

# ZENworks 2017 Update 4 Dashboard Reference

January 2019



## 1 Overview

The dashboard feature provides a comprehensive snapshot of key indicators, so you can quickly assess the overall health and compliance of devices in your zone. Using dashboards, you can drill down to further areas of interest.

The ZENworks dashboards enable you to view information related to the status of devices and patches within the zone, and perform the required actions.

The dashboards include multiple individual components called dashlets. Each dashlet consists of multiple filter components using which you select to view only a subset of the data. The filter components vary based on the dashlet. You can also initiate actions directly from the respective dashlets (when expanded) such as refresh, delete, unregister, unenroll, reset and send messages.

To know more about Dashboards, watch the following video on ZENworks Dashboard - An Overview.



<http://www.youtube.com/watch?v=FIEbw4YTfXE>

- ◆ Section 1.1, “Navigating to the Dashboard Page:,” on page 1
- ◆ Section 1.2, “Interactive Options:,” on page 1

### 1.1 Navigating to the Dashboard Page:

The dashboards can be viewed in the Device Dashboard page, Patch Management page and in the Home Dashboard page.

- ◆ **To go to Home Dashboard page:** Log into ZCC, click Home and then click Dashboard.

The Home Dashboard page displays all the dashlets available in ZENworks. This page includes Patch Management and Device Management dashlets.

- ◆ **To go to Device Dashboard page:** Log into ZCC, click Devices and then Click Dashboard.

The Device Dashboard page displays all the dashlets related to devices.

- ◆ **To go to Patch Dashboard page:** Log into ZCC, click Patch Management.

The Patch Dashboard page displays all the dashlets related to Patch Management.

### 1.2 Interactive Options:

Following are some of the interactive options available in the Dashboard page:

| Icon  | Action               |
|---|----------------------|
|  | Expands the dashlet. |

| Icon  | Action  |
|---|---|
|    | <p>Pins the dashlet to dashboards.</p> <p>You can either pin it to Home, Device or Patch dashboards.</p> <p>When the dashlet is unpinned, it will be removed from the dashboard canvas and added back to the canvas when they are pinned. To pin the dashlet back to the dashboard canvas, click .</p> |
|    | Deletes the dashlet from the dashboard.   |
|    | <p>Refreshes the dashlet.</p> <p>When you refresh a dashlet, latest data will be retrieved from database and displayed in the dashboard.</p>  |
|    | <p>Displays more options such as Save, Save As, Export as CSV and so on.</p> <ul style="list-style-type: none"> <li>◆ The default dashlets cannot be saved, but the modified dashlet can be saved using the <b>Save As</b> option.</li> <li>◆ The dashlet grid data can be exported to a CSV file using the <b>Export as CSV</b> option.</li> </ul>                                     |
|    | Collapses the expanded dashboard.   |
|    | View all the available chart styles.  |
|  | Displays the data in a pie chart.   |
|  | Displays the data in a donut chart.   |
|  | Displays the data in a bar graph.   |
|  | <p>Displays the default and customized dashlets that can be pinned to the dashboard.</p> <p>The dashlet will be removed from the list after pinning it to the dashboard canvas and added back if unpinned from the dashboard canvas.</p>  |

## 2 Dashboards

- ◆ [Section 2.1, “Device Dashboard,” on page 3](#)
- ◆ [Section 2.2, “Patch Dashboard,” on page 10](#)

## 2.1 Device Dashboard

The device dashboard is an at-a-glance summary of various device statuses in a zone. The device dashboards can also be used as a tool to drill-down to further areas of interest. You can also initiate actions directly from the respective dashlets (when expanded) to perform actions such as refresh, verify last update, send message, delete, unenroll, and unregister.

A brief description for each default device dashlet is provided below. Click the dashlet link for more detailed information about that dashlet.

- ◆ [Android Enterprise Compliance Status](#): Displays the number of mobile devices that are compliant and non-compliant with the Mobile Compliance Policy. Mouse over different sections of the chart to see how many devices are compliant, or expand the dashlet for more options.
- ◆ [Device Distribution](#): Displays the number of devices available in the zone. Mouse over different sections of the chart to see the number of devices in a device type (workstation, servers, or mobile devices), or expand the dashlet for more options.
- ◆ [Device Last Contact](#): Displays the number of devices that contacted the server. The displayed data is filtered based on the device contact time. Mouse over different sections of the chart to see number of devices that contacted the server at that particular interval, or expand the dashlet for more options.

### 2.1.1 Android Enterprise Compliance Status

Android Enterprise Compliance Status is one of the default dashlets available in ZENworks. This dashlet provides a single view of the compliance status of all Android mobile devices in the zone.

Viewing the information in the default configuration might initially help you to determine how to best configure the dashlet for your organization's needs by asking questions such as:

1. Which set of devices do I want to check for compliance?
2. Do I want to view the list of compliant or non-compliant devices?
3. In the list of non-compliant devices, which state of compliance do I want to monitor?

For more information on Device Compliance, see [ZENworks 2017 Mobile Management Reference](#).

**Modify the data displayed:** To configure the data that the dashlet displays, expand and modify any of the sections in the dashlet configuration panel. After modifying the required filters, apply your changes. The filters include:

- ◆ **Device Folders:** In this filter, you can select the required device folders. Select **Include Subfolders** to include folders within the selected folders.
- ◆ **Device Groups:** In this filter, you can select the required device groups.
- ◆ **Enrollment Mode:** In this filter, you can select the mode with which the device was enrolled with ZENworks. The available options are Work profile and Work-managed device.
- ◆ **Operating System:** In this filter, you can select the operating system installed on the device. This is a dynamic filter, based on the selected Device Folders and Device Groups, the filter details are populated.
- ◆ **Status:** In this filter, you can select the status of the device. The available options are Active, Lost and Retired.
- ◆ **Ownership:** In this filter, you can select the ownership of the device. The available options are Personal and Corporate.
- ◆ **Compliance State:** In this filter, you can select the current compliance state of the device. The available options are Monitoring, Audit, Restricted and Remediated.

For more information on the Compliance State, see Monitoring Device Compliance in the ZENworks Mobile Management Reference.

- ♦ **Compliance Status:** In this filter, you can select the compliance status of the device. The available options are compliant and non-compliant.

**Execute actions from the Device Details panel:** The Device Details panel displays the devices that meet the criteria that you defined in the dashlet configuration panel. You can also filter the list by searching for a device name or a portion of the name in the Filter Devices bar.

Following are some of the fields that are displayed:

| Field               | Description  |
|---------------------|--|
| Device              | Displays name of the device.   |
| User                | Displays the name of the user who logged into the device.  |
| Platform            | Displays the platform of the device. Platform can be Linux, Windows, Android or iOS.                                       |
| Last Contact        | Displays the date on which the device contacted the server.  |
| Status              | Displays the status of the device. The status can be Active or Lost.   |
| Non-compliant Since | Displays the date or time since the device was considered non-compliant.   |
| Current State       | Displays the existing status of the compliance check that is, whether the device is in Audit, Restrict or Remediate state. |
| Restricted On       | Displays the date or time when restrictions were imposed on the device.  |
| Remediated On       | Displays the date or time when remediation actions were taken on the device.   |
| Search/Filter       | You can filter the data displayed in the table by specifying the device name or the user name in the search field.         |

For information about the other actions and options that you have in the Device Details panel, see the following table:

| Task         | Description   |
|--------------|---|
| Unenroll     | To unenroll a device by either retiring the device or deleting the device from the Management Zone.   |
| Send Message | To send a message from ZENworks Control Center to a mobile device that is enrolled as a fully managed device. The message consists of a subject and a body (140 character limit). |
| Refresh      | To refresh the device so that any pending actions can immediately be executed on the device.  |

| Task  | Description   |
|---|---|
|  | To show or hide a column from the Device Details panel.   |
| Search/Filter   | To filter the data displayed in the table by specifying the device name or the user name in the search field. |

## 2.1.2 Device Distribution

Device Distribution is one of the default dashlets available in ZENworks. This dashlet displays all the devices that are available in your Management Zone.

Viewing the information in the default configuration might initially help you to determine how to best configure the dashlet for your organization's needs by asking questions such as:

1. Do I want to identify all the device types in my zone or do I want to view information specific to a particular device type?

For example, workstations, servers or mobile devices.

2. Do I want to view device information based on a particular operating system?
3. Do I want to initiate a particular action on a device based on the device state?

**Modify the data displayed:** To configure the data that the dashlet displays, expand and modify any of the sections in the dashlet configuration panel. After modifying the required filters, apply your changes. The filter includes:

- ◆ **Device Folders:** In this filter, you can select the required device folders. Select **Include Subfolders** to include folders within the selected folders.
- ◆ **Device Groups:** In this filter, you can select the required device groups.
- ◆ **Device Type:** In this filter, you can select the required type of device. The available options are Servers, Workstations and Mobile Devices.
- ◆ **Operating System:** In this filter, you can select the operating system installed on the device. This is a dynamic filter, based on the selected Device Folders and Device Groups, the filter details are populated.
- ◆ **Ownership:** In this filter, you can select the ownership of the device. The available options are Personal and Corporate.
- ◆ **Agent Version:** In this filter, select the required version of the Agent. This is a dynamic filter, based on the selected Device Folders and Device Group.
- ◆ **Status:** In this filter, you can select the status of the device. The available options are Active, Lost and Retired.

**Group the data displayed:** To group the data and stack it in the chart, select the required options from the Primary Grouping and Secondary Grouping fields. The data can only be displayed as a bar graph.

Following are some of the fields that are displayed:

| Field  | Description  |
|--------|--|
| Device | Displays the name of the device.   |
| Type   | Displays the type of the device. Device type can be Server, workstation or Mobile. |

| Field             | Description  |
|-------------------|--|
| Platform          | Displays the platform of the device. Platform can be Linux, Windows, Android or iOS.               |
| Operating System  | Displays the operating system on which the device is operating. Operating system includes version. |
| Agent Version     | Displays the version of the agent installed on the device.   |
| Folder Path       | Displays the folder path in which the device is located.   |
| Last Contact      | Displays the date on which the device last contacted the server.                                   |
| Status            | Displays the status of the device. The status can be Active or Lost.                               |
| User              | Displays the name of the user who logged into the device.  |
| Last Full Refresh | Displays the date on which the full refresh was performed on the device.                           |
| Department        | Displays the name of the department to which the device belongs.                                   |
| Site              | Displays the name of the site.   |

For information about the other actions and options that you have in the Device Details panel, see the following table:

| Task  | Description  |
|---|--|
| Refresh   | This action refreshes the device so that any pending actions can immediately take place on the device.   |
| Delete  | This action deletes a device from the zone.  |
| Unenroll  | This action unenrolls a device by either retiring the device or deleting the device from the Management Zone. This quick task is applicable only for mobile devices. |
| Refresh Policies  | This action refreshes the devices so that any pending policy will flow down to the device.   |
| Unregister  | Unregisters the device from the Management Zone. This quick task is applicable only for non-mobile devices.  |
|  | Click the hamburger icon to show or hide a column from the Device Details panel.   |
| Search/Filter   | You can filter the data displayed in the table by specifying the device name or the user name in the search field.   |

**NOTE:** These quick tasks might not be applicable to all devices.

### 2.1.3 Device Last Contact

Device Last Contact is one of the default dashlets available in ZENworks. This dashlet graphically represents when the device last contacted the server. By default, all devices that contacted the server are displayed based specific time filters.

Viewing the information in the default configuration might initially help you to determine how to best configure the dashlet for your organization's needs by asking questions such as:

1. Is there a particular device or device type that I want to track to identify when it last contacted the server?
2. Do I want to identify when the device last contacted the server, within a particular duration?

**Modify the data displayed:** To configure the data that the dashlet displays, expand and modify any of the sections in the dashlet configuration panel. The filters include **Device Folders**, **Device Groups**, **Device Type**, **Platform**, **Server Type**, **Management Type**, **Operating System**, **Ownership**, **Agent Version** and **Status**. After modifying the filter, apply your changes.

**Filter the data displayed:** To filter the data based on time, select and modify the relevant options. These include:

| Time Filter | Option | Description  | Additional Information                                    |
|-------------|--------|--|---|
| Up to       | Days   | This includes the time lapsed from now till 0:00 hours of the specified day.<br><br>For example, if you configure this time filter Up to 1 Day at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 15th April to 5:30 PM, 16th April will be displayed.                     | While specifying the Up to field, From field is disabled. |
|             | Weeks  | This includes the time lapsed from now till 0:00 hours of the same day of the specified week.<br><br>For example, if you configure this time filter Up to 1 Week at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 9th April to 5:30 PM, 16th April will be displayed.    |   |
|             | Months | This includes the time lapsed from now till 0:00 hours of the same day of the specified month.<br><br>For example, if you configure this time filter Up to 1 Month at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 16th March to 5:30 PM, 16th April will be displayed. |   |

| Time Filter | Option | Description  | Additional Information  |
|-------------|--------|--|---|
| Between     | Days   | <p>This include the time elapsed between two specified days.</p> <p>For example, if you specify the duration as 1 day to 7 days, and configure this time filter at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 9th April to 23:59 PM, 14th April.</p>                            | <p>The From field should be less than the To field.</p> <p>If you select Days in the From field, then the in the To field you can select Days, Weeks or Months.</p> <p>If you select Weeks in the From field, then in the To field you can select only Weeks or Months.</p> |
|             | Weeks  | <p>This include the time elapsed between two specified weeks.</p> <p>For example, if you specify the duration as 1 Week to 3 Weeks, and configure this time filter at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 26th March to 23:59 PM, 9th April will be displayed.</p>       | <p>If you are specifying Months in the From field, then in To field you can select only Months.</p>   |
|             | Months | <p>This include the time elapsed between two specified months.</p> <p>For example, if you specify the duration as 1 Month to 3 Months, and configure this time filter at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 16th January to 23:59 PM, 16th March will be displayed.</p> |   |
| More than   | Days   | <p>This includes the time lapsed beyond the specified days.</p> <p>For example, if you configure the time filter as More than 30 days, at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 16th March and before will be displayed.</p>   |   |
|             | Weeks  | <p>This includes the time lapsed beyond the specified weeks.</p> <p>If you configure the time filter as More than 3 Weeks, at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 27th March and before will be displayed.</p>   |   |
|             | Months | <p>This includes the time lapsed beyond the specified months.</p> <p>If you configure the time filter as more than 2 Months, at 5:30 PM on 16th April, all devices that contacted the server from 12:00 AM, 16th February and before will be displayed.</p>  |   |

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**NOTE**

- ◆ If you configure the time filter in weeks/months, then each week is calculated as 7 days and each month is calculated as the same day on which the time filter was configured in the selected month.
  - ◆ For each date range, a default color is assigned which helps you to easily identify the specified duration.
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**Execute actions from the Device Details panel:** The Device Details panel displays the devices that meet the criteria that you defined in the dashlet configuration panel. You can also filter the list by searching for a device name or a portion of the name in the Filter Devices line.

Following are some of the fields that are displayed:

| Field             | Description  |
|-------------------|--|
| Device            | Displays name of the device.   |
| Type              | Displays the type of the device. Device type can be Server, workstation or Mobile.             |
| Platform          | Displays the platform of the device. Platform can be Linux, Windows, Android or iOS.           |
| Operating System  | Displays operating system on which the device is operating. Operating system includes version. |
| Agent Version     | Displays version of the agent.   |
| Folder Path       | Displays the folder path in which the device is located.                                       |
| Last Contact      | Displays the date on which the device contacted the server.                                    |
| Status            | Displays the status of the device. The status can be Active or Lost.                           |
| User              | Displays the name of the user who logged into the device.                                      |
| Last Full Refresh | Displays the date on which the full refresh was performed on the device.                       |
| Department        | Displays name of the department.   |
| Site              | Displays name of the site.   |

For information about other actions and options you have in the Device Details panel, see the following table:

| Task     | Description   |
|----------|---|
| Refresh  | To refresh the device so that any pending actions can immediately be initiated on the device. |
| Delete   | To delete a device from the zone.   |
| Unenroll | To unenroll a device from the zone.   |

| Task  | Description   |
|---|---|
| Reset   | To trigger a reset action on the Agent device. This task will stop the agent service, delete the cache, and then restart the agent service. |
| Verify last Update  | To run the last successful update on the selected device.   |
| Unregister  | To unregister the device from the Management Zone. This quick task is applicable only for non-mobile devices.                               |
|  | To show or hide a column from the Device Details panel.   |
| Search/Filter   | To filter the data displayed in the table by specifying the device name or the user name in the search field.                               |

**NOTE:** These quick tasks might not be applicable to all devices.

## 2.2 Patch Dashboard

The Patch Management Dashboard has four default dashlets that can help you quickly assess patch compliance on devices in your zone. You can also create custom dashlets and initiate action directly from the respective dashlets to remediate, download, or disable selected patches, to discover patches, to reconfigure the zone vulnerability detection schedule, and to view patch and device details.

A brief description for each default dashlet is provided below. For comprehensive information about the Patch Management Dashboard, see [“Employing the Patch Management Dashboard”](#) in the *ZENworks 2017 Update 3 Patch Management Reference*.

- ◆ **Patch Subscription Status:** Displays the number of known patches in the zone, their status, and the last start and end times of subscription activities for licenses, patch discovery, and patch download.
- ◆ **Recently Released Patches:** Displays the number of recently released patches by patch impact type.
- ◆ **Device Patch Compliance:** Displays compliance status for devices in the zone.
- ◆ **Devices Last Patch Scan:** Displays the number of devices scanned for patches by time range.

## 3 Configuring Dashboard Settings

This section provides information on the following dashboard configuration (JSON) files that can be modified to ensure that the dashlet data is processed faster on the server.

- ◆ DeviceDashboard.json
- ◆ PatchDashboard.json
- ◆ Common.json

To modify the configuration:

1. Navigate to `%zenworks_home%\conf\datamodel\caching\dashboard`
2. Modify the required configuration settings.

**NOTE:** Detailed information about the attributes included in these files is available in the table below.

3. Restart the zenserver.

The following table describes the attributes included in the `DeviceDashboard.json` and `PatchDashboard.json` files that can be modified:

| Attribute                  | Description  | Additional Information   |
|----------------------------|--|--|
| dashletType                | Type of dashlet  | This is one of the non-configurable attributes. The value of this attribute should not be modified.  |
| cacheSize                  | Maximum number of dashlet grid rows of data that can be cached in the server memory cache.   | <p>This attribute should be configured based on the maximum heap size that can be configured for the server and the number of simultaneous users for a particular dashlet.</p> <p>Example: Assuming each data grid row requires 2 KB, cacheSize of 10000 would require heap space of <math>10000 * 2 = 20000</math> (20 MB per user). If simultaneous dashlet users are 10, then heap space required is <math>20 * 10 \sim 200</math> MB.</p> <p><b>IMPORTANT:</b> If the dashlet data contains more data grid rows than the cacheSize, then none of the data in the dashlet data grid rows is cached.</p> |
| timeToLive<br>(in seconds) | The time for which the dashlet grid row data is kept alive in the cacheSize memory. When this time lapses, the data expires. This is the maximum time between creation and expiration of an element. | If the value is set to 0, then that dashlet grid row data has no expiry time.  |
| idleTime<br>(in seconds)   | <p>The idle time for dashlet grid row data before it expires.</p> <p>This is the maximum time between the last access time and the expiration time of the dashlet grid row data.</p>                 | <p>If the value is set to 0, then that dashlet grid row data can remain idle forever.</p> <p>The cached data expires when either idleTime or timeToLive has elapsed.</p>   |

| Attribute           | Description  | Additional Information   |
|---------------------|--|--|
| enableGreedyCaching | <p>When this attribute is set to false, before retrieving the actual grid row data, the server runs an extra database query to get the grid row count and compare it with cacheSize. This ensures that grid row data loaded in the server memory never exceeds the cacheSize limit.</p> <p>When this attribute is set to true, the server fetches all the dashlet grid row data and if the cacheSize is greater than the grid row count, then the server caches the dashlet grid row data in the in-memory server cache for later use. Thereby, reducing the overall load on the database.</p> | <p><b>IMPORTANT:</b> This attribute should be set to true only if you are sure that the dashlet grid row count will never exceed the cacheSize.</p> <p>If the dashlet grid row data exceeds the cacheSize and server heap space it might cause the server to display an “out of memory” error.</p> |

The following table describes the attributes included in the Common.json file.

| Attribute                           | Description   | Additional Information  |
|-------------------------------------|---|---|
| minNumberOfThreads                  | Minimum number of threads to be retained in the dashlet thread pool even when the dashlet is idle.  |   |
| maxNumberOfThreads                  | The maximum number of threads to be allowed in the dashlet thread pool.   |   |
| waitingTasksQueueSize               | Size of the request queue to hold tasks before they are executed.   | This attribute saves tasks if all the threads in the dashlet thread pool are busy. The pending tasks are later executed when the dashlet threads are available. |
| threadKeepAliveTime<br>(in seconds) | When the number of threads are more than the specified maxNumberOfThreads, this value defines the maximum time a thread should wait in the idle state before it is terminated.  |   |
| queryFetchSize                      | <p>The maximum number of rows that should be retrieved in a single database round trip for any dashlet database query.</p> <p>The larger the queryFetchSize value the lesser the number of database round trips. Thereby, reducing the load on the database server.</p> | The configured value should be supported by the JDBC driver and the database.   |

| Attribute    | Description  | Additional Information |
|--------------|--|------------------------|
| debugLogging | If this attribute is set to true and log level is set to debug on the server, then <code>service-message.log</code> will include additional log messages related to dashlet data processing. |                        |

## 4 Best Practices for Optimal Dashlet Performance

By modifying the JSON files mentioned in the [Configuring Dashboard Settings](#) section, the ZENworks dashlets' data can be accessed faster. The following best practices section enables you to configure the JSON files for faster dashlet response.

### 4.1 Dashlet Resource Requirements

Assuming each dashlet grid row requires 2 KB of data, 10000 dashlet grid rows would require 20 MB per user. If the average number of users simultaneously accessing dashlets on this server is 100, then dashlet grid row data might occupy 20 MB \* 100 ~ 2GB of server heap space. This is in addition to the server heap space required for other product features. For each user accessing the dashlets, at least 2 server threads are used to fetch the dashlet data. Hence, 100 users will require at least 200 server threads.

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**NOTE:** The average number of users are different and less than the total number of users in the zone.

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Consider a scenario in which the total number of users in a zone is 500, and the average number of users simultaneously accessing dashlets on a particular Primary Server is 20. Here, the focus is on the dashlet grid row data for these 20 users. However, the Primary Server should have sufficient RAM and heap space allocated to the zenserver process so that the dashlet grid row data for 20 users can be cached in the server memory. If the expected number of grid rows per dashlet is 15000, memory required per dashlet is 30 MB (15000 \* 2 KB). For 20 users, 600 MB (20 \* 30) of additional heap space might be required on the Primary Server for the dashlets.

### 4.2 Configuration for Optimal Performance

Optimal dashlet performance depends on the expected dashlet grid rows (which is a measure of the amount of data in a dashlet) and the average number of users accessing the dashlets parameters. Server memory requirements should be identified based on previous calculations. Based on this analysis, the maximum server heap space should be reconfigured if the memory requirements are significant. In such a case, a Primary Server with sufficient RAM and CPU cores should be chosen to access the dashlets. If the value of the average number of users simultaneously accessing dashlets in a zone is large, then users should be distributed across multiple Primary Servers so that a single Primary Server is not overloaded.

| Attribute          | Best Practice  | Additional Information   |
|--------------------|--|--|
| cacheSize          | <p>Cache size should be large enough to cache most of the dashlet grid rows without crossing the server heap space limit. However, it should also be low enough to allow the caching of dashlet grid row data for the expected average number of simultaneous users accessing the dashlets on a particular Primary Server.</p> | <p>For example:</p> <p>If the value of the expected number of grid rows is 50000 and expected average number of users simultaneously accessing the dashlets on the Primary Server is 50, then the memory required for caching is 5 GB.</p> <p>The zenserver might be allotted a 10 GB heap space. A Primary Server which can allow allocation of 10 GB heap space to the zenserver process should be used to access the dashlets.</p> <p>The cacheSize on this Primary Server is 50000. On the other hand, if the Primary Server can allow only maximum of 8 GB. In most of the cases, 4 GB of Heap space might be assigned for dashlet grid data, the cacheSize might be 40000 to allow caching of dashlet grid row data.</p> |
| maxNumberOfThreads | <p>Should be a little over twice the expected average number of simultaneous users accessing the dashlets on the Primary Server.</p> <p>This value should not be high, else it might slow down the server due to a high number of active threads.</p>  |  |

| Attribute               | Best Practice  | Additional Information |
|-------------------------|--|------------------------|
| timeToLive and idleTime | <p>Should be tuned for optimal usage of dashlet cache.</p> <p>If the timeToLive value is very low, or if it is less than the idleTime, the probability of the dashlet cache getting cleared increases and as a result most of the user requests for dashlet data will be retrieved from the database. Hence, load on the database increases.</p> <p>The idleTime should be configured such that the data remains in the cache for sufficient time while the administrator is navigating between dashlets and the rest of ZCC. At the same time, if the timeToLive and idleTime values are too large, the dashlet data will remain in the server heap space for a longer duration and it will increase the overall server memory usage.</p> |                        |
| queryFetchSize          | <p>This parameter should be configured such that the number of network round trips to the database is minimum.</p> <p>Constraints of the underlying database JDBC driver should be considered.</p>   |                        |
| enableGreedyCaching     | <p>Flag should be set to true only if it is certain that the server may not run out of memory due to cached dashlet data.</p>  |                        |

### 4.3 Dashlet Grid Data Sorting

ZENworks supports most of the popular databases such as Sybase, PostgreSQL, Oracle and MS SQL. The Sybase and MS SQL database handles the data in a case insensitive method, whereas the Oracle and PostgreSQL database handle the data in a case-sensitive manner.

Depending on the database used, the dashlet grid data might be sorted differently.

For example, let us consider the following device names:

- ◆ provo-device
- ◆ blr-device
- ◆ LONDON-DEVICE
- ◆ SYDNEY-DEVICE

If the MS SQL and Sybase database sort the data in ascending order, then device names will be sorted as shown below:

- ♦ blr-device
- ♦ LONDON-DEVICE
- ♦ provo-device
- ♦ SYDNEY-DEVICE

If the Oracle and PostgreSQL database sort the data in ascending order, then device names will be sorted as shown below:

- ♦ LONDON-DEVICE
- ♦ SYDNEY-DEVICE
- ♦ blr-device
- ♦ provo-device

The ZENworks database can be configured to show all data in case insensitive manner irrespective of the database used. Set the `dashboard.case.insensitive.sorting` flag to true in `zOpaqueData` table. After modifying the flag in the database, restart the services.

While dashlet grid data is retrieved from the in-memory cache, the same sort order as the database is maintained.

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**NOTE:** Using the lower keyword has an adverse performance impact on the database queries. Hence by default, usage of lower keyword is not added to the query.

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**IMPORTANT:** If the database Collation setting are modified, then the sorting of the dashlet grid data might be inconsistent.

Example: If the Collation setting for the Sybase database is changed to handle the data in case sensitive manner and server sorts the data in case insensitive manner (`dashboard.case.insensitive.sorting = true`), then the first set of data displayed in the dashlet grid row, which is retrieved directly from the database, follows the database sorting (case sensitive) and the next set of dashlet grid row data, which is stored in the in-memory cache follows the server sorting (case insensitive). Hence, sorting of dashlet grid row data might not be consistent. It is recommended not to modify the database Collation setting.

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## 5 Legal Notice

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