**ElectricAccelerator Version 10.0.2**

Copyright © 2002–2018 Electric Cloud, Inc. All rights reserved.

Published 2/16/2018

Electric Cloud® believes the information in this publication is accurate as of its publication date. The information is subject to change without notice and does not represent a commitment from the vendor.

**THE INFORMATION IN THIS PUBLICATION IS PROVIDED “AS IS.” ELECTRIC CLOUD, INCORPORATED MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

Use, copying, and distribution of any ELECTRIC CLOUD software described in this publication requires an applicable software license.

Copyright protection includes all forms and matters of copyrightable material and information now allowed by statutory or judicial law or hereinafter granted, including without limitation, material generated from software programs displayed on the screen such as icons, screen display appearance, and so on.

The software and/or databases described in this document are furnished under a license agreement or nondisclosure agreement. The software and/or databases may be used or copied only in accordance with terms of the agreement. It is against the law to copy the software on any medium except as specifically allowed in the license or nondisclosure agreement.

**Trademarks**


Other product names mentioned in this guide may be trademarks or registered trademarks of their respective owners and are hereby acknowledged.
## Contents

- **Product Description** ......................................................... 1
- **What’s New or Modified** .................................................... 1
- **Installation and Upgrade Notes** .......................................... 1
  - **Hardware Requirements** .................................................. 1
  - **Backing Up Before You Upgrade** ...................................... 1
  - **Installing JDBC Drivers for MySQL or Oracle Databases** ........ 2
  - **Copying the execserver Executable to a New Location if You Relocate eMake** .............................................. 2
  - **Regenerating History Files After an Upgrade** ...................... 2
  - **Concurrent Build Licensing** ............................................. 2
  - **Updating the Resource Manager Type If You Are Using LSF** .... 2
  - **Express Mode Installation Defaults** ................................ 3
- **Known Issues** ................................................................. 5
  - **Linux Kernel Issue That Affects Accelerator Performance** ...... 5
  - **Other Known Issues** ..................................................... 5
- **Documentation** ............................................................... 6
  - **Product Documentation** .................................................. 6
  - **Cluster Manager Online Help and Tooltips** ......................... 6
- **Troubleshooting and Getting Help** ....................................... 6
  - **Technical Support** ...................................................... 6
  - **Electric Cloud “Ask” Website** ....................................... 7
  - **ElectricAccelerator Knowledge Base** ................................ 7
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.

- The file patches for Android 8.x ("O") in the bundled template files that you can edit to optimize Android builds now support Android 8.1.0 source files. For details about using the template files, see the KBEA-00130 - Best Practices for Android Builds KB article. (EC-12695)
- An issue where the cmtool importData command did not import all data from a Cluster Manager database dump is fixed. (EC-12686)
- An eMake assertion failure in which using lookup and file annotation when a makefile used . as the final directory component in a $(wildcard) expression (such as echo $(wildcard ./*)) is fixed. (EC-12680)

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 x86 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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster Manager host IP address</td>
<td>localhost</td>
</tr>
<tr>
<td>Install Electric Runner service</td>
<td>Y</td>
</tr>
<tr>
<td>Apache port (Cluster Manager HTTP port)</td>
<td>80</td>
</tr>
<tr>
<td>Apache SSL port (Cluster Manager HTTPS port)</td>
<td>443</td>
</tr>
<tr>
<td>Cluster Manager server port</td>
<td>8080</td>
</tr>
<tr>
<td>Cluster Manager secure server port</td>
<td>8081</td>
</tr>
<tr>
<td>Service user</td>
<td>(Windows) &quot;&quot;</td>
</tr>
<tr>
<td>Database type</td>
<td>MariaDB</td>
</tr>
<tr>
<td>Cluster Manager admin name</td>
<td>admin</td>
</tr>
<tr>
<td>Cluster Manager admin password</td>
<td>changeme</td>
</tr>
<tr>
<td>Database port</td>
<td>3306</td>
</tr>
<tr>
<td>Database host</td>
<td>localhost</td>
</tr>
<tr>
<td>Database name</td>
<td>ecloud</td>
</tr>
<tr>
<td>Database user</td>
<td>root</td>
</tr>
<tr>
<td>Database password</td>
<td>ecloud</td>
</tr>
<tr>
<td>Install directory (Windows)</td>
<td>C:/ECloud</td>
</tr>
<tr>
<td>(Linux) Cluster Manager group name</td>
<td>nobody</td>
</tr>
<tr>
<td>(Linux) Database host</td>
<td>localhost</td>
</tr>
<tr>
<td>(Linux) Database name</td>
<td>ecloud</td>
</tr>
<tr>
<td>(Linux) Database user</td>
<td>root</td>
</tr>
<tr>
<td>(Linux) Database password</td>
<td>ecloud</td>
</tr>
<tr>
<td>(Linux) Install directory</td>
<td>/opt/ecloud</td>
</tr>
<tr>
<td>(Linux) (Linux) Cluster Manager group name</td>
<td>nobody</td>
</tr>
</tbody>
</table>
## Agent

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

## eMake

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install directory</td>
<td>(Windows) C:/ECloud (Linux) /opt/ecloud</td>
</tr>
<tr>
<td>Install Electric Runner client apps</td>
<td>Y</td>
</tr>
<tr>
<td>Allow multiple eMake installations in separate directories</td>
<td>N</td>
</tr>
</tbody>
</table>
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 `cmttool 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.