



## CHAPTER 7

# Monitoring the System and Services

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This chapter describes how to monitor the mobility services engine by configuring and viewing alarms, events, and logs as well as how to generate reports on system utilization and security.

This chapter contains the following sections:

- [“Working with Alarms” section on page 7-2](#)
- [“Working with Events” section on page 7-5](#)
- [“Working with Logs” section on page 7-6](#)
- [“Generating Reports” section on page 7-7](#)
- [“Security Reports” section on page 7-10](#)

## Working with Alarms

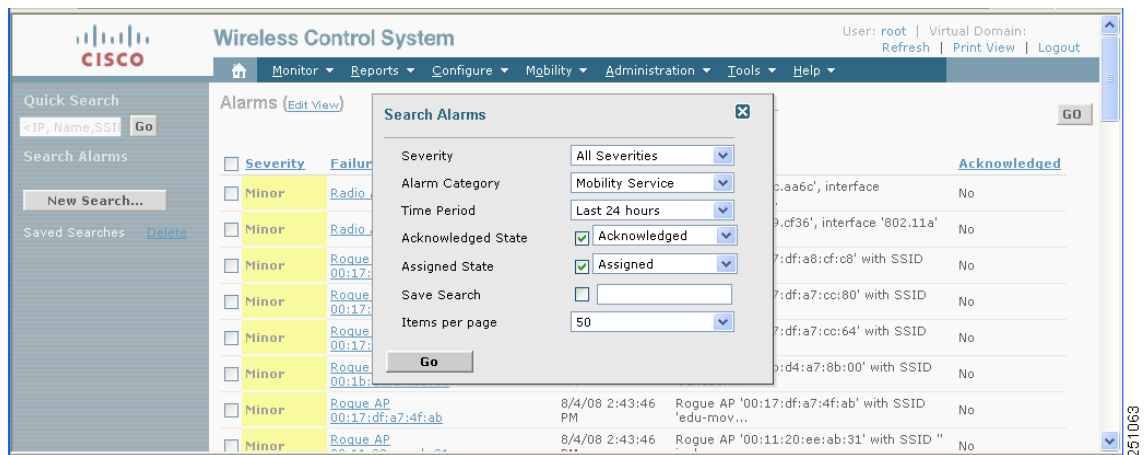
This section describes how to view, assign, and clear alarms and events on a mobility services engine using Cisco WCS. Details on how to have email notifications for alarms sent to you is described as well as how to define those types (all, critical, major, minor, warning) of alarm notifications that are sent to you.

## Viewing Alarms

To view mobility services engine alarms, follow these steps:

- Step 1** In Cisco WCS, click **Monitor > Alarms**.
- Step 2** Click **New Search**. A configurable search panel for alarms appears (Figure 7-1).

**Figure 7-1 Search Alarm Panel**



- Step 3** Select the Severity of Alarms to display. Options are All Severities, Critical, Major, Minor or Warning.
- Step 4** Select **Mobility Service** from the Alarm Category.  
Options are: All Types, Access Points, Controller, Coverage Hole, Config Audit, Mobility Service Location Notifications, Interference, Mesh Links, Rogue AP, Rogue Adhoc, Security and WCS.
- Step 5** Select the time frame for which you want to review alarms by selecting the appropriate option from the Time Period drop-down menu.  
Options range from minutes (5, 15 and 30) to hours (1 and 8) to days (1 and 7). To display all select **Any time**.
- Step 6** Check the **Acknowledged State** check box to exclude the acknowledged alarms and their count from the Alarm Summary window.
- Step 7** Check the **Assigned State** check box to exclude the assigned alarms and their count from the Alarm Summary window.
- Step 8** To save the search criteria for later use, check the **Save Search** box and enter a name for the search.




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**Note** The search is then accessible from the Saved Searches drop-down menu (left-panel) of the Monitor > Alarms window.

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**Step 9** Select the number of alarms to display on each window from the Items per page drop-down menu.

**Step 10** Click **GO**. Alarms summary panel appears with search results.




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**Note** Click the column headings (Severity, Failure Object, Owner, Date/Time and Message) to sort alarms.

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**Step 11** Repeat [Step 2](#) to [Step 10](#) to see notifications for the mobility services engine by entering **Location Notifications** as the alarm category in [Step 4](#).

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## Assigning and Unassigning Alarms

To assign and unassign an alarm to yourself, follow these steps:

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**Step 1** Display the Alarms window as described in the [“Viewing Alarms” section on page 7-2](#).

**Step 2** Select the alarms that you want to assign to yourself by checking their corresponding check boxes.




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**Note** To unassign an alarm assigned to you, uncheck the box next to the appropriate alarm. You cannot unassign alarms assigned to others.

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**Step 3** From the Select a command drop-down menu, choose **Assign to Me** (or **Unassign**) and click **GO**.

If you choose **Assign to Me**, your username appears in the Owner column. If you choose **Unassign**, the username column becomes empty.

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## Deleting and Clearing Alarms

To delete or clear an alarm from a mobility services engine, follow these steps:

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**Step 1** Display the Alarms window as described in the [“Viewing Alarms” section on page 7-2](#).

**Step 2** Select the alarms that you want to delete or clear by checking their corresponding check boxes.




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**Note** If you delete an alarm, Cisco WCS removes it from its database. If you clear an alarm, it remains in the Cisco WCS database, but in the Clear state. You clear an alarm when the condition that caused it no longer exists.

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**Step 3** From the Select a command drop-down menu, choose **Delete** or **Clear**, and click **GO**.

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## Emailing Alarm Notifications

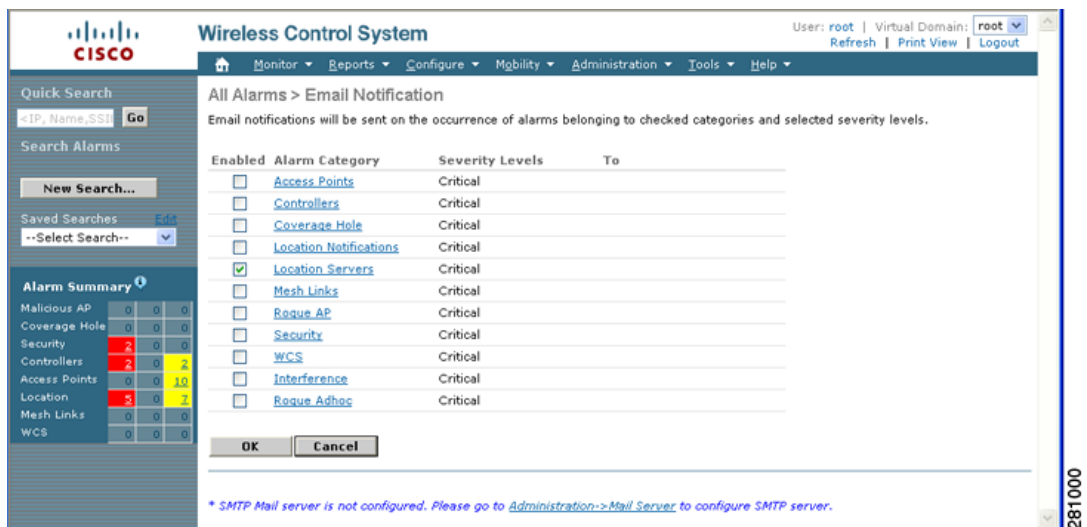
Cisco WCS lets you send alarm notifications to a specific email address. Sending notifications through email enables you to take prompt action when needed.

You can select the alarm severity types (critical, major, minor and warning) that are emailed to you.

To send alarm notifications, follow these steps:

- Step 1** Display the Alarms window as described in the “Viewing Alarms” section on page 7-2.
- Step 2** From the Select a commands drop-down menu, choose **Email Notification**, and click **GO**. The Email Notification window appears.

**Figure 7-2** All Alarms > Email Notification Window



### Note

A SMTP Mail Server must be defined prior to entry of target email addresses for email notification. Choose **Administration > Settings > Mail Server** to enter the appropriate information. You can also select the **Administration > Mail Server** link, if displayed, on the Email Notification window noted above.

- Step 3** Click the **Enabled** box next to the **Location Servers**.



### Note

Enabling the **Location Servers** alarm category sends all alarms related to location services and the mobility services engine system to the defined email address.

- Step 4** Click the **Location Servers** link. The panel for configuring the alarm severity types (critical, major, minor and warning) that are reported for the mobility services engine appears.
- Step 5** Check the check box next to all the alarm severity types for which you want email notifications sent.
- Step 6** In the **To** field, enter the email address or addresses to which you want the email notifications sent. Email addresses are separated by commas.
- Step 7** Click **OK**.

You are returned to the Alarms > Notification window. The changes to the reported alarm severity levels and the recipient email address for email notifications are displayed.

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## Working with Events

You can use Cisco WCS to view mobility services engine and location notification events. You can search and display events based on their severity (critical, major, minor, warning, clear, info) and event category.

You can search by the following event categories:

- By network coverage: coverage holes and interference
- By link: mesh links
- By notifications: location notifications
- By product type: access points (rogue and non-rogue), clients, controllers, and mobility service



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**Note** The product type: mobility service reports events for mobility services engines.

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- By security

Additionally, you can search for an element's events by its IP address, MAC address or name.

A successful event search displays the event severity, failure object, date and time of the event, and any messages for each event.

To display events, follow these steps:

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**Step 1** In Cisco WCS, click **Monitor > Events**.

**Step 2** In the Events window:

- If you want to display the events for a specific element and you know its IP address, MAC address, or Name, enter that value in the Quick Search field (left panel). Click **GO**.
- To display events by severity and category, select the appropriate options from the Severity and Event Category drop-down menus (left panel). Click **Search**.

**Step 3** If Cisco WCS finds events that match the search criteria, it displays a list of these events.



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**Note** For more information about an event, click the failure object associated with the event. Additionally, you can sort the events summary by each of the column headings.

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# Working with Logs

This section describes how to configure logging options and how to download log files.

## Configuring Logging Options

You can use Cisco WCS to specify the logging level and types of messages to log.

To configure logging options, follow these steps:

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- Step 1** In Cisco WCS, click **Mobility > Mobility Services**.
  - Step 2** Click the name of the mobility services engine that you want to configure.
  - Step 3** From the System menu (left panel) click **Advanced Parameters**. The advanced parameters for the selected mobility services engine appears.
  - Step 4** Scroll down to the Logging Options section and choose the appropriate option from the Logging Level drop-down menu.

There are four logging options: **Off**, **Error**, **Information**, and **Trace**.

**Caution**

Use **Error** and **Trace** only when directed to do so by Cisco Technical Assistance Center (TAC) personnel.

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- Step 5** Check the **Enabled** check box next to each element listed in that section to begin logging of its events.
  - Step 6** Click **Save** to apply your changes.
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## Downloading Location Server Log Files

If you need to analyze mobility services engine log files, you can use Cisco WCS to download them to your system. Cisco WCS downloads a zip file containing the log files.

To download a zip file containing the log files, follow these steps:

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- Step 1** In Cisco WCS, click **Mobility > Mobility Services**.
  - Step 2** Click the name of the mobility services engine to view its status.
  - Step 3** Click **Logs** (left panel).
  - Step 4** Click **Download Logs**.
  - Step 5** Follow the instructions in the File Download dialog box to open the file or save the zip file to your system.
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# Generating Reports

In Cisco WCS, you can generate a utilization report for a mobility services engine. By default, reports are stored on the Cisco WCS server.

The location utilization report summarizes and charts the following information in two separate charts for a prescribed period of time:

- Chart 1 summarizes and graphs CPU and memory utilization
- Chart 2 summarizes and graphs client count, tag count, rouge client count, rogue access point count, and ad hoc rogue count

You can generate a utilization report for a mobility services engine. Once defined, the report can be saved for future diagnostic use and run on either an ad hoc or scheduled basis.

You can define the following in a utilization report:

- What mobility services engine or mobility services engines are monitored
- How often the report is generated
- How the data is graphed on the charts
- Whether the report is emailed or exported to a file

## Creating a System Utilization Report

To create a utilization report for the mobility services engine, follow these steps:

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- Step 1** In Cisco WCS, click **Reports > Performance Reports**.
- Step 2** Select **MSE Utilization** from the listing under the Performance Reports heading (left panel). The MSE summary window appears.
- Step 3** Select **New** from the Select a command drop-down menu. Click **GO**. A tabbed panel appears (see [Figure 7-3](#)).

**Figure 7-3** Reports > Performance Reports > MSE Utilization

- Step 4** Enter a report title.

- Step 5** The Report By selection is always MSE.
- Step 6** Select either a specific mobility services engine or **All MSEs** from the drop-down MSE menu.
- Step 7** Enter the reporting period for the report. You can define the report to collect data on either an hourly or weekly basis or at a specific date and time. The selected reporting period type will display on the x-axis. Select the **Schedule** tab when complete.



**Note** The reporting period uses a 24-hour rather than a 12-hour clock. For example, select hour 13 for 1:00 PM.

- Step 8** At the Schedule window, check the **Enable Schedule** check box.
- Step 9** Select the report format (CSV or PDF) from the Export Report drop-down menu.

**Figure 7-4** MSE Utilization > New > Schedule Tab

The screenshot shows the 'MSE Utilization > New' configuration page in the Cisco Wireless Control System. The 'Schedule' tab is active. The 'Enable Schedule' checkbox is unchecked. The 'Export Format' is set to 'CSV'. The 'Destination' section has 'Save To File' selected, with a path: /opt/ftp\_server\_files/reports/MSEUtilization/<ReportTitleName>\_<yyyymmdd>\_<HHMMSS>.csv. The 'Start Date' is 08/05/2008, and the 'Start Time' is 06:00. The 'Recurrence' is set to 'Weekly', every 1 week, on Monday. The current server time is Tue Aug 05 10:20:34 PDT 2008.

- Step 10** Select either the **Save To File** or the **Email To** option as the destination of the report.
- If you select the **Save To File** option, a destination path must first be defined at the **Administration > Settings > Report** window. Enter the destination path for the files in the Repository Path field.
  - If you select the **Email To** option, an SMTP Mail Server must be defined prior to entry of target email address. Choose **Administrator > Settings > Mail Server** to enter the appropriate information.
- Step 11** Enter a start date (MM:DD:YYYY) or click the calendar icon to select a date.
- Step 12** Specify a start time using the hour and minute drop-down menus.
- Step 13** Click one of the Recurrence buttons to select how often the report is run.



**Note** The days of the week appear only on the screen when the weekly option is chosen.



- Step 14** When complete with all of the above steps, do one of the following:
- Click **Save** to save edits. The report is run at the designated time and the results are either emailed or saved to a designated file as defined in the Schedule tab.
  - Click **Save and Run** to save the changes and run the report now. The report runs regardless of any scheduled time associated with the report and is viewable in the **Results** tab. Additionally, the report is run at the designated time and the results are either emailed or saved to a designated file as defined in the Schedule tab.
    - At the results window, you can cancel or delete the report.
  - Click **Run Now** if you want to run the report immediately and review the results in the WCS window. The report runs regardless of any scheduled time associated with the report and is viewable in the **Results** tab. If the report is too large to display in the WCS window, you are referred to the history tab to download the file for viewing. Click **Save** if you want to save the report scenario you entered.




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**Note** You can also use the **Run Now** command to check a report scenario before saving it or to run reports as necessary.

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## Viewing a Defined System Utilization Report

To view results of a defined report, follow these steps:

- Step 1** In Cisco WCS, click **Reports > Performance Reports**.
- Step 2** Select **MSE Utilization** from the listing under the Performance Reports heading.
- The MSE Utilization summary window appears. Any pre-defined reports, previously created and saved, are listed.
-  **Note** You can select one of the listed reports or you can define a new report. For details on creating a new report, see the [“Creating a System Utilization Report”](#) section on page 7-7.
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- Step 3** Click the listed report’s link to review its settings. The two-tabbed window appears.
- Step 4** Review or modify the report parameters on the General tab window. When finished, select the **Schedule** tab.
- Step 5** Check the **Enable Schedule** check box to enable the report, if not already checked.
- Step 6** Review and edit other parameters, as necessary. When you are finished with your review or edit, do one of the following:
- Click **Save** to save edits. The report is run at the designated time and the results are either emailed or saved to a designated file as defined in the Schedule tab.
  - Click **Save and Run** to save the changes and run the report now. The report runs regardless of any scheduled time associated with the report and is viewable in the **Results** tab. Additionally, the report is run at the designated time and the results are either emailed or saved to a designated file as defined in the Schedule tab.
    - At the results window, you can cancel or delete the report.

- Click **Run Now** if you want to run the report immediately and review the results in the WCS window. The report runs regardless of any scheduled time associated with the report. If the report is too large to display in the WCS window, you are referred to the history tab to download the file for viewing. Click **Save** if you want to save the report scenario you entered. You can also delete or cancel the report.



**Note** You can also use the **Run Now** command to check a report scenario before saving it or to run reports as necessary.

## Security Reports

In the left sidebar menu (**Reports > Security**), all of the security report options are listed. The security reports display information about the security of the wireless network.



**Note** Security reports do not show the status of autonomous access points.

The choices are as follows:

- **New Rogue APs**—Displays, in tabular form, all rogues detected in a selected timeframe. It provides which new rogues were detected within a selected time. The created time indicates the time at which the rogue was first detected.
- **New Rogue AP Count**—Displays, in graphical form, all rogues detected in a selected timeframe.
- **Rogue APs**—Displays all rogues that are active in your network and have been updated in the selected timeframe. WCS receives updated events for rogues that are detected
- **Rogue APs Event**—Displays all the events received by WCS. The controller sends updates of detected rogues if any of the attributes change or new rogues are detected.



**Note** This report was formally called the Rogue Detected by AP.

- **Rogue Adhocs**—Displays all adhocs that have been updated in the selected timeframe.
- **Rogue Adhocs Event**—Displays all adhoc events that WCS has received in the selected timeframe.
- **Security Summary Report**— Shows the number of association failures, rogues access points, ad hocs, and access point connections or disconnections over one month.

## Viewing or Modifying Security Reports

Follow these steps to view or modify existing security reports.

- Step 1** Click **Reports > Security Reports**. The Security Reports page appears.
- Step 2** Select the Security Report type from the left panel.
- Step 3** Define (or modify) the conditions for the report in the General panel. Select the **Schedule** tab when complete.

- Step 4** Check the **Enable Schedule** check box to enable the report, if not already checked.
- Step 5** Review and edit other parameters, as necessary. When you are finished with your review or edit, do one of the following:
- Click **Save** to save edits. The report is run at the designated time and the results are either emailed or saved to a designated file as defined in the Schedule tab.
  - Click **Save and Run** to save the changes and run the report now. The report runs regardless of any scheduled time associated with the report and is viewable in the **Results** tab. Additionally, the report is run at the designated time and the results are either emailed or saved to a designated file as defined in the Schedule tab.
    - At the results window, you can cancel or delete the report.
  - Click **Run Now** if you want to run the report immediately and review the results in the WCS window. The report runs regardless of any scheduled time associated with the report. If the report is too large to display in the WCS window, you are referred to the history tab to download the file for viewing. Click **Save** if you want to save the report scenario you entered. You can also delete or cancel the report.




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**Note** You can also use the **Run Now** command to check a report scenario before saving it or to run reports as necessary.

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- Step 6** Click the History tab if you want to review details of the current and past runs of the report.
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## Creating a New Security Report

To create a new security report, follow these steps:




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**Note** Some of these steps or options are not required for every report.

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- Step 1** Click **Reports > Security Reports**. The Security Reports page appears.
- Step 2** Click on one of the report types summarized under Security Reports (left-side).
- Step 3** Select **New** from the Select a command drop-down menu and click **GO**. The two-tabbed entry panel appears.
- Step 4** Specify a report title.
- Step 5** Specify if you want the report listed by controller, floor area, outdoor area, AP by floor, AP by outdoor area, or SSID. The floor area and outdoor area report generates the report on an area basis while the AP by floor or AP by outdoor area generates the report on a per-access point basis.
- Step 6** If you chose controller, you need to enter a controller IP address.  
If you chose floor area or AP by floor area, you need to enter the campus, building, and floor location.  
If you chose outdoor area or AP by outdoor area, you need to enter the campus and outdoor area.
- Step 7** If necessary, enter which access points or location server to include in the report.
- Step 8** Enter the reporting period for the report. You can define the report to collect data for an hourly or weekly period or choose a specific date and time range for reporting.
- Step 9** Click the Schedule tab to complete the scheduling process.

- Step 10** Check the **Enable Schedule** check box to enable the report.
- Step 11** Review and edit other parameters, as necessary. When you are finished with your review or edit, do one of the following:
- Click **Save** to save edits. The report is run at the designated time and the results are either emailed or saved to a designated file as defined in the Schedule tab.
  - Click **Save and Run** to save the changes and run the report now. The report runs regardless of any scheduled time associated with the report and is viewable in the **Results** tab. Additionally, the report is run at the designated time and the results are either emailed or saved to a designated file as defined in the Schedule tab.
    - At the results window, you can cancel or delete the report.
  - Click **Run Now** if you want to run the report immediately and review the results in the WCS window. The report runs regardless of any scheduled time associated with the report. If the report is too large to display in the WCS window, you are referred to the history tab to download the file for viewing. Click **Save** if you want to save the report scenario you entered. You can also delete or cancel the report.



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**Note** You can also use the **Run Now** command to check a report scenario before saving it or to run reports as necessary.

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- Step 12** Click the History tab if you want to review details of the current and past runs of the report.
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