



Zenoss Resource Manager 5.1.4 Control Center 1.1.7

Release Notes

Zenoss, Inc.

www.zenoss.com

Zenoss Resource Manager 5.1.4 / Control Center 1.1.7 Release Notes

Copyright © 2016 Zenoss, Inc. All rights reserved.

Zenoss and the Zenoss logo are trademarks or registered trademarks of Zenoss, Inc., in the United States and other countries. All other trademarks, logos, and service marks are the property of Zenoss or other third parties. Use of these marks is prohibited without the express written consent of Zenoss, Inc., or the third-party owner.

Amazon Web Services, AWS, and EC2 are trademarks of Amazon.com, Inc. or its affiliates in the United States and/or other countries.

Flash is a registered trademark of Adobe Systems Incorporated.

Oracle, the Oracle logo, Java, and MySQL are registered trademarks of the Oracle Corporation and/or its affiliates.

Linux is a registered trademark of Linus Torvalds.

RabbitMQ is a trademark of VMware, Inc.

SNMP Informant is a trademark of Garth K. Williams (Informant Systems, Inc.).

Sybase is a registered trademark of Sybase, Inc.

Tomcat is a trademark of the Apache Software Foundation.

VMware is a registered trademark or trademark of VMware, Inc. in the United States and/or other jurisdictions.

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

All other companies and products mentioned are trademarks and property of their respective owners.

Part Number: 1002.16.202

Zenoss, Inc.
11305 Four Points Drive
Bldg 1 - Suite 300
Austin, Texas 78726

About this document

Zenoss Resource Manager Release Notes contains important information about minor and micro releases of the following products:

- Control Center
- Zenoss Resource Manager (Resource Manager)

Scope

This document provides information about the following releases of Control Center and Resource Manager:

Date	Control Center	Resource Manager
29 Feb 2016	1.1.1	5.1.1
04 Mar 2016	1.1.2	5.1.1
20 April 2016	1.1.3	5.1.1
27 April 2016	1.1.3	5.1.2
25 May 2016	1.1.4	5.1.3
31 May 2016	1.1.5	5.1.3
29 June 2016	1.1.6	5.1.4
20 July 2016	1.1.7	5.1.4

Supported clients and browsers

The client operating systems and web browser combinations supported in this release.

- All browsers must have Adobe® Flash® Player 11 installed, or a more recent version.
- Compatibility mode is not supported in Internet Explorer.

Client OS	Supported Browsers
Windows 7 and 8.1	Internet Explorer 11 (enterprise mode is supported)
	Internet Explorer 10
	Firefox 30 and above
	Chrome 30 and above
Windows Server 2012 R2	Firefox 30
	Chrome 36
Macintosh OS/X 10.9	Firefox 30 and above
	Chrome 36 and above
Ubuntu 14.04 LTS	Firefox 30 and above
	Chrome 37 and above
Red Hat Enterprise Linux 6.5, CentOS 6.5	Firefox 30 and above
	Chrome 37 and above

Resource Manager 5.1.4 / Control Center 1.1.7

1

No new features in the Resource Manager 5.1.4 / Control Center 1.1.7 release. See the following sections for new functionality introduced in previous releases.

Features introduced in Control Center 1.1.1 and Resource Manager 5.1.1

Control Center storage

- The storage underlying Control Center has changed from btrfs to DeviceMapper. Migration to DeviceMapper is required as part of the upgrade process, and migration tools are provided. Follow the instructions in the *Zenoss Resource Manager Upgrade Guide* when migrating from Control Center 1.0.x to Control Center 1.1.x.

Supported upgrade paths

- Migration to Control Center 1.1.x is supported from Control Center 1.0.6 or later. If you are currently running an earlier version of Control Center, it is recommended that you migrate first to Control Center 1.0.9 or Control Center 1.0.10. Similarly, migration to Resource Manager 5.1.3 is supported from Resource Manager 5.0.6 or later. If you are currently running an earlier version of Resource Manager, it is recommended that you first upgrade to Resource Manager 5.0.6.

Control Center backup enhancements

- Control Center will now briefly pause services to snapshot them, then return the system to a fully functional state while performing the backup in the background. This means that services can be deleted or altered while the backup continues.

Single-Host to Multi-Host migration enhancements

- Migrating from a single-host to multi-host install now requires only that the new host(s) be configured and added to the Resource Pool in the Control Center master UI. Configuration changes and other steps formerly required in earlier Control Center releases are no longer necessary.

Serviced storage tool

- A new tool (`serviced storage`) is provided to greatly streamline working with Control Center storage, including support for tasks such as creating volumes, creating and resizing thin pools, initializing DeviceMapper and converting from btrfs to DeviceMapper. Installation and Upgrade instructions make use of the `serviced`

storage tool, please consult the *Zenoss Resource Manager Installation Guide* and *Zenoss Resource Manager Upgrade Guide* for details.

Snapshot tagging

- Serviced snapshots can now be tagged with a name. Important to note is that the Time To Live (TTL) does not apply to tagged snapshots, meaning they will not be deleted according to the TTL schedule.

Clustered Zookeeper

- Multi-host systems can utilize a Zookeeper cluster for improved performance and reliability.

Public endpoints by port number

- Public Endpoints can be vhosts, accessible by host name, or ports, accessible by `ip:port` or `hostname:port`. Specifying by port number removes the need to update DNS entries or `/etc/hosts` files.

Zenoss inspector

- A new script is available to simplify gathering of Control Center logs and configurations, when needed for support cases.

SNMP trap filtering

- `zentrap` supports SNMP trap filtering. For details on the filter definition, see the `/opt/zenoss/etc/zentrap.filter.conf` file in the `zentrap` service definition. For details on how to enable this feature, see the KB article [How to setup a filter for SNMP Traps at the collector level \(`zentrap`\) in version 5.1.x](#).

Capacity planning

- Capacity utilization graphs and views display projected utilization for 30, 60, and 90 Days.
- Capacity Reports and new or existing graphs can now display a trendline.
- Capacity utilization is now available for VSphere.
- Reports can be filtered by ports, port channel, chassis, IO modules, and transaction type.

Dependency View

- Dependency View provides a list of dependents and dependencies for the selected device or component.

Usability improvements

- For ease of management, Component groups let you organize like components from different devices.
- Graphs can be resized or opened in a new window.

Removal of Ubuntu support

- Ubuntu is no longer a supported platform for Resource Manager 5.1.1 or higher.

Updated command for ZenPack installation

- The command for installing a ZenPack has changed from previous versions. The command to install a ZenPack is now: `serviced service run zope zenpack-manager install <ZenPack>`.

Features introduced in Control Center 1.1.6 and Resource Manager 5.1.4

- `serviced volume status` command

This release introduces a new `serviced volume status` command that provides detailed information on the volume located at `/opt/serviced/var/volumes`. You can get metrics on the thin pool as well as application data on the filesystem usage, virtual device size, unallocated space, and pool space allocated to virtual devices and snapshots.

- Public endpoints

Another feature available is the ability to create public endpoints for access to the Resource Manager and Control Center web servers. See the *Zenoss Resource Manager Installation Guide* for instructions on creating port public endpoints and virtual host public endpoints.

Fixed issues

Table 1: Fixed issues in Control Center 1.1.7

ID	Description
CC-1808	Zenpop3 service is missing after an upgrade from 5.0.8 to 5.1.1.
CC-2163	Turn off logical volume monitoring for the serviced pool.
CC-2247	Control Center master timeout running healthcheck fails if leader cannot be contacted, despite a ZooKeeper quorum.
CC-2348	CentralQuery isvc uses too much memory.
CC-2375	Upgrade to Resource Manager 5.1.4 fails if current Docker images were restored from a backup.
CC-2413	The <code>serviced-fstrim</code> cron script does not work.

Table 2: Fixed issues in Resource Manager 5.1.4

ID	Description
ZEN-19709	Device status is unknown under <code>/Ping</code>
ZEN-21533	Impossible to set an alternate <code>manageIp</code> for IpServices components
ZEN-21835	Notification traps always sent as v2
ZEN-22955	Usability issue with Test Datasource timeout
ZEN-22960	Add an ID to identify the instance when using multiple hub instances
ZEN-22961	Datasource Test against a device always tests localhost
ZEN-23021	Creating a port endpoint and disabling https in zope breaks graphs
ZEN-23084	Zenossdbpack needs further optimization since it dies with OOM error in large environments
ZEN-23208	Zope health checks give false impression of instability
ZEN-23298	LDAP authenticator doesn't support group to multiple roles
ZEN-23302	ZEP Warning - Failed processing message
ZEN-23352	Import of triggers from version 4.2.4 to 5.1.2 is not working

ID	Description
ZEN-23402	Control Center page displays a flare when Control Center is on a non-443 port
ZEN-23457	Possible XSS vulnerability in UI code
ZEN-23487	Global Operations Manager not compatible with content-type strict verification changes
ZEN-23584	Update to LinuxMonitor 2.x
ZEN-23643	ISO installation fails
ZEN-23669	Improve storage monitoring in Control Center ZenPack
ZEN-23692	After upgrading to version 5.1.4, Control Center device is not available
ZEN-23699	Service Impact
ZEN-23740	Changed values in zeneventserver configuration not honored in version 5.0.9
ZEN-23758	Make the component grid page size configurable
ZEN-23759	Marshalling device components makes a ZEP call per component

Table 3: Fixed issues in Control Center 1.1.6

ID	Description
CC-1634	zproxy has a bad list of endpoints
CC-1982	Add SERVICED_NFS_CLIENT to /etc/default/serviced
CC-2045	Commented out values in /etc/default/serviced must reflect actual values
CC-2223	Restore of backups larger than 100G fails
CC-2224	Restore fails if snapshot volumes are left in /opt/serviced/var/volumes/<tenantid>/ .devicemapper/volumes
CC-2230	zentrap and zensyslog stop receiving SNMP traps or syslog messages after a Resource Manager restart due to errant iptables rules
CC-2238	In zookeeper, set lock on read/write connection
CC-2258	In HA environment, serviced-storage resource agent is active on two nodes
CC-2263	Serviced private subnet should accept CIDR addresses
CC-2267	Backup is creating a race condition
CC-2286	Serviced is going down after creating backups
CC-2298	Parallel gzipping of backups can use all CPU capacity
CC-2302	Serviced fails to start up claiming it cannot take ownership of a thin pool, despite previously having used that thin pool
CC-2315	Make zookeeper session timeout configurable
CC-2318	Serviced leaks defunct dumpe2fs processes
CC-2323	Restore may hang forever if restoring the volume fails
CC-2341	Backup leaves zombie tar processes upon successful backup

Table 4: Fixed issues in Control Center 1.1.5

ID	Description
CC-2244	serviced volume status functionality caused panic in backups

Table 5: Fixed issues in Resource Manager 5.1.3

ID	Description
ZEN-14671	ValueChange threshold alerts on a change from None to 0
ZEN-21545	Cannot get device state to change from Unknown
ZEN-22795	Commands run against a device via the UI are run on master, not on the collector host
ZEN-22869	Service definitions have versions in the startup and other paths
ZEN-22902	Appliances need nc utility
ZEN-22943	zendisc changes the production state of existing devices
ZEN-22952	A user with restricted access is unable to bulk-close events
ZEN-22953	zCommandPassword text box on the Add Device dialog allows autocomplete
ZEN-22954	After bulk-adding hosts, Resource Manager will not add any further jobs
ZEN-22963	UPTIME python regular express is not matching on SUSE/Novell Linux uptime string
ZEN-23033	User with no global role can see devices in the dashboard that should be restricted
ZEN-23054	zenosdbpack is not automatically run anymore
ZEN-23088	Opentsdb image is not changed during upgrade
ZEN-23199	Central query becomes unresponsive with too many connections
ZEN-23221	snmpwalk user command does not pass in correct SNMP v3 arguments
ZEN-23223	Pausing RabbitMQ may not be working properly
ZEN-23247	Upgrade scripts contain the wrong image tag reference
ZEN-23284	Beaker cookies should be secure after upgrade from version 5.1.2

Table 6: Fixed issues in Control Center 1.1.4

ID	Description
CC-2149	PAM failure for system_user spams the Control Center logs
CC-2162	Deleting a restored application generates an Internal Server Error: could not remove snapshot message
CC-2200	Central query becomes unresponsive with too many connections
CC-2207	If the primary Control Center host is removed, the RabbitMQ vhost goes with it until manually reset
CC-2217	Unable to look up instance memory stats
CC-2226	Unable to see detailed storage stats for devicemapper

Table 7: Fixed issues in Resource Manager 5.1.2

ID	Description
ZEN-18100	Cross-site scripting from exposed helper methods
ZEN-19004	zminion stuck waiting for response for zminion-return
ZEN-19240	Ensure that SSL certificates use SHA-256
ZEN-19573	Remote collector zentrap stops processing traps properly if Resource Manager is restarted.
ZEN-21716	zeneventd cannot access zep/zeneventserver directly for transforms
ZEN-22160	Incorrect SNMP v3 parameters cause traceback when modeling
ZEN-22239	User cannot create a maintenance window despite having ZenManager privileges
ZEN-22248	LDAP flare appears when use has no Manager DN or password
ZEN-22289	User with ZenManager role is unable to modify notification subscribers
ZEN-22429	Hpx ZenPack needs to be at version 2.0.0 by default
ZEN-22437	Unable to assign a dashboard to a local user group
ZEN-22792	zenbatchdump fails on deployments that have distributed collectors
ZEN-22981	TTL for OpenTSDB is not being set to 90 days by default

Table 8: Fixed issues in Control Center 1.1.3

ID	Description
CC-283	Host graphs switch their display back and forth from 800 to .80K.
CC-1851	Metricshipper logging filled <code>/var/lib/docker</code>
CC-2000	Unable to manually overwrite the docker registry
CC-2008	Failure on backup and restore commands
CC-2011	Add option to change the logstash purge frequency
CC-2025	Backups should not backup the service template images
CC-2033	Too many simultaneous open browsers loading the Control Center UI makes the system too slow to use
CC-2036	Backups fail after upgrade to Control Center 1.1.x, but before the Resource Manager upgrade
CC-2038	<code>serviced-pool</code> does not discard unused blocks on a regular basis causing it to grow out of space.
CC-2040	Control Center UI polling interval should be configurable.
CC-2079	Control Center backups are taking much longer than in Control Center 1.1.2.

Table 9: Fixed issues in Control Center 1.1.2

ID	Description
CC-1975	Cannot disable NFS client on remote pool hosts

Table 10: Fixed issues in Resource Manager 5.1.1 and Control Center 1.1.1

ID	Description
CC-1471	The Control Center command line interface does not show RAM statistics in a multi-host deployment
CC-1791	Control Center uses the deprecated SHA-1 certificate type
CC-1813	When performing backups in Control Center, "invalid argument" errors appearing in log files
CC-1889	Control Center users have no way to modify a host's RAM allocation
ZEN-3892	Resource Manager does not attempt to retry the sending of email notifications if those notifications fail to send the first time
ZEN-8209	Unable to unset zProperties that are selected from a drop-down at the root level
ZEN-14768	Attempting to navigate to nodes on the Network Map results in blank screens
ZEN-17140	The Device Class filter in the Event console is broken
ZEN-17362	Event Class transforms missing formatting on event class and mapping pages
ZEN-17479	RabbitMQ prefetch count is not honored in Global Operations Manager 5.x
ZEN-17587	Upgrading Resource Manager does not update the version displayed in Control Center
ZEN-17735	Some tooltips prevent the user from clicking the link for which the tooltip is displayed
ZEN-17836	The Network Topology report is not working
ZEN-17983	The Device Details screen is broken if the user's profile is configured for certain time zones.
ZEN-18095	Some stack traces shown on Resource Manager error pages contain internal URLs and other sensitive information
ZEN-18839	MultiRealmIP ZenPack causes device overview screens to have javascript errors
ZEN-19011	Some graphs fail to render if the user's computer is set to certain time zones
ZEN-19658	The Query Rate graph is missing for the Central Query service in the Control Center console inside Resource Manager
ZEN-19664	Control Center is not modeled correctly in Service Impact
ZEN-19869	InvocationTargetException in MetricConsumer, requiring a restart of the MetricConsumer service
ZEN-19956	MultiGraph reports are not working
ZEN-20071	Zookeeper transaction logs are not being automatically rotated
ZEN-20103	Control Center health checks for Redis are timing out
ZEN-20108	SNPP does not work in Resource Manager 5.0.x
ZEN-20159	The Production State and Priority Option menus are not sorted correctly
ZEN-20278	Zookeeper transaction logs are not cleaned up automatically
ZEN-20291	Standalone graph links cannot be generated for graphs with many series
ZEN-20374	MetricShipper logs missing information necessary for troubleshooting
ZEN-20415	Logs from "zminion" processes are not captured in Control Center

ID	Description
ZEN-20494	Central Query logs unknown metric errors too frequently
ZEN-20499	SNMP device statuses for Linux servers no longer use the <code>/Status/Ping</code> event class
ZEN-20563	Unable to specify ESX-provided eventClassKeys in mapping
ZEN-20596	Using the Open in new tab button on any graph causes an error flare message in the newly opened tab
ZEN-20640	Zenmail does not work
ZEN-20752	Zenbatchload does not install properly on additional collectors
ZEN-20834	When adding a collector in the the Control Center section of Resource Manager, the Resource Pool drop-down shows an error
ZEN-20838	The volume of INFO log messages is too high and causes unnecessary I/O load
ZEN-20903	Global Operations Manager does not appear correctly in the Resource Manager application inside Control Center
ZEN-21061	When using <code>dc-admin</code> , creating a collector with an underscore in the collector's name returns an error
ZEN-21087	Zenmail is failing on Resource Manager 5.0.x
ZEN-21097	Users logged in with the ZenUser role have access to features they shouldn't have
ZEN-21101	Poor Resource Manager UI performance when logged-in user is part of a large LDAP group
ZEN-21104	Zenpacks reveal sensitive password information in some URLs
ZEN-21134	Performance issue when loading LDAP settings page
ZEN-21141	ZenPop3 is missing as a service in Control Center
ZEN-21143	The Datasource Test button does not use SNMP v3 settings if they are present
ZEN-21245	Device does not come out of maintenance if the effective maintenance window's start date is changed
ZEN-21302	Users with the ZenManager role cannot create triggers or notifications
ZEN-21322	With the MultiRealm zenpack installed, maintenance window events are not linked to devices
ZEN-21392	Data collection with ZenJMX is silently failing, raising no events
ZEN-21546	Deploying multiple collectors in the Control Center tab in Resource Manager causes the Resource Manager UI to crash
ZEN-21727	Maintenance sindows use the UTC time zone instead of the time zone set in the user's profile
ZEN-21746	Using the <code>dc-admin</code> utility to delete collectors does not remove the corresponding services in Control Center
ZEN-21893	Users are unable to use the same data points twice on the same graph
ZEN-21916	Tracebacks related to RRDDataSource seen in zenhub log when performing collection
ZEN-21955	MultiGraph reports show incorrect data
ZEN-21956	Min/Max thresholds do not graph properly when both the minimum and maximum thresholds are set
ZEN-22012	CiscoUCS ZenPack takes a long time to upgrade

ID	Description
ZEN-22023	Delta values for threshold evaluation are incorrectly calculated for COUNTER and DERIVE datapoints
ZEN-22029	The ZProxy service logs every connection, unnecessarily filling up Control Center logs
ZEN-22079	Multigraph reports are incorrectly showing the same data for different devices and components

Known issues

Table 11: Known issues in Resource Manager 5.1.1 and Control Center 1.1.1

ID	Description	Status
CC-1302	Serviced may not shut down cleanly if it loses connection to a single Zookeeper instance that is sharing a physical disk with Docker and data volumes	Open
CC-1577	ZenModeler service details graphs may not populate for time periods less than last 12 hours	Open
CC-1593	IP Assignment values cannot be edited	Open
CC-1621	Deleted application templates may be displayed again after a serviced restart, until the view is refreshed	Open
CC-1762	When localized, some elements of the Control Center UI are not translated as expected	Open
CC-1845	Inspector tool will not run if df command has hung	Open
CC-1888	Zookeeper maintains nodes for deleted public endpoints	Open
CC-1906	Container memory and CPU stats can be incorrect	Open
CC-1974	NFS client cannot be disabled on remote pool hosts. Systems with remote NFS clients disabled will not upgrade to Control Center 1.1.1	Open
CC-1978	Docker may fail to start on the first two attempts after applying a new configuration in <code>/etc/sysconfig/docker</code> , but will start on third try	Open
ZEN-20776	MIBs added via UI have no details	Open
ZEN-21517	User can add an IP service with a duplicate name	Open
ZEN-21731	Event page may not automatically refresh when a new event is manually added	Open
ZEN-21769	After adding a new IP Service, the details page for the new service is empty.	Open
ZEN-21790	Removing a process class from an organizer does not update the number of processes shown for the organizer	Open
ZEN-21824	Network map portlet does not honor selected network	Open
ZEN-21833	High Load trendline is incorrect on Load Avg graph for <code>/Server/Linux</code>	Open
ZEN-21865	Manually changing a device's production state does not update the page until the next refresh	Open
ZEN-21934	Removing an expanded report organizer that contains a child report organizer will result in a UI warning message	Open

ID	Description	Status
ZEN-21935	Dragging a report organizer into another, unexpanded, report organizer will cause the organizer tree in the UI to go blank until the page is refreshed.	Open
ZEN-21957	Several RRD graphpoint types appear in the product but will not render on graphs	Open
ZEN-21971	LDAP searches using custom search parameters do not return correct results	Open
ZEN-21986	User cannot log in using objectGUID	Open
ZEN-22008	Zenpacks list is not displayed when you try to add a custom <code>Organizer</code> user command to a <code>ZenPack</code>	Open
ZEN-22021	Production state does not appear to get set to Maintenance when maintenance window is set for a device class	Open
ZEN-22028	ZenUser may be able to access pages that should be restricted to that user	Open
ZEN-22031	IPv6 devices cannot be added via the Infrastructure page because the Submit button does not enable	Open
ZEN-22063	When migrating to Resource Manager 5.1.1, a message appears indicating that <code>UpdateZopeThreadsCount</code> has been changed to 1, when in fact it has been reverted to the default (4).	Open
ZEN-22156	Dashboards cannot be assigned to a local user group	Open
ZEN-22171	Manually modeling a device may result in INFO messages that erroneously indicate modeling has failed	Open
ZEN-22215	Using Internet Explorer 11, attempting to filter a Report via the Search box may result in the report being exported rather than filtered	Open
ZEN-22235	Exporting a Software Inventory report does not generate a complete <code>.csv</code> file	Open
ZEN-22243	Reader/Writer fail health checks after upgrading to Resource Manager 5.1.1	Open

Notes and workarounds

Control Center 1.1.7/Resource Manager 5.1.4: CentOS kernel defect affects volume status feature

Due to an issue in the CentOS kernel (https://bugzilla.redhat.com/show_bug.cgi?id=1286500), the serviced `volume status` feature that was introduced in Control Center 1.1.6 has been changed to not report `storage.device.allocated` and `storage.snapshot.allocated`. When the CentOS kernel 3.10.0-366.el7 is released, the full functionality of this feature will be restored.

Control Center 1.1.6/Resource Manager 5.1.4: CentOS 7.2 has fixed a defect that prevents `fstrim` from working (ZEN-23525)

There was a defect in CentOS 7.2 that prevented `fstrim` from working. In kernel version 3.10.0-327 or higher, `fstrim` now works. Ensure that your system is running this kernel version or higher. To check the kernel version, as the `root` user, execute the following command: `uname -r`

If you need to update your kernel, execute `yum -y update` or `yum -y update kernel`

Control Center 1.1.4/Resource Manager 5.1.3: Upgrade procedures

To upgrade to this release, first upgrade Control Center, and then upgrade Resource Manager. The procedures are in separate parts of the *Zenoss Resource Manager Upgrade Guide*.

Control Center 1.1.3/Resource Manager 5.1.1: Turn off logical volume monitoring for the serviced pool (CC-2158)

Sometimes LVM decides to resize itself and if it doesn't have enough space it will unmount the device. To avoid this situation you should turn off the LVM self monitoring for the serviced-pool using the following command:

```
lvchange --monitor n serviced/serviced-pool
```

Control Center 1.1.1/Resource Manager 5.1.1: Updated command for ZenPack installation (ZEN-22297)

- The command for installing a ZenPack has changed from previous versions. The command to install a ZenPack is now: `serviced service run zope zenpack-manager install <ZenPack>`.



Limitations, errata, and documentation

This section includes the following information:

- Known limitations of Resource Manager
- Release-specific documentation errata, if any
- Descriptions of additional documentation

Limitations

The size of the CentralQuery maximum memory allocation pool is set by the *RAMCommitment* variable in the CentralQuery service definition. The default value is 1024MB. Do not change the value to anything less than 1024MB. (ZEN-15907).

Additional information

Beginning with release 5.0.0, all Resource Manager distributions include PDF versions of the following documents:

- *Zenoss Resource Manager Installation Guide*
- *Zenoss Resource Manager Upgrade Guide*
- *Zenoss Resource Manager Configuration Guide*
- *Zenoss Resource Manager Administration Guide*

Likewise, all releases of Control Center include an HTML version of its documentation.

The documentation included in a release is in synch with the release. That is, instead of inserting errata into release notes, document errors are corrected, and the corrected documents are included in the upgrade or patch release. Similarly, when a feature change or addition is included in an upgrade or patch release, the documentation is updated, too.

Documentation feedback

Zenoss welcomes your comments and suggestions regarding our documentation. To share your comments, please send an email to docs@zenoss.com. In the email, include the document title and part number. The part number appears at the end of the list of trademarks, at the front of PDF versions of a document.