Patches

Terracotta Software Patches

Introduction

The Terracotta patch process is a path for installing fixes to known problems between point releases. Terracotta patches are made available for ee (Enterprise Edition) kits for customers running Terracotta commercial products only.

The patch process is designed to avoid disruptions to production centers by:

- Providing a zero-downtime option in a multi-server setup
  ... use a rolling upgrade to avoid cluster downtime.
- Not changing the Terracotta version number
  ... check the patch into a code management system *without* triggering change-control issues such as acceptance tests.
- Offering easy install and backout options
  ... simply unzip the patch file to install.
- Not impacting your existing configuration
  ... continue using the same Terracotta configuration files already optimized for your cluster.
- Remaining visible via patch-level version
  ... identify the patch level alongside the Terracotta version.

If a patch is required for your version of Terracotta, you will be notified and provided with a patch file.

About Patches

A patch is a compressed file with the following filename format:

```
terracotta-<tc-version>-patch-<patch-level>.tar.gz
```

<tc-version> corresponds to the version of Terracotta installed in your cluster. <patch-level> refers to the version of the patch.

For example, if you are running Terracotta 2.6.3, a level-1 patch would have the following filename:

```
terracotta-2.6.3-patch-1.tar.gz
```

Preparing for a Patch Installation

Before attempting to install a patch, confirm the following:

- All of the Terracotta servers and clients in the target cluster are running the same version of Terracotta.
- The patch is intended for the version of Terracotta being run in the target cluster.

Installing Patches With No Downtime

In a cluster with multiple Terracotta servers, you can avoid cluster downtime by installing patches using a rolling upgrade. A rolling upgrade means installing the patch on nodes that are individually shut down, patched, and restarted. In a cluster with only one Terracotta server, downtime is unavoidable during a patch installation.

> ✓ At least two Terracotta servers should be used in production systems to avoid downtime during patch installations and reduce the risk of cluster-wide failure due to network and hardware problems.

For example, to implement a rolling upgrade in a cluster with an active Terracotta server, a passive (backup) Terracotta server, and any number of Terracotta clients, follow these steps:

1. Confirm that all prerequisites have been met.
   See Preparing for a Patch Installation.
2. Shut down the passive Terracotta server using the server Shutdown button or the Terracotta stop-tc-server script.

3. Unzip the patch file in the passive Terracotta server's installation (root) directory.
   On a UNIX/Linux machine, use the tar command as shown:

```
tar zxf terracotta-2.6.3-patch-1.tar.gz
```

   On a Microsoft Windows machine, double-click the zip file.
4. Restart the passive Terracotta server.
5. Confirm that the passive server has synced with the active server.
   You can use the Terracotta Administrator Console to monitor server status.
6. Confirm that the patch was installed by running the Terracotta version script.
7. Shut down the active Terracotta server using the server Shutdown button or the Terracotta stop-tc-server script.
   The cluster fails over to the passive Terracotta server, which becomes the active server.
8. Install the patch file on the shut-down Terracotta server.
   Use the same procedure as above, including the confirmation step.
9. Start the shut-down Terracotta server.
   The formerly active server becomes the passive server.
10. Confirm that the newly passive server has synced with the newly active server.
    You can use the Terracotta Administrator Console to monitor server status.
11. Shut down a Terracotta client using the client Terracotta Administrator Console or by stopping your application.
12. Install the patch file on the shut-down Terracotta client.
    Use the same procedure as above, including the confirmation step.
13. Repeat the patch installation with each Terracotta client, one at a time.

Locating the Installed Patch Level

The patch level of a Terracotta server or client can be found in the same ways as its version. Terracotta reports its version with a message similar to the following:

```
2008-06-06 12:23:42,295 INFO - Terracotta 2.6.0, as of 20080520-120516 (Revision 8595 by cruise@rh4mo0 from
2.6.0)
```

If a patch is installed, the patch level is reported following the version:

```
2008-06-06 12:23:42,295 INFO - Terracotta 2.6.0, as of 20080520-120516 (Revision 8595 by cruise@rh4mo0 from
2.6.0)
2008-06-06 12:23:42,295 INFO - Patch Level P5, as of 20080710-120516 (Revision 9324 by cruise@rh4mo0 from 2.6.0)
```

You can find the Terracotta version and patch level in any of the following ways:

- Using the Terracotta version tool (`version.sh` or `version.bat`).
- Viewing the log messages echoed to standard output at startup.
- Viewing the Terracotta server log or Terracotta client log.
- Viewing the server panel in the Terracotta Administrator Console.

Rolling Back a Patch Installation

To back out of a patch installation, perform a clean installation of the version of Terracotta running before the patch was installed. You must do the clean installation on every node that received the patch.