 through 1.4, information about idle sessions was never published, so they could not be detected with a rule. With 1.5.0, idle sessions are published by default.

You can revert to the previous behavior by configuring the following settings to 'false'.

Module	Setting	Description
gpdb_stats	publish_idle_sessions	Publish information about idle Greenplum Database sessions
systemdata	publish_idle_processes	Publish information about idle GPDB processes

In addition to the new `publish_idle_sessions` settings in the table above, the following new configuration setting is available in the `gp-wlm` CLI.

Module	Setting	Description
systemdata	logging:log_level	Configure logging verbosity for the systemdata plugin

See [Configuring Workload Manager Components](#) in the *Greenplum Workload Manager User Guide* for information about setting configuration values.

Including Additional Datums in Action Scope

Rules can now be created or modified to include datums in the action scope in addition to the datums that trigger the rule action. Previously, only values of datums present in the conditional expression that triggered the rule were captured when the rule was triggered.

In Workload Manager 1.5.0, additional datums specified using the `including` keyword are also captured. The context columns in the `gp_wlm_record` table or `gp_wlm_events` view will contain values for datums that triggered the rules as well as values for datums specified using the `including` keyword.

See [Adding Rules](#) in the *Greenplum Workload Manager User Guide* for information about this new feature.

Application Name Field is Set for Workload Manager GPDB Sessions

Greenplum Database sessions initiated by Workload Manager components are now configured to set the `application_name` field to 'gp-wlm'. This field is available in the `pg_stat_activity` table.

Enhancements in Greenplum Workload Manager 1.4.0

The following are enhancements and changes in Greenplum Workload Manager release 1.4.0:

New Features and Improvements

- A `host:pg_cancel_backend` action is added. This action calls the PostgreSQL `pg_cancel_backend()` function, which sends a SIGINT signal to the backend process, cancelling the current query. This differs from the `pg_terminate_backend()` function, which sends a SIGTERM signal and terminates the session. `host:pg_cancel_backend` events are logged to the `wlm_event_log`.
- A new set of datums is added to provide Greenplum segment virtual memory (vmem) statistics.
- The timing values that determine how frequently agents publish datums and rules are evaluated have been changed from integer to float values, allowing sub-second times to be specified.
- A new configuration manager allows viewing, describing, and modifying user-settable configuration values for Workload Manager components. In release 1.4.0, the configuration manager supports viewing, describing, and setting various configuration values for Workload Manager.

Fixes

- Fixed a rare bug where some queries cannot be ruled upon if the the session id of the query is not present in the `list_backend_priorities()` recordset.
- In certain environments, environment variables were not being set correctly.

Greenplum Workload Manager Installation and Upgrade

To install Greenplum Workload Manager, run the Workload Manager installer found in the Greenplum Command Center installation directory. See [Installing Greenplum Workload Manager](#) in the Greenplum Workload Manager documentation for command syntax and usage.

Recreate the gp_wlm_events External Tables and View

In Greenplum Workload Manager release 1.7.0 the schema of the `gp_wlm_events` view changed. If you use `gp_wlm_events`, run the following script to

recreate the view with the correct schema:

```
$ <INSTALL_DIR>/gp-wlm/bin/manage-event-tables.sh --create --dbname=<database-name>
```

This command re-creates the `gp_wlm_events` external tables and views in the designated database. The old CSV event files from the previous installation, if any, remain on disk.

To see the old CSV event files, run this command, with a hostfile containing the names of all segment hosts. See [gpssh](#) in the *Greenplum Database Utility Guide* for instructions to create a host file.

```
$ gpssh -f <hostfile> -e "find <INSTALL_DIR>/gp-wlm/ -name 'events*.csv' -exec ls {} \;"
```

To delete the old CSV event files, run this command:

```
$ gpssh -f <hostfile> -e "find <INSTALL_DIR>/gp-wlm/ -name 'events*.csv' -exec rm {} \;"
```

Greenplum Workload Manager Known Issues

This section lists the known issues in Pivotal Greenplum Workload Manager. A work-around is provided where applicable.

Install failure at cluster-health-check stage

In rare cases it is possible for installations or upgrades to fail at the `cluster-health-check` stage. In the event that the cluster is not healthy, re-run the Workload Manager installer with the `--force` option. See “Installing Greenplum Workload Manager” in the Pivotal Greenplum Workload Manager User Guide for instructions to run the installer at the command line.

Install failure due to temporary directory

A failed Greenplum Workload Manager installation can leave a temporary directory on the file system, which causes subsequent installation attempts to fail. An example of an error when this happens is:

```
getopt: unrecognized option 'func-file=<INSTALL_DIR>/gp-wlm-data/.scratch/installer/installer.functions'
```

The workaround is to manually remove the temporary directory `<INSTALL_DIR>/gp-wlm-data/.scratch`.