ElectricAccelerator
Release Notes

Version 10.0.3

Electric
Cloud

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Contents

Product Description

ElectricAccelerator® is a software build accelerator that dramatically reduces build times by distributing the build over a large cluster of inexpensive servers. ElectricAccelerator ("Accelerator") uses a patented dependency-management system to identify and fix problems in real time that break traditional parallel builds. Accelerator plugs seamlessly into existing software development environments and includes web-based management and reporting tools.

Accelerator includes the following components:

- Electric Make® ("eMake")

- Electric File System (EFS)

- ElectricAccelerator Agents ("Agents")

- Cluster Manager

- Electrify

What's New or Modified

This release consists of the following resolved issues:

- Annotation now shows the resolved makefile name instead of the original makefile name when combined with makefile include path searching for included makefiles. For example, for an included makefile whose actual path is `sub/sub.mk`, annotation showed the makefile as `sub.mk` (as specified in the makefile) rather than `sub/sub.mk`:

  ```
  <job id="J0000000002a1e190" thread="7f217abdabc0" start="5" type="rule"
  name="other" file="sub.mk" line="2" neededby="J0000000002a1e0c0">
  ```

  Annotation now shows `sub/sub.mk` to make it clear what file actually provided the definition for that rule:

  ```
  <job id="J0000000002a1e190" thread="7f217abdabc0" start="5" type="rule"
  name="other" file="sub/sub.mk" line="2" neededby="J0000000002a1e0c0">
  ```

  (EC-12705)

- eMake no longer crashes when eDepend (`--emake-autodepend=1`) is enabled and a makefile uses `.` as the final directory component in a `(wildcard)` expression (such as `echo $(wildcard ./*)`). (EC-12703)

- eMake no longer over-serializes jobs when dependency optimization (`--emake-optimize-deps=1`) is used with Ninja depfiles. (EC-12693)

Installation and Upgrade Notes

Hardware Requirements

- Accelerator 7.2 and newer versions require a Pentium 4 or newer processor when running in a 32-bit Solaris *x*86 environment.

- The recommended total amount of RAM for an agent host is 2 GB *per agent* plus the amount of RAM normally needed to execute your build. For example, if you are running four agents, and your build normally needs 16 GB, you will need ((2 * 4) + 16) = 24 GB.

Backing Up Before You Upgrade

- The upgrade process does not preserve the existing files. Back up the `/opt/ecloud/<arch>/cloud` directory for Linux and Solaris or the `C:\ECloud\<arch>\cloud` folder for Windows to a safe location.
- For additional security, back up the database by following the recommended procedure from your database vendor.

Installing JDBC Drivers for MySQL or Oracle Databases

Electric Cloud no longer distributes the JDBC drivers for MySQL or Oracle databases. To use one of these databases, you must download its driver directly from the Oracle website, then copy it to the appropriate directory on the Cluster Manager server, and then restart the Cluster Manager service. For details, see the "Installing JDBC Database Drivers" section in the "Installing ElectricAccelerator" chapter of the *ElectricAccelerator 10.0 Installation and Configuration Guide* at http://docs.electric-cloud.com/accelerator_doc/AcceleratorIndex.html.

Copying the execserver Executable to a New Location if You Relocate eMake

If you copy the `emake` executable to a new location, you must also copy the `execserver` executable to that location. By default, the path to the `execserver` executable is `/opt/ecloud/i686_Linux/32/bin/execserver` (for 32-bit eMake) or `/opt/ecloud/i686_Linux/64/bin/execserver` (for 64-bit eMake).

Regenerating History Files After an Upgrade

The identifier that is used to find certain types of jobs in the eMake history file changed in version 8.0. After an upgrade from version 7.2.2 or older versions to version 8.0 or newer versions, users should regenerate their history files by running their first build with the `--emake-history=create` option to avoid unnecessary serializations. This build might have more conflicts than normal (but subsequent builds should return to normal).

Concurrent Build Licensing

As of version 9.1, for new Accelerator subscription licenses, the number of builds that you can run concurrently is license-limited. The `noLicenseWaitTime` performance metric indicates the amount of time that a build spent waiting for a concurrent build license because the number of concurrent builds reached the license limit. Also, as of version 9.1, JobCache is not separately licensed and is now included with the concurrent build license.

Customers using pre-9.1 Accelerator licenses may continue to use those licenses, including the licenses for the JobCache add-on. For details about licensing for concurrent builds, see the *ElectricAccelerator 10.0 Installation and Configuration Guide* at http://docs.electric-cloud.com/accelerator_doc/AcceleratorIndex.html. (EC-12095)

Updating the Resource Manager Type If You Are Using LSF

During a Cluster Manager upgrade to Accelerator 10.0 or later, the installer changes the "cloud" resource manager type to "none." This means that if you are using LSF, you must move the scripts from the *<InstallDir>*/*<arch>*/cloud/ directory to the *<InstallDir>*/*<arch>*/cloud/lsf directory. *<InstallDir>* is /opt/ecloud by default on Linux and C:\ECloud by default on Windows. *<arch>* is either i686_Linux or i686_win32.

Also, you must specify LSF as the resource manager to be used by the Cluster Manager. To do so, open the Cluster Manager web UI, then click **Administration** > **Server Settings**, then choose **LSF** from the **Resource Manager Type** menu, and then click **OK**. (EC-12579)

Express Mode Installation Defaults

As of version 10.0.1, you can perform an Express-mode installation for the three main Accelerator components: the Cluster Manager, agents, and eMake. The following tables list the default values for this mode.

Cluster Manager

Parameter	Default value
Cluster Manager host IP address	localhost
Install Electric Runner service	Y
Apache port (Cluster Manager HTTP port)	80
Apache SSL port (Cluster Manager HTTPS port)	443
Cluster Manager server port	8080
Cluster Manager secure server port	8081
Service user	(Windows) "" (Linux) eacmuser
Database type	MariaDB
Cluster Manager admin name	admin
Cluster Manager admin password	changeme
Database port	3306
Database host	localhost
Database name	ecloud
Database user	root
Database password	ecloud
Install directory	(Windows) C:/ECloud (Linux) /opt/ecloud
(Linux) Cluster Manager group name	nobody

Agent

Parameter	Default value
Cluster Manager host IP address	localhost
Install Electric Runner service	Y
Cluster Manager Accelerator server port	8030
Electric Runner server port	2411
Install directory	(Windows) C:/ECloud (Linux) /opt/ecloud
Cluster Manager name	localhost (but can be changed in Express mode)
Cluster Manager port	8030
Agent secure console port	N
Agent is LSF host	N
Remove logs	N
Reboot if needed	N
Agent temporary directory	(Windows) C:/Windows/temp (Linux) /tmp
Install Electric Runner server	Y
Electric Runner port	2411
Remove logs	N

eMake

Parameter	Default value
Install directory	(Windows) C:/ECloud (Linux) /opt/ecloud
Install Electric Runner client apps	Y
Allow multiple eMake installations in separate directories	N

Known Issues

Linux Kernel Issue That Affects Accelerator Performance

Affected Kernel Versions

- RHEL kernel versions later than 2.6.18-194.32 and earlier than 2.6.32-131

- Ubuntu Linux kernel versions 2.6.31, 2.6.32, 2.6.33, and 2.6.34

Symptoms

Affected systems might encounter reduced performance on both ext3 and ext4 file systems. Symptoms might include

- `hung_task_timeout_secs` messages in system dmesg logs

- Widely variable agent availability (entering and exiting agent "penalty" status frequently)

- Contention over the `ecagent.state` file

- Slower builds (with unexplained variances)

To help determine if this issue exists, run the `dmesg | grep hung_task_timeout` command. `hung_task_timeout` errors show that this issue is present. Contact your kernel provider for another version of the precompiled kernel.

Fixes for Systems Running RHEL 5.6, 5.7, 5.8, and 6.0

You should consider upgrading to 2.6.32-131 (RHEL 6.1) or downgrading to 2.6.18-194.32 (RHEL 5.5).

Other Known Issues

- The cmtool `importData` command does not import license properties (such as `maxAgents`). To work around this issue, re-import the license after using `importData`. (EC-12371)

- (Windows 10 only) eMake.exe might crash when trying to upload an annotation file to the Cluster Manager. (EC-12339)

- You cannot control breakpoints from the Cluster Manager. (EC-12322)

- (Windows platforms only) Secure Boot is enabled by default on newer Windows versions and requires all boot software such as drivers to be signed. Because the EFS boot driver is unsigned, EFS fails to start and produces the following error in the Windows event log:

  ```
  The Electric File System service failed to start due to the following error:
  Windows cannot verify the digital signature for this file. A recent hardware or
  software change might have installed a file that is signed incorrectly or
  damaged, or that might be malicious software from an unknown source.
  ```

  To prevent this issue, you must disable Secure Boot on all agent hosts. For details, see
  https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/disabling-secure-boot.
  (EC-12015)

- Options in the `emake.conf` configuration file override options that are set using Accelerator environment variables (such as `EMAKE_CM`). (EC-10272)

- For Visual Studio 2012, if project dependencies are not fully defined, the project build order under eMake might appear differently to Visual Studio. If a build fails because a prerequisite project was not built, you can work around this issue by adding an explicit project dependency to the solution.

- If Apache fails to start properly after a new Cluster Manager installation, reboot the system.

Documentation

Product Documentation

Accelerator documentation is available at http://docs.electric-cloud.com/accelerator_doc/AcceleratorIndex.html as follows:

- *ElectricAccelerator Quick Start*

- *ElectricAccelerator Terms and Concepts*

- *ElectricAccelerator Installation and Configuration Guide*

- *ElectricAccelerator Electric Make User Guide*

- *ElectricAccelerator cmtool Reference Guide*

- *ElectricAccelerator Error Messages Guide*

- *ElectricAccelerator Annotation Guide*

- *ElectricAccelerator Visual Studio Integration Guide*

- *ElectricAccelerator Release Notes* (this document)

- PDF, HTML, and mobile-optimized HTML versions of the online help that is also accessible from the Cluster Manager **Help** button.

Documentation on the website is updated periodically.

Cluster Manager Online Help and Tooltips

Built into the Cluster Manager are

- A complete, robust, context-sensitive online help system (click the **Help** button in any page of the Cluster Manager web UI). See the documentation website as described above for the latest updates to this information.

- Tooltips with information to help fill in form fields.

Troubleshooting and Getting Help

Technical Support

Contact Electric Cloud technical support:

- +1 408.419.4300, option 2. Hours are 9 A.M.–5 P.M. PT Monday–Friday (except holidays)

- support@electric-cloud.com

- https://helpcenter.electric-cloud.com/ and then click **Submit a request** to submit or see your support tickets

Be prepared to provide your:

- Name, title, company name, phone number, and email address

- Operating system and version number

- Product name and release version

- Problem description

Electric Cloud "Ask" Website

Go to http://ask.electric-cloud.com—a member-moderated community forum where you can:

- Ask and answer questions as well as comment on (and vote for) the questions of others and their answers

- Get help with installation and configuration

- Submit feedback

ElectricAccelerator Knowledge Base

Go to https://helpcenter.electric-cloud.com/hc/en-us/sections/200516893-Accelerator-KB to find in-depth explanations of specific topics and solutions for specific problems.