2017

LicenseMonitor™ Getting Started Guide

V 1.0 Support Documentation

This guide explains how to install, operate and manage LicenseMonitor to maximize your license usage and minimize your costs.

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1 INTRODUCTION TO LICENSEMONITOR

1.1 INTRODUCTION TO THE TOOL

LicenseMonitor is a software license monitoring tool, which enables you to manage licenses, optimize your license mix and increase usage efficiency, all of which greatly reduce your licensing costs.

The primary interface for LicenseMonitor is the web interface. The home page provides an overview of current license activity and queued licenses and shows a series of tabs, which can be used to navigate, generate reports of both current and historical usage, and perform administrative LicenseMonitor tasks.

LicenseMonitor also includes a Command Line Interface (CLI), as well as a Tcl-based application programming interface (API). The CLI can be used to obtain license availability and usage data and to create and execute batch-mode reports, both those reports can also be generated using the web interface if you have admin permissions. You can also configure LicenseMonitor through the CLI.

This manual describes the web user interface and provides instructions on common uses and best practices for users. It also provides the basic setup, installation and management practices for administrators. For both administrators and users, it functions as a getting started guide.

1.2 DOCUMENT ORGANIZATION

This guide takes you from the introduction and installation of LicenseMonitor to foundational uses of the system and system management. Since using the web interface is the most efficient way to use LicenseMonitor, this guide explains how to use that interface to manage your licenses and generate reports. When necessary, it indicates when a task is specific to admin users. Much of the setup process requires admin permissions, for example. But all users should have a basic understanding of system functionality and features.

This guide is organized in the following manner:

- **Introduction**: The section provides the product information, the document organization, theory of operations, system diagram and a description of components.
- **Installation**: The section describes the system requirements and the installation steps.
- **First Steps**: After you've installed LM, this section covers what to do next. This applies both to Admin and users, who may be playing dual roles at this point.
- **Using the GUI**: This section describes the seven tabs on the LM user interface and their usage.
- **Basic Admin Operations & Setup**: This section reviews general tasks for beginning users.
- **Troubleshooting**: The section is an essential guide to common questions, problems and solutions.

If you are using an electronic version of this document, you can click on the links above to advance to each section.

1.3 THEORY OF OPERATIONS

This section explains how the system operates and was designed to operate. LM monitors tools with licenses using live sampling and debug logs for denials, and monitors tools with no licenses using wrapper scrips and a monitoring agent.

1.3.1 LIVE SAMPLING

For monitoring live license servers, data collection jobs are executed periodically. The default is every 30 seconds, but this is a configurable time frame. When a checkout is detected in the data collection job output, it is stored in the LicenseMonitor server memory. The checkout remains active as long as it is detected in the subsequent samples that are taken. Once the checkout disappears from the job output, it is considered checked-in by the server and is written to a checkouts data file for the current day. As new data is written to the data file, it is loaded into the database to use for historical reporting.

1.3.2 DEBUG LOGS FOR DENIALS

For debug log parsing, parsing jobs are executed periodically. The default is every 12 hours, but this is a configurable time frame. The denials data is extracted and written to a denials data file for the current day, organized in a tag/daemon/server directory structure. Optionally, checkout data can also be obtained from the debug log, which will be stored in the checkouts data directory (licmon.swd/data/checkouts) and organized in a tag/daemon/server directory structure.

Please note: This debug log data retrieval is not nearly as accurate as live sampling. We recommend you use live sampling, because the data used by LicenseMonitor will be inaccurate otherwise.

1.3.3 MONITORING TOOLS WITH NO LICENSE

With LM, you can also monitor applications and tools with no licenses.

There are two different methods for doing this. The first method uses a wrapper script or binary to perform license counting and restriction. The second method uses a monitoring agent running on every machine that may execute the unlicensed tool. The agent sends information about the processes running on the machine, which is used to detect running tools that have been configured to be monitored.

1.3.4 LM GRAPHIC OF OPERATIONAL FLOW

The following graph provides an over view of LM System.

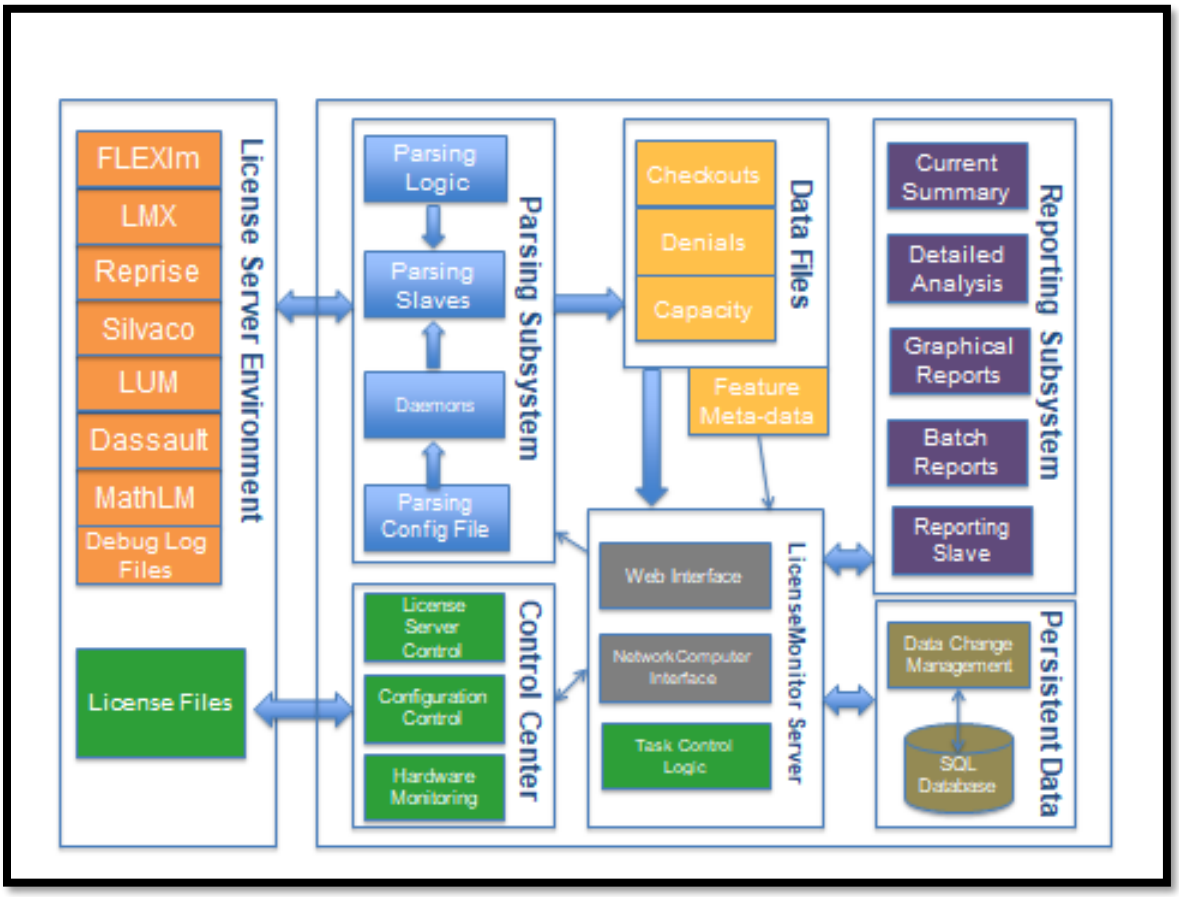


Figure 1: LicenseMonitor System Diagram

1.4 LICENSEMONITOR COMPONENTS

All Runtime software products are based on a client/server architecture and have three main components: the vovserver, daemons and slaves.

1.4.1 WHAT IS THE VOVSERVER?

The server component of LicenseMonitor architecture is called the vovserver, and it provides the LicenseMonitor server functionality by running a VOV project named licmon. The server makes use of a Server Working Directory (SWD) to store its configuration, state and output files. The server component is licensed.

1.4.2 WHAT DAEMONS DOES LM USE?

In addition to the server, LM primarily employs five daemons. They perform the following functions:

- **Vovlmd**: This daemon creates data collection jobs that are managed by the job scheduler based on the configuration entered by the administrator.
- **Vovnotifyd**: This daemon runs system health checks and e-mails the administrator, and in certain cases, notifies users who trigger events and provide notification of events to users.
- **Vovdbd**: This daemon is responsible for monitoring Runtime product data files for changes and loading them into the database.
- **Vovnginxd**: This daemon is responsible for handling secure client connections and forwarding traffic to the vovserver. In LM, this daemon is on by default.
- **Vovlmd**. This daemon is responsible for setting up monitoring on configured license servers. It controls the processes that run to create sample data for each tag.

1.4.3 WHAT SLAVES DOES LM USE?

Slaves execute jobs for the LicenseMonitor job scheduler. To minimize latency issues, the workload is distributed among multiple vovslaves. There are two types of slaves:

- **Periodic Jobs**: These are scheduled slave jobs that are responsible for automating tasks. These jobs can be configured to run at a specific interval and/or a certain day/time, similar to Unix cron.
- **Agents**: These slaves are agents that add functionality to LM, including the license server management facility, license file management, editing, and version tracking and monitoring of license server hosts and host processes.

By default, LicenseMonitor launches the following slaves on the primary host:

- **Batchreporter**: This slave is responsible for completing any background reporting tasks.
- **Logparser**: This slave reads debug logs from license daemons.
- **Maintainer**: This slave completes various tasks as assigned by the vovserver.
- **Parser**: This slave runs the status on defined license daemons and collects feature, expiration, capacity, checkouts and denial information. Additional parser slaves can be added on a remote host to increase the scalability of the implementation.

2 INSTALLATION

2.1 SYSTEM REQUIREMENTS

This section contains system requirements that should be reviewed before installing LicenseMonitor.

2.2 OPERATING SYSTEMS

LicenseMonitor can run with the following Operating Systems:

- Windows 7, Server 2008, and above on x86 64 bit
- Linux on x86 64 bit
- Mac OS X on El Capitan and above on x86 64 bit

2.3 RECOMMENDED LICENSEMONITOR HARDWARE SETUP

Depending on your system and the number of expected checkouts, your hardware setup will vary. There are many factors; please review the following information and if you have further questions, contact customer support for a comprehensive explanation.

2.3.1.1 CPU REQUIREMENTS

The number of required CPUs depends on the number of license servers monitored and whether the database server will be running on the same machine. Generally, we recommend the following:

- One (1) CPU for each LM Server
- One (1) CPU for every 4 license servers being monitored
- Two (2) CPUs for each Database Server

For LM instances with a high number of reports being generated, we recommend two (2) additional CPUs for the database server.

2.3.1.2 MEMORY REQUIREMENTS

The amount of memory depends on the number of checkouts tracked and whether the Database server will be running on the same machine. It also depends upon data storage requirements for checkouts and report generation. If reports are generated concurrently, this can increase requirements.

More memory equates with better performance. Each checkout in the LicenseMonitor server memory consumes about 200 bytes. In general, 4 GB is enough for the LM server alone. The database server also benefits from more memory; 2GB is a minimum, and for a 1,000,000,000 checkouts, 16GB is the minimum.

2.3.1.3 DISK SPACE

The LM server does have a disk space requirement, but it's fairly light. The data files in the Server Working Directory (SWD) can be archived to some other storage if needed. That said, we recommend 50GB and up, depending on the checkout volume.

The database server requirements depend on the number of checkouts tracked. Each checkout in the database equates to about 250 bytes of storage on disk. So 1,000,000 (one million) checkouts would need 250MB, whereas a 1,000,000,000 (one billion) checkouts would need about 250GB. The storage requirements for the LM server and the DB server should be added IF they are both using the same file system for storage.

2.4 RECOMMENDED SYSTEM ENVIRONMENT

Runtime products are built to run on a well-conditioned network. The following conditions should be met, before installing Runtime products:

- All participating hosts are networked.
- The host clocks are well-synchronized (via NTP).
- Naming services are functional and fast.
- User/Group account names and UIDs are uniform on all machines: 1) Resolution of the hostname works (DNS or NIS) and 2) Reverse DNS lookup works (get host name from IP address).
- There is a remote-shell capability for at least the administrator's account to all participating machines. This can be relaxed by setting up /etc/init.d scripts on slave host machines.

There are networked file systems for shared files, so that they can be accessed from each machine, using a local path. The shared files include:

- Installed Runtime software, including at least one branch that must be writable (The local directory)
- The Server Working Directory (.swd)
- The users' home directories
- The work area for each project

The following standard directories, binaries and libraries are available.

- /bin/sh, or /bin/bash on Linux
- /bin/csh, or /bin/tcsh on Linux
- /tmp exists
- /usr/tmp exists (not on Ubuntu by default)
- gcc libs are installed (libstdc++, libfcc_s)

2.5 INSTALLATION STEPS

The installation process occurs in the following five stages:

1. Account Registration & Login.
2. Downloading LicenseMonitor.
3. Starting License Monitor as an Administrator.
4. Setting up and Running LicenseMonitor.
5. Requesting a License File.

2.5.1 ACCOUNT REGISTRATION & LOGIN

1. If you are a new user, you just need to login to begin installation.
2. To begin the installation process, register and login on the Runtime web site: http://runtimeinc.com/registration/.

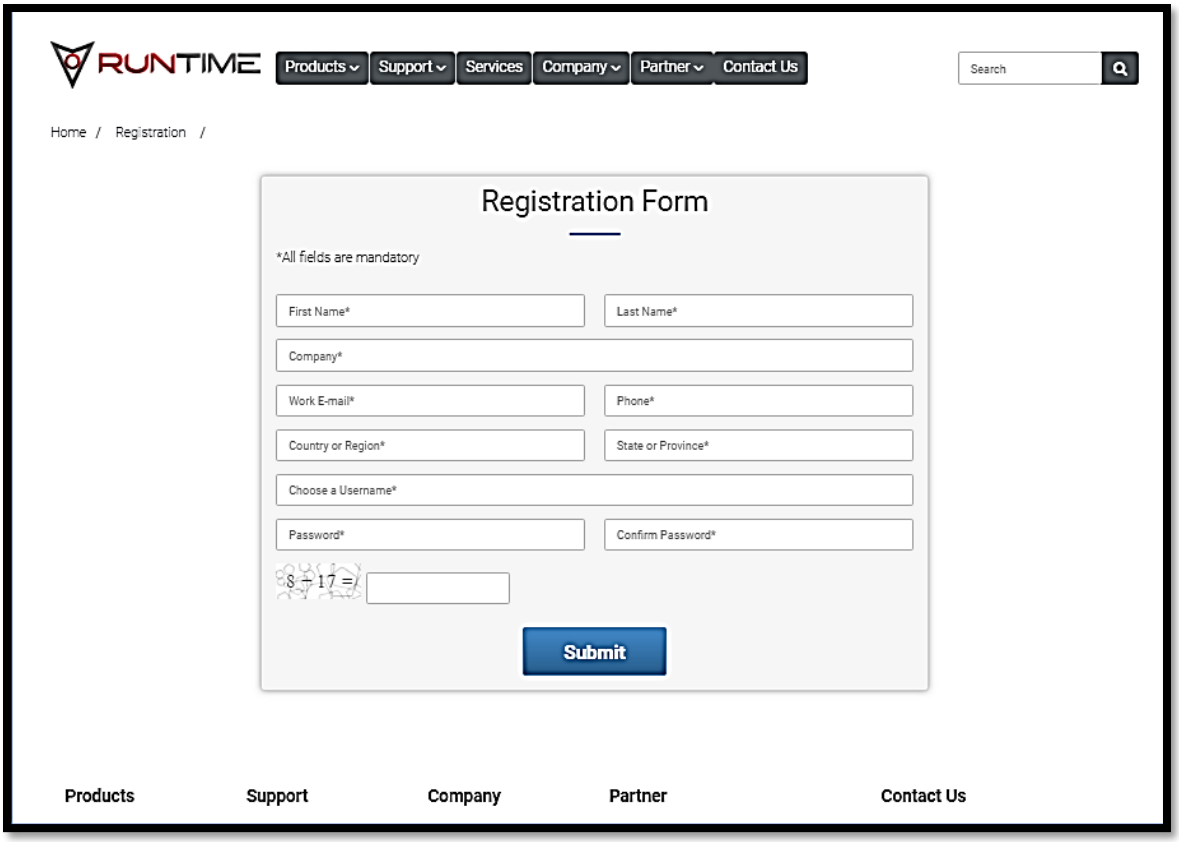


Figure 2: Registration Form

3. Fill out the form and submit it. You will receive an email from the RTDA Webmaster for verification.
4. Click on the link in the email and verify your address. You will receive another confirmation email.

   Please note: To download the product and proceed, you must have a customer account. RTDA will need to approve your account to allow you to download any software.
5. Login at http://runtimeinc.com/login/.

2.5.2 DOWNLOADING LICENSEMONITOR

1. Go to the downloads page at http://runtimeinc.com/support/downloads/.
2. Select the most up-to-date version from the download list.
3. Choose the appropriate version of LicenseMonitor for your machine.
   - For Windows, we recommend the LicenseMonitor Single-file Distributable.
   - For Unix (Linux or Mac), we recommend platform independent files - common.tar.

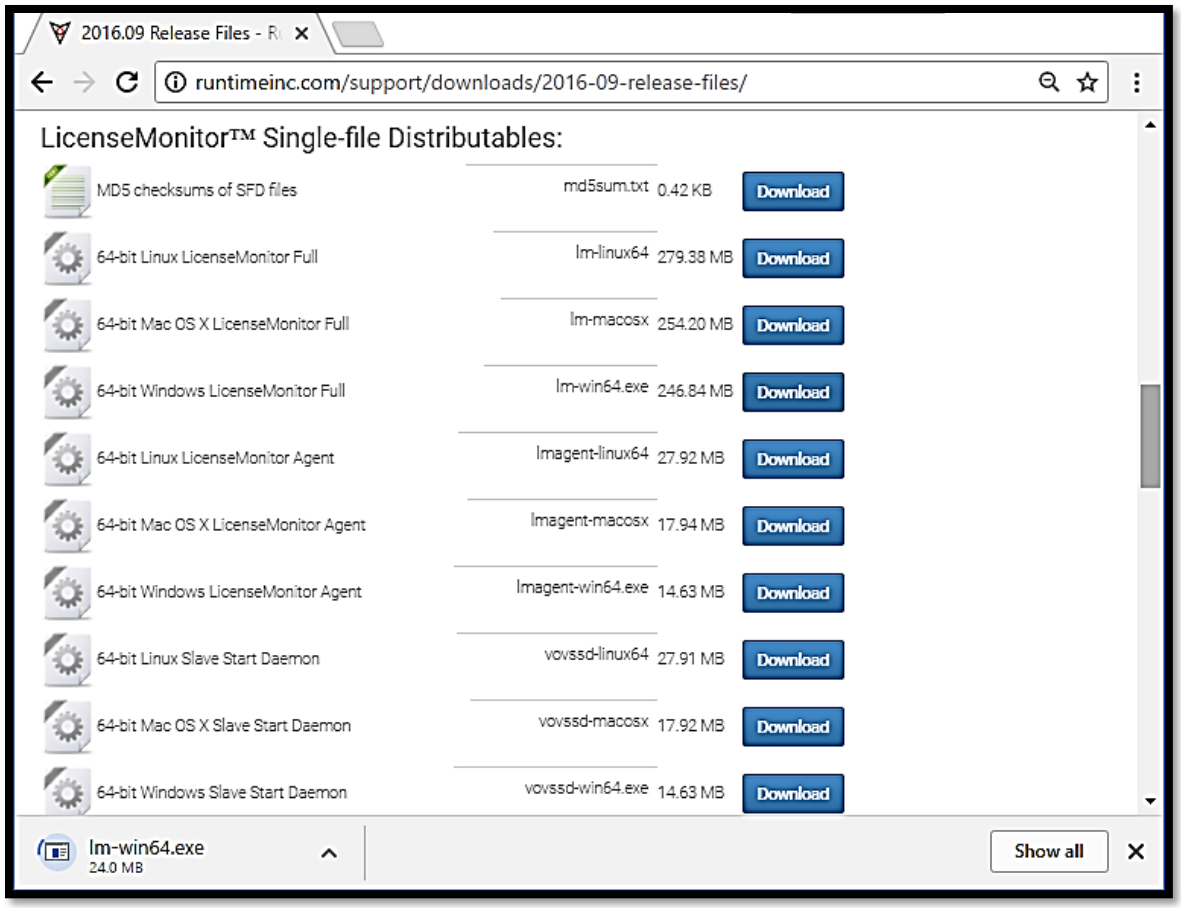


Figure 3: Download List for LicenseMonitor

4. If you have difficulty downloading LM or logging in, email info@runtimeinc.com.

2.5.3 RUNNING LICENSEMONITOR

1. After downloading LM, if running Windows, right-click on the executable file and select “Run as administrator.”

   If running UNIX, just double-click. One of the following windows will appear:

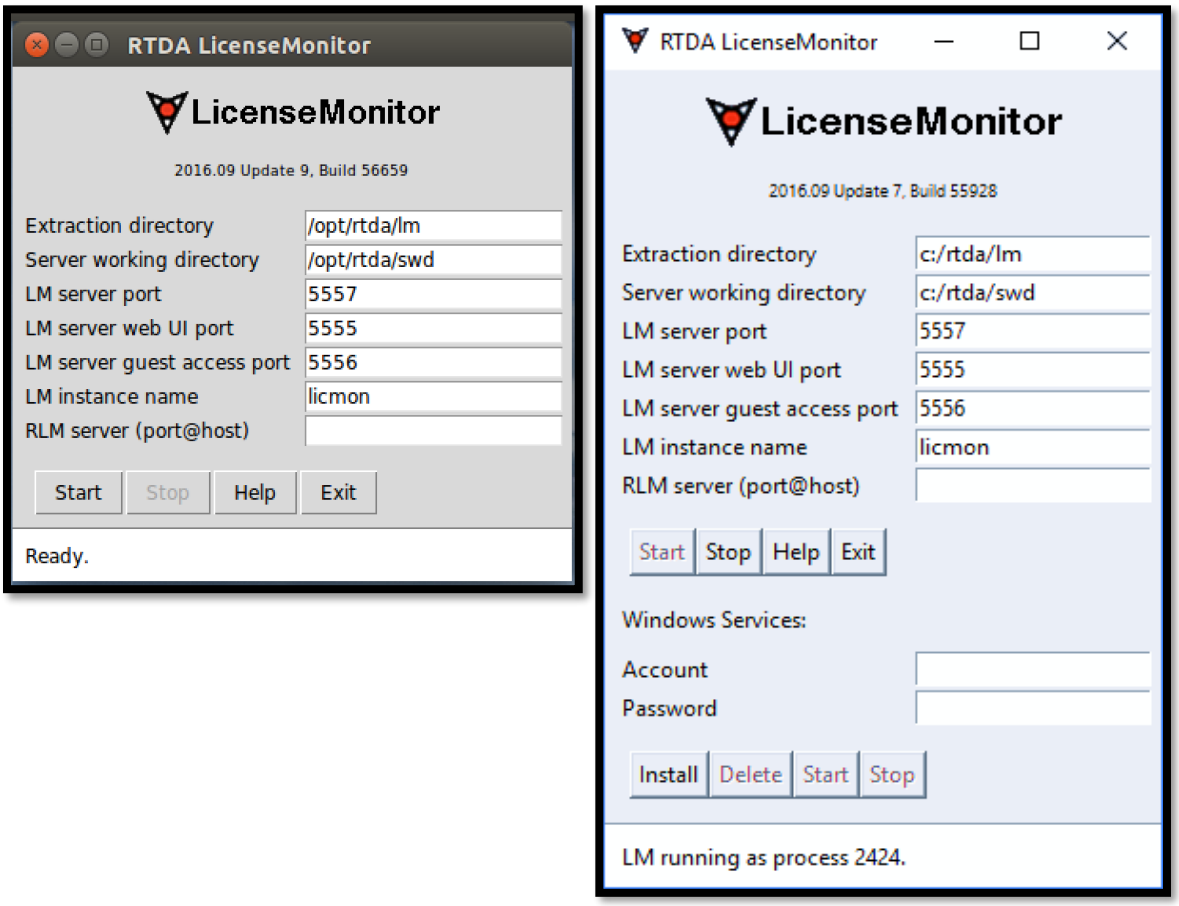


Figure 4: LicenseMonitor Unix (left) and Windows (right) Initial Interface

2. Make changes to the directories as desired. (**Please Note**: Windows users, be sure to use forward slashes and NOT back slashes.)
3. When done, click the **Start** button. The extraction may take time some time. When LicenseMonitor is started, you will see “LM running as process …” at the bottom of the window.
4. With LicenseMonitor running, open a web browser and go to http://localhost:5555 and login. You will use the same login you use on your home computer.
5. Continue with the setup process.

2.5.4 SETTING UP LICENSEMONITOR (ADMIN ONLY)

Please note: If you are a new customer or an existing customer new to LM, you will need a license and admin permission to perform the following steps. To obtain a license, complete the steps on page 13 and then return to this section.

1. Go to the **Admin** tab. Hover over the **System** option, and click on **Database Information**.

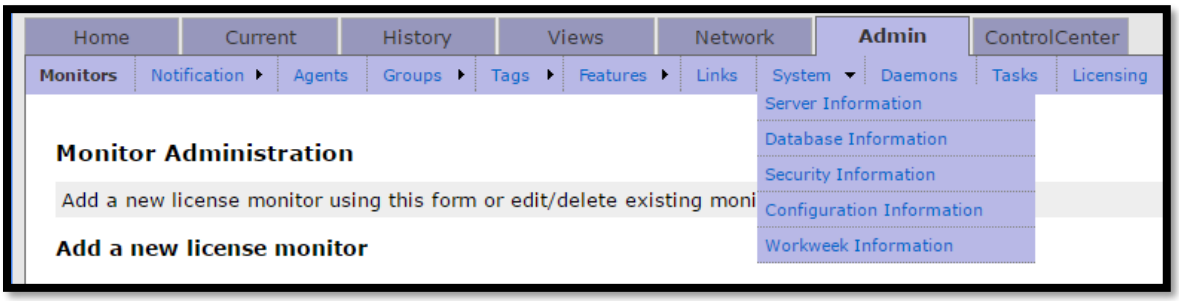


Figure 5: Admin Drop-down List

2. Choose a location where the database should reside (keep in mind, this will be permanent and cannot be changed later on) and click **Save Location**.
3. Under **Database Control**, click and drag the slider from left to right until the icon turns on and shows green.

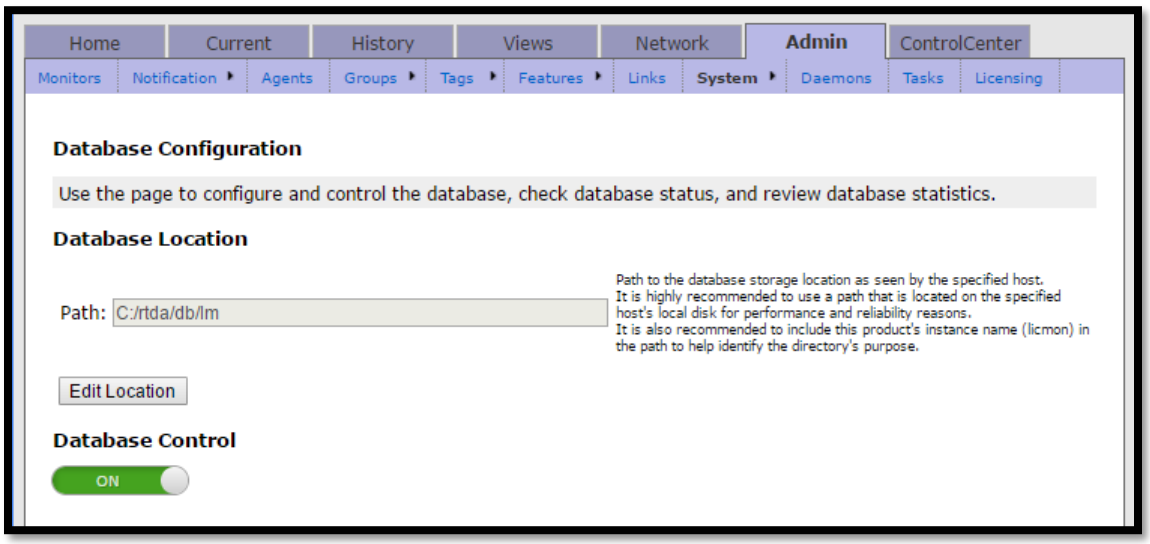


Figure 6: Database Control

4. To add a license monitor, go to the **Admin** tab, and select **Monitors** from the menu bar.

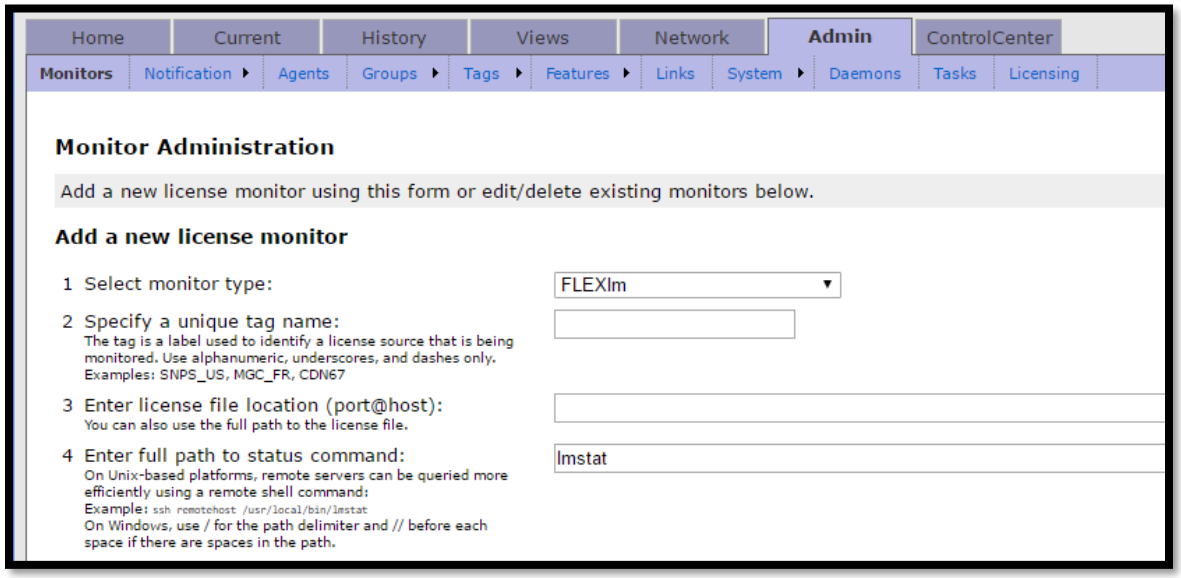


Figure 7: Adding a New LicenseMonitor

5. Enter details for at least sections 1-4.
   - Select monitor type.
   - Specify a unique tag name.
   - Enter license file locations.
   - Enter full path to status command.
6. On the bottom left click **Add New Monitor**.
7. Go to **Home** tab. The current checkouts should be populating shortly, within 30 seconds.
   - If you are a Unix user, you're done.
   - For Windows users, we recommend setting up LM as a service. See page 16.

2.5.5 REQUESTING A LICENSE FILE

1. From the web interface, go to the **Admin** page, and select the **Licensing** page.

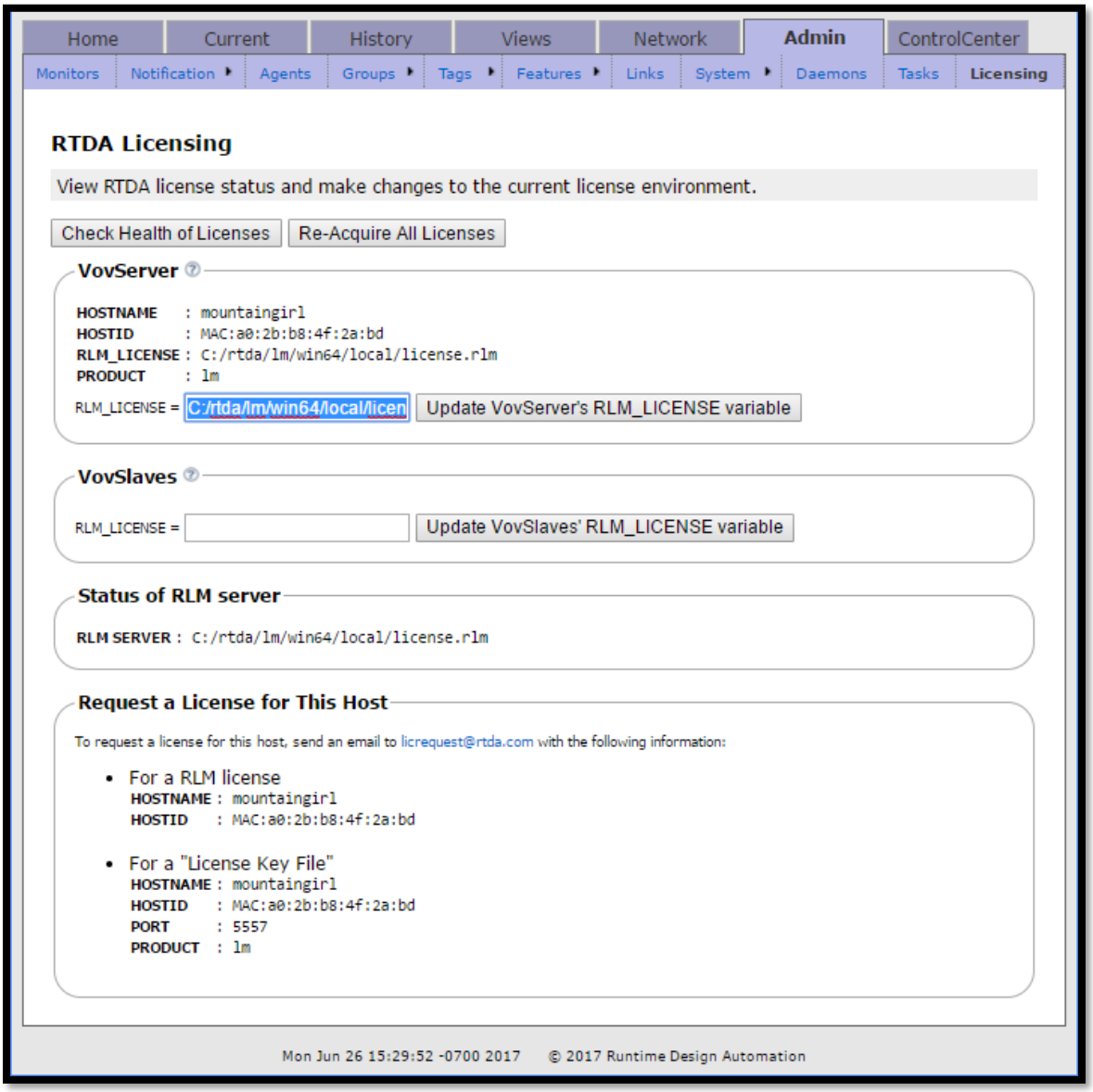


Figure 8: Licensing Page

2. Take a screenshot of this page and send it to licrequest@rtda.com. Request a license. The license will be mailed to you as a text file.
3. Open the file. Save the license file under the licmon.swd directory, (c:/rtda/swd) which can be found in the executable window under the Working Server Directory.
4. Rename the license file to **license.key**. If a prompt comes up asking you to confirm the change in file type to key, confirm the change.
5. Go back to the web interface and go to the **Admin** tab and select the **Licensing** option.

6. Click on **Re-acquire all Licenses**.

   A new screen will display. The license status will display, and a green font will show at the bottom with the expiration date of the license.

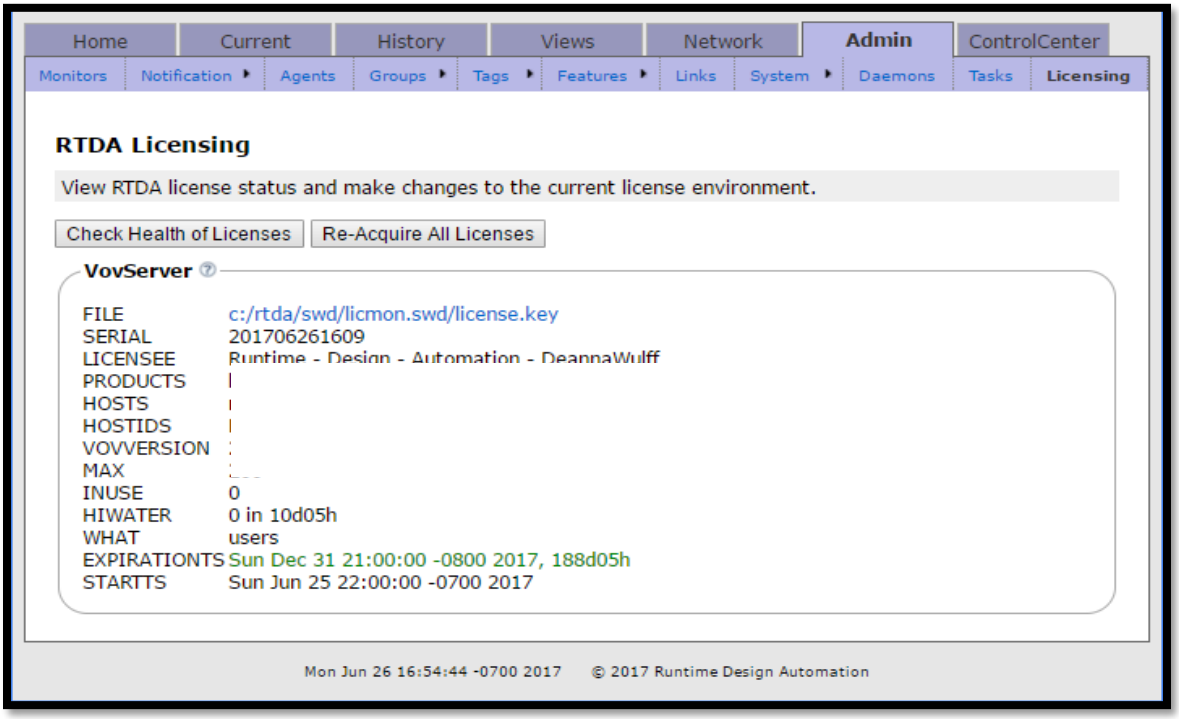


Figure 9: License Status

2.5.6 SETTING UP LM AS A SERVICE – WINDOWS ONLY

1. Stop LM from running by clicking the **Stop** button.

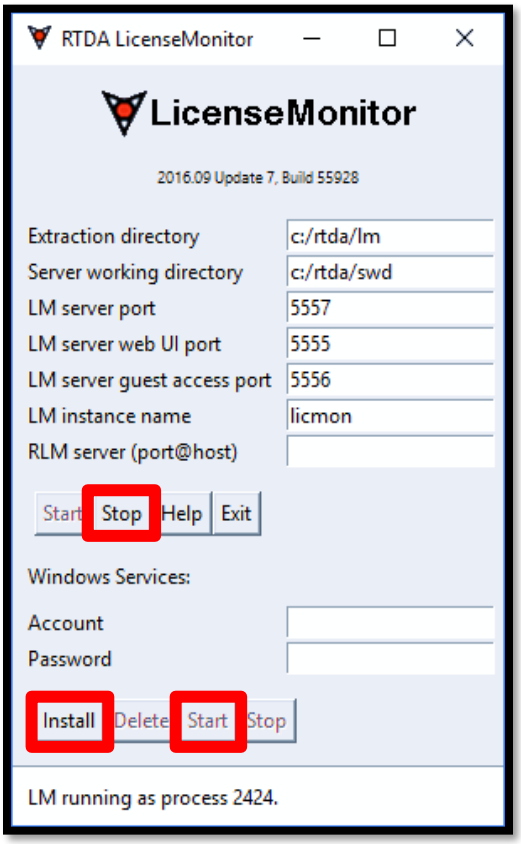


Figure 10: Installing Windows as a Service

2. Under Windows Services, enter in your account and password. The service account name is generated from your company, as is the password.
3. Click **Install**. When finished installing, click **Start** from the Windows Services area. You can login from the local host from this point forward.

3 FIRST STEPS

This section is for both administrators and regular LM users. There are certain tasks – like configuring a batch report – that can only be performed by an administrator. If this is a task that you'd like to perform, you will need admin permissions. We discuss how to set permissions at the end of this section.

We suggest as first steps that you check your LM system, whether you are an admin or a user to be sure it's running properly and then perform a few basic tasks to get a feel for the system. In the next chapter, we'll take a detailed look at the reports that you can generate by describing the each page, each report and all the tabs on the Web GUI. The GUI has an extensive set of options for you to manage LM, which we recommend you explore it.

3.1 CHECK YOUR LM SYSTEM

1. Log in to LM.
2. Go to the **Admin** tab and select the **Tasks** option.

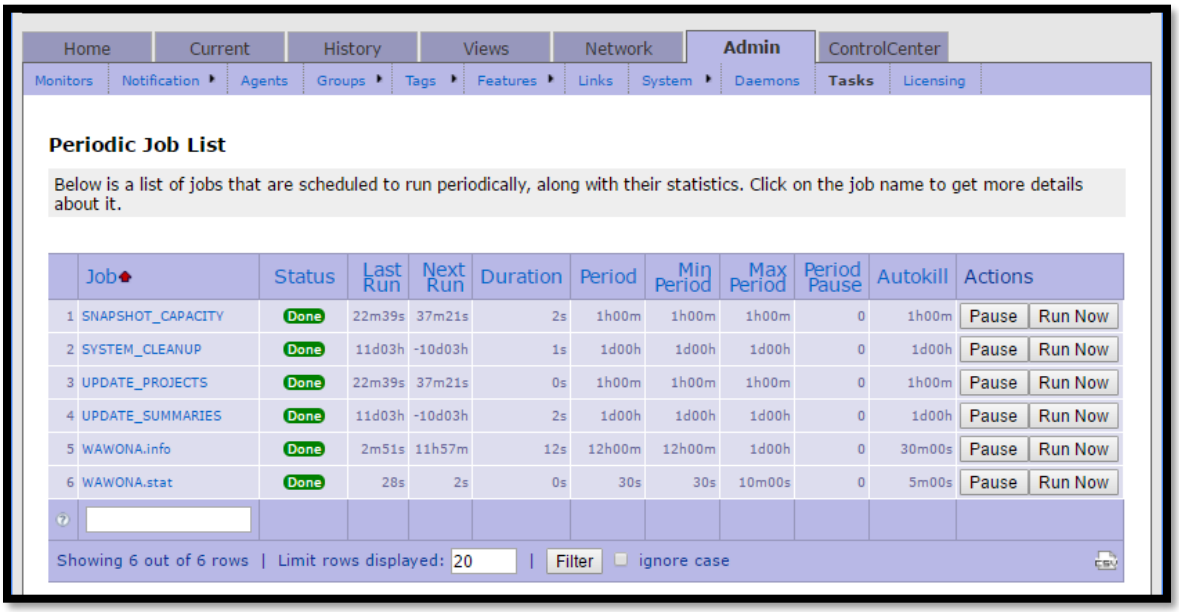


Figure 11: Job Status List

3. Check the job status.
   - If it shows green, it's done running.
   - If it shows waiting, teal, then refresh it in 30 seconds.
   - If job status shows red – it failed –click on the job name, and scroll down to – "explanation of why this job is failed".
4. Check to see if your home page shows checkouts.
   - If it doesn't show checkouts, wait 30 seconds. Refresh.
   - If you still don't see checkouts, go Troubleshooting section of this guide, specifically, "No historical data is being displayed" on page 125.

3.2 GENERATE A REPORT

In general, there are three types of reports that you can generate, a usage report, a denials report and a batch report, each with its own subset of reports:

- A **Usage Report** shows license utilization. There are eleven types of these reports.
- A **Denials Report** shows statistical information about denial events. This can be used to determine if you have too many or too few licenses.
- A **Batch Report** enables you to combine data and create static reports. The content is dynamic but you can set the parameters. This is useful when the report period is long or you want to see more than one report. Batch reports are persistent; the data they display reflects the time that they are built, and it remains available until the report files are deleted from the disk. They can be exported in HTML or .CVS files. In certain cases, Admin permissions are requires to generate a batch report.

3.2.1 GENERATE A USAGE REPORT

1. Go to the **History** page and hover over the **Usage** option.

Figure 12: History Page

From the Usage option, you can generate the following 11 types of web GUI reports:

- **Feature Statistics**: An overview of availability and utilization statistics for a time frame.
- **Daily Feature Plots**: A graph of the metrics shown on the Feature Statistics page for a specific tag/feature combination.
- **Efficiency Statistics**: A table showing the metrics associated with efficient license usage.
- **Efficiency Histogram**: A graph that shows license availability. It can show both licensing bottlenecks and waste.
- **Detailed Plots**: A group of graphs, which shows availability and utilization statistics.
- **Heatmap**: A report, which shows a time period, represented as a 24x7 clock view.
- **Checkout Statistics:** A report that can show pin-pointed data about license utilization.

- **Checkout Details**: A report that shows the actual checkouts shown in the Statistics view.
- **Duration Histogram**: A graph that shows the distribution of checkouts based on duration
- **Usage Comparison Plot**: A graph, which accompanies the checkout statistics page, and allows for complex report-by and filter options.
- **Usage Trends**: A report on one or more features over a specified time frame.

2. In this example, we will generate a daily feature statistics report. To do so, select **Daily Feature Statistics** from the drop-down list. The first time you pull up a report, it will be blank.

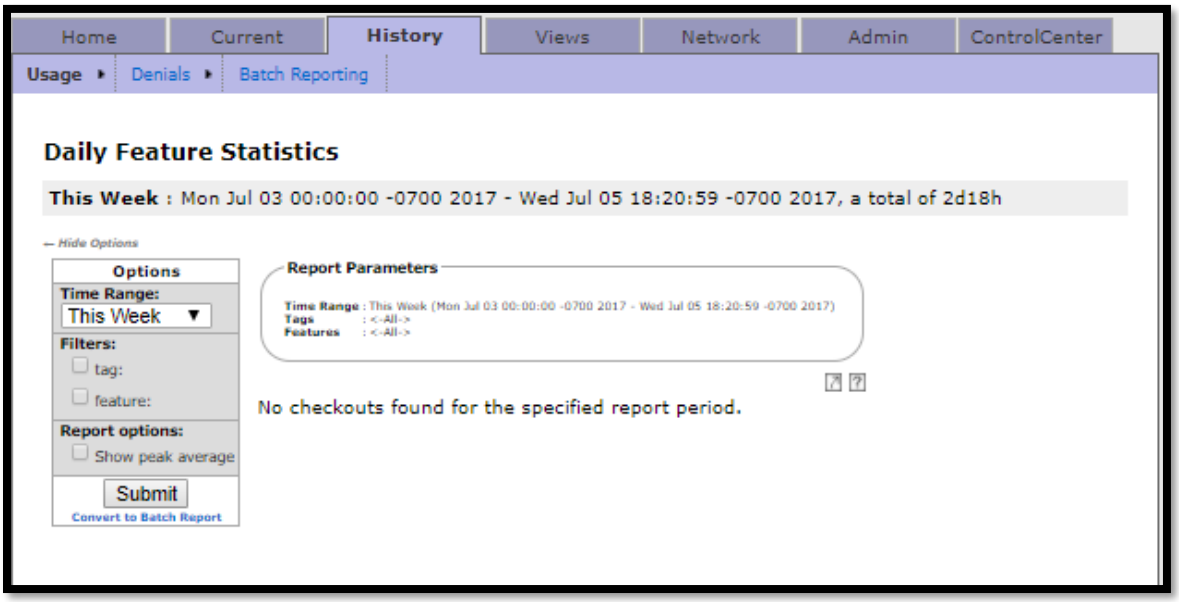


Figure 13: Daily Feature Statistics

3. Enter a time range from the drop-down list.
4. Click on a **Tag** or a **Feature**, and narrow the search by a Tag or Feature, as desired. You can also enter a wild card search.
5. Click the **Submit** button. The report will refresh with your new terms.

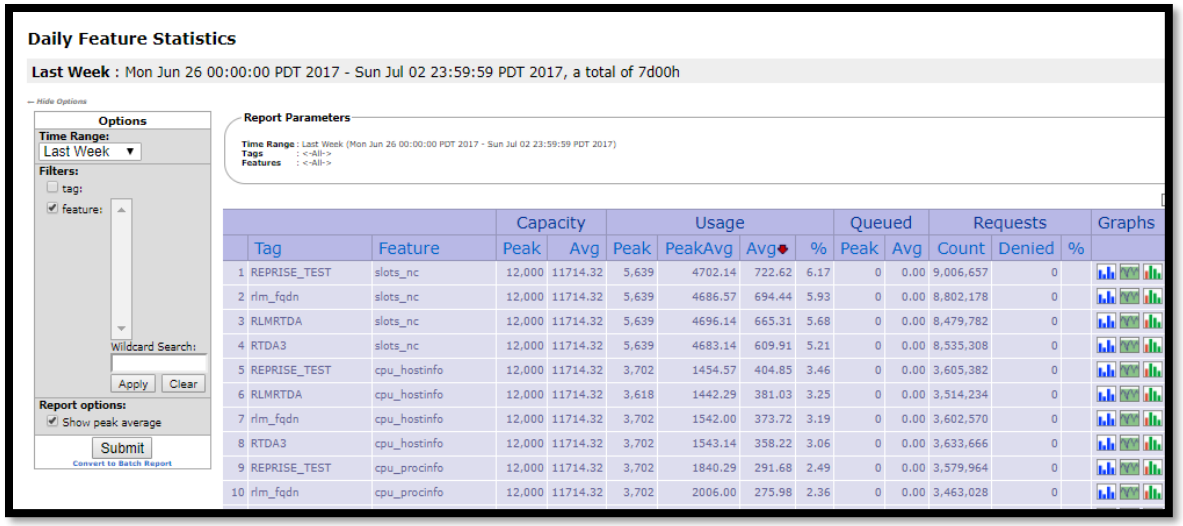


Figure 14: Updated Daily Feature Statistics Report

6. (Optional) You can convert this report to a batch report, by clicking on **Convert to a Batch Report** – which is located beneath the **Submit** button. It's in small blue print. This saves your report, and you can rerun it, without having to enter report parameters again.
7. After clicking on the link, you will advance to the **Batch Report** page.
8. Enter a name for your report, and click the **Create Reports** button at the bottom of the page. When you login, your report will be available from the Batch Report page until you delete it.

3.2.2 GENERATE A DENIALS REPORT

Please note: The admin must have set up the system so you can generate this report.

Denials reports show statistical information about denial events detected as a result of license request being denied. These reports can be used to determine if you have too many or too few licenses.

1. Go to the **History** tab and hover over the **Denials** option.

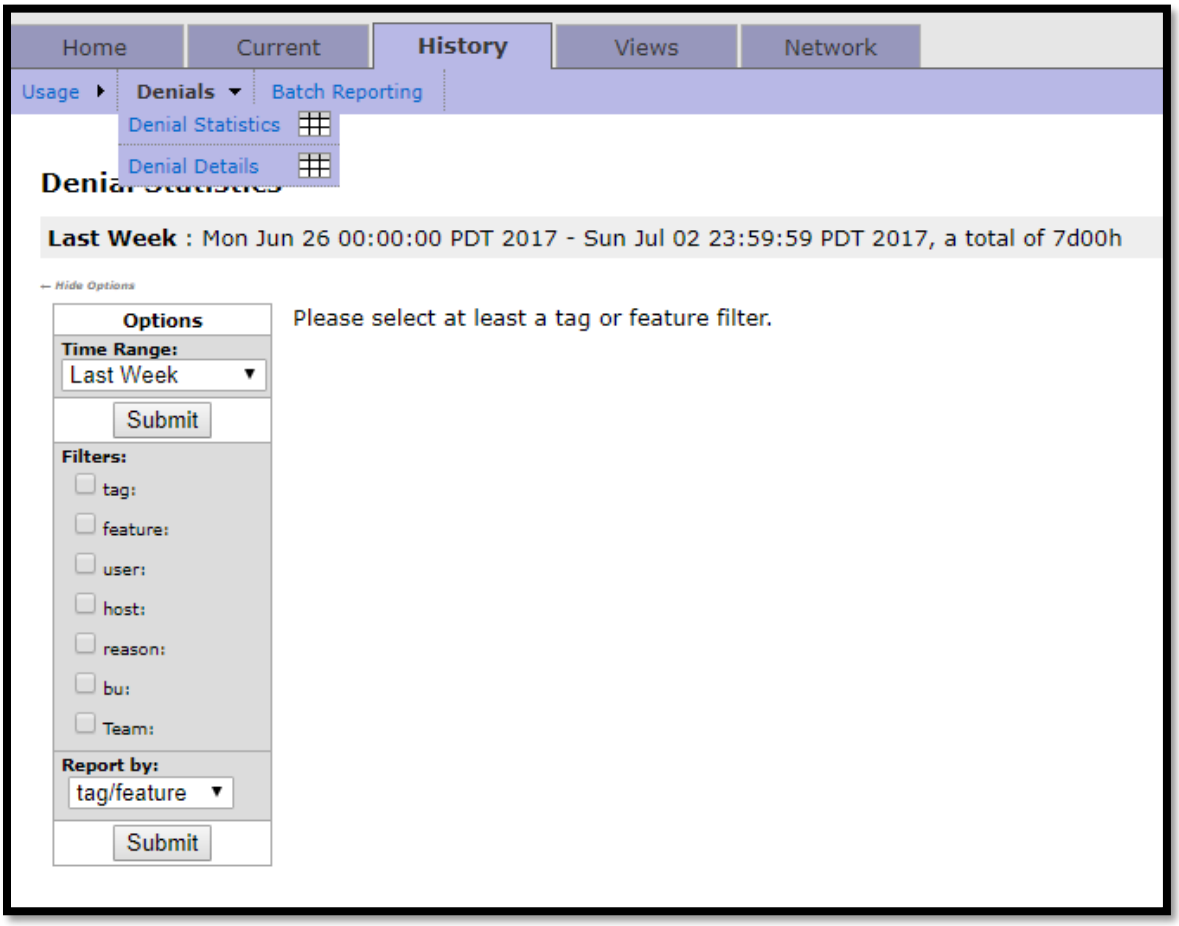


Figure 15: Denials Selection

2. Select **Denials Statistics** from the drop-down list.
3. Select a Time Range, a Filter and Report by, and click **Submit**. A report will show all existing Denials.
4. To further refine that Report, go to the **Denial Details** selection. This view shows all of the information that is normally found in a debug log denial record. You can narrow down the results using the same filter method used in the statistics view. The denial details page also displays columns for custom group types. You can set up custom groups (users or hosts that you wish to monitor) on page 98.

3.2.3 CONFIGURE A BATCH REPORT – ADMIN ONLY

While only administrators can to configure a batch report, regular users can generate a simple batch report from the History tab, as previously described.. Batch reports, configured by an administrator, can be used to compare different data sets such utilization plots and denials, which provide insight into license activity. These instructions describe how to configure a batch report as an administrator.

1. To create a batch report, go to the **History** tab and select the **Batch Reports** option.

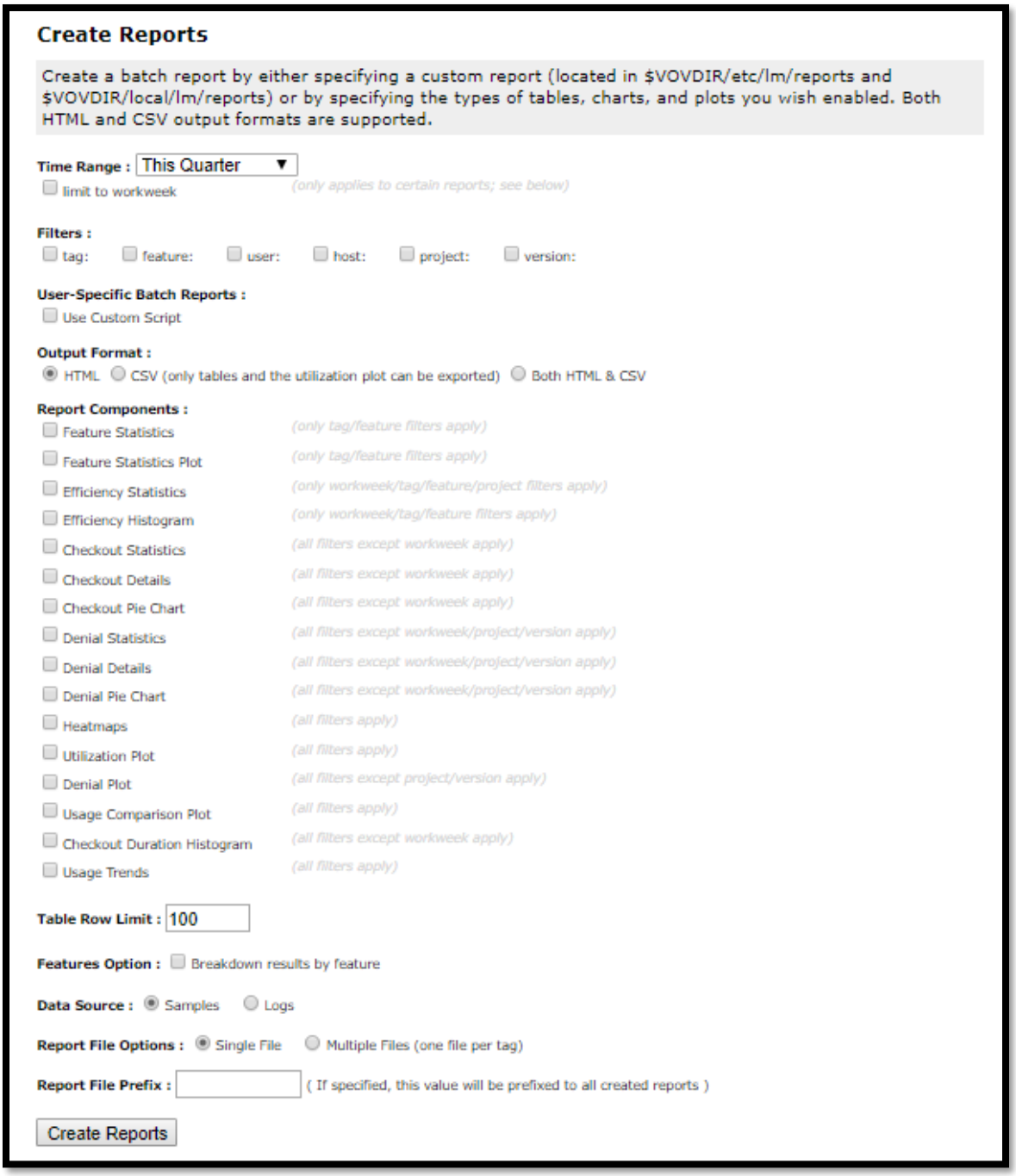


Figure 16: Create a Batch Report - Admin View

2. Select from the following options:
    - **Time Interval**: Specify the time interval of the report.
    - **Filters**: Select types of filters you wish applied to the report. Current tag, feature, host, user, project, and version filters are available. User groups will also show up as filters.
    - **User-Specific Batch Reports**: If this option is selected, choose from the list of known scripts. If no scripts are shown, contact customer support.
    - **Output Format**: Choose between generating an HTML or CSV report, or both. If CSV is selected, only tabular report components will be available.
    - **Report Components**: You can select multiple reports if you want to compare data, for example, you might want to company checkout statistics with denial statistics.
    - **Table Row Limit**: Specify the max number of table rows to display for statistics report components.
    - **Features Options**: Specify whether to break down results by feature.
    - **Data Source**: Specify whether data comes from lmstats samples, debug logs, or from both.
    - **Report File Options**: Specify whether report output should be placed into a single file, or whether it should be split up by tags and placed in multiple files (per tag).
    - **Report File Name**: Specify name of report output file.
3. When done, click on the **Create Reports** button. Your reports will automatically be generated when you click on the Batch Reporting option.
4. To generate CVS file from the report, view the report.
5. Click on the CVS button at the bottom of the table. You're done.

3.3 SET UP VIEWS

When you set up views in LM, you are setting up your default Home page, so that when you login you will see reports and data that you've decided are important to track.

3.3.1 SET UP MY VIEW

To set up your own view, perform the following steps:

1. From the **Views** tab, select the **My View** option.

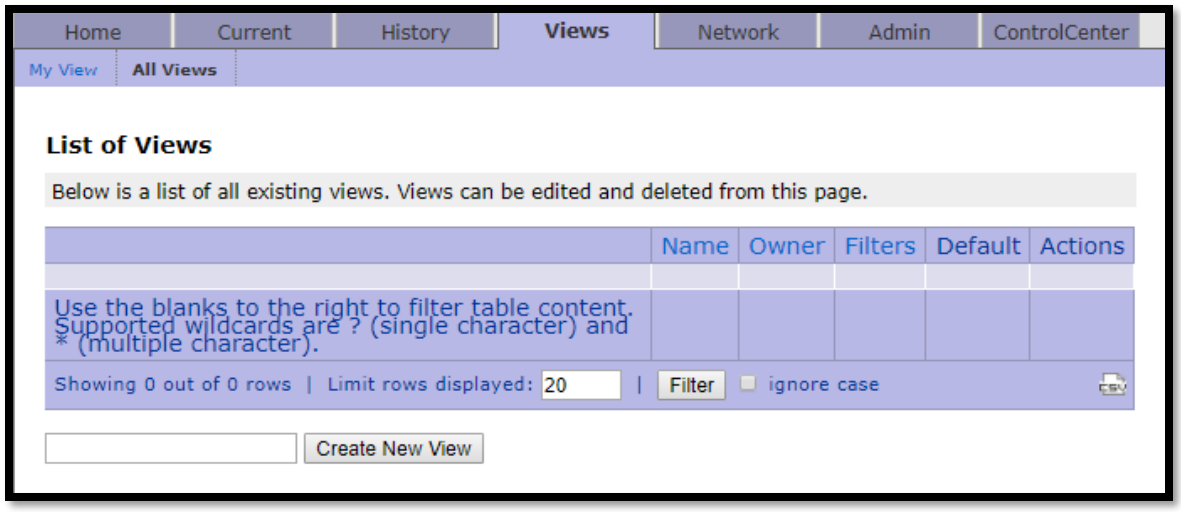


Figure 17: My View

2. Enter a name for your view and click on the **Create New View** button. A new window displays.

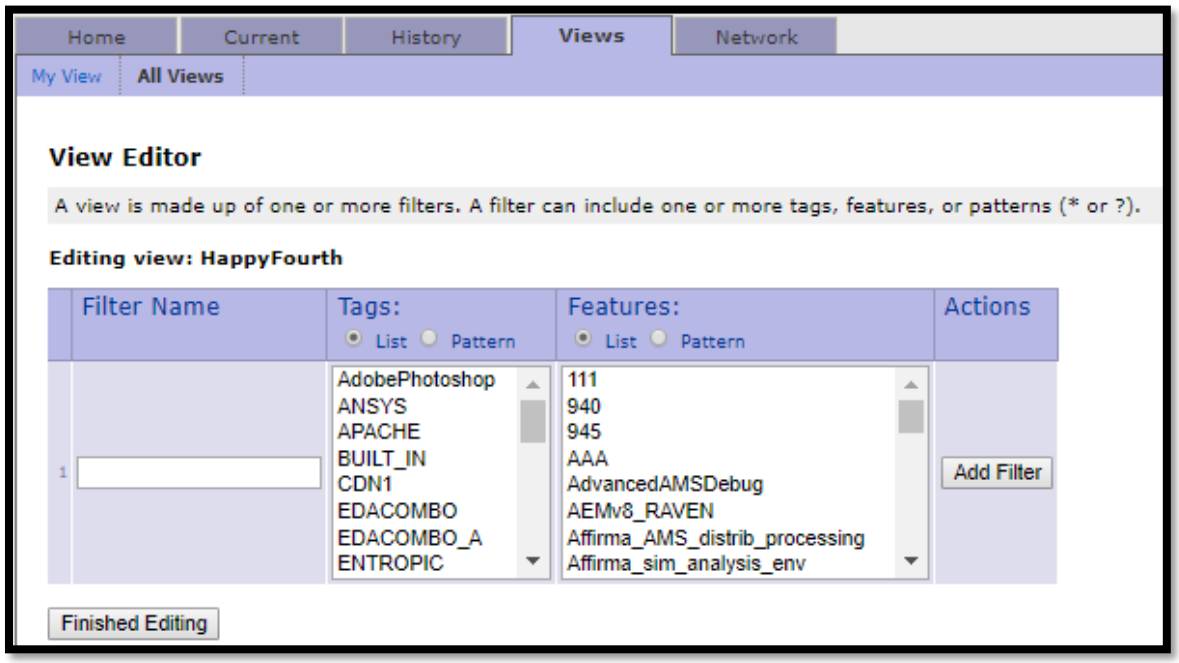


Figure 18: View Editor

3. Enter a filter name and then select from Tags or Features list. For example:
   - **Filter Name**: Enter a filter name.
   - **Tags**: Enter an actual tag name, such as BUILT_IN or a tag pattern (or a tag pattern match).
   - **Features**: Enter a feature, such as AEMv8_RAVEN. For pattern matches, both the ? (single character match) and * (multiple character match) wildcard characters are supported.
4. Repeat this process until you have defined as many filters as you like.
5. When done, click the **Finished Editing** button. You will then see the **All View** page.
6. To set your new view as the **Default View**, click on the **Set as Default** button.

3.3.2 SET A DEFAULT VIEW FROM EXISTING VIEWS

If there is no default view specified and others have set up views, you can set an existing view, as the default view. To do so, perform the following steps:

1. Go to the **Views** tab and select the **All Views** option. This shows a list of all views that have been created, and by whom.

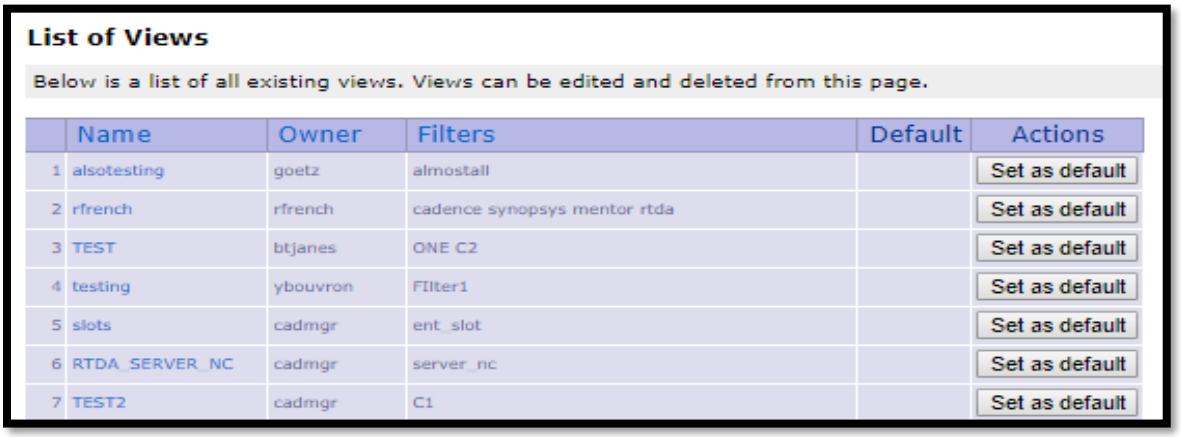


Figure 19: List of All Views

2. Select a View and in the Actions Column, click on the **Set as default** Button.
3. Return to the **Home** page, and the default view you have chosen will display.
4. You're done.

4 USING THE GUI

LicenseMonitor has a large number of views and reports, and this section details all of them all. It is designed as a reference section, so when you generate a report, you will understand all of its parameters.

Please note: Depending on your user permissions, you will see either the user or administrator interface. There are five pages available on the user interface and seven pages shown on the administrator interface.

This manual explains every page, its purpose and its options, in the order of its appearance.

The following list provides a short summary of each page and its capabilities:

- The **Home** tab is the primary page for viewing the status of your licenses and views.
- The **Current** tab shows a summary of features with active checkouts the moment the page is loaded.
- The **History** tab enables you to generate and view three types of reports: a usage report, a denials report and batch report.
- The **Views** tab allows you to create tables and reports that show the items you're interested in viewing and tracking.
- The **Network** tab shows information on hosts and file systems on which agents are running. Agents are programs configured to monitor remote machines.
- The **Admin** tab **(Admin Only)** shows how to manage and monitor agents, users and configure reports and much more
- The **Control Center** tab **(Admin Only)** enables you to manage licenses on remote servers.

4.1 HOME TAB

The **Home** tab is the primary tab for viewing the status of your licenses. It has an upper and a lower section. The upper half of the page shows the **Current Utilization** and the **Current Wait** for features.

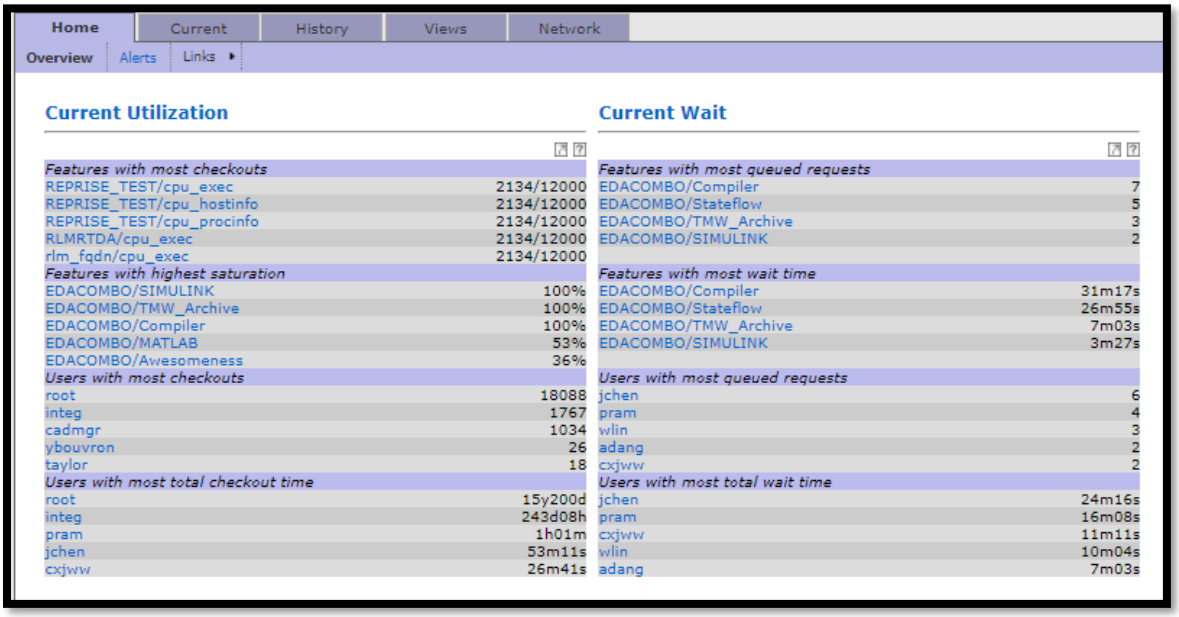


Figure 20: Home Page – Current Utilization and Current Wait

The **Current Utilization** and the **Current Wait** show high-level utilization and wait time statistics for the moment when the home page was loaded.

- If you click on **Current Utilization**, you will be taken the Current Checkouts Simple View page.
- If you click on **Current Wait**, you will be taken to the Current Feature Status page.

4.1.1 HOME TAB – MY VIEW

The lower half of the **Home** page shows **My View** and **License Servers**:

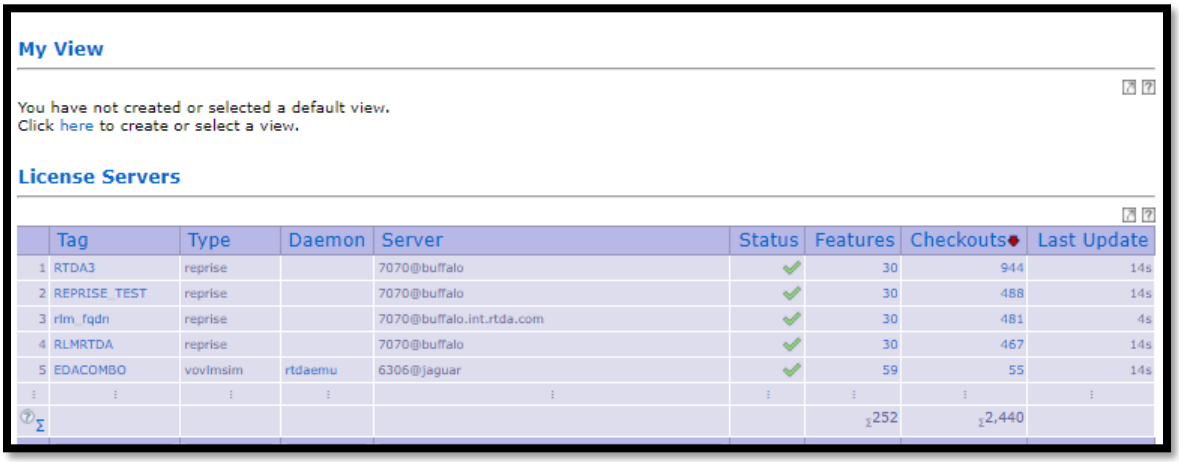


Figure 21: My View

My View is a customizable view. To set up it up, go to

Set Up Views on page 24. The **License Servers** section shows the most active license servers, their status, and basic statistics such as the number of features served by the server, the number of checkouts currently active on the server, and the last time the server was sampled by LicenseMonitor for data collection.

4.1.2 HOME TAB – ALERTS

On the **Home** page, there are also three viewing options: **Overview** (the default view), **Alerts** and **Links**. The Alerts page shows current system issues and rates their level of severity.

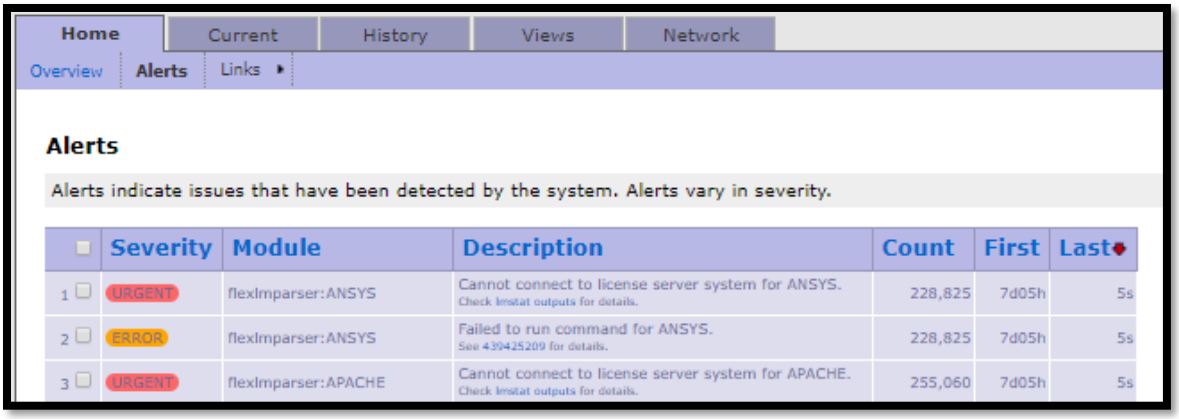


Figure 22: Alerts Screen

There are four levels of severity:

- INFO - For informational purposes, no cause for concern.
- WARNING - May be of concern, but should not impact operations.
- ERROR - Action should be taken or operations may be impacted.
- URGENT - Action must be taken or operations will be impacted.

You can sort alerts by any of the column headings.

4.1.3 HOME TAB – LINKS (ADMIN ONLY)

By default, no links will show until you have configured them. You can add links to your home page to more efficiently manage your system, and we recommend you do that once you have configured the system to your liking. You must have Admin permissions to perform this take.

1. To add a link, go to the **Admin** page and select the **Links** option

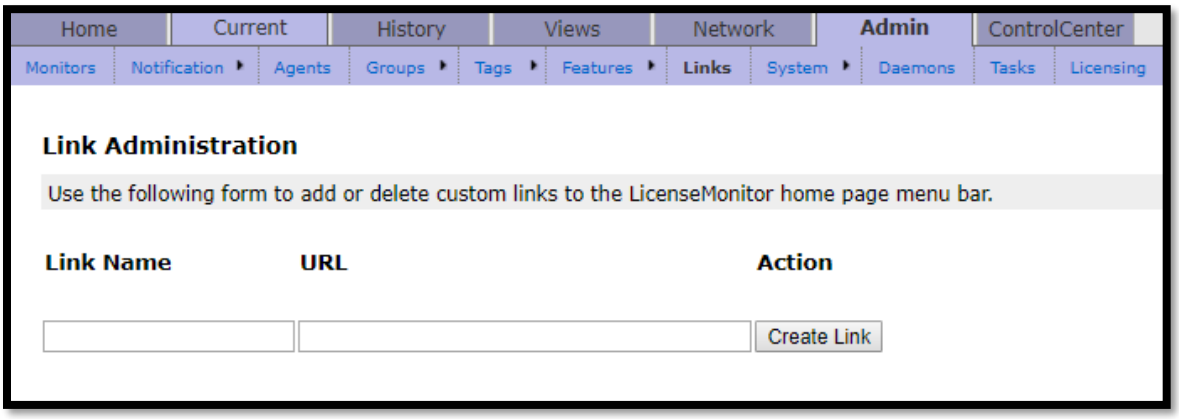


Figure 23: Add a Link

2. Type in the link name and add a URL. Please note, you can add link from the LM system.
3. Click the **Create Link** button. When you return to the Home page, **Links** will show this as option.
4. To delete the link, return to the **Admin** page and select the **Links** option.

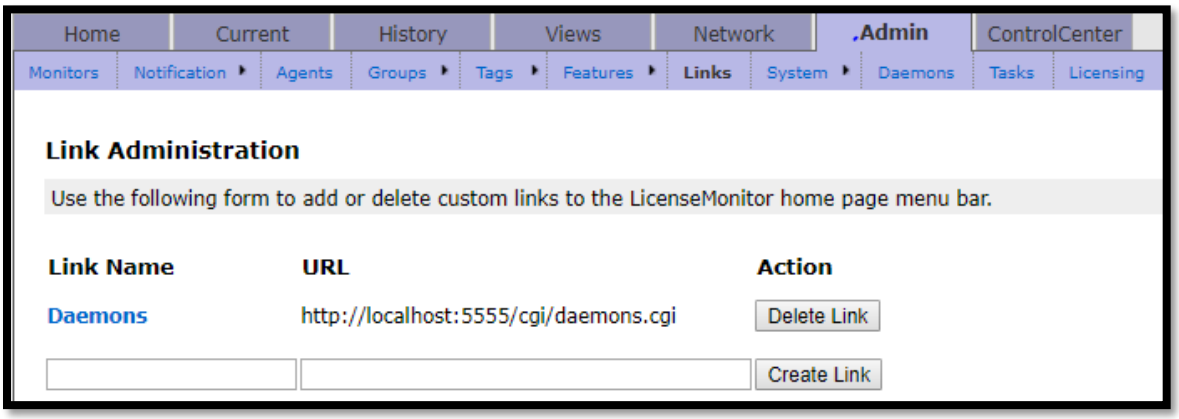


Figure 24: Delete a Link

4.2 CURRENT TAB

The **Current** page shows a summary of features with active checkouts the moment the page is loaded. By hiding the features that have no usage, this page shows the location of the license activity. The following views are available from the Current page:

- **Overview**: This page shows the current utilization overview for features, jobs and daemons.
- **Servers**: This page shows a list of all license servers that are configured to be monitored.
- **Features**: This page shows the availability and utilization details of the features.
- **Checkouts**: This page shows checkouts for all tags and features at the time the page was loaded.
- **Expirations**: This page shows upcoming license feature expirations.
- **Raw Data**: This page shows the raw output of the status command for its most recent execution.

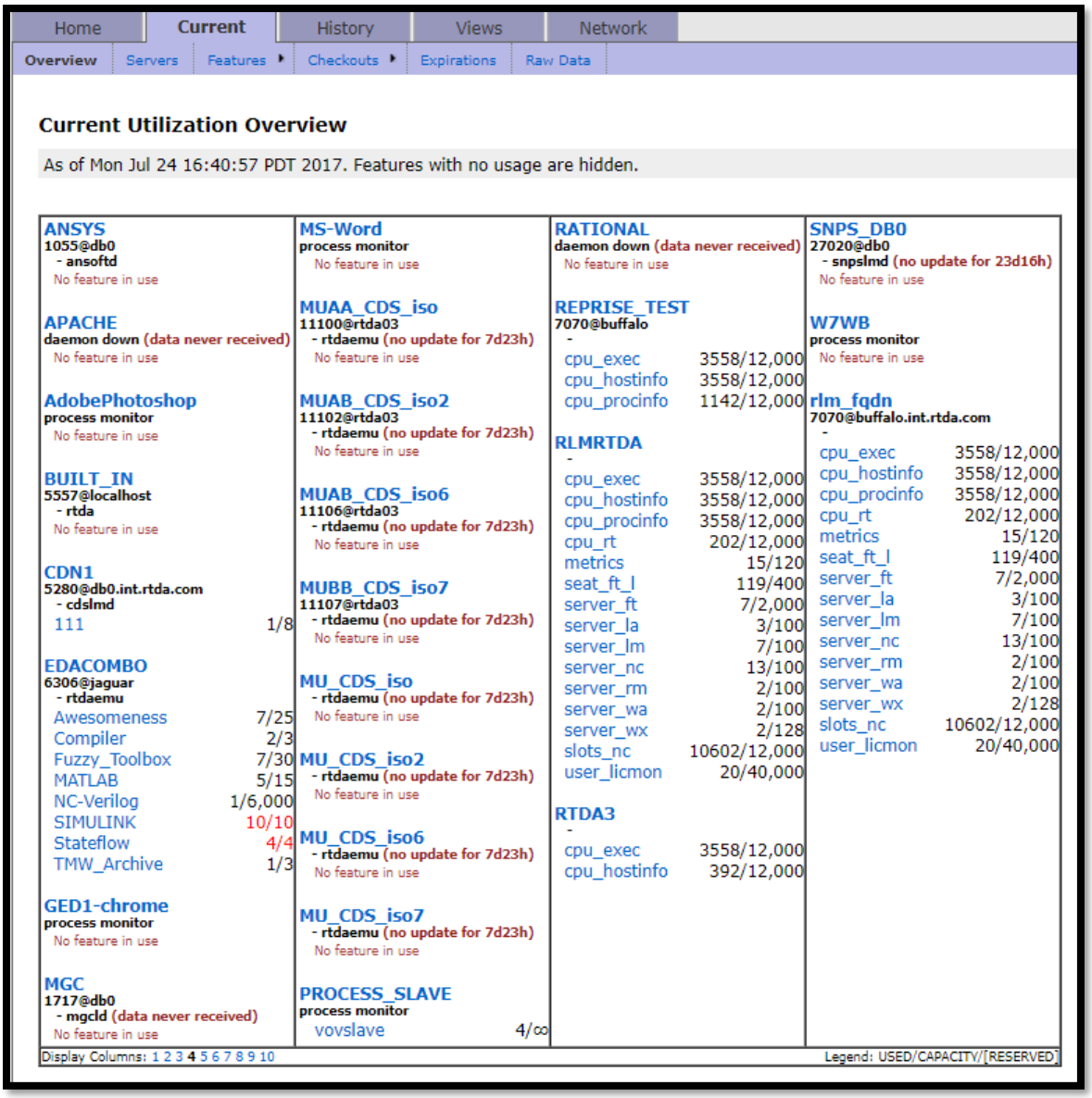


Figure 25: The Current Overview Page

4.2.1 CURRENT TAB – OVERVIEW

When you select the Current tab, it takes you by default Overview. From this page, you can click on the features and jobs, which are currently job in process and take a closer look at feature.

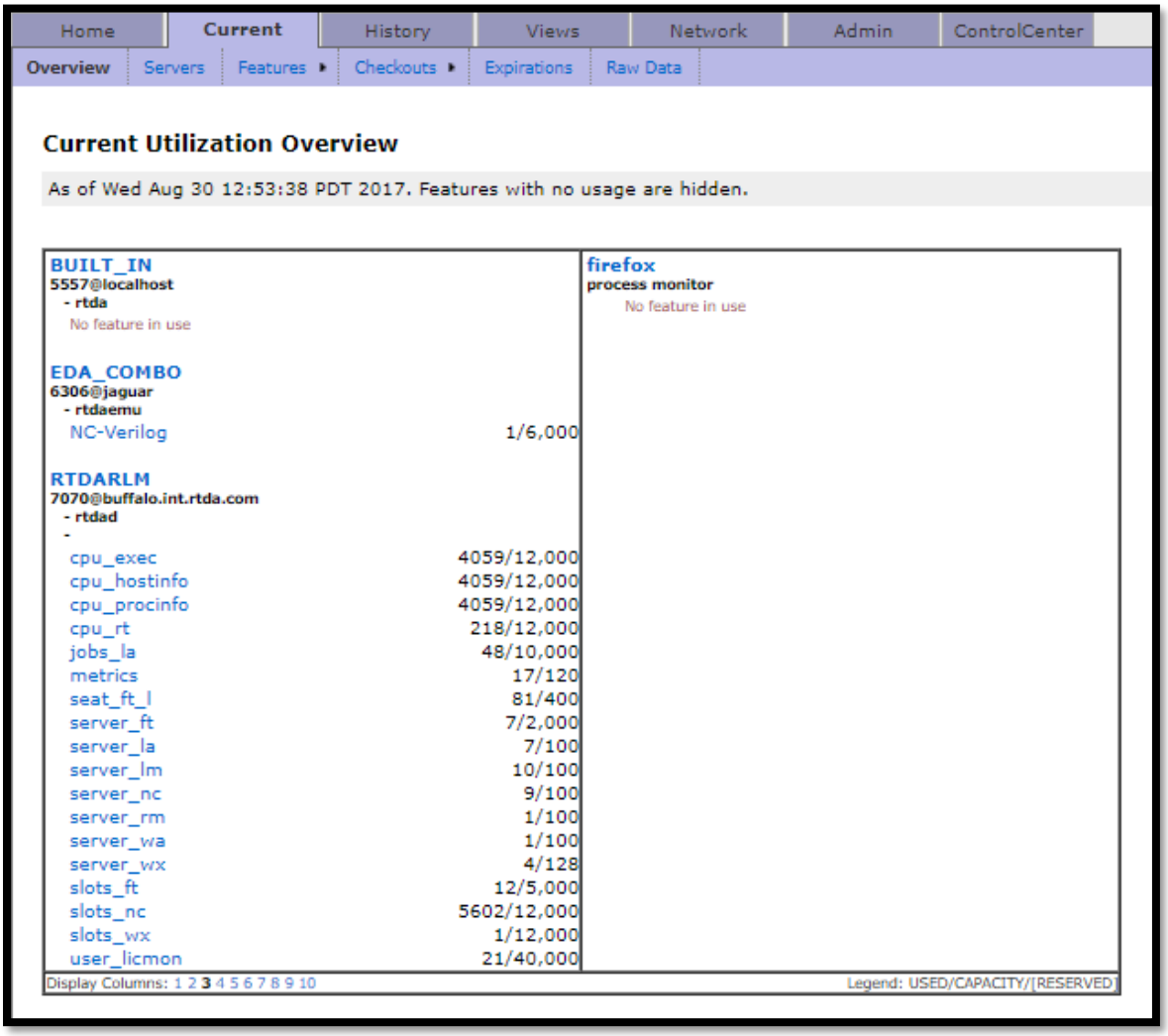


Figure 26: Current Tab Overview Page

4.2.2 CURRENT TAB – SERVERS

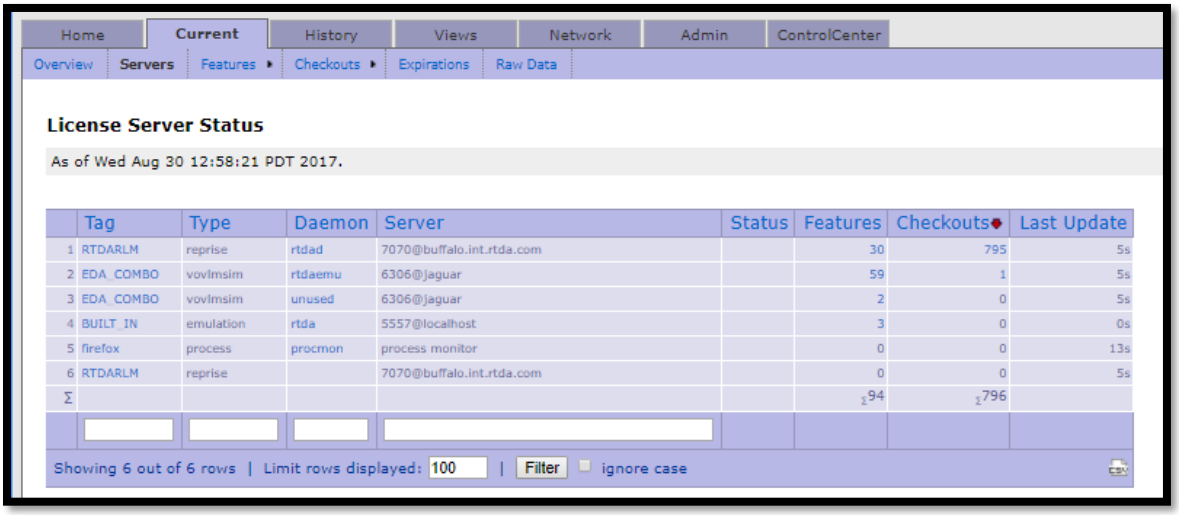


Figure 27: Current Tab – Servers

The Servers option shows tags and the associated servers. The columns are defined as follows:

- **Tag:** The tag or license feature
- **Type**: The type of license feature.
- **Daemon**: The vendor daemon that is serving out the license feature.
- **Server**: The server, on which the tag or feature is located.
- **Status**: Shows the status, up or down.
- **Features**: The total number of tokens of the feature that are used.
- **Checkouts**: The total number of unique users that have the feature checked out.
- **Last Update**: The last time this information was updated.

4.2.3 CURRENT TAB – FEATURES

The **Features View** page has four different viewing options:

- **Active**: This view shows the availability and utilization details of active license features.
- **All**: This view shows the availability and utilization details of all features, including idle license features.
- **Time-based**: This view shows the availability and utilization details of time-based features.
- **Perpetual**: This view shows the availability and utilization details of perpetual features.

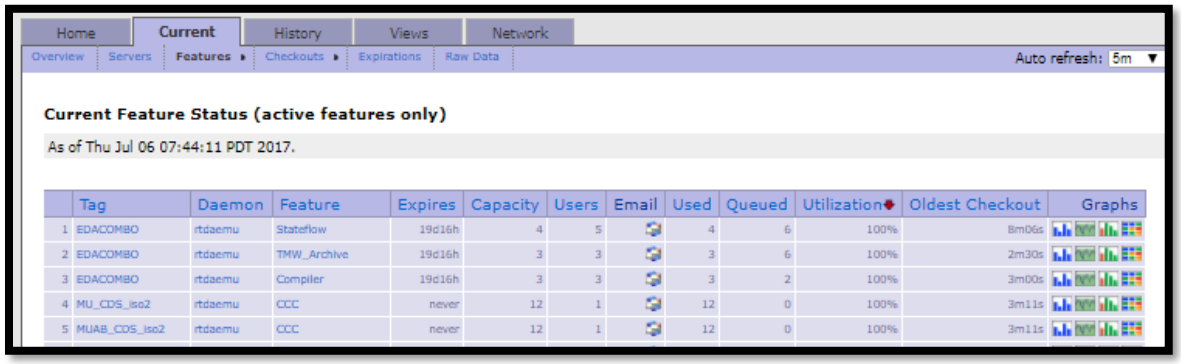


Figure 28: Current Page – Active Features Details

The following information is displayed in the Active Features Details table:

- **Tag:** The tag representing the license server.
- **Daemon**: The vendor daemon that is serving out the license feature.
- **Feature**: The license feature name.
- **Expires**: The time left until the license feature expires.
- **Total**: The total number of tokens of the feature that are available.
- **Users**: The total number of unique users that have the feature checked out.
- **Email**: The mailto link to all users of the feature using the client machine's configured e-mail client.
- **Used**: The number of tokens of the feature consumed by all users.
- **Utilization**: The percentage of tokens currently being used.
- **Oldest Checkout**: The age of the longest-held checkout of the feature.
- **Graphs**: Icons for generating plots and heatmaps.

4.2.4 CURRENT TAB – CHECKOUTS

The **Current Checkouts** page shows all checkouts for all tags and features at the time the page was loaded. The checkouts are sorted by their age in descending order by default. This order helps to identify problematic checkouts that may require attention.

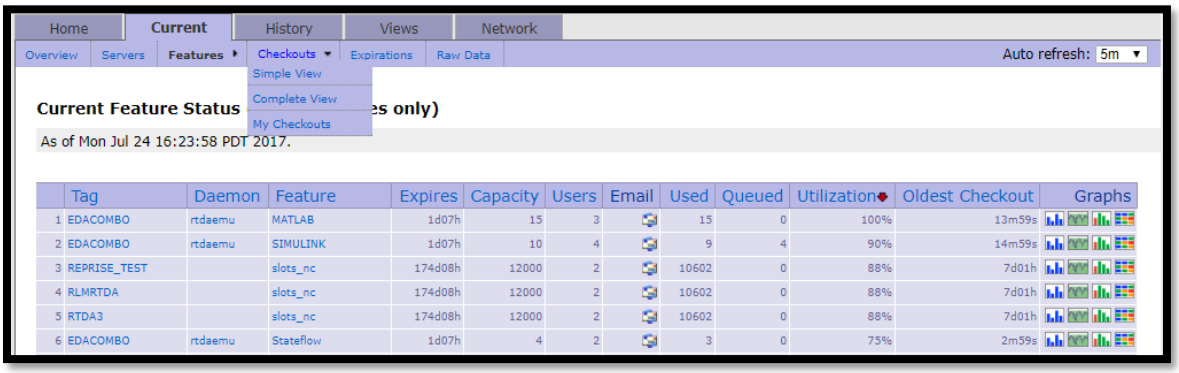


Figure 29: Current Page – My Checkouts

4.2.4.1 CURRENT PAGE CHECKOUTS SIMPLE VIEW

Each row in the table shows one license checkout.

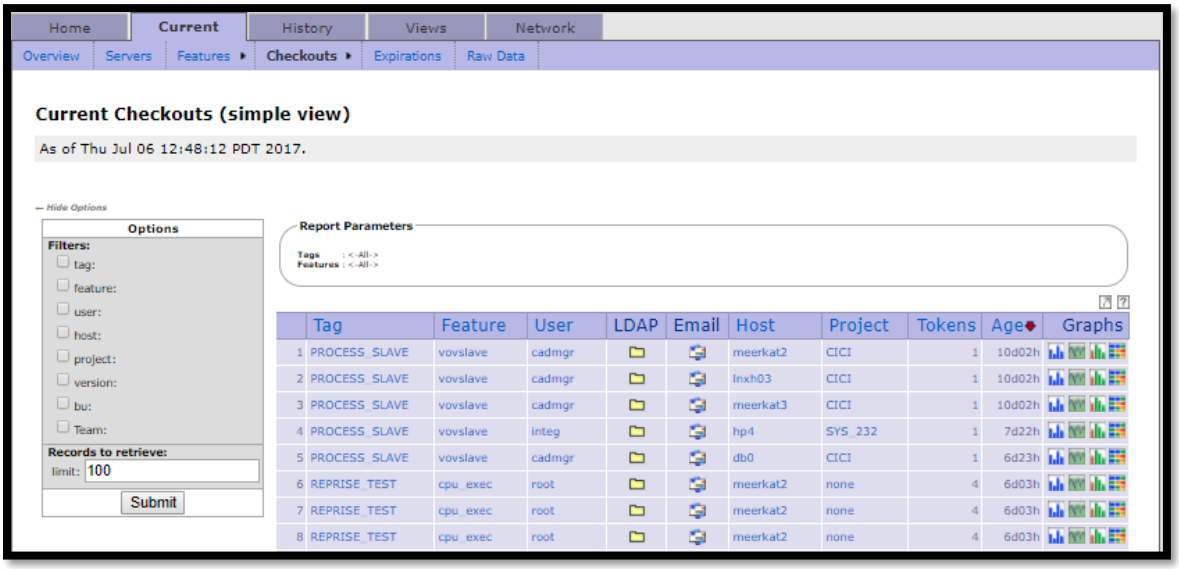


Figure 30: Checkouts Simple View

The following information is displayed by default:

- **Tag:** The tag representing the license server.
- **Feature**: The license feature name.
- **User**: The user holding the checkout.

- **LDAP**: If clicked and configured, the folder icon will show user pre-configured attributes from LDAP such as their phone number, department or location.
- **Email**: The mailto link to all users of the feature using the client machine's configured e-mail client.
- **Host**: The host on which the job is running.
- **Project:** The project assignment for the current checkout.
- **Tokens:** The actual number of licenses.
- **Age**: The age of the checkout.
- **Graphs**: Icons for generating plots and heatmaps.
- **Bu: Business Unit:** The designated team, which represents the business.

4.2.4.2 CURRENT PAGE CHECKOUTS COMPLETE VIEW

When you click **Complete View** from the **Current** page **Checkouts** drop-down menu, you enable the following additional columns:

						Ages				
	Capacity	Display	Handle	Version	Ps	Reported	Observed	Linger	HostIdle	Graphs
	∞	Ignored	11447		ps	10d03h	32s	0s	0s	
	∞	Ignored	26548		ps	10d03h	8m01s	0s	0s	
	∞	Ignored	39671		ps	7d23h	32s	0s	0s	
	∞	Ignored	26831		ps	6d23h	4m49s	0s	0s	
	12000(3000)	Ignored	65	2018.01	ps	6d04h	6d04h	0s	0s	
	12000(3000)	Ignored	10241	2018.01	ps	6d04h	6d04h	0s	0s	
	12000(3000)	Ignored	10049	2018.01	ps	6d04h	6d04h	0s	0s	

Figure 31: Checkouts Complete View

- **Capacity**: The capacity of the feature that is checked out. If the capacity shown includes a number inside of parentheses, the checkout is one that utilizes multiple tokens and the enclosed number represents the calculated capacity based upon the number of tokens checked out. An infinity symbol signifies an unlimited capacity.
- **Display**: Shows the value of the display field from the license server status command.
- **Handle**: The license manager handle for the checkout.
- **Version**: The version reported by the tool that has been checked out.
- **Ps**: A link to get process statistics for the host where the checkout is held. For this to work, the LM network monitoring capability must be configured for the host of the license checkout.
- **Reported**: The time which has passed since the first checkout was reported by lmstat.
- **Observed:** The time which has passed since LM first detected the checkout. This is helpful in cases where FLEXlm's lmstat utility reports false checkout times. This age is stored in the LM database and used for historical reporting.
- **Linger**: This indicates the time that the checkout will be checked in unless the tool renews it.
- **HostIdle**: This shows the idle time of the keyboard and mouse.
- **Graphs**: Links to graphical representations of the data.

4.2.4.3 MY CHECKOUTS

When you click on **My Checkouts** from the **Current** page **Checkouts** drop-down menu, a pop-up window displays. That window shows a table with your checkouts: you can export the table to CVS format.

4.2.5 CURRENT TAB – EXPIRATIONS

From expirations option, you can view upcoming and license expirations for the selected time frame.

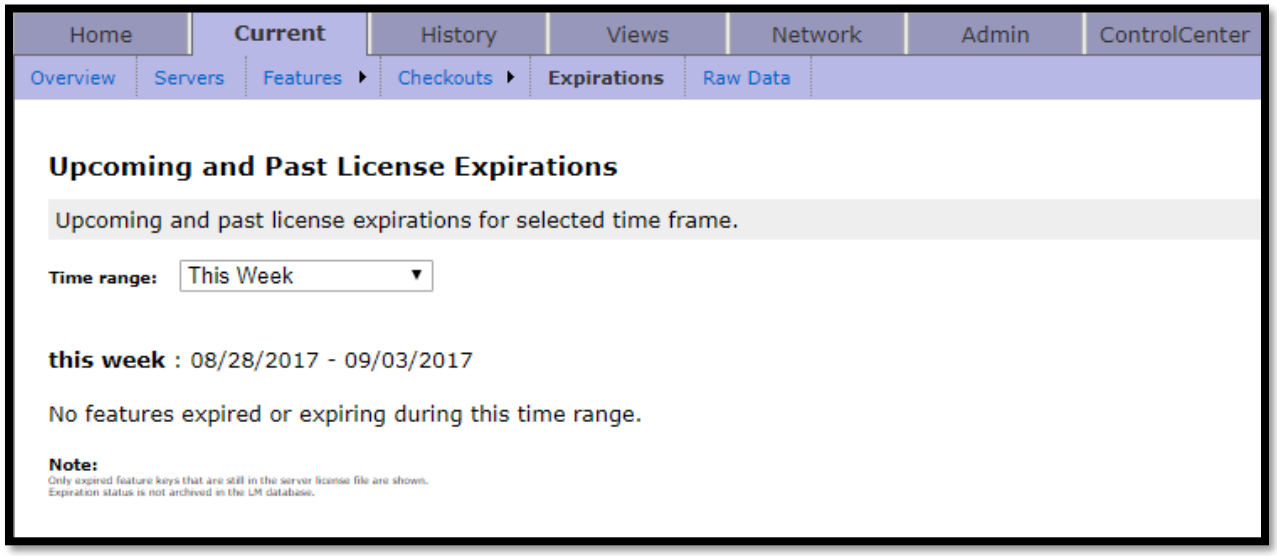


Figure 32: Expirations

4.2.6 CURRENT TAB – RAW DATA

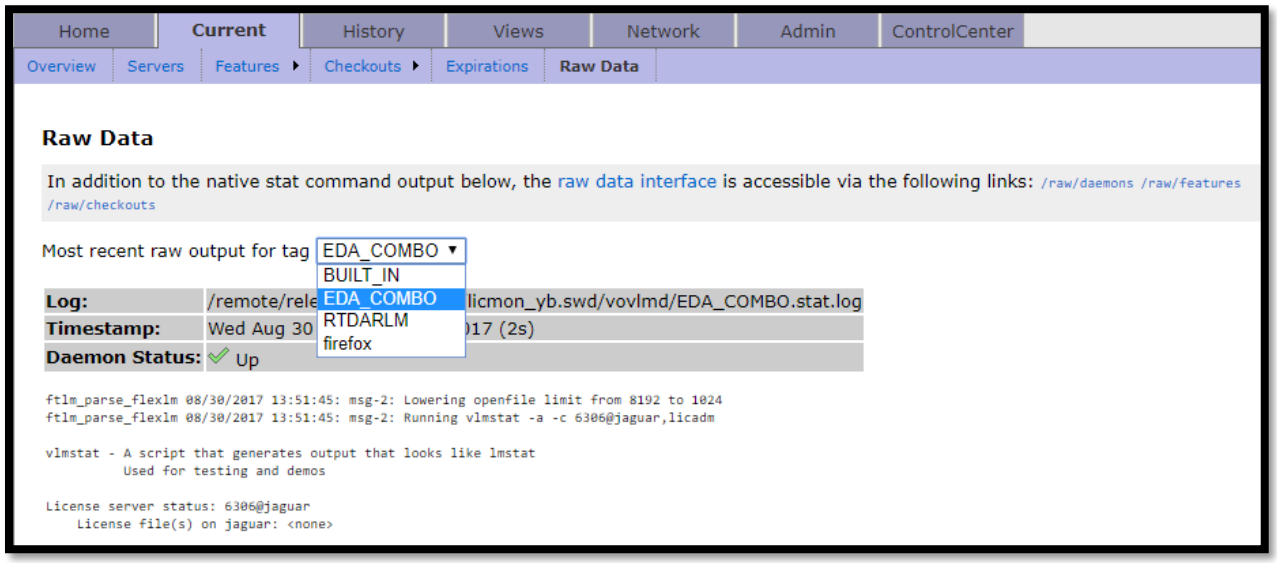


Figure 33: Raw Data

You can view the raw data for the tag that you select.

4.3 HISTORY TAB

From the **History** page, there are three general types of reports that you can generate: a usage report, a denials report and batch report.

- A **Usage Report** shows license utilization, and there are 11 types of these reports.
- A **Denials Report** shows statistical information about denial events. This can be used to determine if you have too many or too few licenses.
- A **Batch Report** can combine multiple reports and show multiple data points. They are also persistent and static; the data they display is accurate as of the time they are built, and that data remains available until the report files are deleted from the disk.

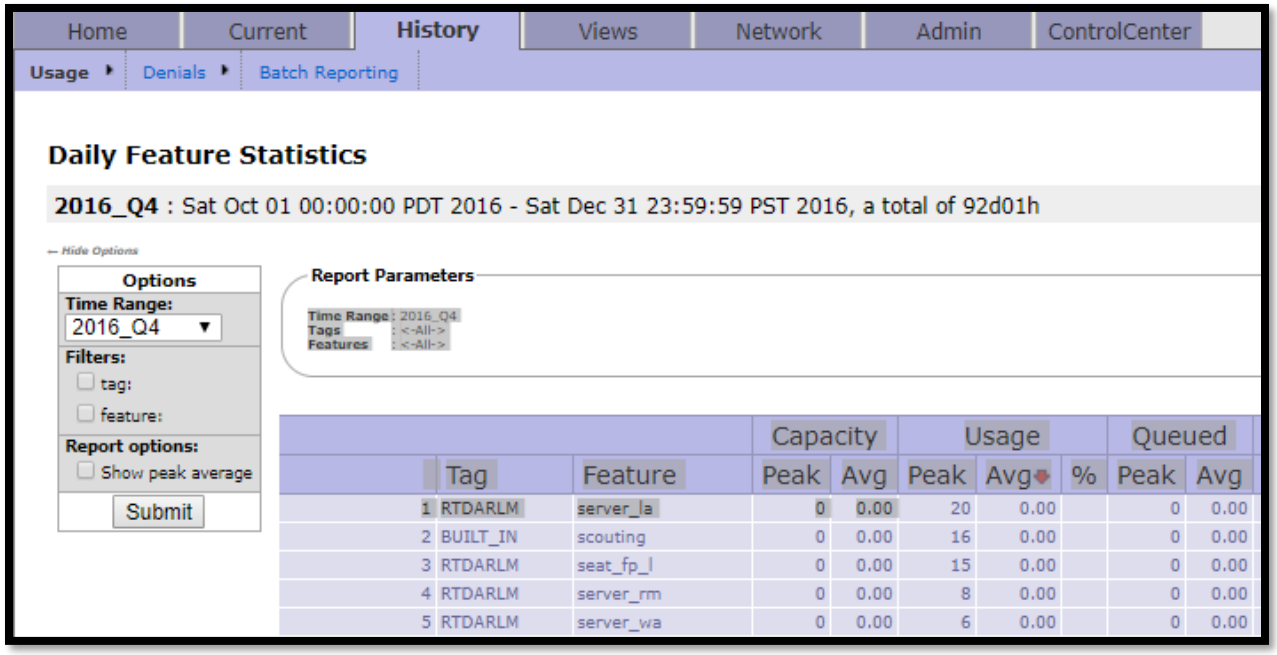


Figure 34: The History Tab

Instructions on how to generate reports are on page 18. Each report has its own benefit, which is explained in this section. Keep in mind, when you view reports, they can be configured with your own settings and columns; the reports we show have a variety of configurations.

4.3.1 HISTORY TAB – USAGE REPORTS

From the Usage selection, you can generate the following 11 types of web GUI reports:

- **Feature Statistics**: An overview of availability and utilization statistics for a time frame.
- **Daily Feature Plots**: A graph of the metrics shown on the Feature Statistics page for a specific tag/feature combination.
- **Efficiency Statistics**: A table showing the metrics associated with efficient license usage.
- **Efficiency Histogram**: A graph that shows license availability. It can show both licensing bottlenecks and waste.
- **Detailed Plots**: A group of graphs, which show availability and utilization statistics.
- **Heatmap**: A unique report, which shows the time period specified, represented as a 24x7 clock view.
- **Checkout Statistics:** A report that can show pin-pointed data about license utilization.
- **Checkout Details**: A report that shows the actual checkouts shown in the Statistics view.
- **Duration Histogram**: A graph that shows the distribution of checkouts based on duration
- **Usage Comparison Plot**: A graph, which accompanies the checkout statistics page, and allows for complex report-by and filter options.
- **Usage Trends**: A report on one or more features over a specified time frame.

In the following section, we will explain each report, and describe the variable elements and their use in providing information, which aids in decisions-making.

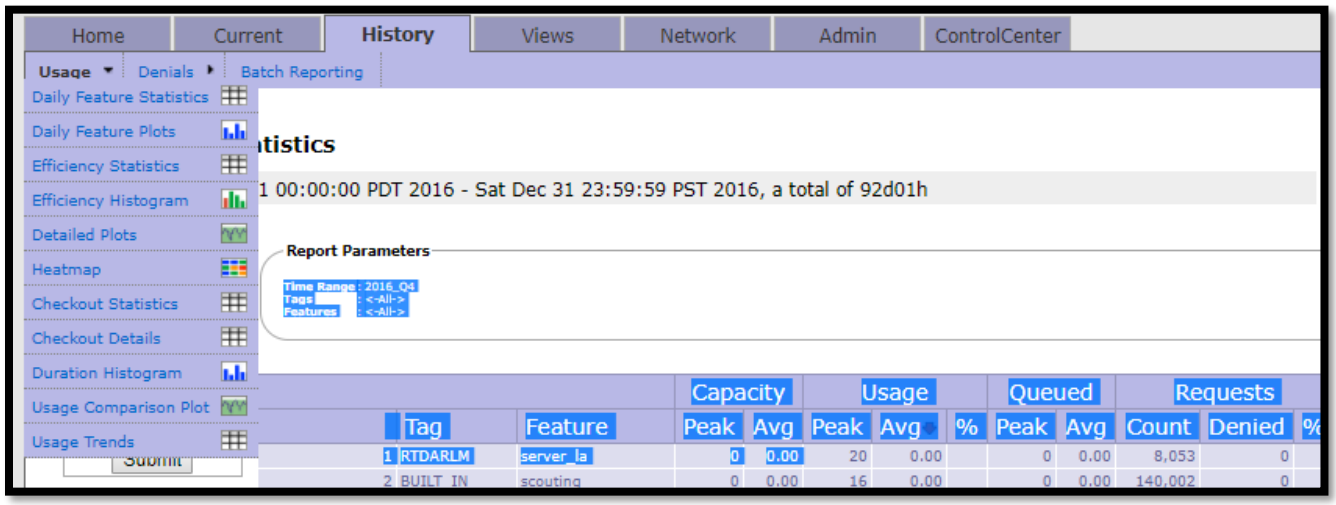


Figure 35: Usage Reports

4.3.1.1 FEATURE STATISTICS REPORT

Key Benefit: This report provides a top-level overview of daily usage for a specific feature; it enables you to quickly gain insight into usage and capacity of your licenses. If a feature is under-utilized or over-utilized or exactly right in terms of usage, you will quickly be able to discern that.

The information in this report is based on daily averages. The data is obtained from a summary table in the LicenseMonitor database that is populated once per night with daily averages. For new instances of LicenseMonitor, this report will not show data. Additionally, if viewing a report that includes the current day, the report will only show data that was calculated up to the point the summary table was updated, which occurs during the night by default.

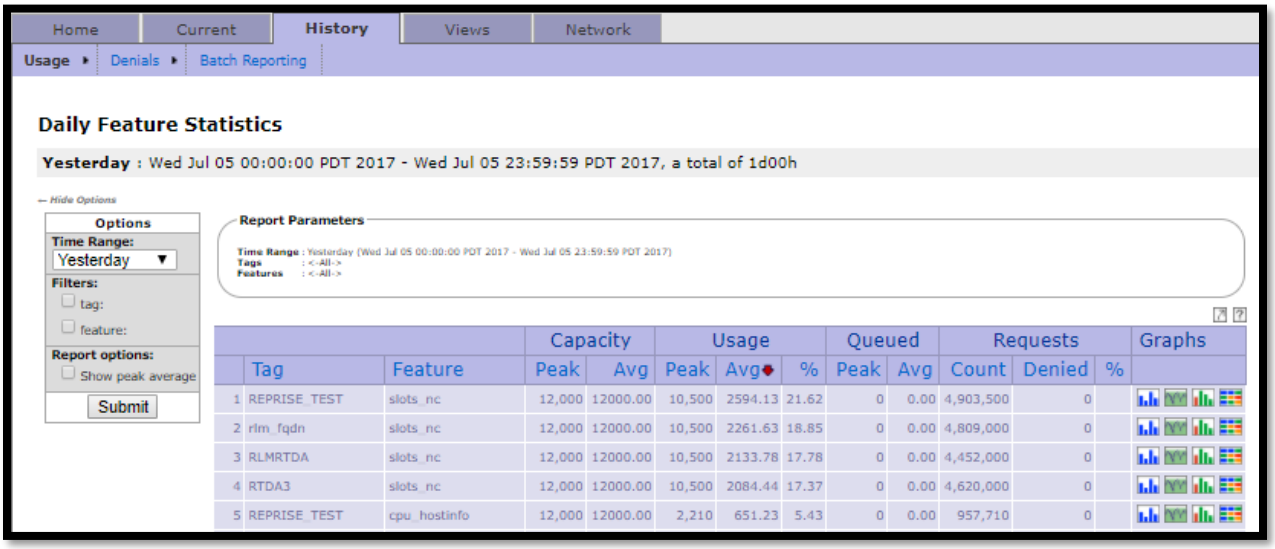
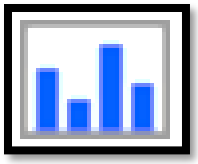


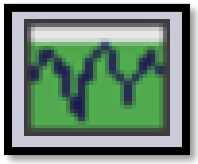
Figure 36: Content of Daily Feature Statistics Report

The Daily Feature Statistics Report includes the following columns:

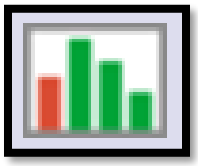
- **Tag:** The tag representing the license server.
- **Feature**: The license feature name.
- **Capacity Peak**: The peak capacity of the feature.
- **Capacity Avg**: The average capacity of the future
- **Usage Peak**: The peak usage of the feature.
- **Usage Avg**: The average usage of the future
- **Usage %**: The average usage divided by the peak for that day.
- **Queued Peak**: The peak tokens that were waited on.
- **Queued Avg**: The average tokens that were waited on.
- **Requests Count**: The number of time the feature was requested.
- **Requests Denied**: The number of times that the request was denied
- **Request Percent**: The number of denied requests divided by the number of requests that day.
- **Graphs**: If you click on the graph icons, the following pages will display.



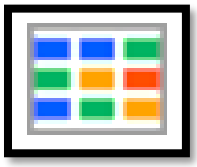
This graph icon links to the feature detailed plot page.



This graph icon links to the feature statistical plot page.



This graph icon links to the efficiency histogram page.



This graph icon links to the feature activity heatmap report.

4.3.1.2 DAILY FEATURE PLOTS

Key Benefit: These graphs provide a visualization of daily feature statistics and another way to gain insight into your license usage.

The information in these graphs is based off of daily averages. The data is obtained from a summary table in the LicenseMonitor database that is populated once per night with these daily averages. For new instances of LicenseMonitor, this report will not show data. Additionally, if viewing a report that includes the current day, the report will only show data that was calculated up to the point the summary table was updated, which occurs during the night by default.

The daily feature plots page shows the averages on the Feature Statistics page for a specific tag/feature combination. Three plots are displayed in this report: Usage and Capacity, Queued Requests, and Requests and Denials.

4.3.1.2.1 USAGE AND CAPACITY GRAPH

Key Benefit: This graph shows visual usage versus capacity, which indicates whether you need to increase or decrease licenses, or keep them as is.

This graphs shows capacity, utilization and peak utilization.

- Green indicates capacity.
- Blue indicates average utilization per day.
- Yellow indicates peak utilization.

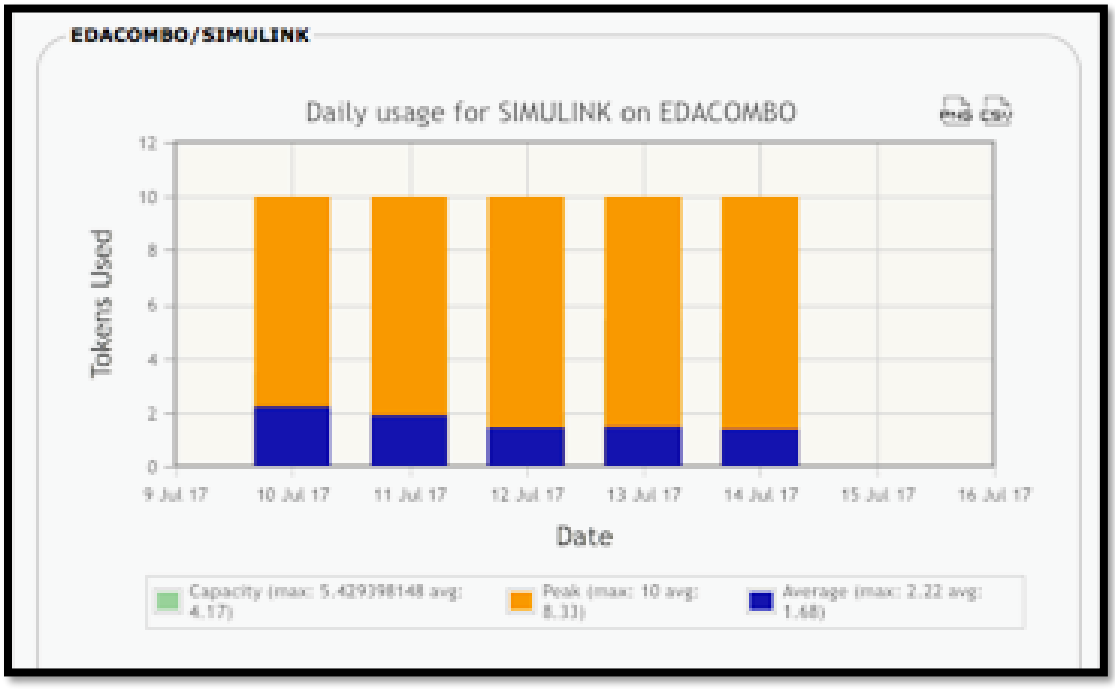


Figure 37: Usage and Capacity Graph

4.3.1.2.2 QUEUED REQUESTS

Key Benefit: This provides visual cue for number the number of times a license or feature is requested and put in queue – i.e. the user is waiting in line to use. This indicated that you might balance the load via shifting work times or adding licenses.

Average queued requests per day are shown as teal bars and peak queued requests are shown as teal lines for each day. If there are no queued requests, LM will not show a graph.

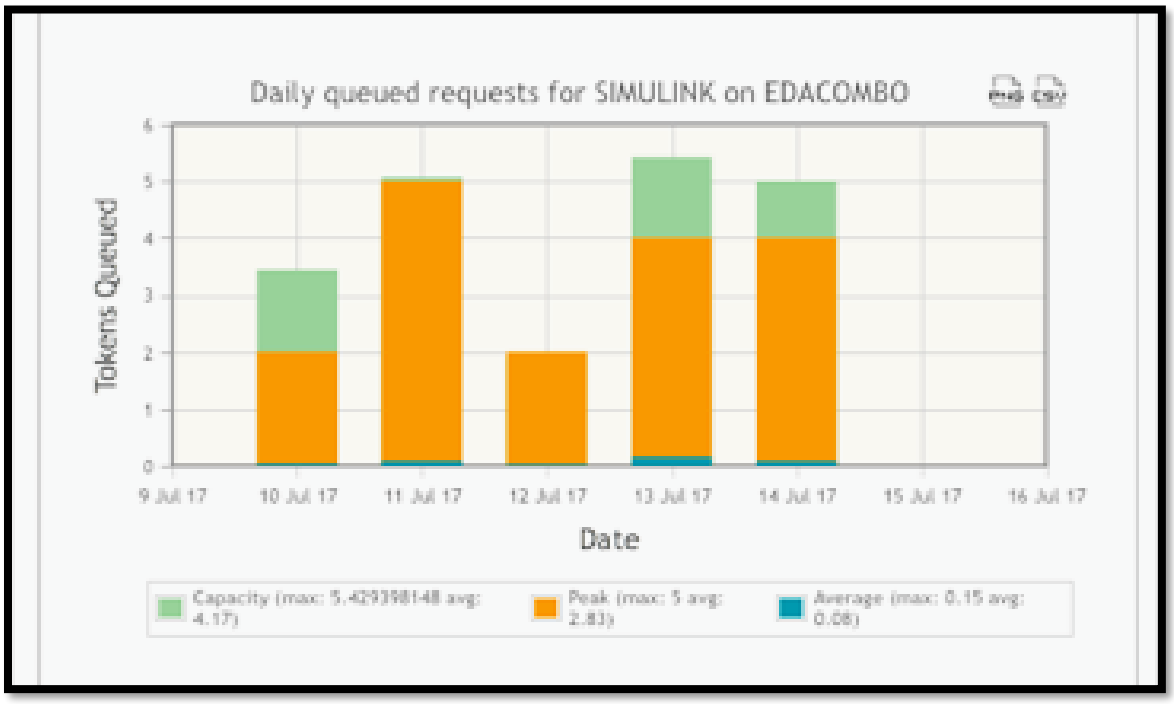


Figure 38: Queued Requests

4.3.1.2.3 REQUESTS AND DENIALS

Key Benefit: This provides a visual cue for the number of requests versus denials, and it yet another way to gain insight about your license usage. Many denials indicate that you may need to increase licenses.

This graphs shows capacity, utilization and peak utilization.

- Blue indicates requests.
- Red indicates denials.

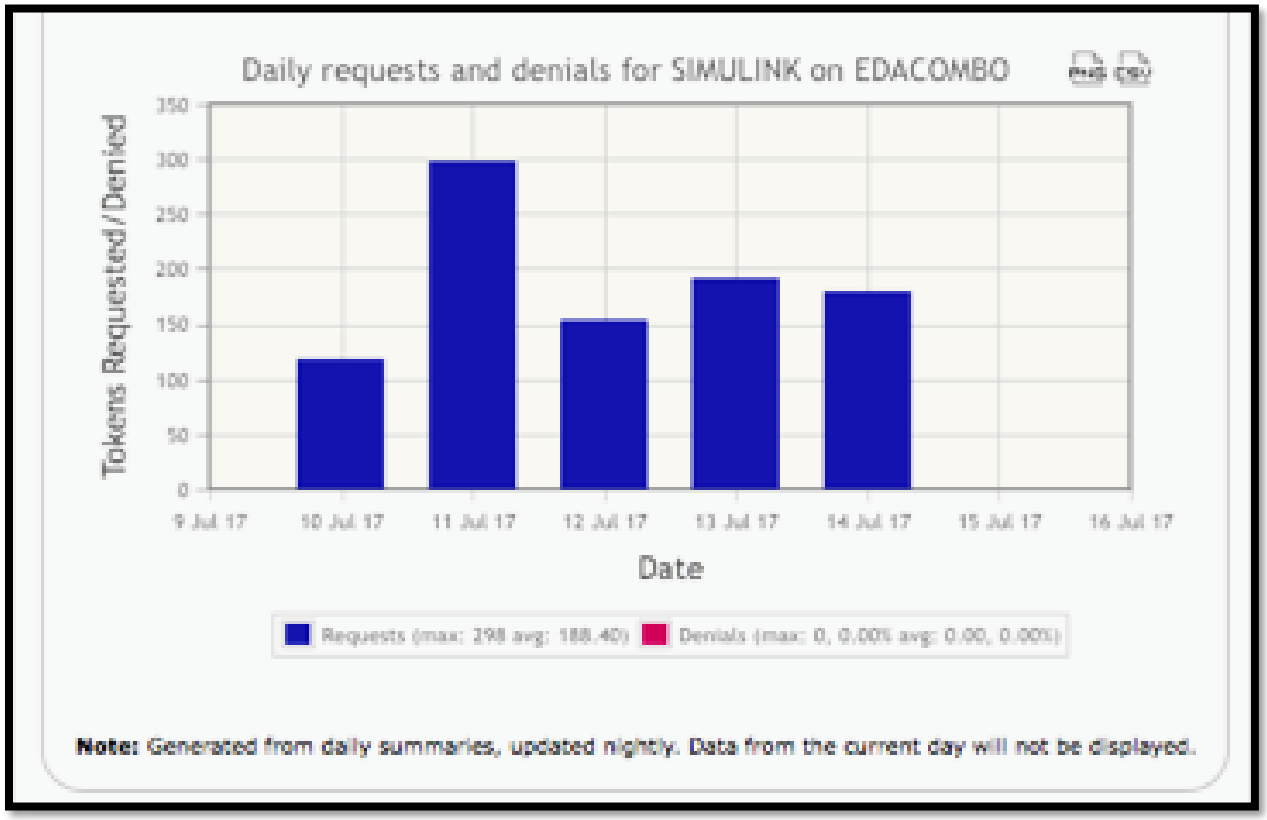
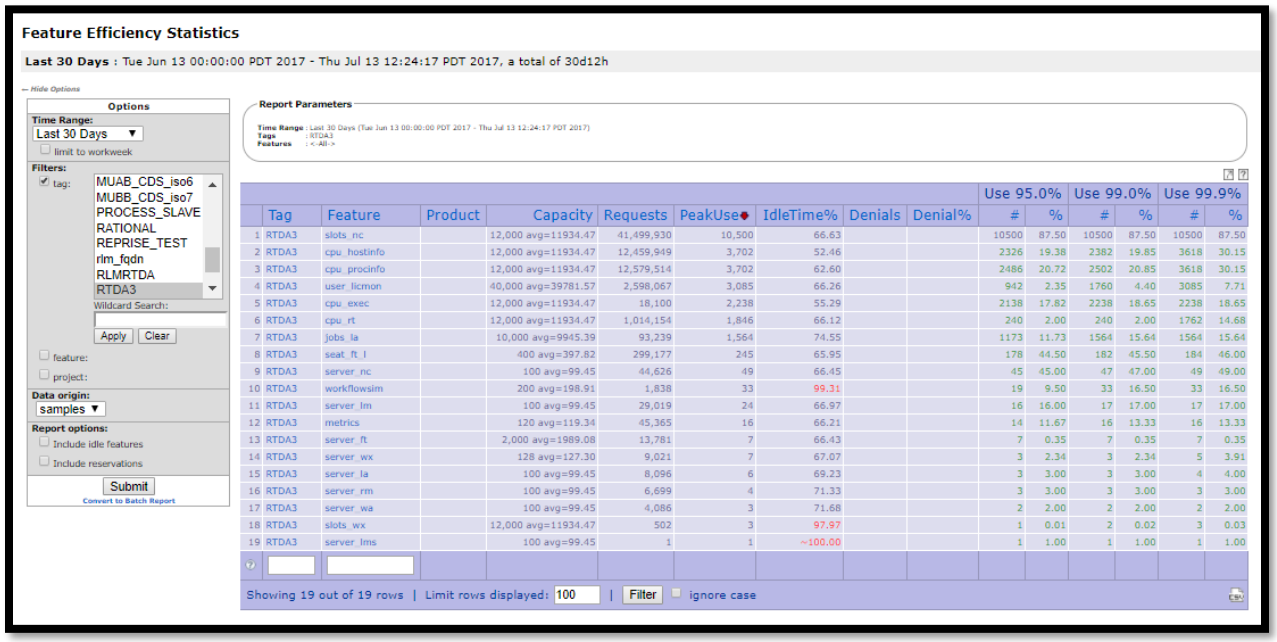


Figure 39: Requests and Denials

4.3.1.3 FEATURE EFFICIENCY STATISTICS

Key Benefit: This table shows you the licenses that have been idle too long – and provides a breakdown of recommended license numbers based on historical data. The percentages provide valuable insight into their usage over time.

This table shows the metrics associated with efficient license usage.



	Tag	Feature	Product	Capacity	Requests	PeakUse	IdleTime%	Denials	Denial%	Use 95.0% #	Use 95.0% %	Use 99.0% #	Use 99.0% %	Use 99.9% #	Use 99.9% %
1	RTDA3	slots_nc		12,000 avg=11934.47	41,499,930	10,500	66.63			10500	87.50	10500	87.50	10500	87.50
2	RTDA3	cpu_hostinfo		12,000 avg=11934.47	12,459,949	3,702	52.46			2326	19.38	2382	19.85	3618	30.15
3	RTDA3	cpu_procinfo		12,000 avg=11934.47	12,579,514	3,702	62.60			2486	20.72	2502	20.85	3618	30.15
4	RTDA3	user_licmon		40,000 avg=39781.57	2,598,067	3,085	66.26			942	2.35	1760	4.40	3085	7.71
5	RTDA3	cpu_exec		12,000 avg=11934.47	18,100	2,238	55.29			2138	17.82	2238	18.65	2238	18.65
6	RTDA3	cpu_rt		12,000 avg=11934.47	1,014,154	1,846	66.12			240	2.00	240	2.00	1762	14.68
7	RTDA3	jobs_la		10,000 avg=9945.39	93,239	1,564	74.55			1173	11.73	1564	15.64	1564	15.64
8	RTDA3	seat_ft_l		400 avg=397.82	299,177	245	65.95			178	44.50	182	45.50	184	46.00
9	RTDA3	server_nc		100 avg=99.45	44,626	49	66.45			45	45.00	47	47.00	49	49.00
10	RTDA3	workflowsim		200 avg=198.91	1,838	33	99.31			19	9.50	33	16.50	33	16.50
11	RTDA3	server_lm		100 avg=99.45	29,019	24	66.97			16	16.00	17	17.00	17	17.00
12	RTDA3	metrics		120 avg=119.34	45,365	16	66.21			14	11.67	16	13.33	16	13.33
13	RTDA3	server_ft		2,000 avg=1989.08	13,781	7	66.43			7	0.35	7	0.35	7	0.35
14	RTDA3	server_wx		128 avg=127.30	9,021	7	67.07			3	2.34	3	2.34	5	3.91
15	RTDA3	server_la		100 avg=99.45	8,096	6	69.23			3	3.00	3	3.00	4	4.00
16	RTDA3	server_rm		100 avg=99.45	6,699	4	71.33			3	3.00	3	3.00	3	3.00
17	RTDA3	server_wa		100 avg=99.45	4,086	3	71.68			2	2.00	2	2.00	2	2.00
18	RTDA3	slots_wx		12,000 avg=11934.47	502	3	97.97			1	0.01	2	0.02	3	0.03
19	RTDA3	server_lms		100 avg=99.45	1	1	~100.00			1	1.00	1	1.00	1	1.00

Figure 40: Efficiency Statistics Report

The Efficiency Statistics Report includes the following columns:

- **Tag**: The name of the tag.
- **Feature**: The name of the feature.
- **Product**: The name of the product, if the administrator has configured product view.
- **Capacity**: The total number of licenses available for the feature for the specified time range.
- **Requests**: The total number of requests for the feature for the specified time range.
- **PeakUse**: The peak number of concurrent checkouts detected for the feature for the specified time.
- **Idle Time%**: The percentage of overall time that the license had no usage.
- **Denials**: The total number of denials for the feature for the specified time range.
- **Denial%**: The percentage of requests that result in denials for the feature for the specified time.
- **Use 95.0% #**: The number that is required to meet demand 95% of the time.
- **Use 95.0% %**: The percentage of capacity that is required to meet demand 95% of the time.
- **Use 99.0% #**: The number that is required to meet demand 99% of the time.
- **Use 99.0% %**: The percentage of capacity that is required to meet demand 99% of the time.
- **Use 99.9% #**: The number that is required to meet demand 99.9% of the time.
- **Use 99.9% %**: The percentage of capacity that is required to meet demand 99.9% of the time.

4.3.1.4 FEATURE EFFICIENCY HISTOGRAM

Key Benefit: This can show both licensing bottlenecks and waste.

This graph shows license availability. It displays how the availability of licenses over time or over the amount of time during which there are active checkouts of the license. In the following example, the graph to the left (at least used) shows the percent of time of time that licenses are checked out and the number of license checked out. So for 18.8 percent of the time, 1-10 licenses are checked out.

Please note: The scaling of this report is based on the number of licenses available. For example, if 10 licenses are available, 10 rows will appear, one for each license. If 1000 are licenses available, 10 rows will appear - each row with a range of 100 licenses.

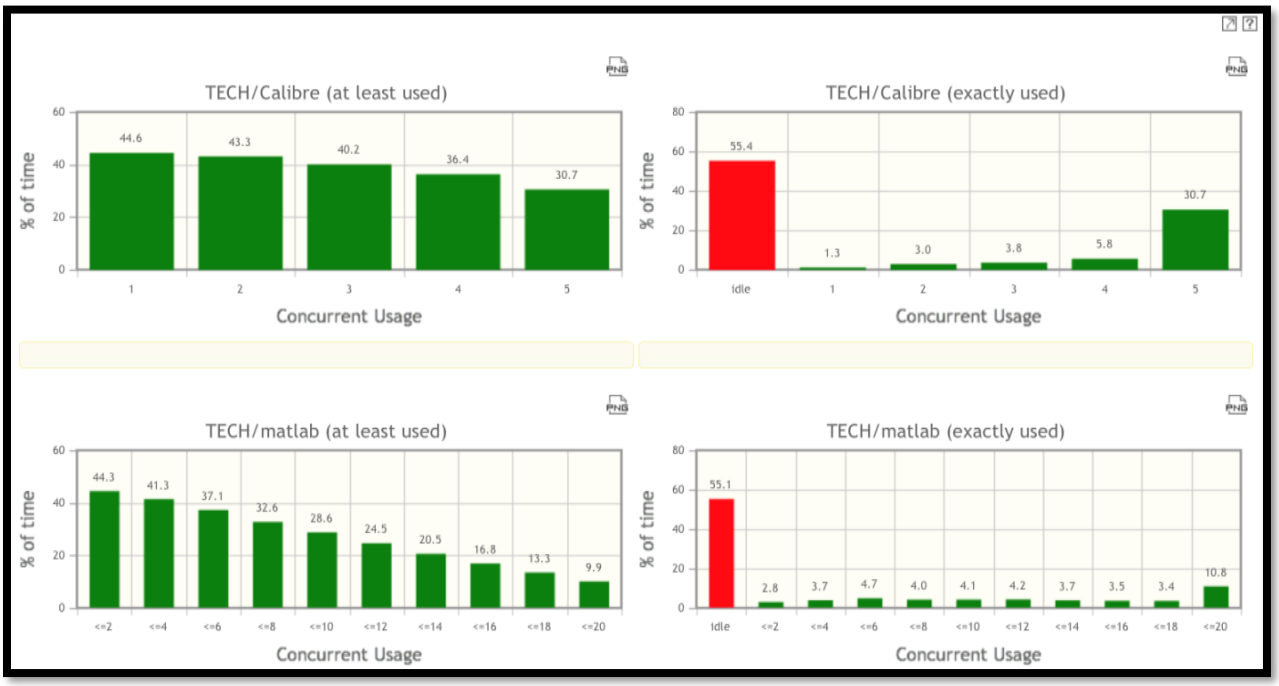


Figure 41: Feature Efficiency Histogram

In the example histogram in the lower right corner, it shows a 55 percent of idle time. This implies that licenses were used less than half of the time, which shows a huge waste. The next step here would be to look at longer data set, to see if this data point in an anomaly. But if not, it would indicate that you should buy fewer licenses in the future.

4.3.1.5 FEATURE DETAILED PLOTS

Key Benefit: These graphs show usage at any given point over a year and provide visual cues for determining license usage.

These graphs show availability and utilization statistics. They are controlled using the options box on the left hand side of the page. Specifically, they show three graphs:

- **Checkout count and duration**: These charts show a breakdown of the utilization of the specified feature(s) per user, host, project, or custom group.
- **Detailed Plot:** This shows the capacity of the specified feature, usage details, and the usage average.
- **Denial Plot:** If denials exist for the specified feature, they will be shown in the denial plot.

4.3.1.5.1 CHECKOUT COUNT AND DURATION CHARTS

Key Benefit: This pie chart a visual cue for the number of checkouts and the duration.

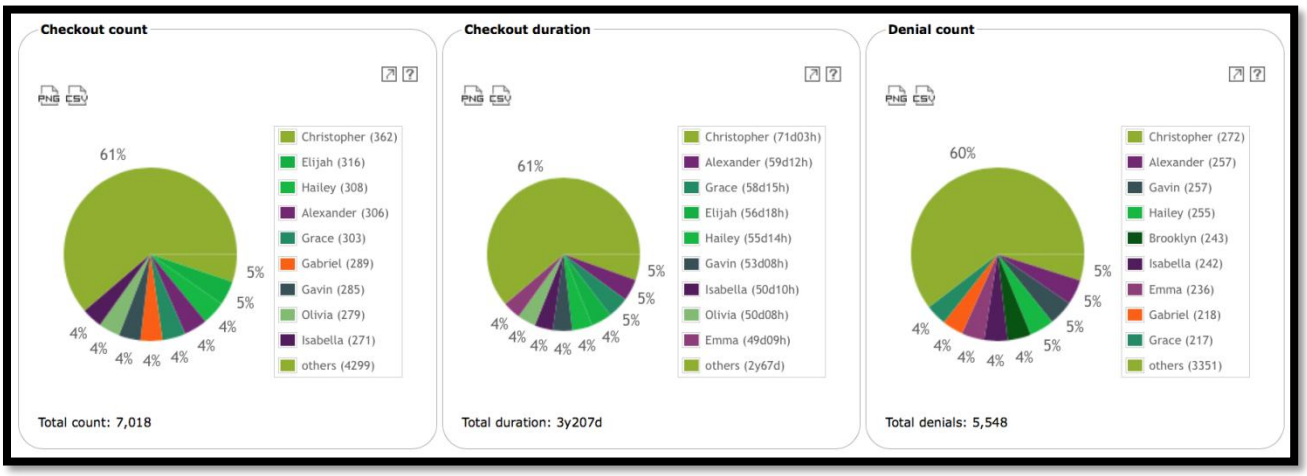


Figure 42: Feature Detailed Pie Charts – Checkout Count & Checkout Duration

- **Checkout count**: This shows the percent of checkouts per user or per host, project of custom group.
- **Checkout duration**: This shows the duration of checkouts per user or per host, project of custom group.

In this example, the pie charts show that “Christopher” used most of these two features, and he is responsible for most of the duration and the denial count. Christopher might be a super user, or he might represent a generic account that is used by many people. This presents an opportunity for further investigation.

4.3.1.5.2 FEATURE DETAILED PLOTS

Key Benefit: This graph provides a visual cue for determine whether you need more or less licenses.

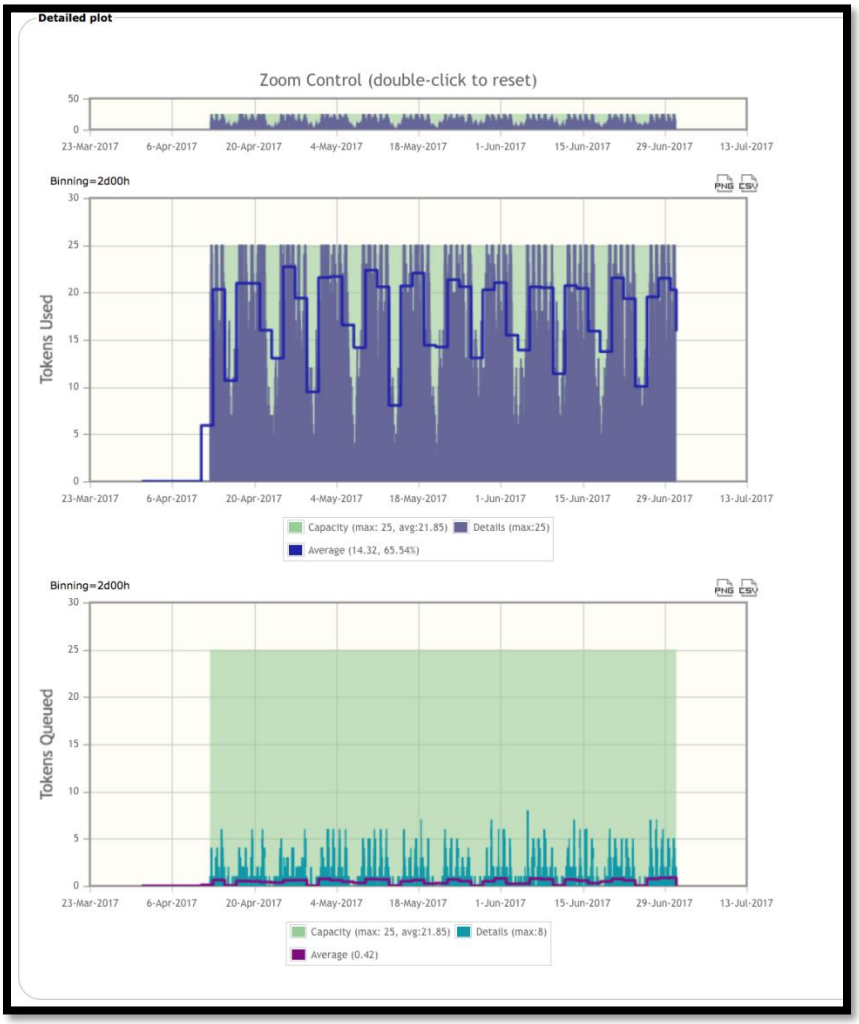


Figure 43: Feature Detailed Plots - Detailed Plot – Tokens Used

Tokens Used are transposed with your maximum capacity and the average capacity daily.

This shows the usage for the give time frame for each breakdown, dark blue is utilized, the lighter blue is how much is exactly used, capacity. This shows a proper balance of tokens used and tokens queued.

4.3.1.5.3 DENIAL PLOT

Key Benefit: This provide a visual cue for denials on a daily basis, which shows where license might be redistributed or more licenses obtained

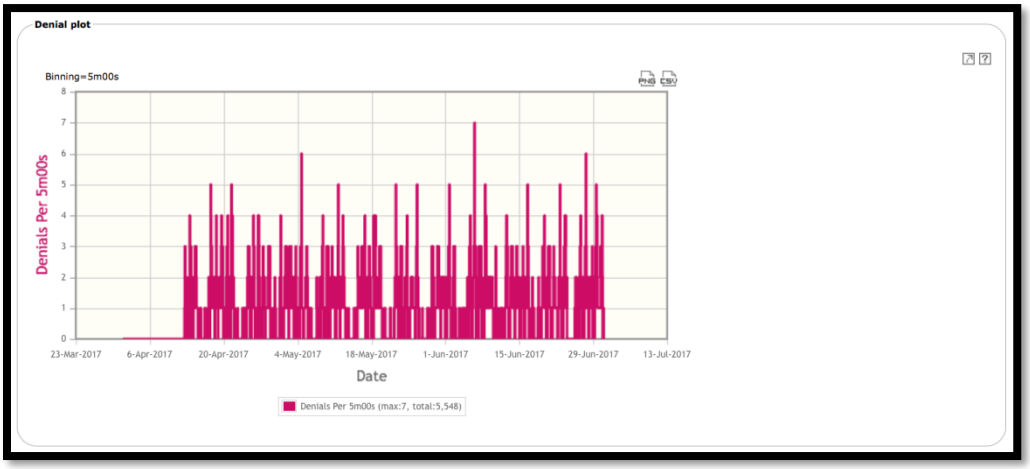


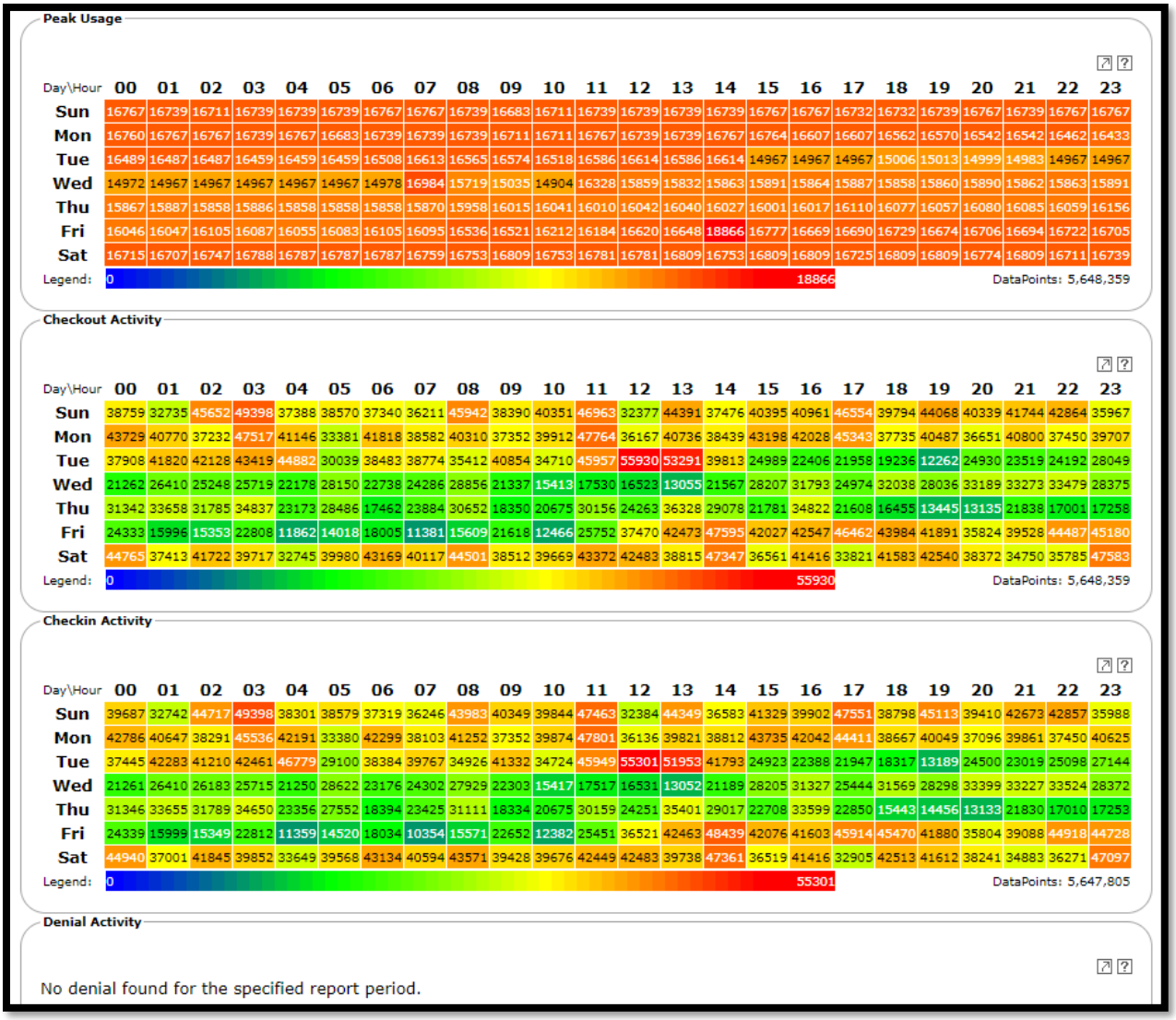
Figure 44: Denials Plot

You can limit the scope of the reports on the page to specific tags, features, users, hosts, and projects.

In this example, each vertical bar represents five minutes, (this can be set to a different time parameter). This plot covers the second quarter. It shows 7 or 8 or denial at a maximum, which is not too many. If there were no denials, you might be wasting money. But in this case, there is neither too many more too few denials; this is a sweet spot.

4.3.1.6 HEATMAPS

Key Benefit: The table provides a 24-hour colored clock view of license activity for each day.



Peak Usage

Day\Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sun	16767	16739	16711	16739	16739	16739	16767	16767	16739	16683	16711	16739	16739	16739	16739	16767	16767	16732	16732	16739	16767	16739	16767	16767
Mon	16760	16767	16767	16739	16767	16683	16739	16739	16739	16711	16711	16767	16739	16739	16767	16764	16607	16607	16562	16570	16542	16542	16462	16433
Tue	16489	16487	16487	16459	16459	16459	16508	16613	16565	16574	16518	16586	16614	16586	16614	14967	14967	14967	15006	15013	14999	14983	14967	14967
Wed	14972	14967	14967	14967	14967	14967	14978	16984	15719	15035	14904	16328	15859	15832	15863	15891	15864	15887	15858	15860	15890	15862	15863	15891
Thu	15867	15887	15858	15886	15858	15858	15858	15870	15958	16015	16041	16010	16042	16040	16027	16001	16017	16110	16077	16057	16080	16085	16059	16156
Fri	16046	16047	16105	16087	16055	16083	16105	16095	16536	16521	16212	16184	16620	16648	18866	16777	16669	16690	16729	16674	16706	16694	16722	16705
Sat	16715	16707	16747	16788	16787	16787	16787	16759	16753	16809	16753	16781	16781	16809	16753	16809	16809	16725	16809	16809	16774	16809	16711	16739

Legend: 0 … 18866 DataPoints: 5,648,359

Checkout Activity

Day\Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sun	38759	32735	45652	49398	37388	38570	37340	36211	45942	38390	40351	46963	32377	44391	37476	40395	40961	46554	39794	44068	40339	41744	42864	35967
Mon	43729	40770	37232	47517	41146	33381	41818	38582	40310	37352	39912	47764	36167	40736	38439	43198	42028	45343	37735	40487	36651	40800	37450	39707
Tue	37908	41820	42128	43419	44882	30039	38483	38774	35412	40854	34710	45957	55930	53291	39813	24989	22406	21958	19236	12262	24930	23519	24192	28049
Wed	21262	26410	25248	25719	22178	28150	22738	24286	28856	21337	15413	17530	16523	13055	21567	28207	31793	24974	32038	28036	33189	33273	33479	28375
Thu	31342	33658	31785	34837	23173	28486	17462	23884	30652	18350	20675	30156	24263	36328	29078	21781	34822	21608	16455	13445	13135	21838	17001	17258
Fri	24333	15996	15353	22808	11862	14018	18005	11381	15609	21618	12466	25752	37470	42473	47595	42027	42547	46462	43984	41891	35824	39528	44487	45180
Sat	44765	37413	41722	39717	32745	39980	43169	40117	44501	38512	39669	43372	42483	38815	47347	36561	41416	33821	41583	42540	38372	34750	35785	47583

Legend: 0 … 55930 DataPoints: 5,648,359

Checkin Activity

Day\Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sun	39687	32742	44717	49398	38301	38579	37319	36246	43983	40349	39844	47463	32384	44349	36583	41329	39902	47551	38798	45113	39410	42673	42857	35988
Mon	42786	40647	38291	45536	42191	33380	42299	38103	41252	37352	39874	47801	36136	39821	38812	43735	42042	44411	38667	40049	37096	39861	37450	40625
Tue	37445	42283	41210	42461	46779	29100	38384	39767	34926	41332	34724	45949	55301	51953	41793	24923	22388	21947	18317	13189	24500	23019	25098	27144
Wed	21261	26410	26183	25715	21250	28622	23176	24302	27929	22303	15417	17517	16531	13052	21189	28205	31327	25444	31569	28298	33399	33227	33524	28372
Thu	31346	33655	31789	34650	23356	27552	18394	23425	31111	18334	20675	30159	24251	35401	29017	22708	33599	22850	15443	14456	13133	21830	17010	17253
Fri	24339	15993	15349	22812	11359	14520	18034	10354	15571	22652	12382	25451	36521	42463	48439	42076	41603	45914	45470	41880	35804	39088	44918	44728
Sat	44940	37001	41845	39852	33649	39568	43134	40594	43571	39428	39676	42449	42483	39738	47361	36519	41416	32905	42513	41612	38241	34883	36271	47097

Legend: 0 … 55301 DataPoints: 5,647,805

Denial Activity

No denial found for the specified report period.

Figure 45: Heatmaps

A heatmap is a unique report for visualizing license activity. The heatmap shows the time period specified, represented as a 24x7 clock view. For each hour in the view, a color-coded box represents the amount of activity for the license feature. The heatmap report page contains four heatmaps: one for peak concurrent usage, one for checkouts, one for checkins and one for denials.

- **Dark Blue** = No activity
- **Green** = Medium activity
- **Orange** = Medium high
- **Red** = High activity

4.3.1.7 CHECKOUT STATISTICS

Key Benefit: This is powerful data mining tool can find pin-pointed answers about license utilization.

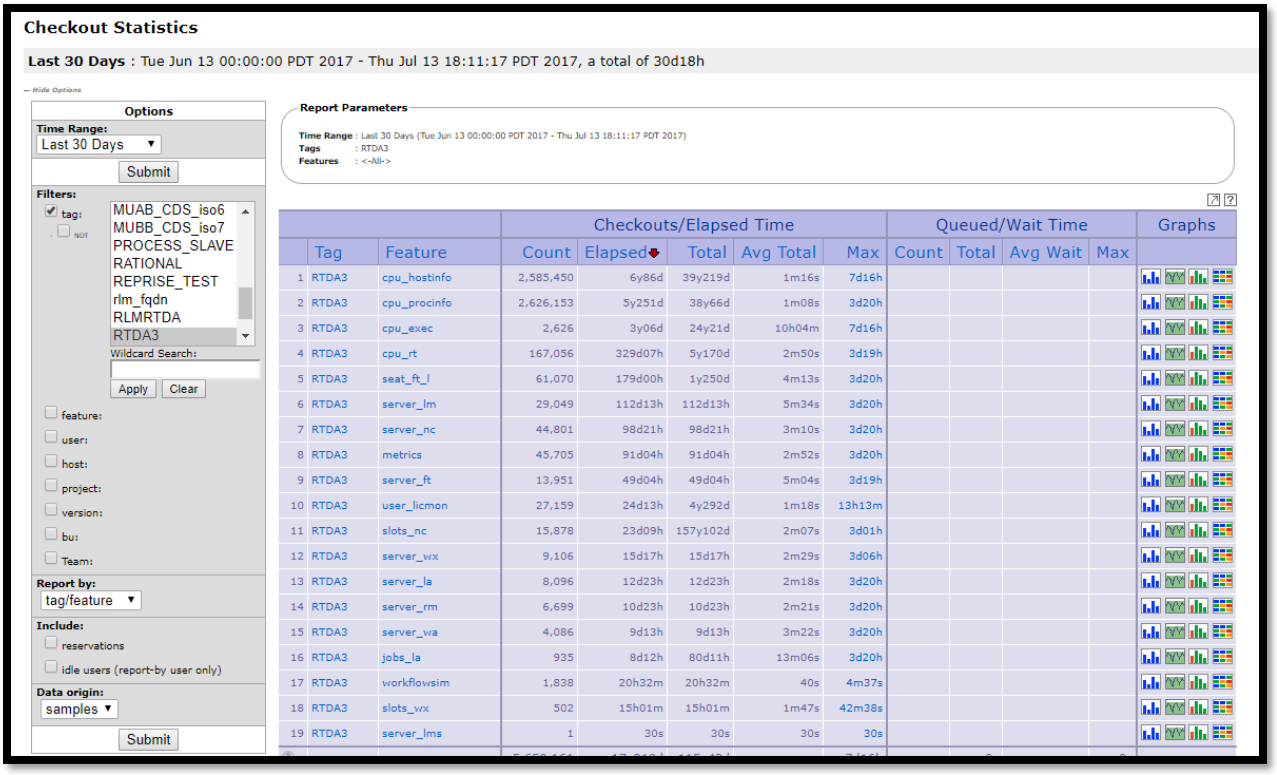


Figure 46: Checkout Statistics Page

The report shows checkout and elapsed time statistics, queued/wait time statistics, and provides links to the graphs. The Checkout Statistics Report includes the following columns:

- **Tag:** The tag representing the license server.
- **Feature**: The license feature name.
- **Count**: The number of checkouts
- **Checkouts/Elapsed**: The amount of elapsed time since the feature was checked out.
- **Checkouts/Total**: The elapsed time normalized for the number of tokens checked out. This provides a cumulative value for multi-token features.
- **Checkouts/Avg Total**: The elapsed time divided by the number of checkouts.
- **Checkouts/Max**: The maximum number of checkouts.
- **Queued Count:** The elapsed time normalized for the number of queues.
- **Queued Total:** The elapsed time divided by the number of queues.
- **Queued Avg Wait**: The average elapsed time before a queue becomes a checkout.
- **Queued Wait Max**: The max elapsed time before a queue becomes a checkout.
- **Graphs**: Links to the detailed plot page, the statistical plot page, the efficiency histogram page, and the activity heatmap report.

4.3.1.8 CHECKOUT DETAILS

Key Benefit: This can be used to narrow down the results using the same filter methodology utilized in the statistics view.

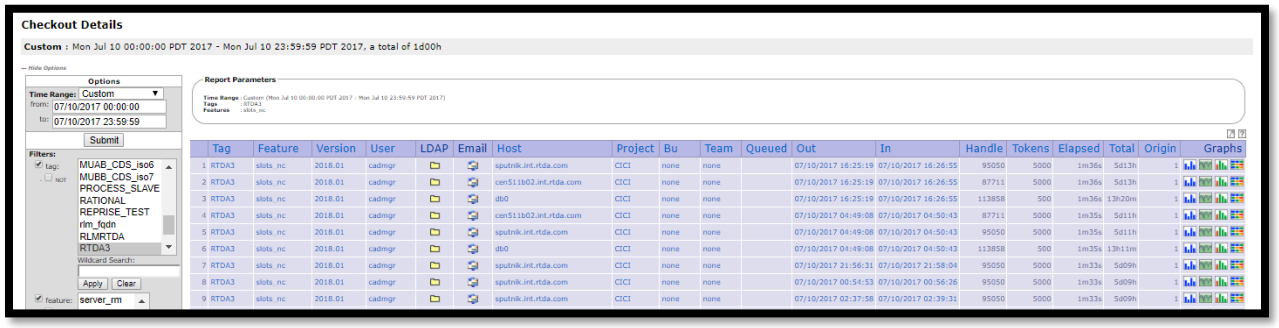


Figure 47: Checkout Details Report

This report shows the actual checkouts shown in the Statistics view. This view shows most of the information that is normally found in a license manager status command.

The Checkout Details Report includes the following columns:

- **Tag:** The tag representing the license server.
- **Feature**: The license feature name.
- **Version**: The version of the license for the checkout feature.
- **User**: The user holding the checkout.
- **LDAP**: If clicked and configured, the folder icon will show user pre-configured attributes from LDAP such as their phone number, department or location.
- **Email**: The mailto link to all users of the feature using the client machine's configured e-mail client.
- **Host**: The host on which the job is running.
- **Project:** The project assignment for the current checkout.
- **Tokens:** The actual number of licenses.
- **Age**: The age of the checkout.
- **Graphs**: Icons for generating plots and heatmaps.
- **Bu**: Business Unit.

Please note: The additional columns in the table, such as team, are user-generated. You can generate additional columns by going to the **Admin** page and selecting **Groups**, and then choosing from the options: Projects, Custom Groups Types and Custom Groups.

4.3.1.9 DURATION HISTOGRAM

Key Benefit: This graph shows the distribution of checkouts based on duration. The various durations are calculated and divided into equal-length buckets, which are represented as vertical bars.

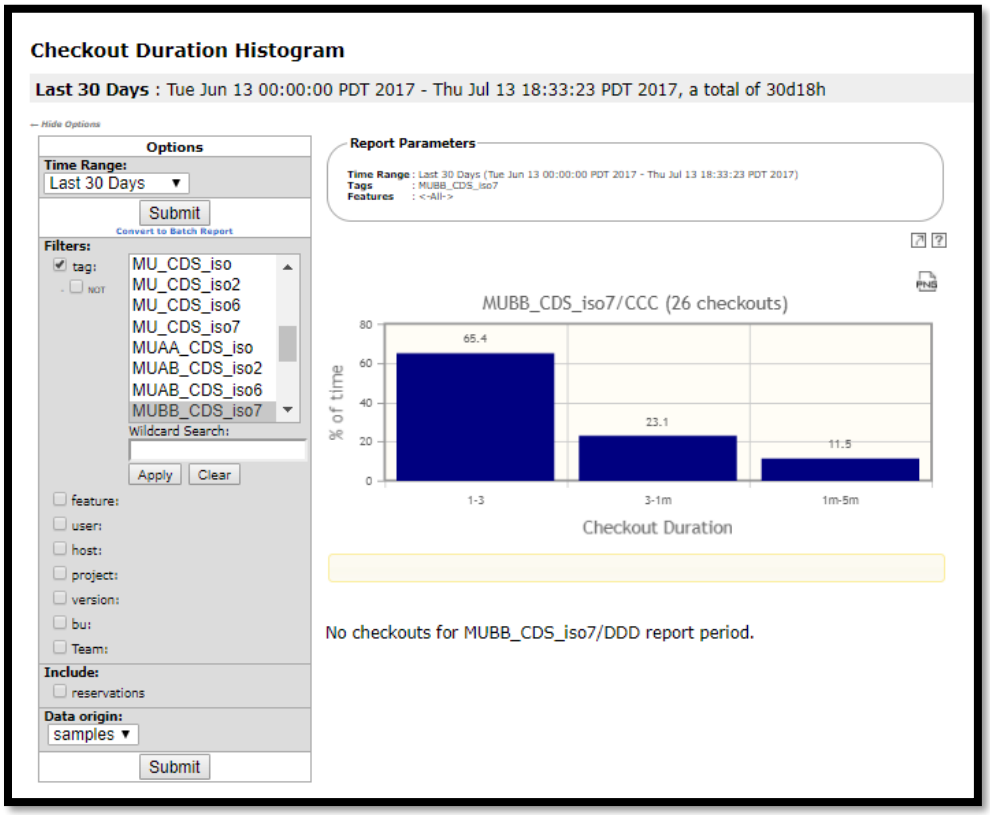


Figure 48: Duration Histogram

4.3.1.10 USAGE COMPARISON PLOT

Key Benefit-: This graph simplifies the complex reports generated by checkout statistics page.

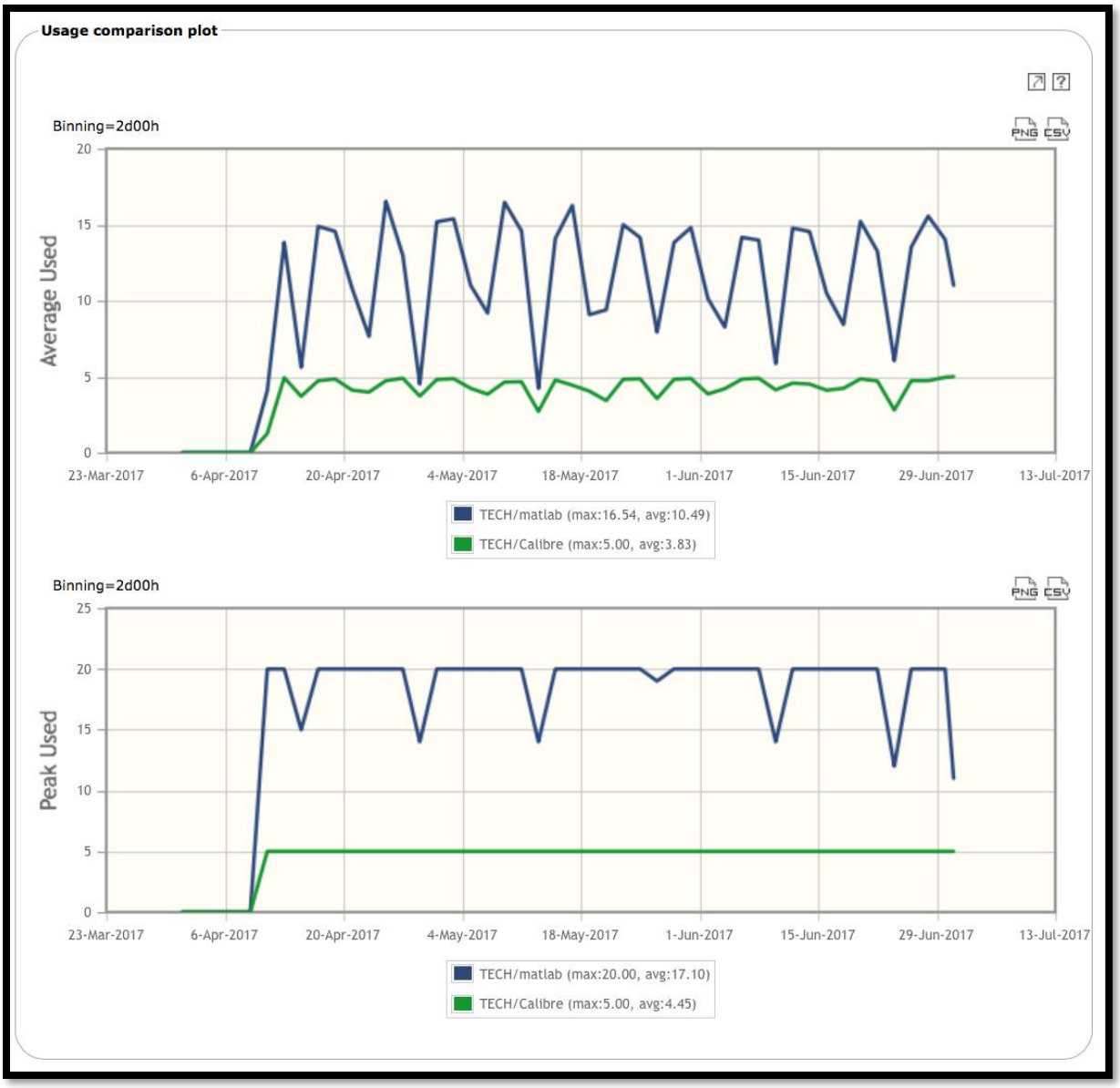


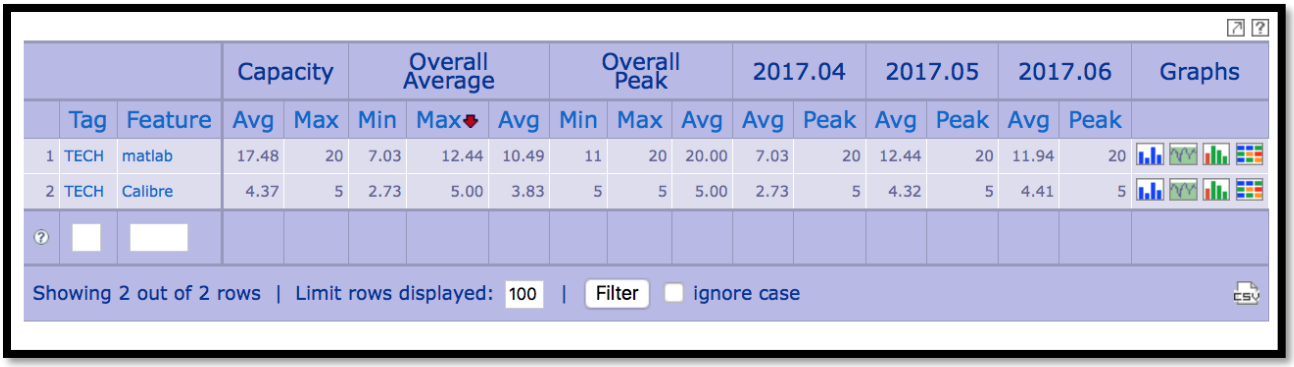
Figure 49: Usage Comparison Plot

This graph accompanies the checkout statistics page, which has complex report-by and filter options. This plot compares the utilization average over time, broken down by the selected option. You can choose different teams, departments, tags, users or groups. It shows which is used the most and which is used the least, and this gives you an idea of how to distribute resources and when to distribute them.

This plot specifically shows the overall usage of the two features – matlab and Calibre – matlab gets more use than Calibre, during the second quarter of the year.

4.3.1.11 USAGE TRENDS

Key Benefit: This table enables you to track feature usage and look at min, max and average times.



			Capacity		Overall Average			Overall Peak			2017.04		2017.05		2017.06		Graphs
	Tag	Feature	Avg	Max	Min	Max	Avg	Min	Max	Avg	Avg	Peak	Avg	Peak	Avg	Peak	
1	TECH	matlab	17.48	20	7.03	12.44	10.49	11	20	20.00	7.03	20	12.44	20	11.94	20	
2	TECH	Calibre	4.37	5	2.73	5.00	3.83	5	5	5.00	2.73	5	4.32	5	4.41	5	

Showing 2 out of 2 rows | Limit rows displayed: 100 | Filter ignore case

Figure 50: Usage Trends

This report displays one or more features over a specified time frame, while breaking the time frame into smaller segments, each with their own average and peak usage statistics.

In this example, the table shows monthly usage, but it can also be set to hourly, weekly, monthly, semi-monthly and quarterly time frames. The advantage of this table is that you can see specifics on usage. In this case, the average and capacity in alignment, so no changes are necessary.

The Usage Trends Report includes the following columns:

- **Tag:** The tag representing the license server.
- **Feature**: The license feature name.
- **Capacity Avg**: The average capacity.
- **Capacity Max**: The maximum capacity.
- **Overall Average Min**: The overall minimum average feature usage.
- **Overall Average Max**: The overall maximum average feature usage.
- **Overall Average Avg**: The overall average feature usage.
- **Overall Peak Min**: The peak minimum average feature usage.
- **Overall Peak Max**: The peak maximum average feature usage.
- **Overall Peak Avg**: The peak overall average feature usage.

4.3.2 HISTORY TAB – DENIAL REPORTS

LicenseMonitor tracks denials, as reported by the license manager. A denial is essentially a license request, which is denied.

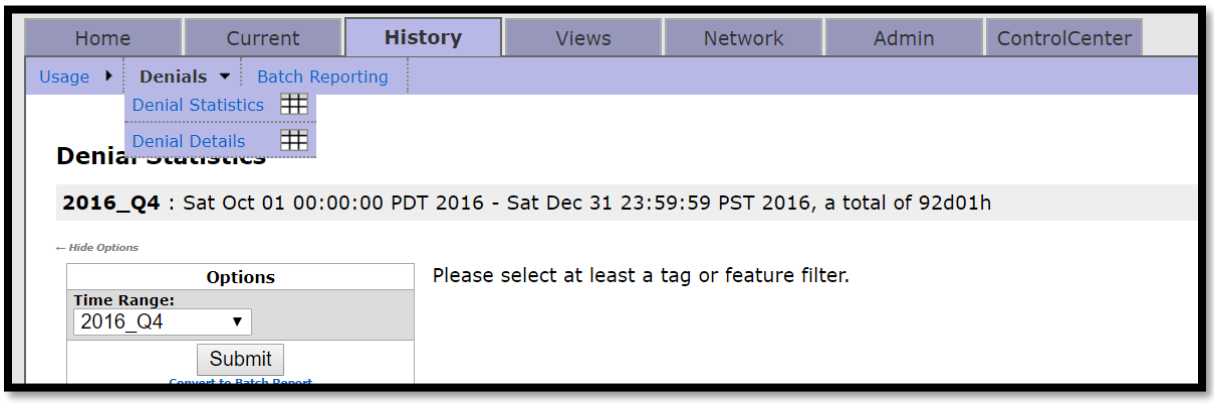


Figure 51: Denial Reports

4.3.2.1 DENIAL STATISTICS

Key Benefit: This provides a snapshot of denials. If it shows a high number of denials you may need to add more licenses; if there are no denials you may have too many.

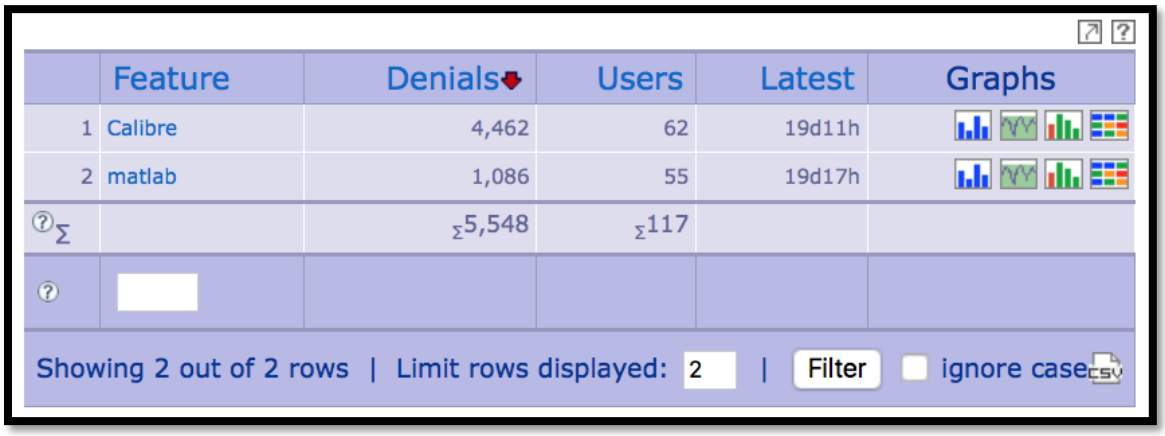


Figure 52: Denial Statistics

The Denial Statistics page is identical to the Checkout Statistics page with the exception that it shows statistical information about denial events. The same filters and report by options are available in this page to help find the information desired, with the exception of project and version support. Project support is not available because the debug log contains historical data of its own; currently there is no historical mapping for projects in LicenseMonitor. Version support is not available because the debug log does not contain version information for denial events. The Denial Statistics report shows the number of denials detected and the number of unique users that experienced denials, the timing of the

latest denial, and provides links to the plot and heatmap pages for visualization of the report. The Denial Statistics Report includes the following columns:

- **Tag:** The tag representing the license server.
- **Feature**: The license feature name.
- **Denials**: The number of denials
- **Users**: The number of users
- **Latest**: The last recorded time of a denial.
- **Graphs**: The links to the detailed plot page, the statistical plot page, the efficiency histogram page, and the activity heatmap report.

4.3.2.2 DENIAL DETAILS REPORT

Key Benefit: This table shows the reason for denials, which enables you gain insight about your license management utilization.

Reasons are taken exactly as they are found in from the data source. If no reason is provided, the reason will be unknown. The reason can be used to filter the denial reports to determine the root cause of denials. For example, a denial that is caused by a lack of capacity will most likely hold a different weight than a denial that is caused by a self-imposed limit that is defined in the license manager options file.

In this example, the reason was “timeout from vendor queuing” that means the request took too long. You will need to evaluate that reason based on your unique license needs.

	Tag	Feature	User	LDAP	Email	Host	Hosts	Site	Bananas	Department	Engineering	Tokens	Time	Age	Reason	Graphs
1	TECH	Calibre	Emma			mserv_44	none	none	none	Thermal	none	1	04/12/2017 13:10:40	98d22h	timeout from vendor queuing	
2	TECH	Calibre	Natalie			cbatch001	none	none	none	Thermal	none	1	04/12/2017 13:19:28	98d22h	timeout from vendor queuing	
3	TECH	Calibre	Isabella			quattro	none	none	none	Modelling	none	1	04/12/2017 13:22:52	98d22h	timeout from vendor queuing	
4	TECH	Calibre	Emma			mserv_13	none	none	none	Thermal	none	1	04/12/2017 13:26:52	98d22h	timeout from vendor queuing	
5	TECH	Calibre	Hailey			mserv_44	none	none	none	Thermal	none	1	04/12/2017 13:39:40	98d21h	timeout from vendor queuing	
6	TECH	Calibre	Victoria			bserv_03	none	none	none	Modelling	none	1	04/12/2017 13:52:12	98d21h	timeout from vendor queuing	
7	TECH	Calibre	Emma			mserv_54	none	none	none	Thermal	none	1	04/12/2017 13:57:22	98d21h	timeout from vendor queuing	
8	TECH	Calibre	Elijah			cbatch002	none	none	none	Modelling	none	1	04/12/2017 13:58:59	98d21h	timeout from vendor queuing	
9	TECH	Calibre	Samuel			bserv_01	none	none	none	Thermal	none	1	04/12/2017 14:02:40	98d21h	timeout from vendor queuing	
10	TECH	Calibre	Andrew			cbatch002	none	none	none	Design	none	1	04/12/2017 14:07:33	98d21h	timeout from vendor queuing	
11	TECH	Calibre	Lucas			mserv_13	none	none	none	Aero	none	1	04/12/2017 14:09:15	98d21h	timeout from vendor queuing	
12	TECH	Calibre	Lillian			bserv_02	none	none	none	Power	none	1	04/12/2017 14:09:35	98d21h	timeout from vendor queuing	
13	TECH	Calibre	Lucas			cbatch002	none	none	none	Aero	none	1	04/12/2017 14:12:24	98d21h	timeout from vendor queuing	
14	TECH	Calibre	Hailey			mserv_54	none	none	none	Thermal	none	1	04/12/2017 14:15:47	98d21h	timeout from vendor queuing	

Figure 53: Denial Details Report

The Denial Details Report shows the actual denials that are the basis of the statistics shown in the statistics view. This report shows all of the information that is normally found in a debug log denial record. The denial details report also displays columns for custom group types that have been configured. The group that is shown is the group of which the user was a member at the time the denial occurred. It can be used to narrow down the results using the same filtering used in the statistics view.

4.3.3 HISTORY TAB – BATCH REPORTING (ADMIN ONLY)

From the Batch Reporting option, you can create a batch report by either specifying a custom report or by specifying the types of tables, charts, and plots you wish enabled.

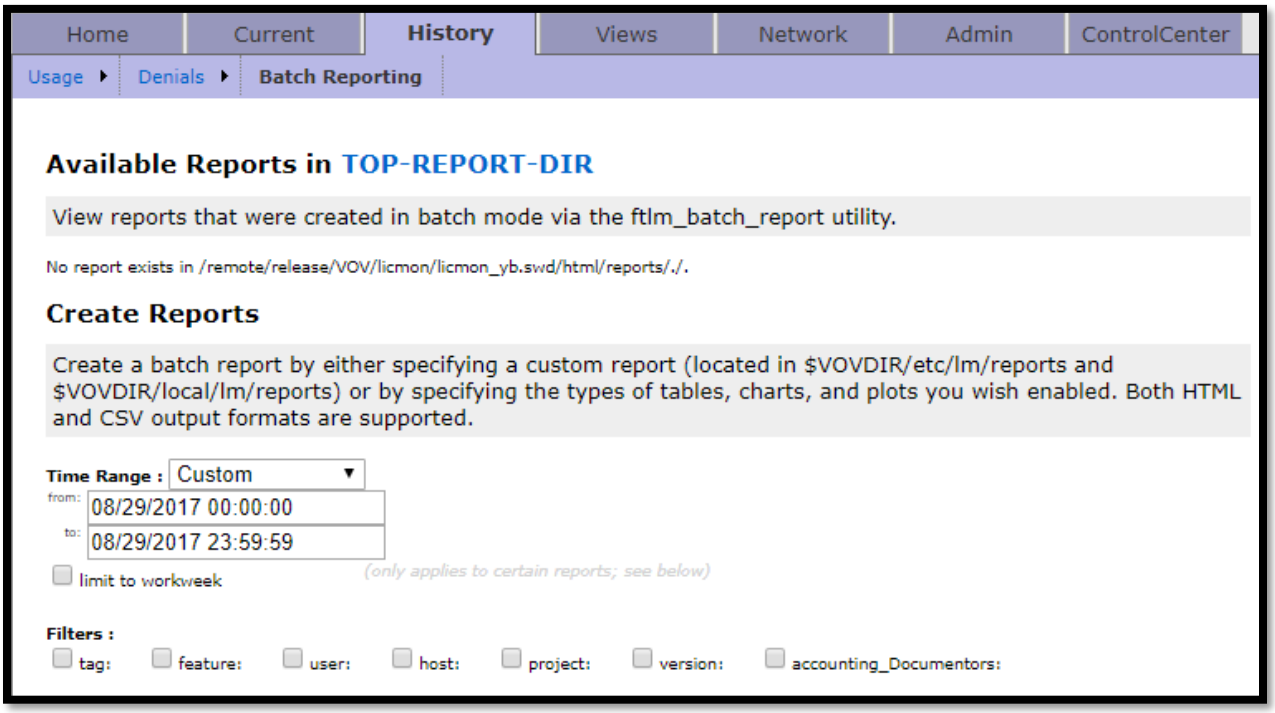


Figure 54: Batch Reporting

4.4 VIEWS TAB

Key Benefit: This page provides a quick view of your licenses and aspects of those licenses, which you are most interested in monitoring.

There are two views on this page, My View and All Views.

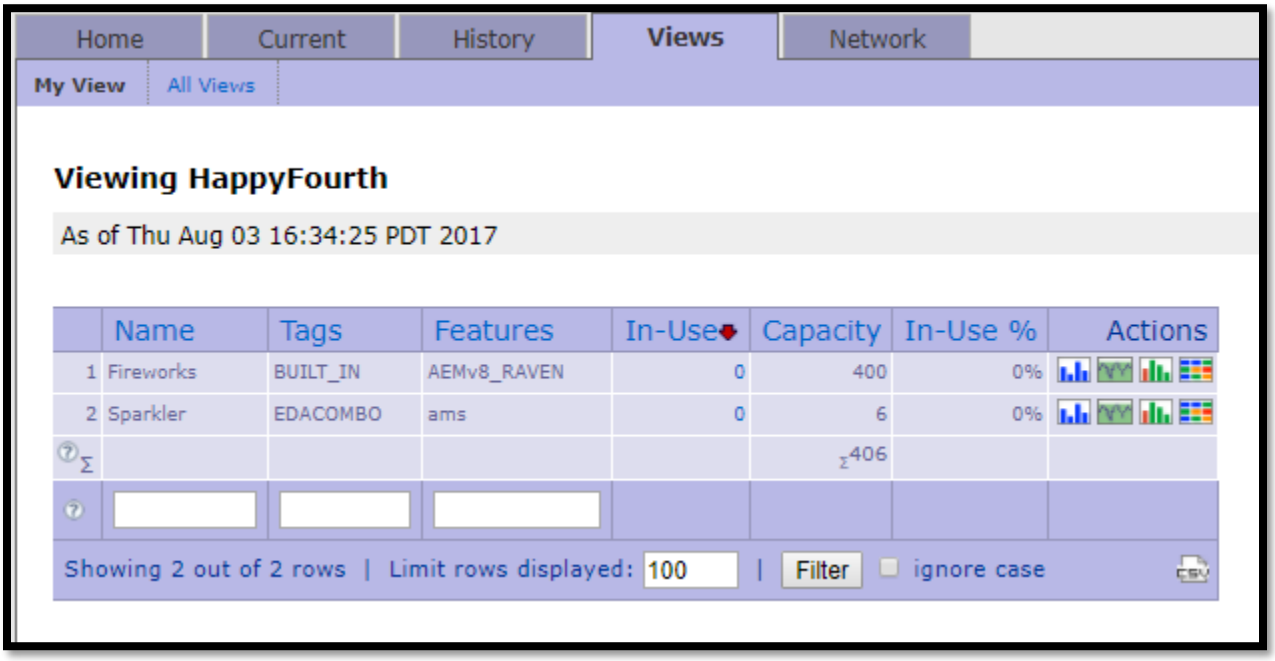


Figure 55: Views Page

4.4.1 VIEWS TAB – MY VIEW

Key Benefit: This View enables you to quickly assess conditions of features and licenses, which you are constantly reviewing.

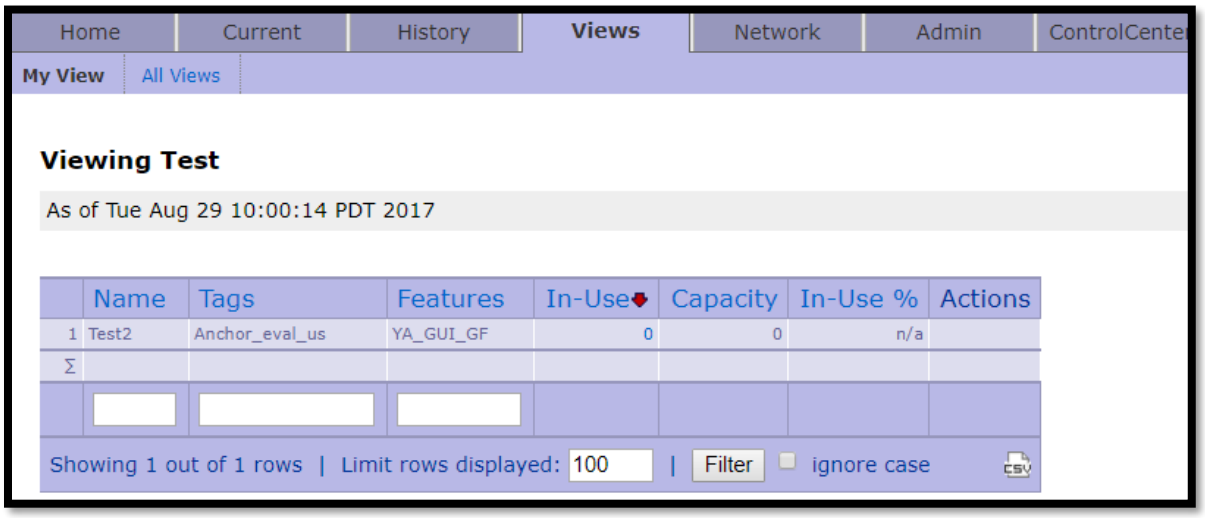


Figure 56: My View

The My View option allows you to create tables and reports that shows the items you're interested in viewing. You can create several views and set one view as the default view, which appears on the My View page, as well as the My View section of the home page. You cannot add or remove columns.

The following columns are shown on **My View** table:

- **Name**: The name of the configured view.
- **Tags**: The name of the tag name, such as BUILT_IN or a tag pattern (or a tag pattern match).
- **Features**: The name of license feature being monitored.
- **In-Use**: The number of license features in use.
- **Capacity**: The number of licenses you have the capacity to use.
- **In-Use %:** The percent of time the license feature is in use.
- **Actions**: The four graphs, which show more detail. This includes the daily plot, the detailed plot, the efficiency histogram, and the heatmap.

4.4.2 VIEWS TAB – ALL VIEWS

Key Benefit: This shows all configured views on one page and enables you set the default views and share your views with others, working from this list.

The All Views page shows all existing views. Views can be edited and deleted from this page.

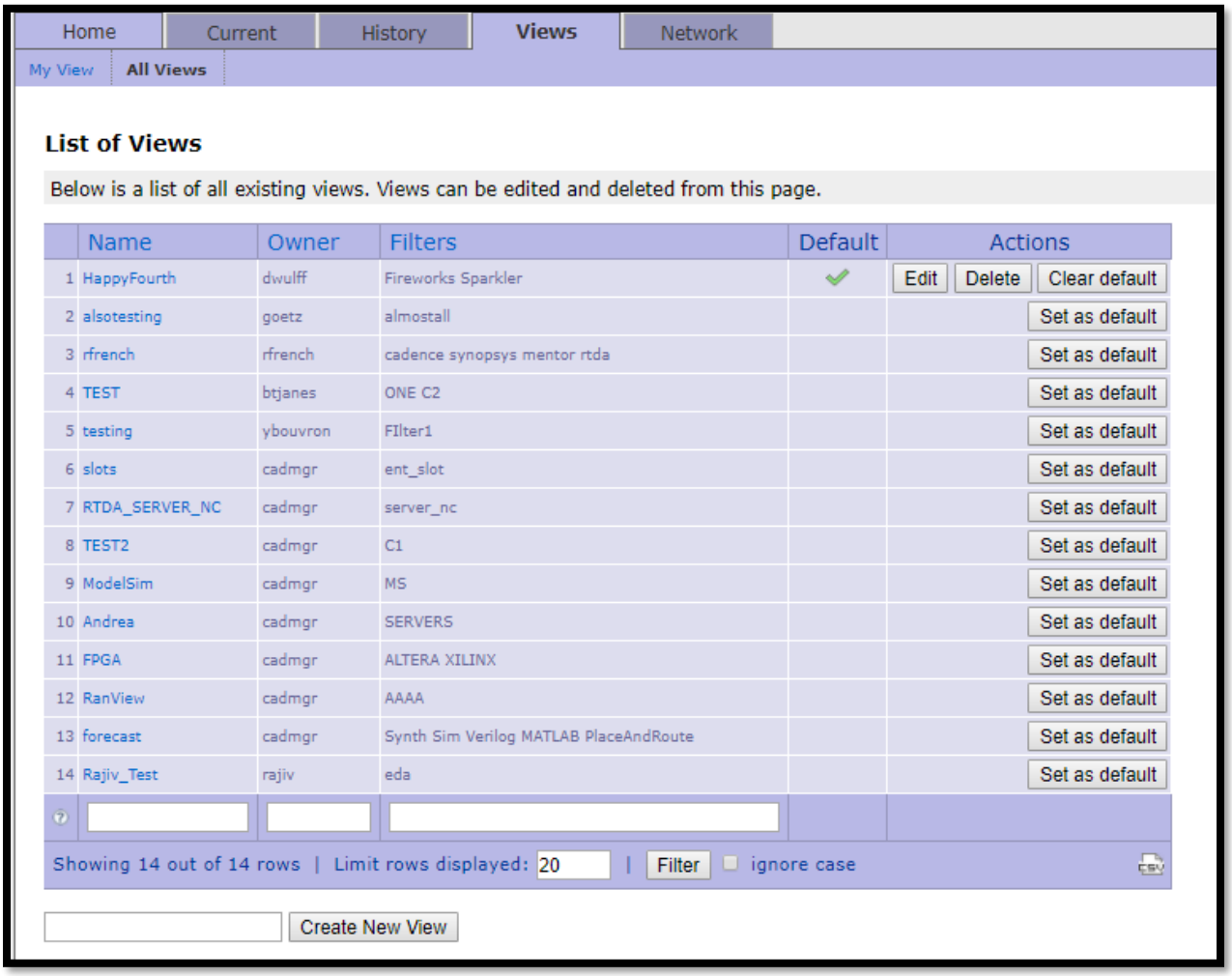


Figure 57: All Views

The following columns are shown on the **List of Views** table:

- **Name**: The name of the configured view.
- **Owner**: The user who created the view.
- **Filters**: The name of the filter/
- **Default**: The selected default view.
- **Actions**: The options available to the user: **Edit**, **Delete**, **Clear default** and **Set as default**.

4.5 NETWORK TAB

The **Network** page shows information on hosts and file systems on which agents are running. Agents are programs configured to monitor remote machines.

There are four tabs available from **Network** page.

- **Hosts**: This tab shows a list of hosts that have connected to the LM server. If monitoring agents are running on these hosts, data will be populated for them.
- **File Systems**: This tab shows a list of file systems that are reported for all machines which have monitor agents running.
- **Processes**: This tab shows a summary of processes that are reported for all machines which have monitor agents running.
- **Machine Load**: This tab has the calendar control to generate machine load plots over time for machines with monitoring agents.

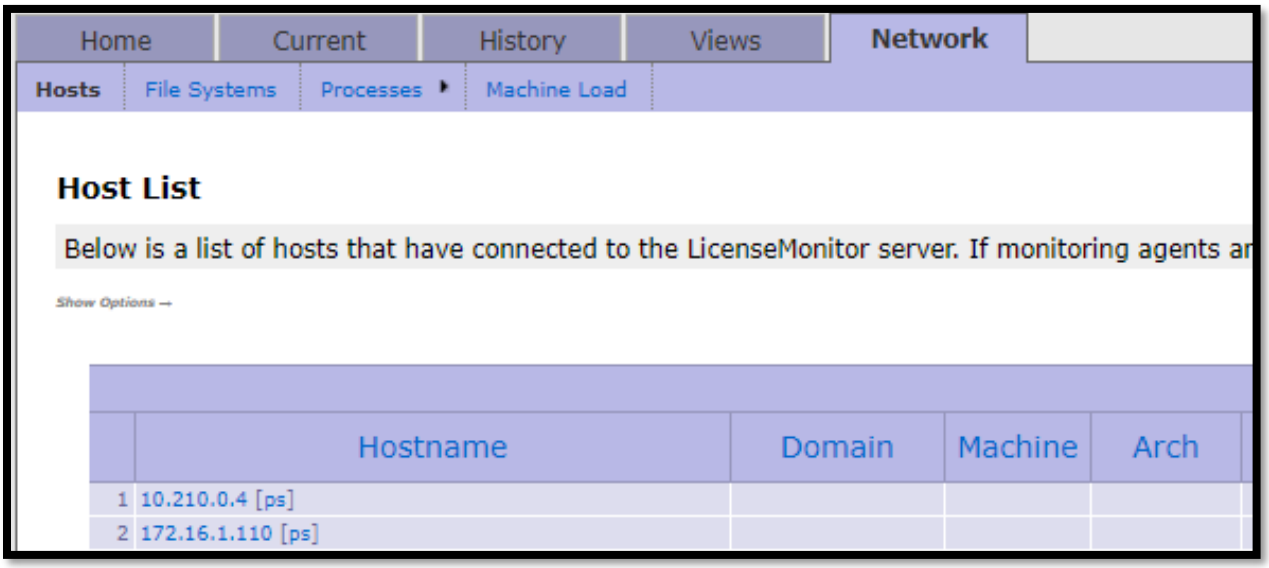


Figure 58: Network Page

4.5.1 NETWORK TAB – HOST

The **Host** option shows information about each host on which an agent is running.

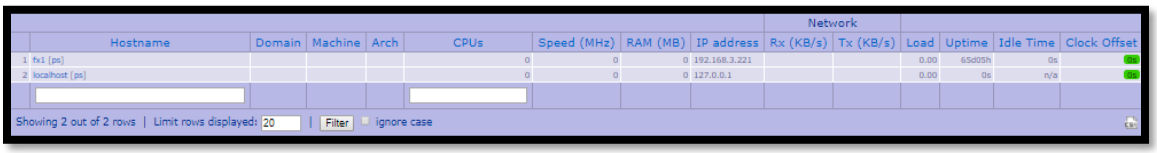


Figure 59: Network Tab - Host

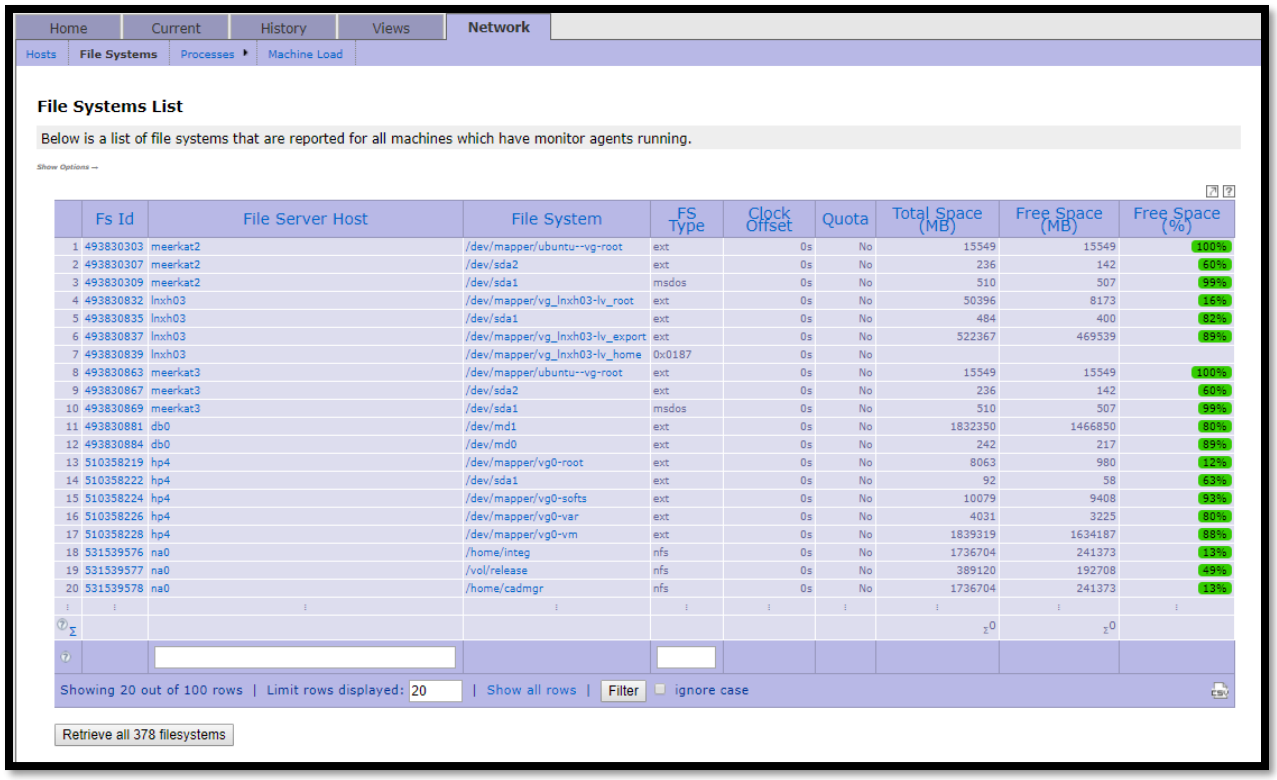
The following columns are shown on the **Host List** table:

- **Hostname**: The host file name.
- **Domain**: The domain name.
- **Machine**: The type of the machine.
- **Arch**: This is the architecture, the machine's platform.
- **CPUs**: The number of CPUs running on your machine
- **Speed (MHz)**: Processing speed.
- **RAM (MB)**: Read access memory.
- **IP address**: The IP Address of your machine
- **Rx (KB/s)**: ReceivingTX and RX are abbreviations for Transmit and Receive, respectively. Note that these metrics are referenced to the server being monitored; Receive TO this server.
- **Tx (KB/s)**: Transmit FROM this server
- **Load**: Machine Load
- **Uptime**: The time that your machine has been up and running
- **Idle Time**: The time the machine is running operations and applications.
- **Clock Offset**: This shows if your machine and clock are in sync.

4.5.2 NETWORK TAB – FILE SYSTEMS

Key Benefit: This can be useful in identifying filesystems that are low on available disk space. This page color-codes filesystems, which provides easy to use file system identifiers that requires little disk space

The **File Systems** tab shows a list of file systems that are reported for all machines which have monitor agents running. Similar to the "Hosts" page, the "Filesystems" page shows information about the various filesystems that are present across all of the hosts that are being monitored.



	Fs Id	File Server Host	File System	FS Type	Clock Offset	Quota	Total Space (MB)	Free Space (MB)	Free Space (%)
1	493830303	meerkat2	/dev/mapper/ubuntu--vg-root	ext	0s	No	15549	15549	100%
2	493830307	meerkat2	/dev/sda2	ext	0s	No	236	142	60%
3	493830309	meerkat2	/dev/sda1	msdos	0s	No	510	507	99%
4	493830832	lnxh03	/dev/mapper/vg_lnxh03-lv_root	ext	0s	No	50396	8173	16%
5	493830835	lnxh03	/dev/sda1	ext	0s	No	484	400	82%
6	493830837	lnxh03	/dev/mapper/vg_lnxh03-lv_export	ext	0s	No	522367	469539	89%
7	493830839	lnxh03	/dev/mapper/vg_lnxh03-lv_home	0x0187	0s	No			
8	493830863	meerkat3	/dev/mapper/ubuntu--vg-root	ext	0s	No	15549	15549	100%
9	493830867	meerkat3	/dev/sda2	ext	0s	No	236	142	60%
10	493830869	meerkat3	/dev/sda1	msdos	0s	No	510	507	99%
11	493830881	db0	/dev/md1	ext	0s	No	1832350	1466850	80%
12	493830884	db0	/dev/md0	ext	0s	No	242	217	89%
13	510358219	hp4	/dev/mapper/vg0-root	ext	0s	No	8063	980	12%
14	510358222	hp4	/dev/sda1	ext	0s	No	92	58	63%
15	510358224	hp4	/dev/mapper/vg0-softs	ext	0s	No	10079	9408	93%
16	510358226	hp4	/dev/mapper/vg0-var	ext	0s	No	4031	3225	80%
17	510358228	hp4	/dev/mapper/vg0-vm	ext	0s	No	1839319	1634187	88%
18	531539576	na0	/home/integ	nfs	0s	No	1736704	241373	13%
19	531539577	na0	/vol/release	nfs	0s	No	389120	192708	49%
20	531539578	na0	/home/cadmgr	nfs	0s	No	1736704	241373	13%

The following columns are available on this table:

- **Fs Id**: The file server ID.
- **File Server Host**: File server host name.
- **File System**: The type of file system.
- **FS Type**: File server type.
- **Clock Offset**: The difference between your machine's clock time and the file server's clock time.
- **Quota**: The disk quota is a limit set by a system administrator that restricts certain aspects of file system usage on modern operating systems. The function of using disk quotas is to allocate limited disk space in a reasonable way. If it says, no, then no quotas are set on your machine
- **Total Space (MB)**: Total available space on the file system.
- **Free Space (MB)**: Total space available left for use.
- **Free Space (%)**: Percent of available space on the file system.

4.5.3 NETWORK TAB – PROCESSES

LicenseMonitor can be configured to monitor processes on remote machines, provided that an agent program is installed and running on the hosts to be monitored. Once this has been configured, processes can be viewed and managed on the remote hosts. The **Processes** tab shows a summary of processes that are reported for all machines which have monitor agents running.

The processes tab has two viewing options: Summary and Details.

4.5.3.1 SUMMARY

The Summary viewing option shows a summary of processes that are reported for all machines that have monitor agents running.

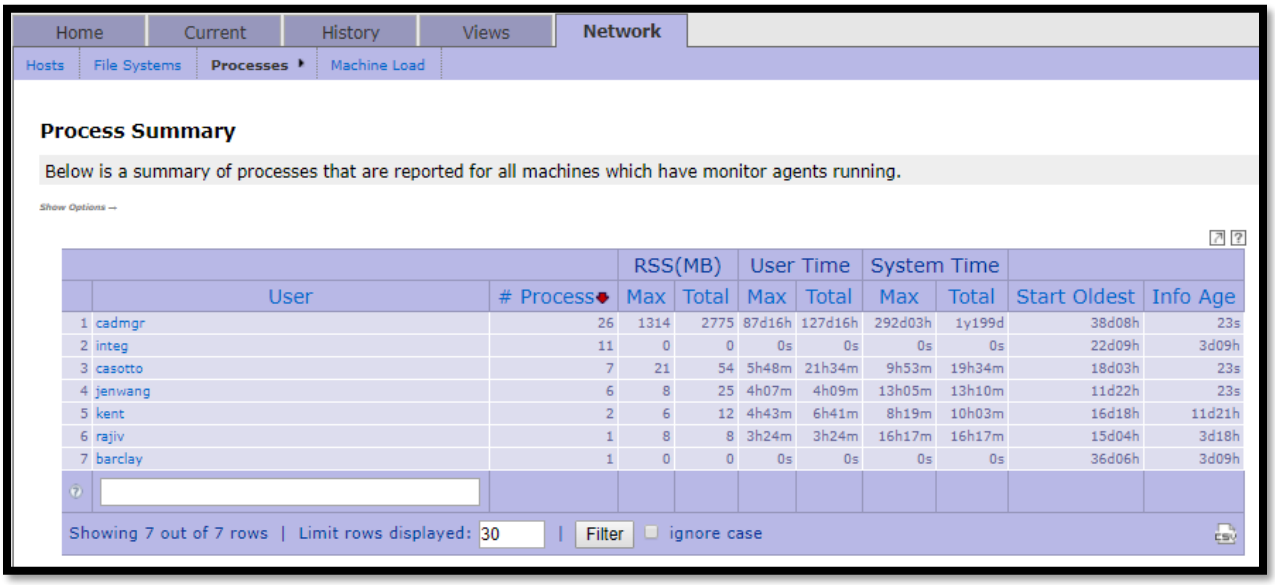


Figure 60: Process Summary

- **User**: The user currently logged in and using the machine.
- **# Process**: The number of processes running by the user.
- **RSS (MB) Max**: The maximum amount of non-swaped physical memory the process used in MB.
- **RSS (MB) Total**: The total amount of non-swaped physical memory the process used in MB.
- **User Time Max**: The maximum time spent by processes running as that user**.**
- **User Time Total**: The total time by processes running as that user.
- **System Time Max**: The maximum time spent by the OS on behalf of a user
- **System Time Total**: The total time spent by the OS on behalf of a user
- **Start Oldest**: How long ago the oldest process was started.
- **Info Age:** The age of the information viewed (last updated).

4.5.3.2 DETAILS

The Details viewing option shows a snapshot captured at approximately the same time on all monitored hosts. To refresh the data, use the 'Update' button at the bottom right of the page. In most cases, the update will be finished in less than 20 seconds, but if hosts are extremely busy, it may take longer. The jobs that gather the process information are automatically killed if they run for longer than 20 seconds. Clicking on a single process ID filters the process list down to the specific process chosen, and displays all of its children and its parent process, if applicable.

4.5.4 NETWORK TAB – MACHINE LOAD

The Machine Load option generates machine load plots over time for machines with monitoring agents.

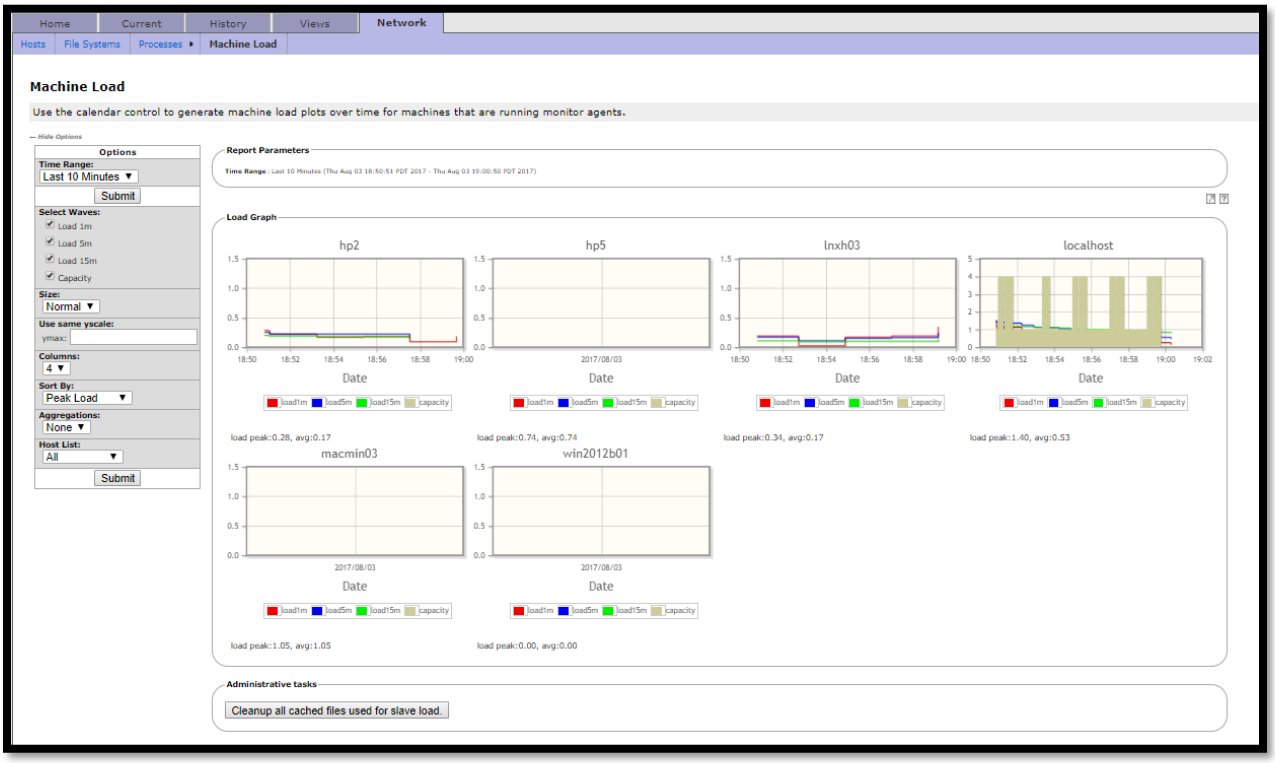


Figure 61: Machine Load

This detects the speed and load of machines.

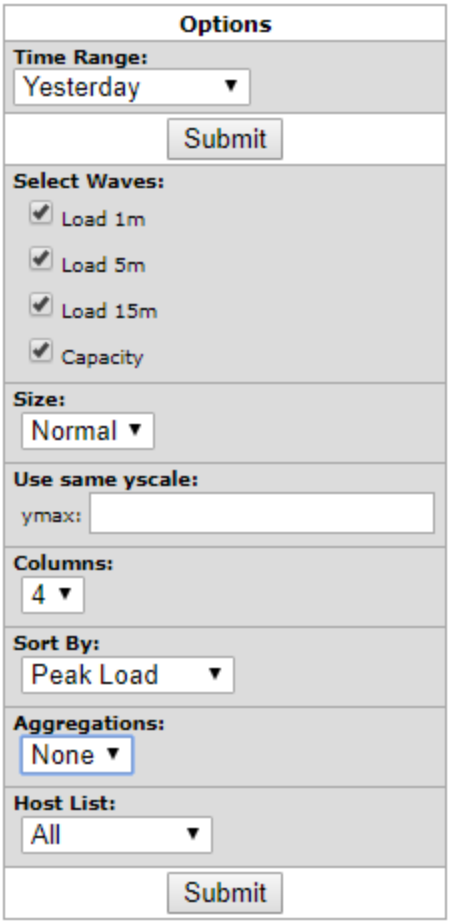


Figure 62: Machine Load, Plots

- **Time Range**: The machine selected time period.
- **Select Waves**: These are flow waves for 1, 5, 15 minutes or capacity for that machine load.
- **Size**: The size of the graph – the options are huge, large, normal and small.
- **Ymax**: The maximum value along the y access, which is the maximum machine load displayed.
- **Columns**: The number of columns to displayed.
- **Sort By**: You can sort by Host, Peak Load, Average Load, Capacity or Jobs.
- **Aggregations**: NA - This not currently a working option.
- **Host List**: The current host, the database host, or the aggregation grouped the data together (aggregated is not currently a working option).

4.6 ADMIN TAB (ADMIN ONLY)

The **Admin** tab has eleven options available for managing license monitors. This sections review each one of them. Below is a basic description of each option with a reference to a more detailed description:

- Monitors: This option enables you add an existing monitor or edit and delete and existing monitor.
- Notification: This option enables you to configure notifications for health checks and SMTP configurations and manage who receives notification emails.
- Agents: This option enables you to add, manage and run agents on remote machines.
- Groups: This option enables you to keep track of projects, departments, or other organizational units and to create custom groups.
- Tags: This option enables you to manage tags and tag data found in the server and in the database.
- Features: This option enables you to manage features and feature-related data found in the server and in the database.
- Links: This option enables you to add and create links that will appear on the home page.
- System: This option enables you to view system, database, security, configuration and workweek information.
- Daemons: This option enables you to view the status of, and control, the various daemons that LicenseMonitor requires for operation.
- Tasks: This option enables you to view a list of jobs that are scheduled to run periodically, along with their statistics.
- Licensing: This option enables you to view RTDA license status and make changes to the current license environment.

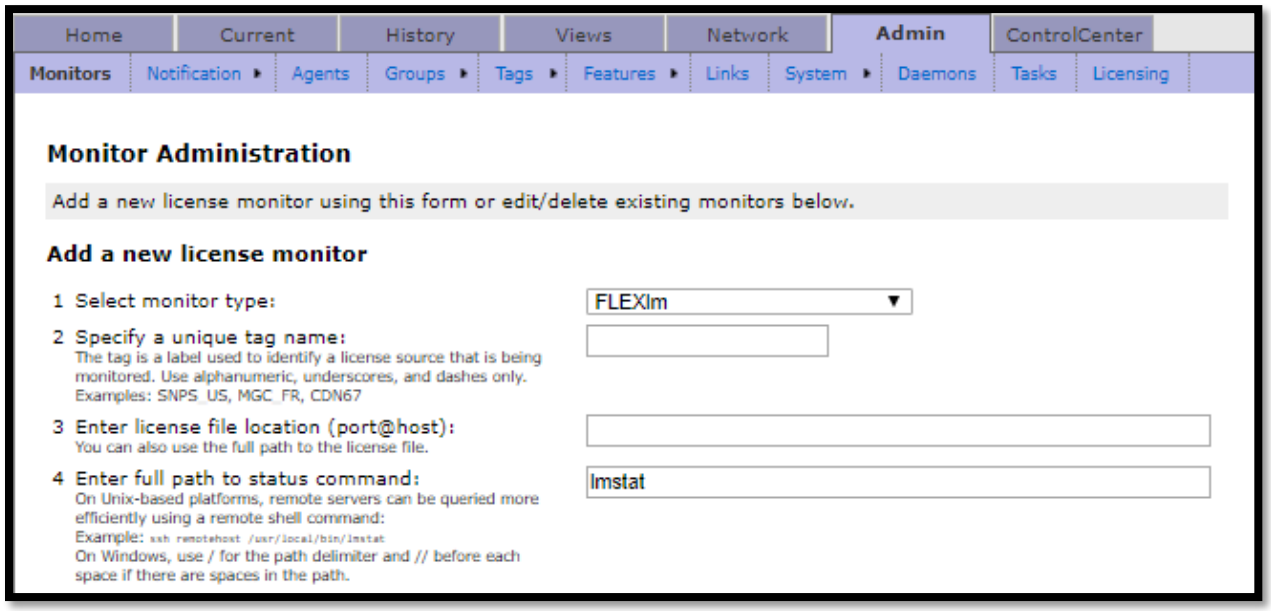
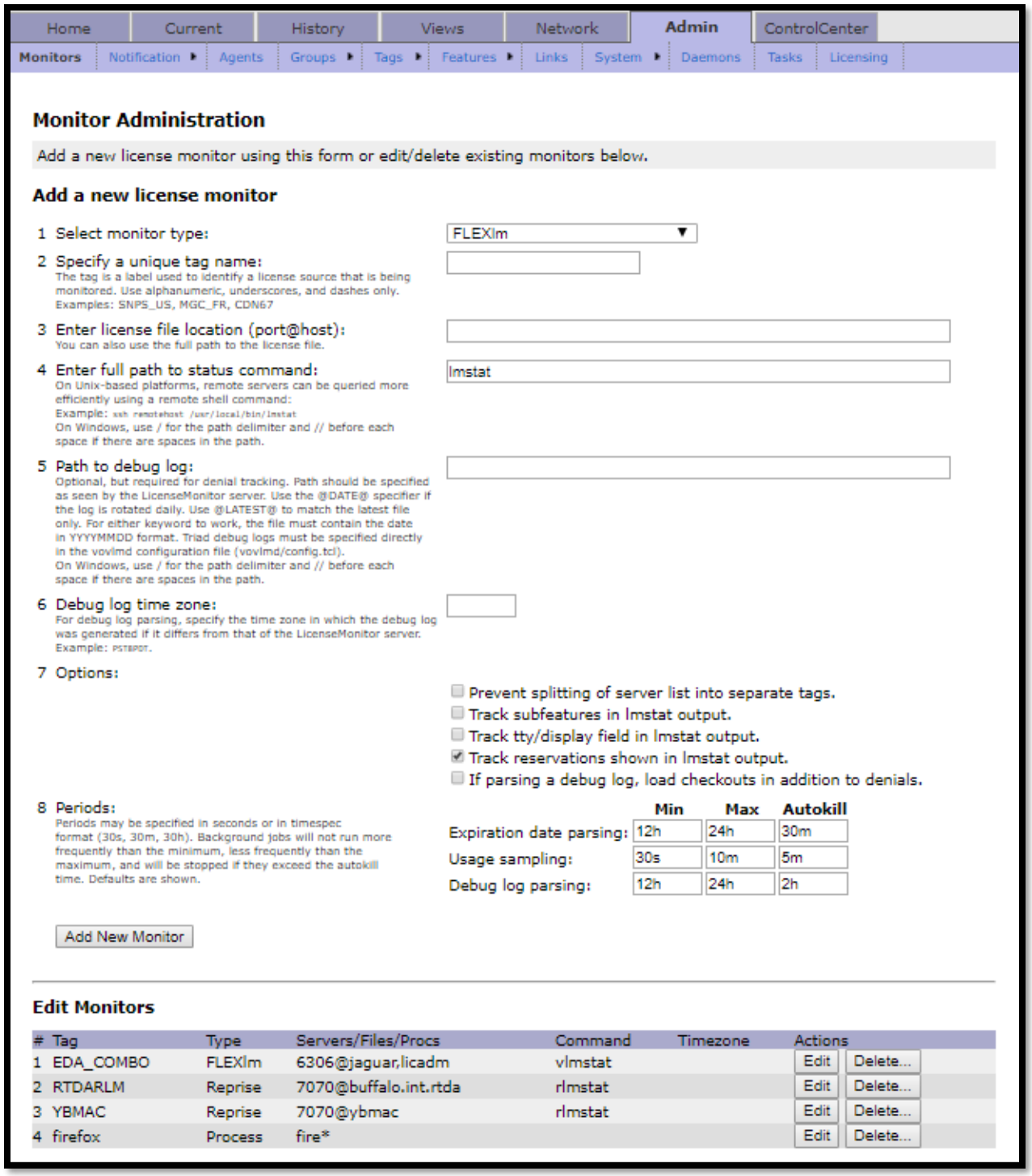


Figure 63: Admin Tab

4.6.1 ADMIN TAB – MONITORS

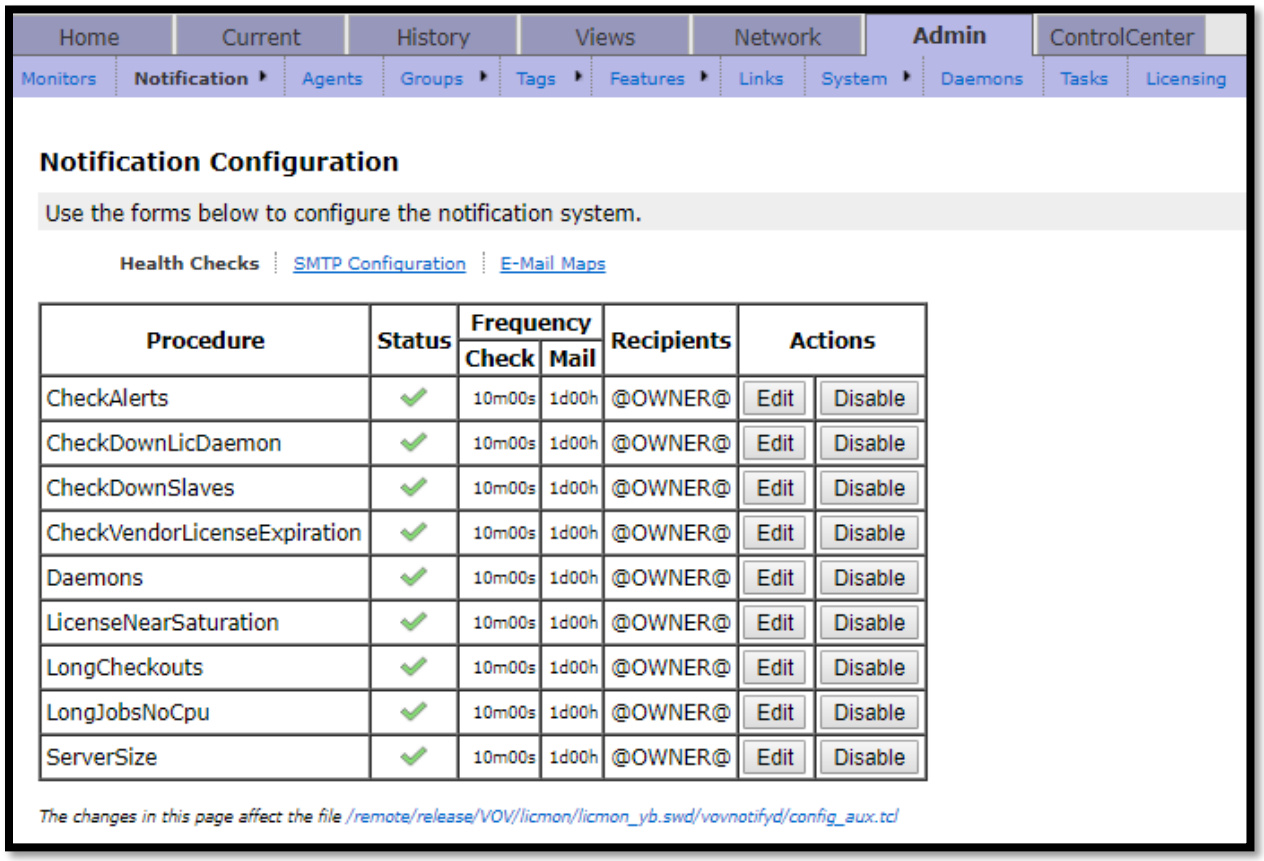
Use this form to add, edit or delete existing license monitors.



4.6.2 ADMIN TAB – NOTIFICATION

The notification option provides three pages:

- **Health Checks**: This shows a list of the various health checks that will be performed and which can trigger notification e-mails. The actions column allow for enabling/disabling, or editing these checks.
- **SMTP Configuration**: Configure the SMTP notification system.
- **Email Maps**: Use this form to define alternative email addresses, so that the email for a user will be sent to the configured corresponding email address.



4.6.3 ADMIN TAB – AGENTS

An agent is required on every machine that is to be monitored for process and network information, or for performing remote license server administration tasks. If the RTDA installation and remote connectivity (ssh, rsh, or vovssd) to the remote machine are both available, use the form below to add agents.

If the RTDA installation or remote connectivity is not available, you need to set up agents locally on the remote machine.

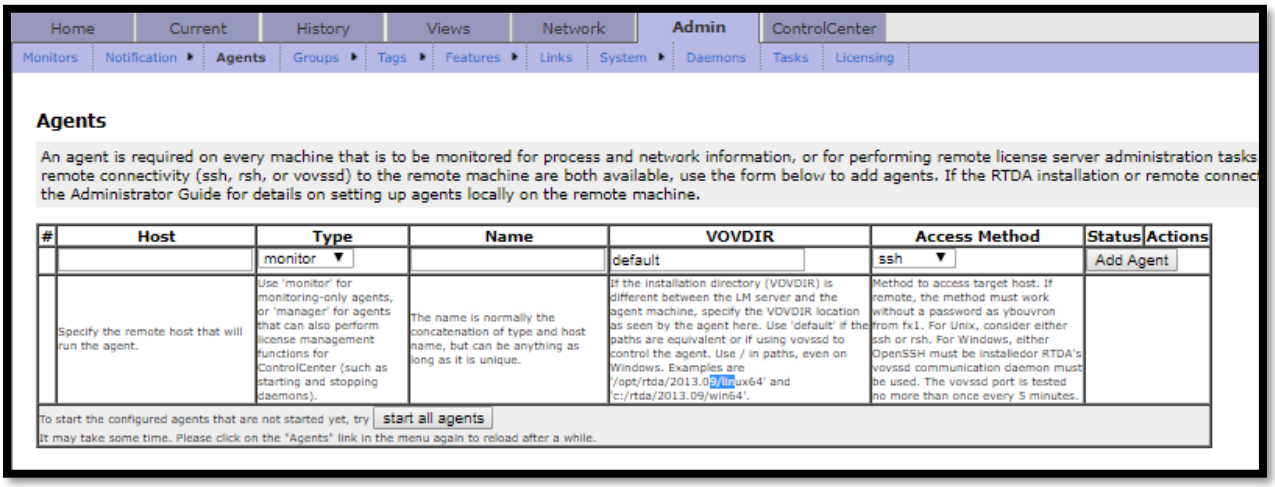


Figure 64: Agents Option

From this page, you can also start all agents and manage existing ones. To learn how to set up an agent via the web interface, go to Section 5.7.2 Add an Agent – Web GUI on page 105.

To set an agent up with the CLI, go to Section 5.7.3 Add an Agent – File-Based Configuration on page 106.

4.6.4 ADMIN TAB – GROUPS

The Groups option enables you to group users or hosts for reporting purposes, define accounts, and keep track of activity by department, location, and more.

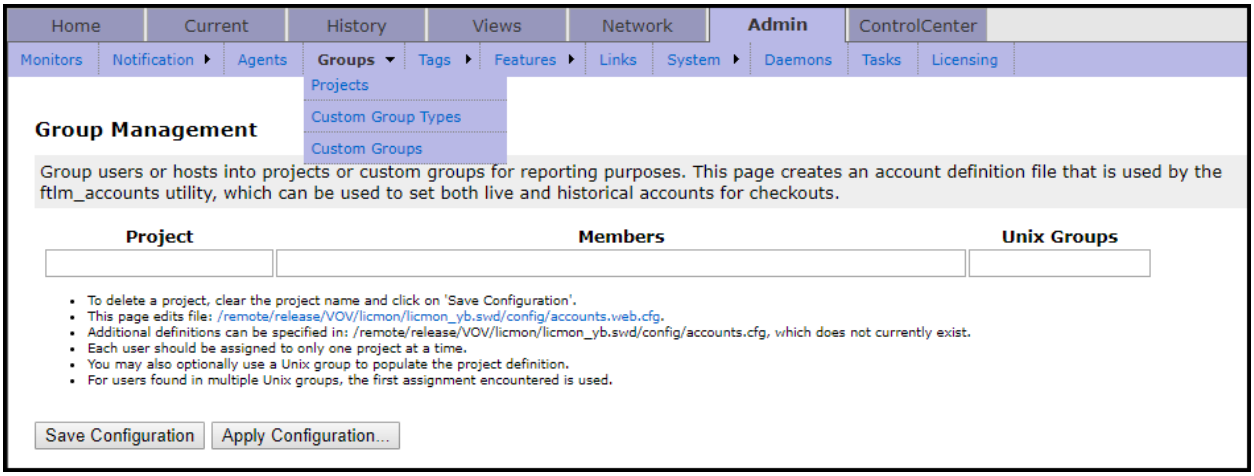


Figure 65: Groups – Projects

On the **Projects** page, you can name the project, add member and identify associated Unix groups.

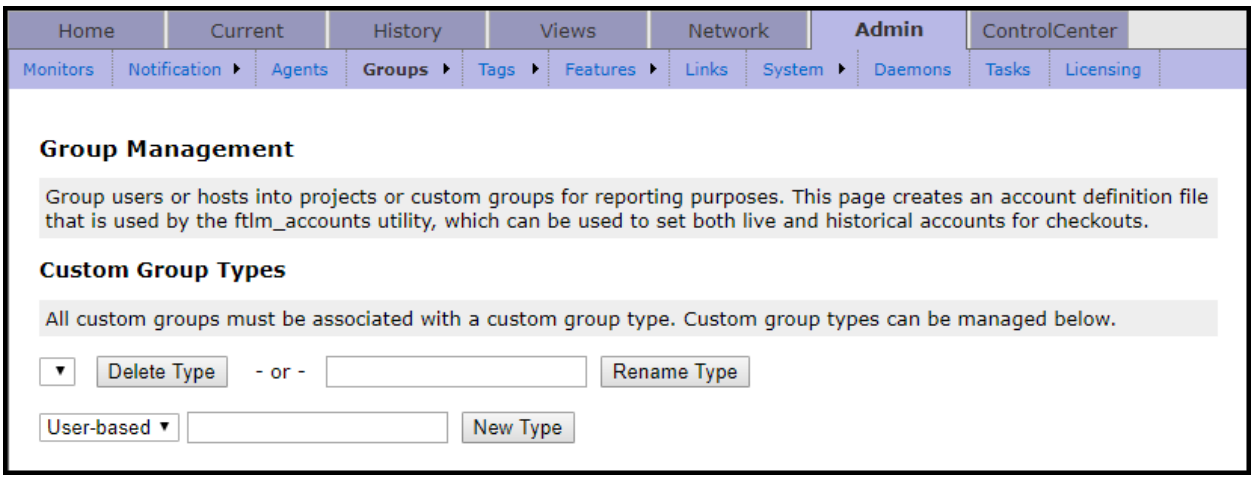


Figure 66: Groups – Custom Group Types

On the **Custom Group Types** page, you can define the type of group either user-based or host-based, and you can delete and rename types.

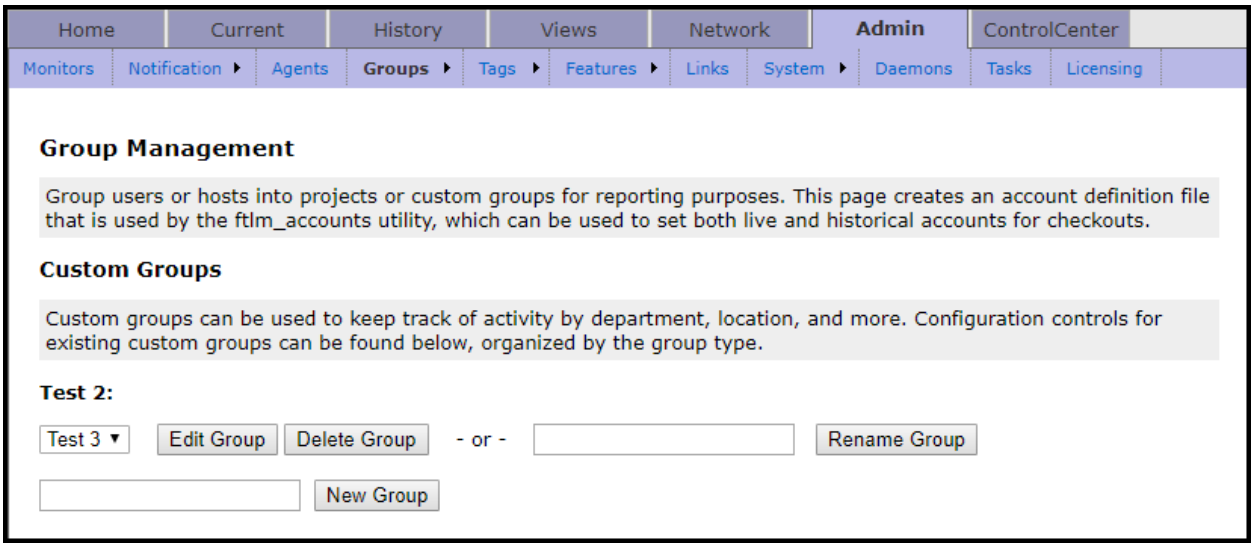


Figure 67: Group Management

On the **Group Management** page, you can edit, delete or rename groups.

4.6.5 ADMIN TAB – TAGS

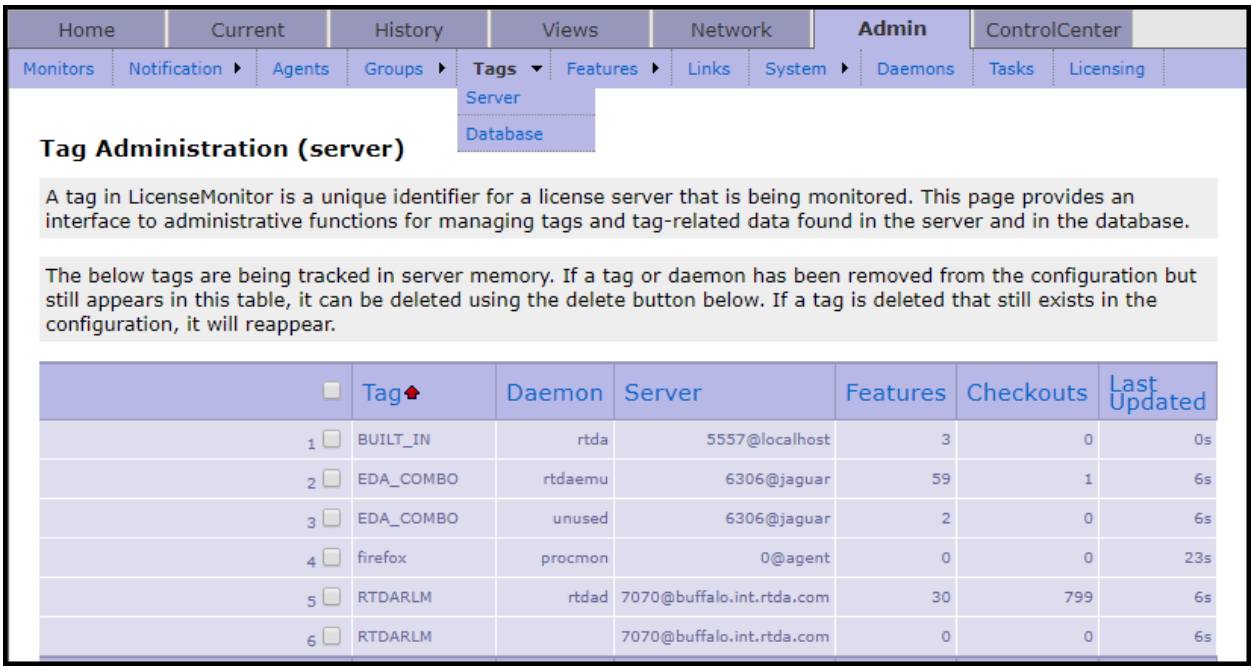


Figure 68: Tags – Server

On the **Tags – Server** page, you can view the Tags begin tracked in the Server memory. You can delete tags here as well as view active tags.

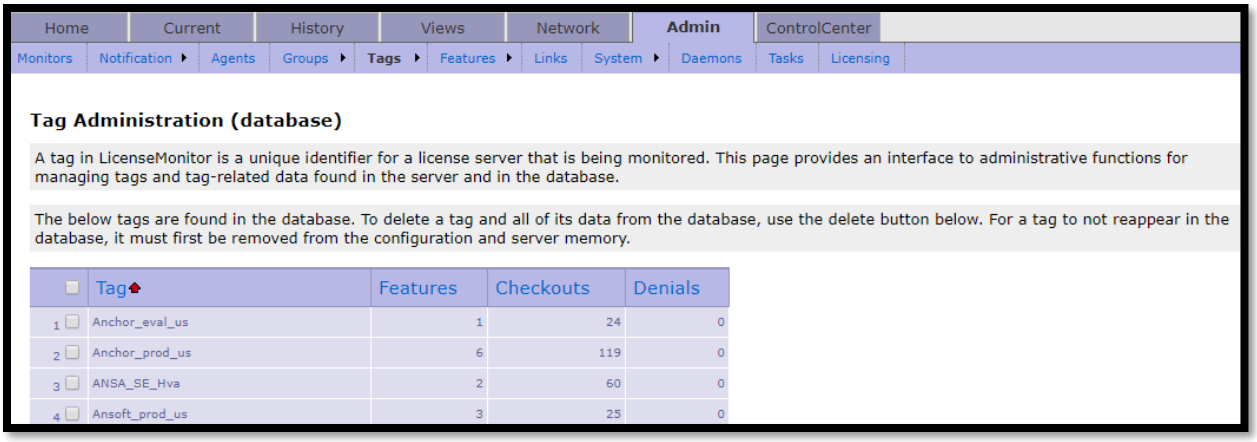


Figure 69: Tags Administration Database - Upper

The Tags Database page has an upper and lower half. The top half shows the tags in the database, and you can delete them, as needed. The lower half of the page enables you to rename a tag, associate with a specific host site and the tag modification history.

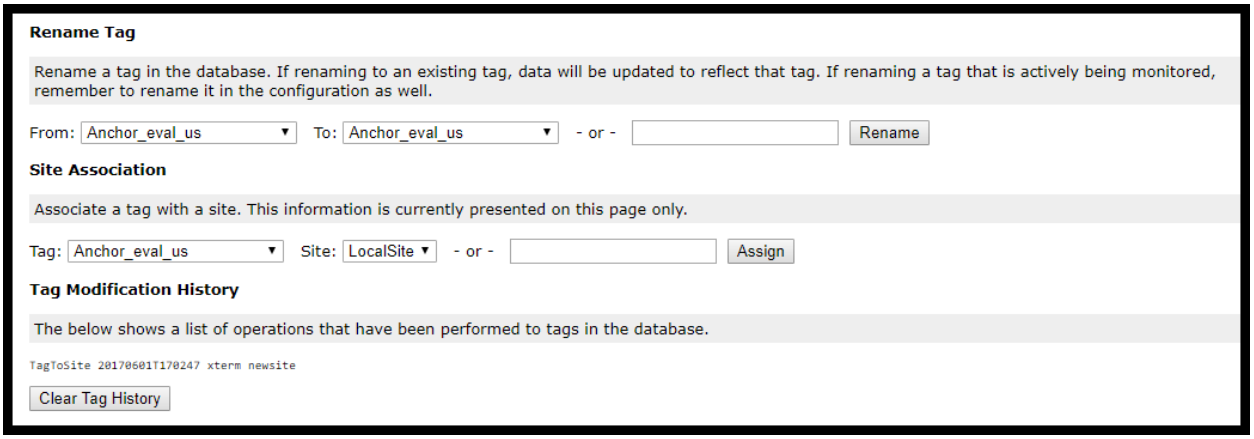


Figure 70: Tags Administration Database - Lower

4.6.6 ADMIN TAB – FEATURES

The tracked features are shown on this page. You can delete features being monitored and the view the status of existing features. There are two options: Server and Database features.

The Feature Administration Server page shows features that are checked out and their current status.

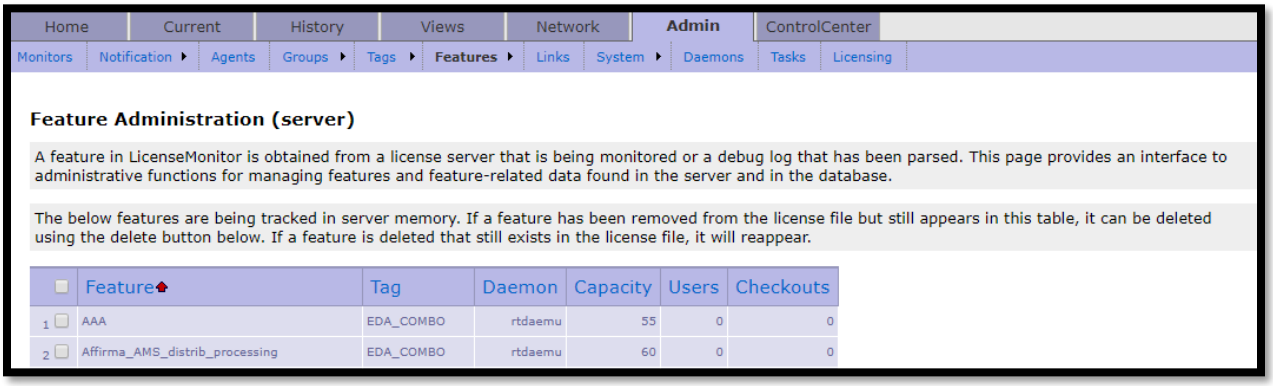


Figure 71: Features Administration Server Page

The Feature Administration Database page shows features that have been checked out and in and therefore, saved in the database. These features have a start and an end time.

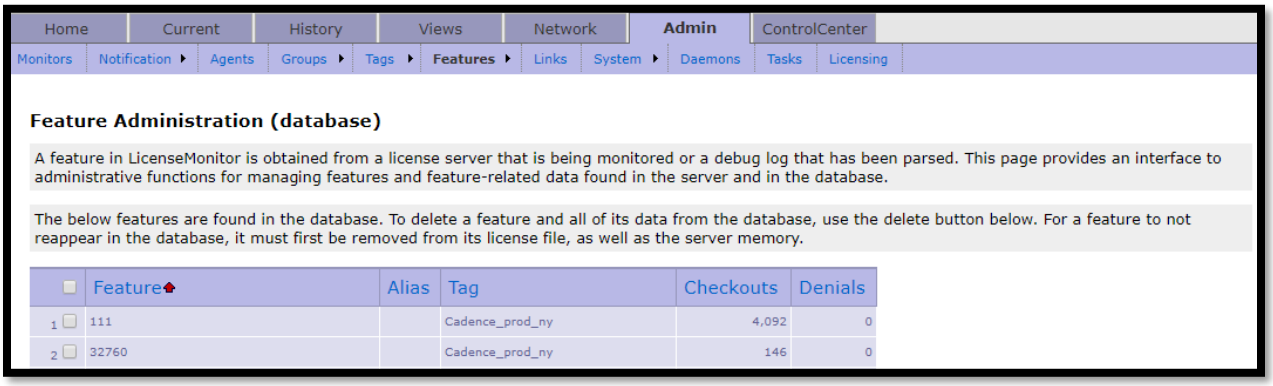


Figure 72: Feature Administration Database Page – Upper

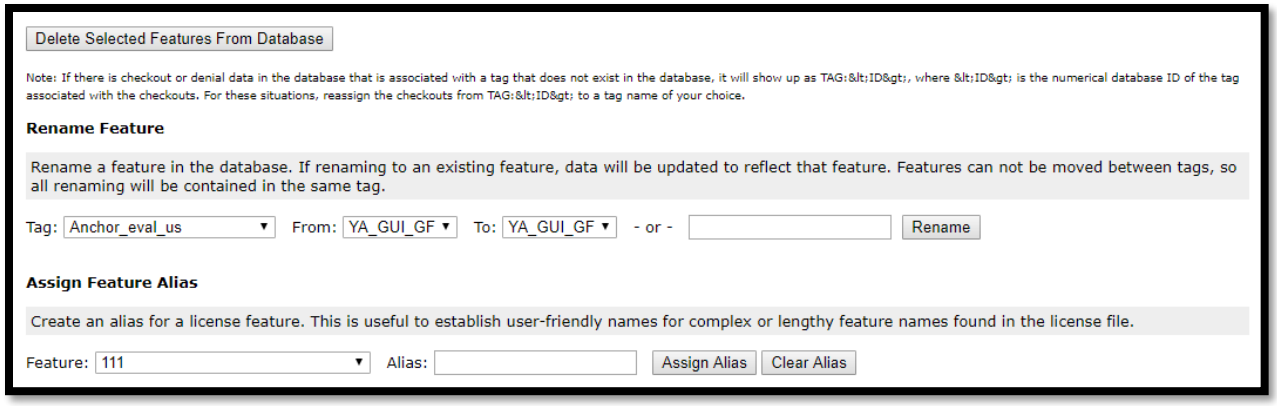


Figure 73: Feature Administration Database – Lower

The lower half of the features database page enables you to rename a tag and assign feature aliases.

4.6.7 ADMIN TAB – LINKS

With the **Links** option, you can create a link. Enter the link name and the URL and click the **Create Link** button. This will create a link, which will appear on your **Home** tab.

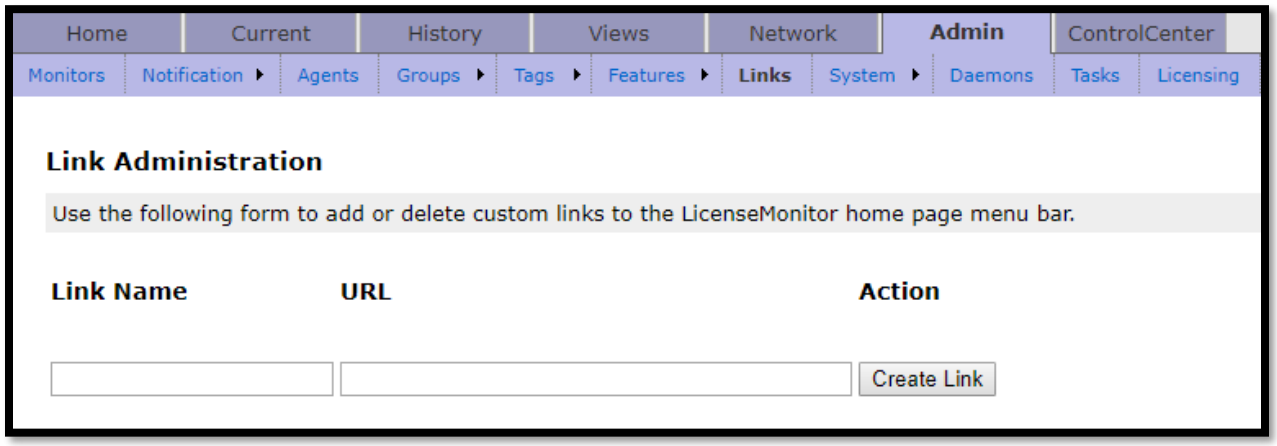


Figure 74: Link Administration

4.6.8 ADMIN TAB – SYSTEM

From the System option on the Admin tab, you can view the status of the LicenseMonitor system. You can select from the following five pages:

- **Server Information**: This shows the details about LicenseMonitor system and enables you to reset and rerun internal daemons.
- **Database Information**: This enables you to configure and control the database, check database status and review database statistics.
- **Security Information**: This shows a list of the tags and ISV daemons that are currently in server memory, along with their security status.
- **Configuration Information**: This shows scheduled maintenance tasks, which can be configured and existing configuration files, which can be edited.
- **Workweek Information**: This shows you the work week definition, which can be edited.

4.6.8.1 SERVER INFORMATION

You can reread configuration files and restart LicenseMonitor's internal daemons, with the reset button.

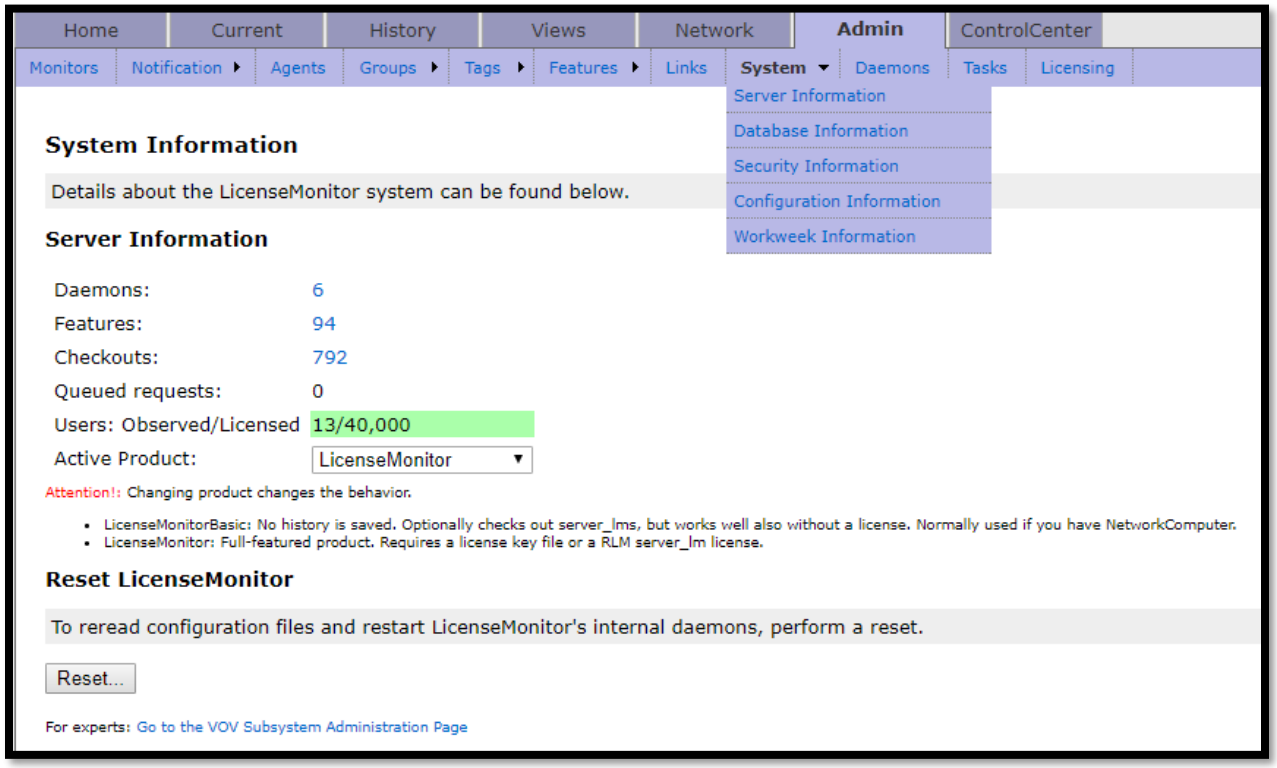
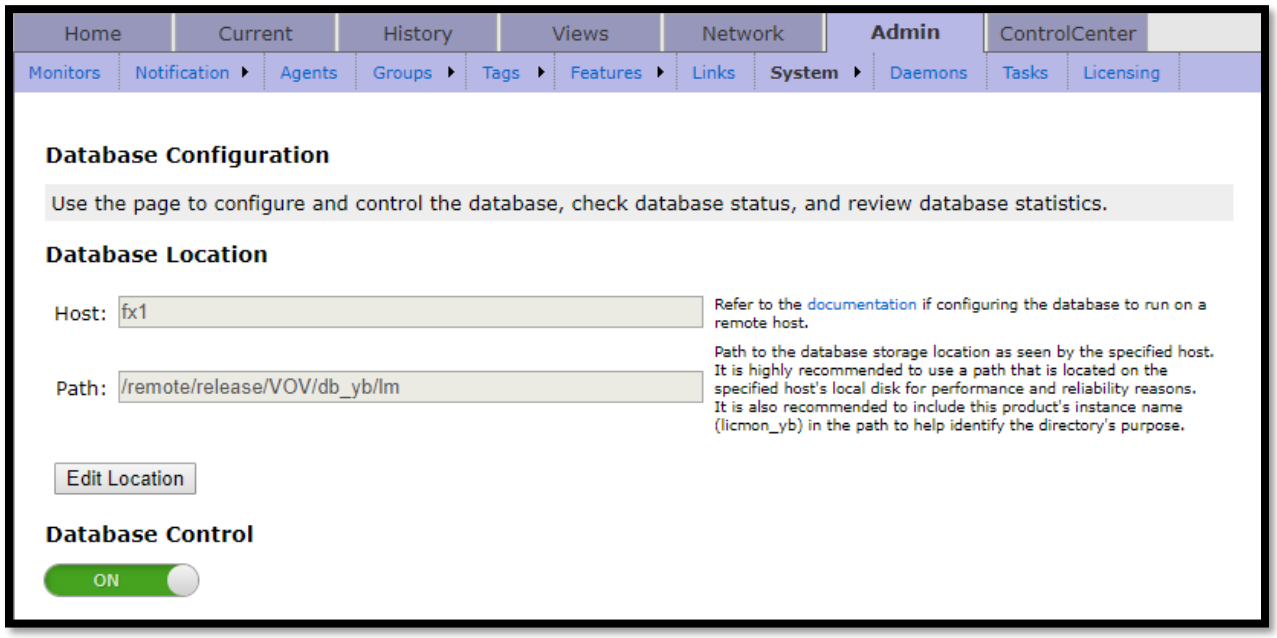
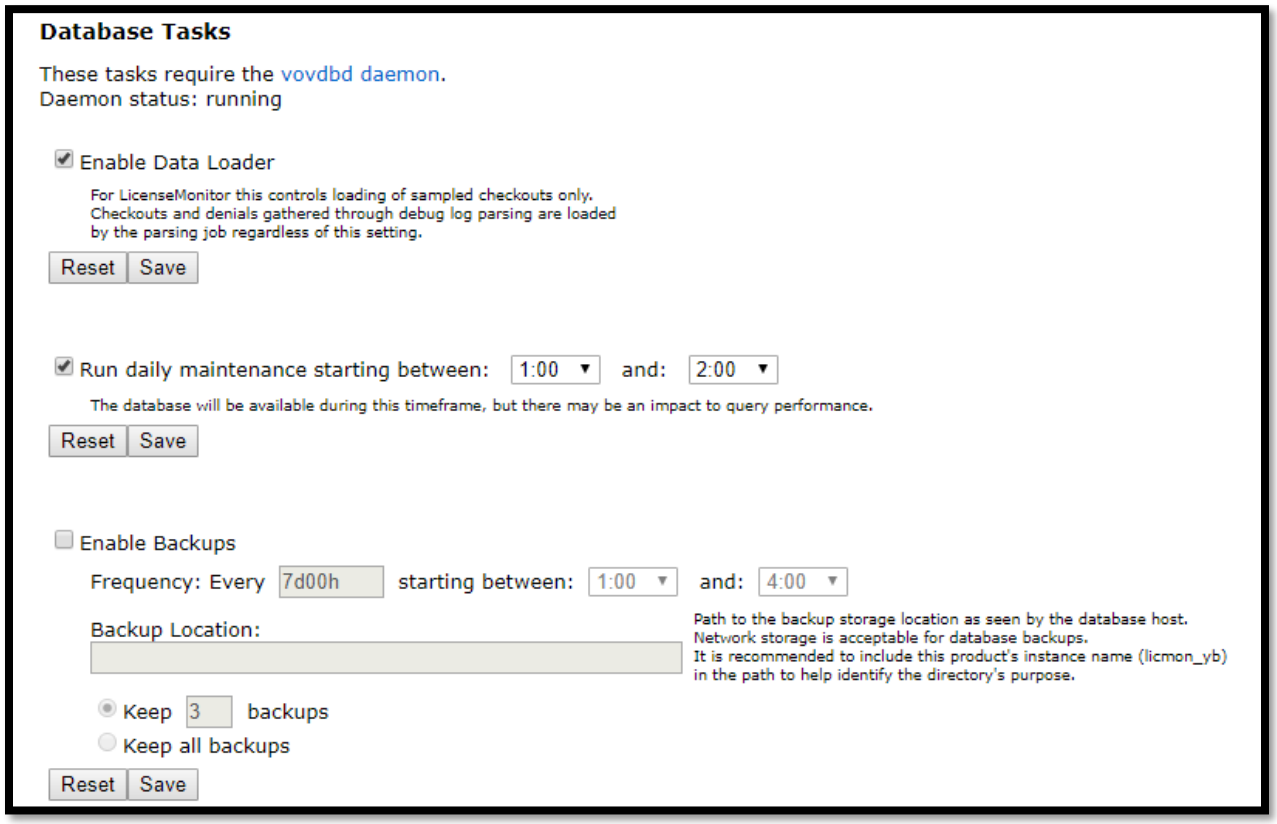
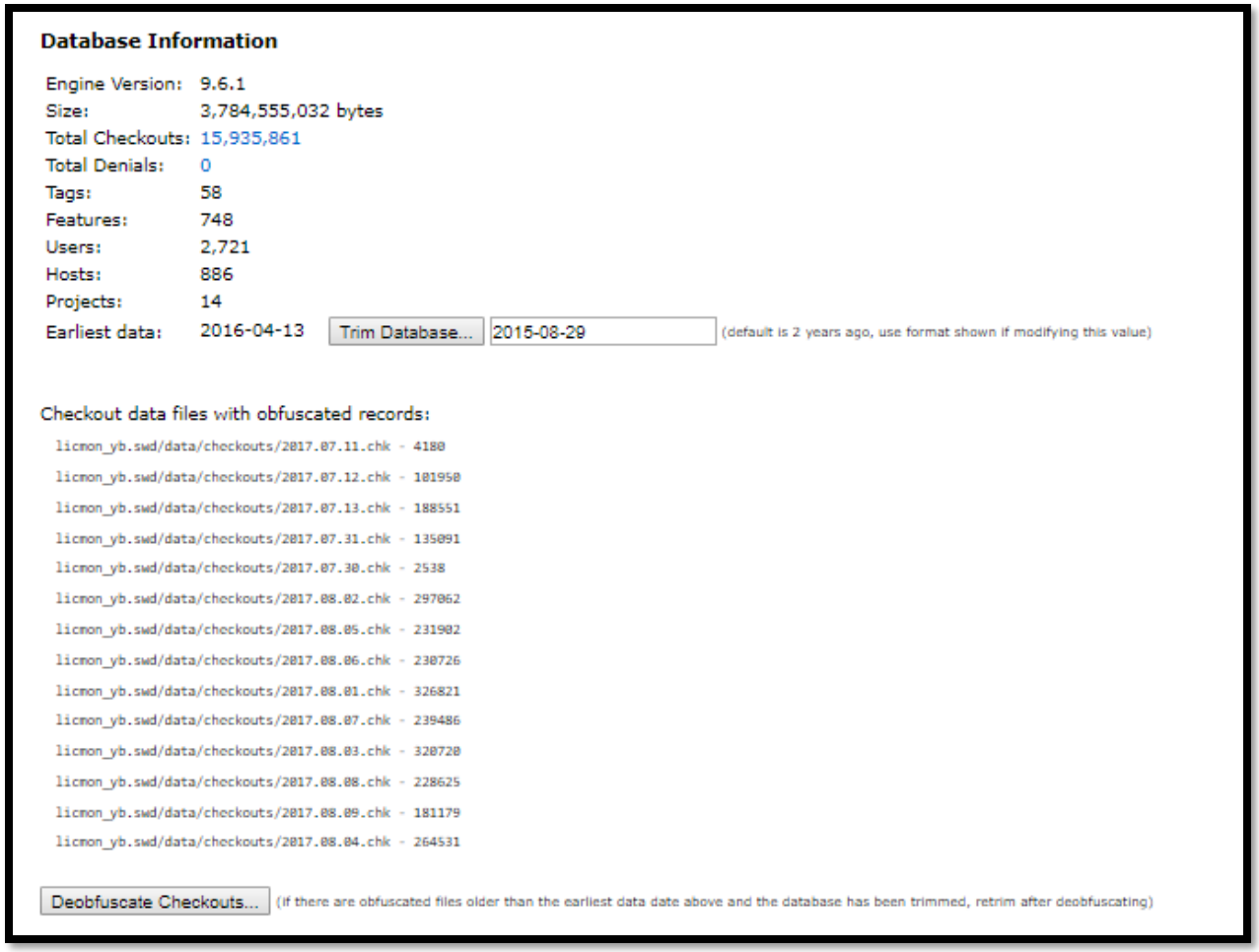


Figure 75: System Server Information

4.6.8.2 DATABASE INFORMATION






Database Information
Engine Version: 9.6.1
Size: 3,784,555,032 bytes
Total Checkouts: 15,935,861
Total Denials: 0
Tags: 58
Features: 748
Users: 2,721
Hosts: 886
Projects: 14
Earliest data: 2016-04-13
Trim Database...
2015-08-29
(default is 2 years ago, use format shown if modifying this value)
Checkout data files with obfuscated records:
licmon_yb.swd/data/checkouts/2017.07.11.chk - 4180
licmon_yb.swd/data/checkouts/2017.07.12.chk - 101950
licmon_yb.swd/data/checkouts/2017.07.13.chk - 188551
licmon_yb.swd/data/checkouts/2017.07.31.chk - 135091
licmon_yb.swd/data/checkouts/2017.07.30.chk - 2538
licmon_yb.swd/data/checkouts/2017.08.02.chk - 297062
licmon_yb.swd/data/checkouts/2017.08.05.chk - 231982
licmon_yb.swd/data/checkouts/2017.08.06.chk - 238726
licmon_yb.swd/data/checkouts/2017.08.01.chk - 326821
licmon_yb.swd/data/checkouts/2017.08.07.chk - 239486
licmon_yb.swd/data/checkouts/2017.08.03.chk - 320720
licmon_yb.swd/data/checkouts/2017.08.08.chk - 228625
licmon_yb.swd/data/checkouts/2017.08.09.chk - 181179
licmon_yb.swd/data/checkouts/2017.08.04.chk - 264531
Deobfuscate Checkouts...
(if there are obfuscated files older than the earliest data date above and the database has been trimmed, retrim after deobfuscating)

4.6.8.3 SECURITY INFORMATION

This shows a list of the tags and ISV daemons that are currently in server memory, along with their security status. The large page has been broken into three sections, so each can be explained.The top portion of the Security information page shows a list of the tags and ISV daemons that are currently in server memory, along with their security status.

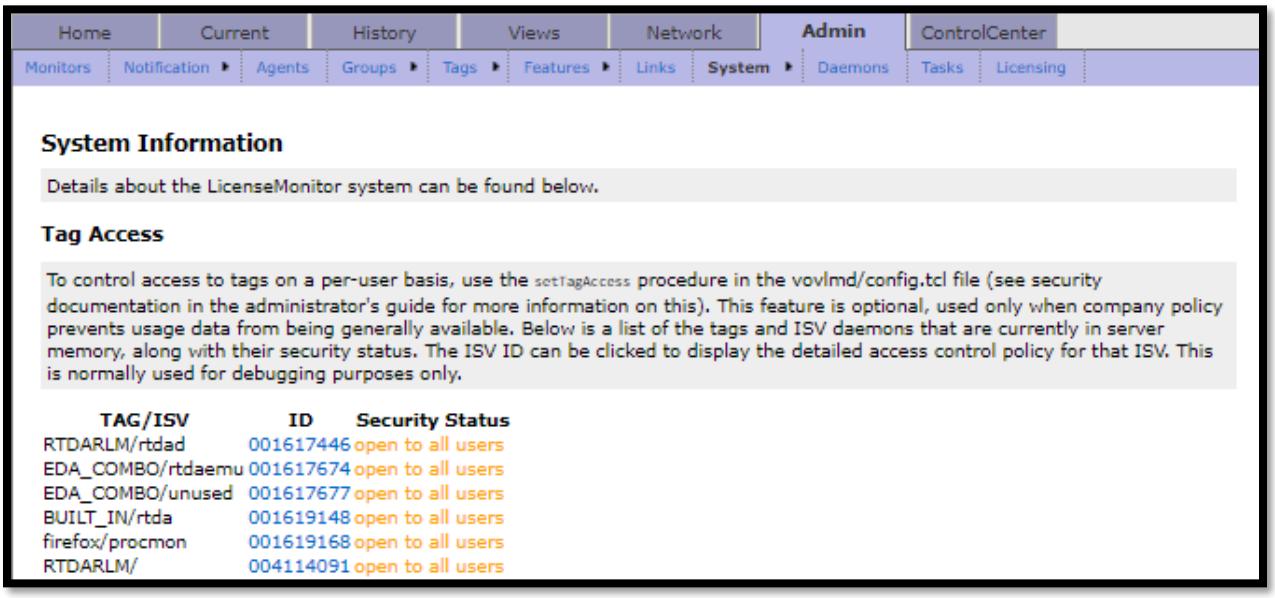


Figure 76: Tag Information

The ID can be clicked to display the access control policy for that ISV. The following page displays.

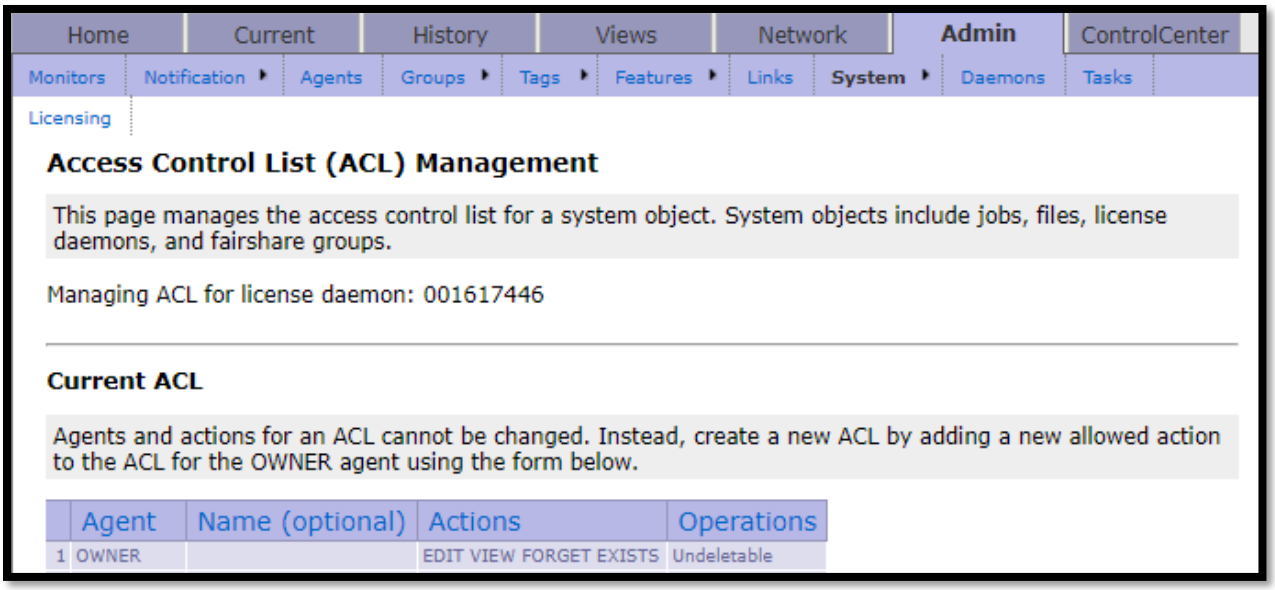


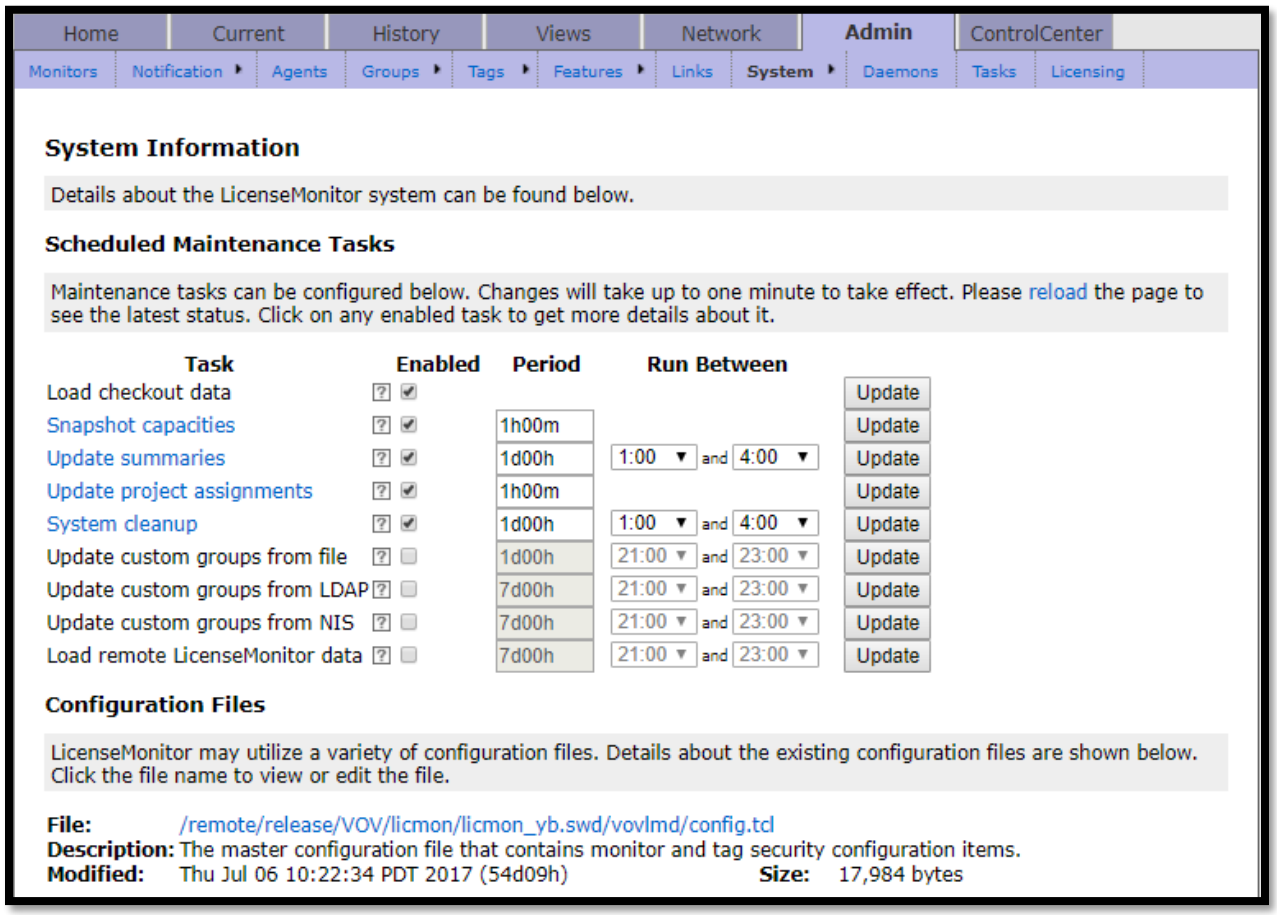
Figure 77: Access Control Policy

The bottom portion of the page shows a list of areas that may contain sensitive data, along with their security status. Review these areas to determine if they should be secured before taking action

Figure 78: Security Analysis

4.6.8.4 CONFIGURATION INFORMATION

This shows scheduled maintenance tasks, which can be configured and existing configuration files, which can be edited.



From this page, you can configure the following maintenance tasks.

- **Load checkout data**: When enabled, this ensures that checkout data is loaded.
- **Snapshot capacities**: When you click on the link, you will see specific node information for the job SNAPSHOT_CAPACITY, such as job description, state information, run-time information, input/output dependencies, and properties. You can set the period when the task runs.
- **Update summaries**: When you click on the link, you will see specific node information for the Job UPDATE_SUMMARIES, such as job description, state information, run-time information, input/output dependencies and properties. You can set the period measured and when it runs.
- **Update project assignments**: When you click on the link, you will see specific node information for the Job UPDATE_PROJECTS, such as job description, state information, run-time information, input/output dependencies and properties. You can set the period measured.
- **System cleanup**: When you click on the link, you will see specific node information for the Job SYSTEM_CLEANUP, such as job description, state information, run-time information, input/output dependencies and properties. You can set the period measured and when it runs.

- **Update custom groups from file**: This enables you to manage custom groups from files, LIVE_LM_UPDATE_MEMBERSHIPS_FROM_FILE.
- **Update custom groups LDAP**: This enables you to manage custom groups from LDAP, LIVE_LM_UPDATE_MEMBERSHIPS_LDAP.
- **Update custom groups from NIS**: This enables you to manage custom groups from NIS, LIVE_LM_UPDATE_MEMBERSHIPS_NIS.
- **Load remote License Monitor data**: This enables you to manage LIVE_LM_LOAD_REMOTE_DATA.

If you make changes, it may take up to one minute for them to take effect. Reload the page to see the latest status. The second half of the page shows the Configuration files. You can click on the filename to view or edit the file.

4.6.8.5 WORKWEEK INFORMATION

This shows you the work week definition, which can be edited.

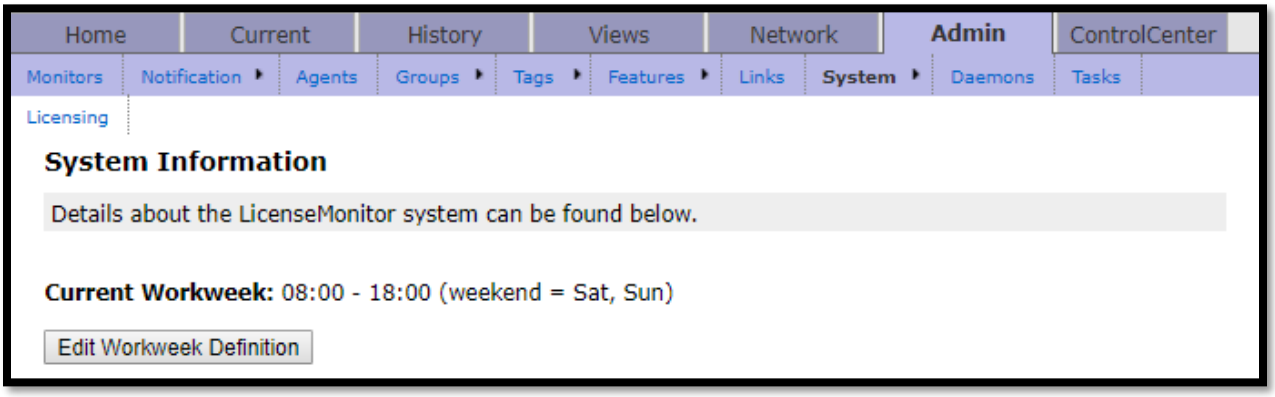


Figure 79: Workweek Information

To edit the workweek, click **Edit Workweek Definition**. The following page will display.

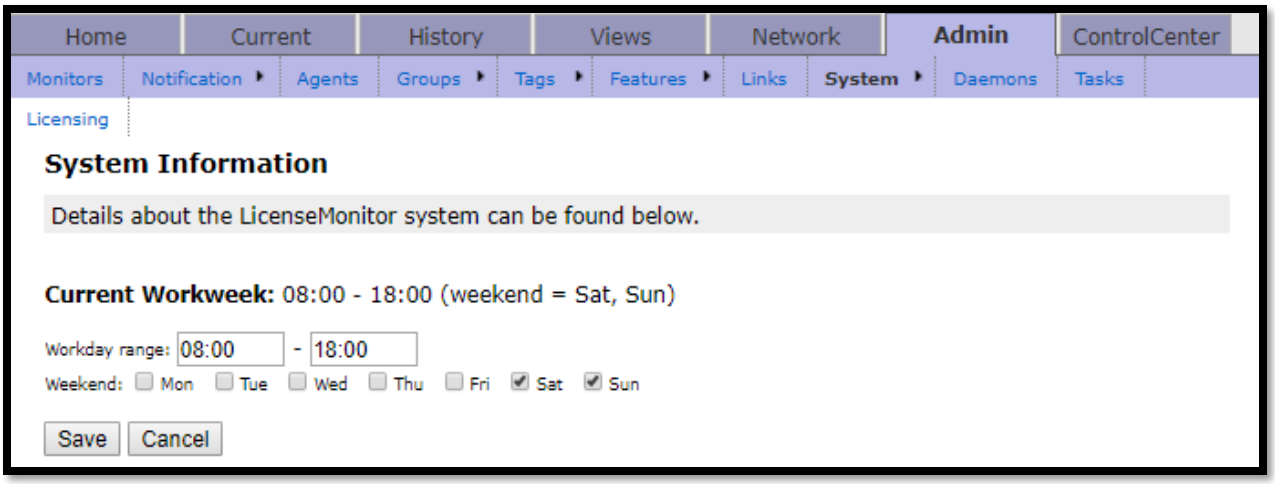


Figure 80: Editing Workweek Information

You can adjust the Workday range and choose the weekend. Click the **Save** button when done.

4.6.9 ADMIN TAB – DAEMONS

This shows the active daemons and their status. You can stop a daemon, start a daemon and learn more about the Config File, Info File, and its documentation. If you click on the Book with the Question on it, next to the daemon, you will get a list of documentation references related to the daemon.

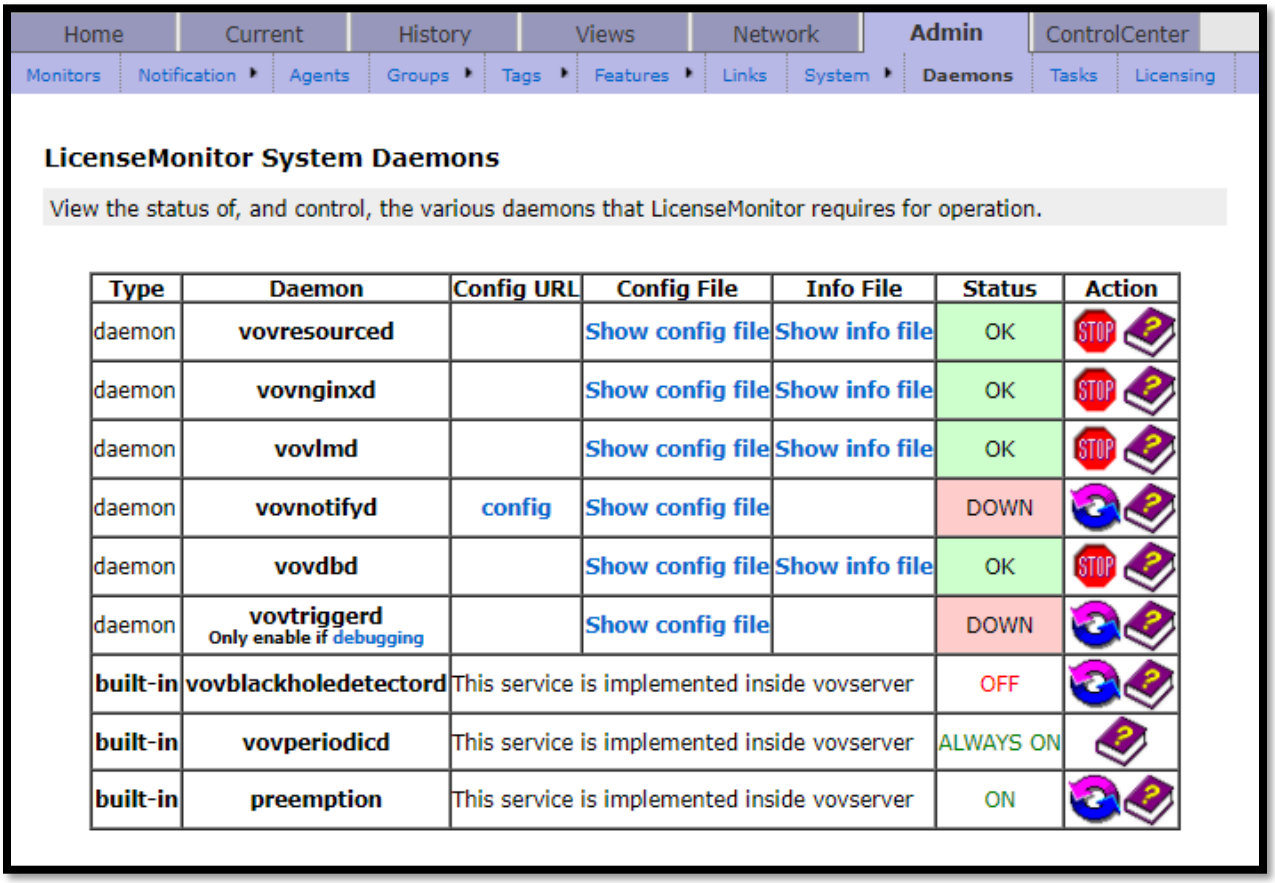


Figure 81: Daemons

4.6.10 ADMIN TAB – TASKS

This shows the Periodic Job List and enables you to Pause it and Run it. If you click on a job, you will advance to the job information page.

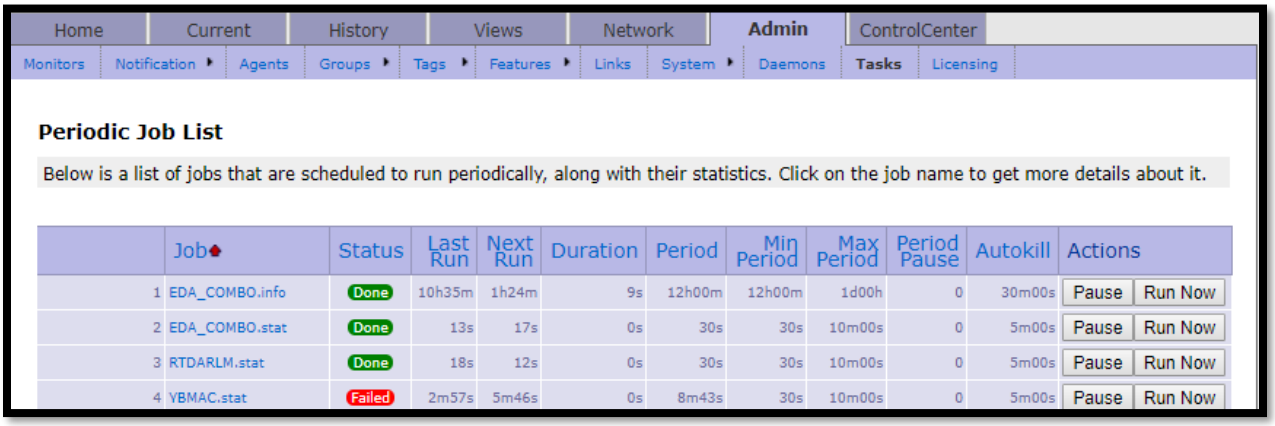


Figure 82: Tasks

4.6.11 ADMIN TAB – LICENSING

This shows the RTDA license status and enables you to make changes to the current license environment. The top half of the page enables you to Check Health of Licenses, Re-Acquire All Licenses and Update VovServer's RLM_LICENSE variable.

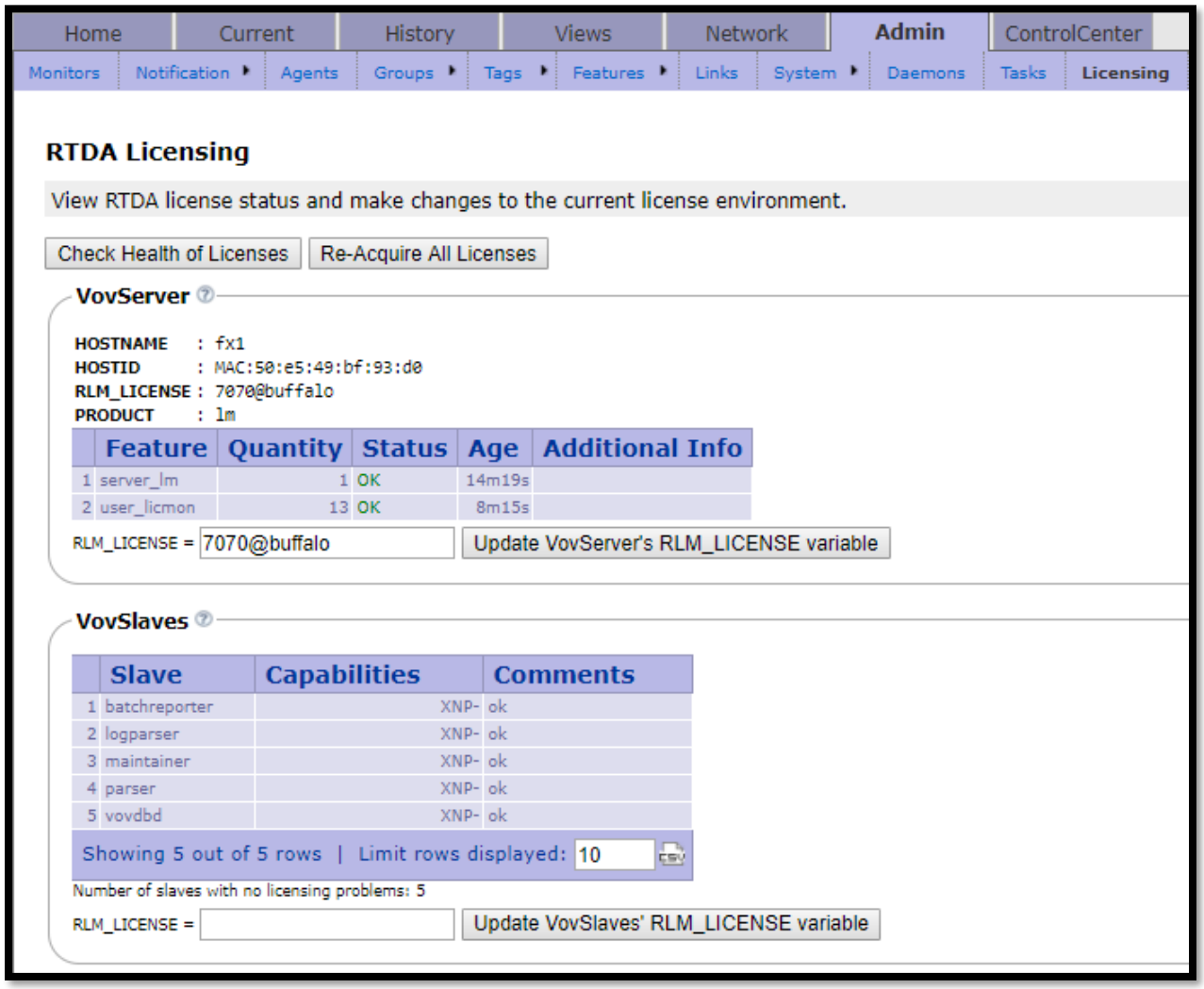


Figure 83: RTDA Licensing

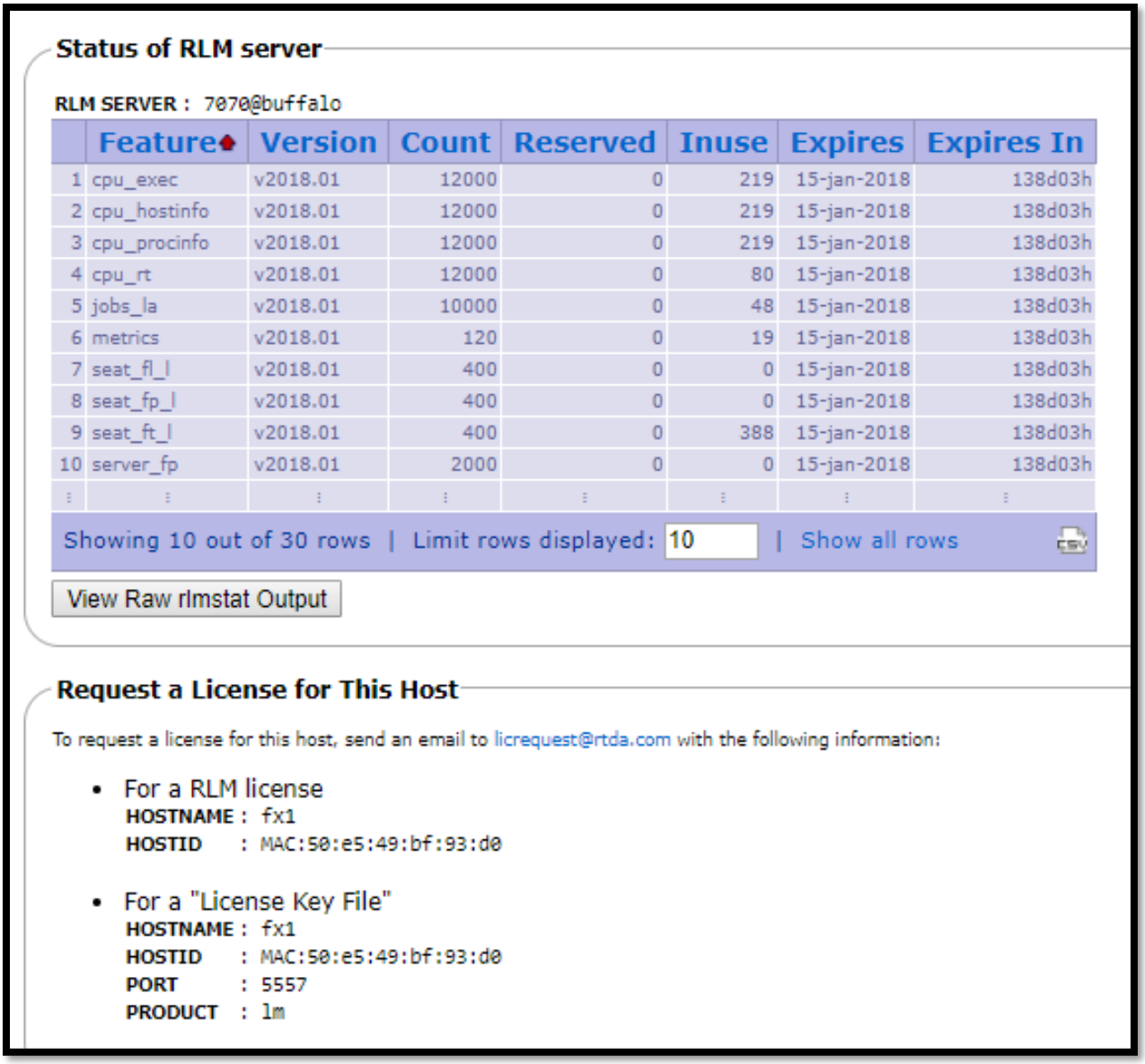


Figure 84: Status of RLM Server

The lower half of the page shows the status of the RLM server. You can view the raw rlmstat output, and you can request a license for this host.

4.7 CONTROL CENTER TAB (ADMIN ONLY)

The Control Center tab is only available to administrators. The ControlCenter requires an agent program to run on each license server host to be managed. The agent is responsible for running supported administration commands, such as starting and stopping a license daemon, as well as transmitting files to and from the server.

License files can be fetched from a license server, edited within the web interface and then published back to the license server. New license files can be uploaded and distributed to remote license manager directories. New license server directories can be created from scratch.

Thus tab has four different options for making adjustments:

- **Server Overview**: This shows a list of the license server tags that have been configured for license management tasks. It enables you to start, stop and reread agents.
- **Server & File Control**: This enables you to configure license management, work with licensing files, and control license servers. Only the LM owner-user has permission to add additional managers.
- **Agent Status**: This shows the running remote agents, which are required for management tasks and provides more details on the connected agents.
- **Setup**: This enables you to setup the Control Center for use. Use this page when new license servers are added or to create a new license server from scratch.

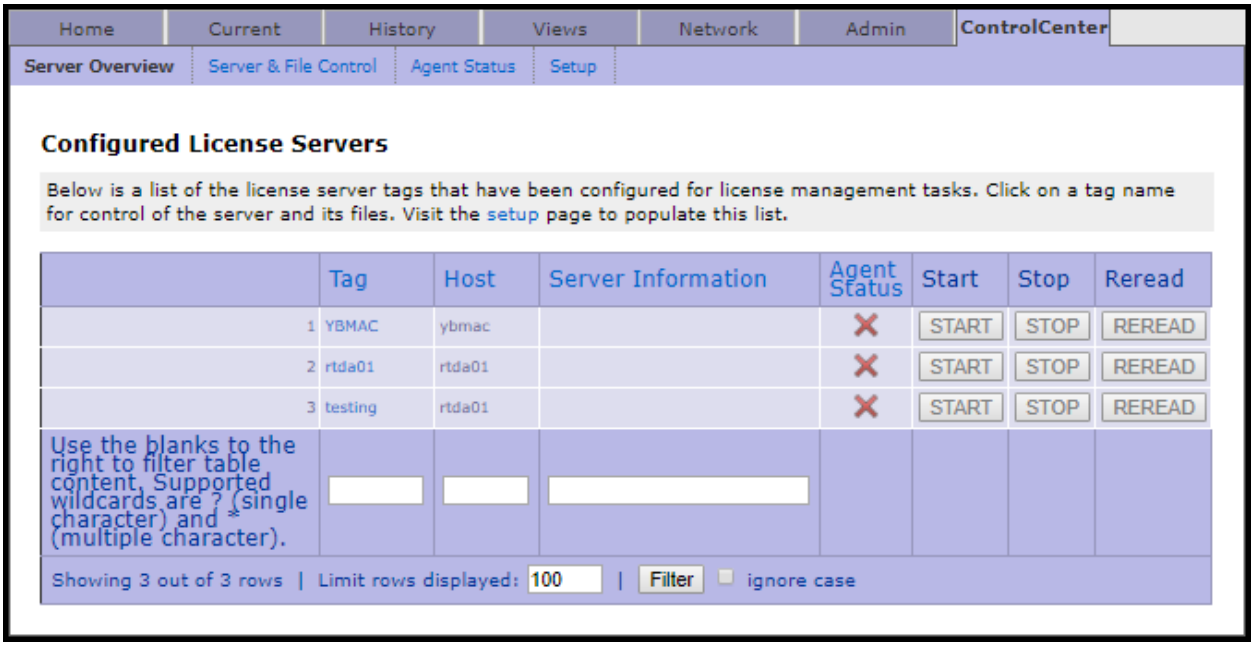


Figure 85: Control Center Tab

4.7.1 CONTROL CENTER TAB – CONFIGURED LICENSE SERVERS

The **Configured License Servers** option shows license tags configured for license management tasks.

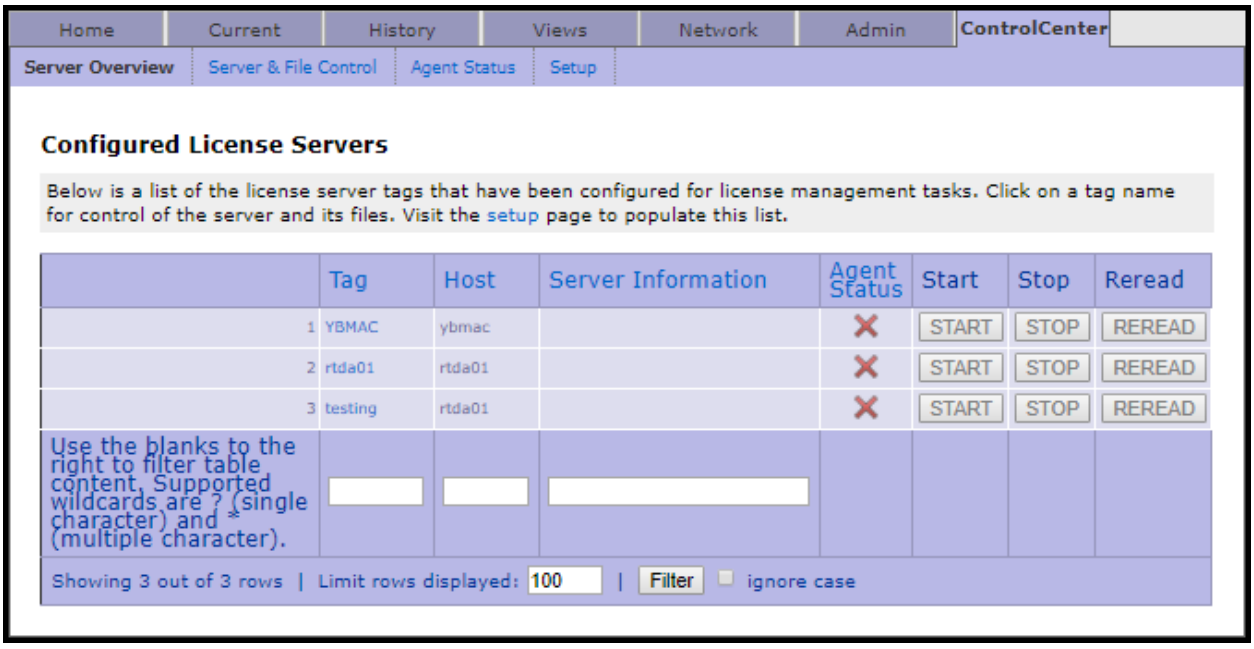


Figure 86: Server Overview Page

This table includes the following columns:

- **Tag**: The license server tag that has been configured for management tasks.
- **Host**: The host that will run the agent.
- **Agent Status**: This shows whether the agent is running.
- **Start**: Starts the agent.
- **Stop**: Stops the agent.
- **Reread**: Rereads of license files.

Click on a tag name for control of the server and its files.

4.7.2 CONTROL CENTER TAB – SERVER & FILE CONTROL

This enables you to configure license management, work with licensing files, and control license servers. Only the LM owner-user has permission to add additional managers on this page.

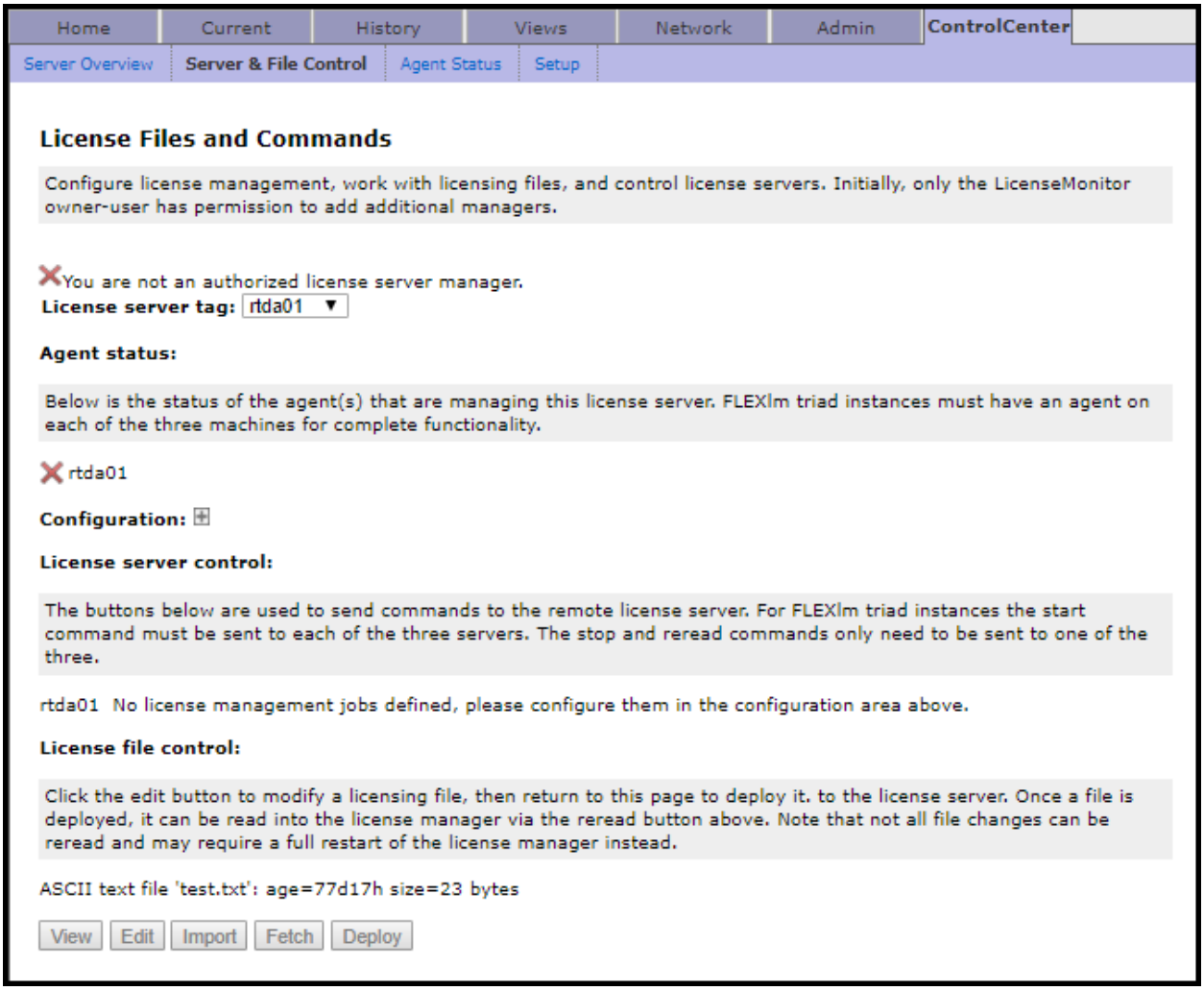


Figure 87: License Files & Commands

Select a tag by clicking on the License server tag. This brings up the information for the license server instance that the tag represents.

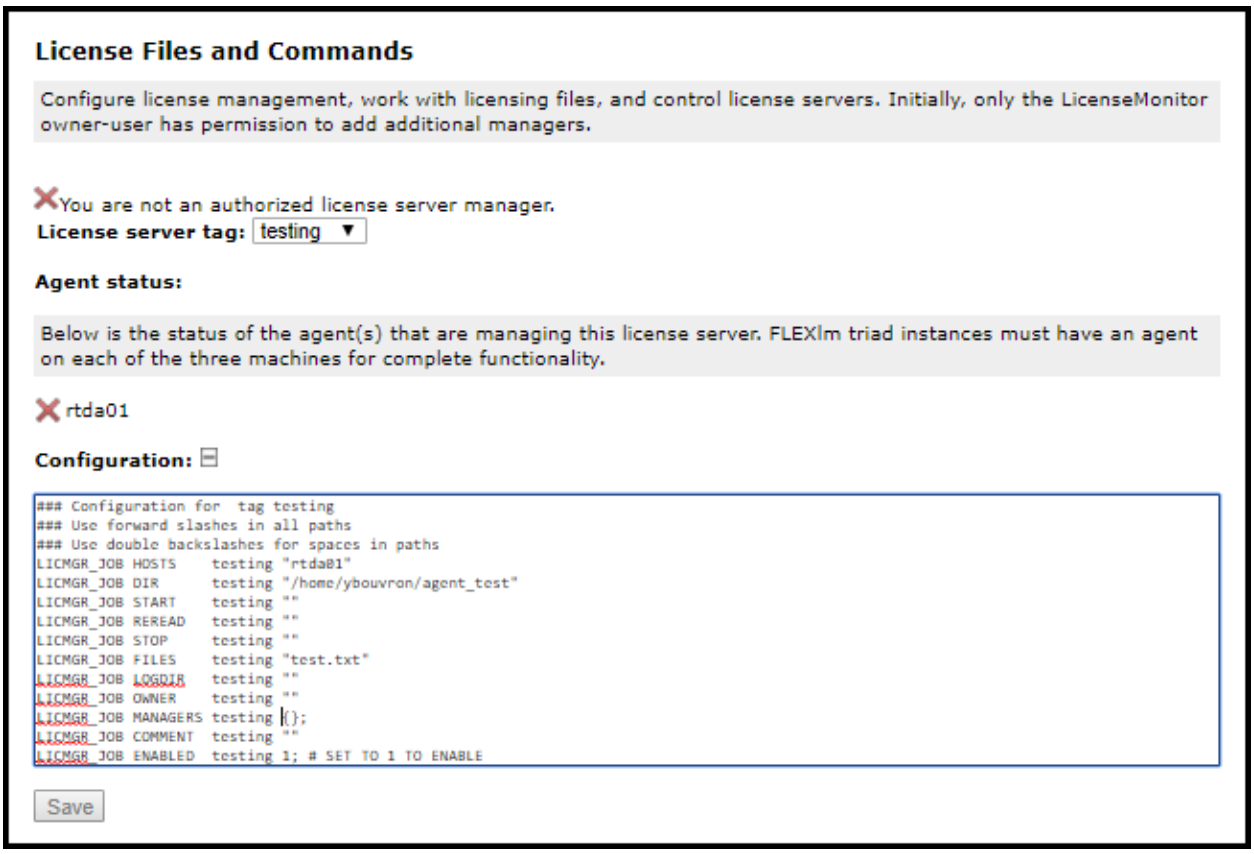


Figure 88: License Files and Commands

This configuration can be edited and saved from within this page. The lower half of the page enables you to View, Edit, Import and Deploy Configuration

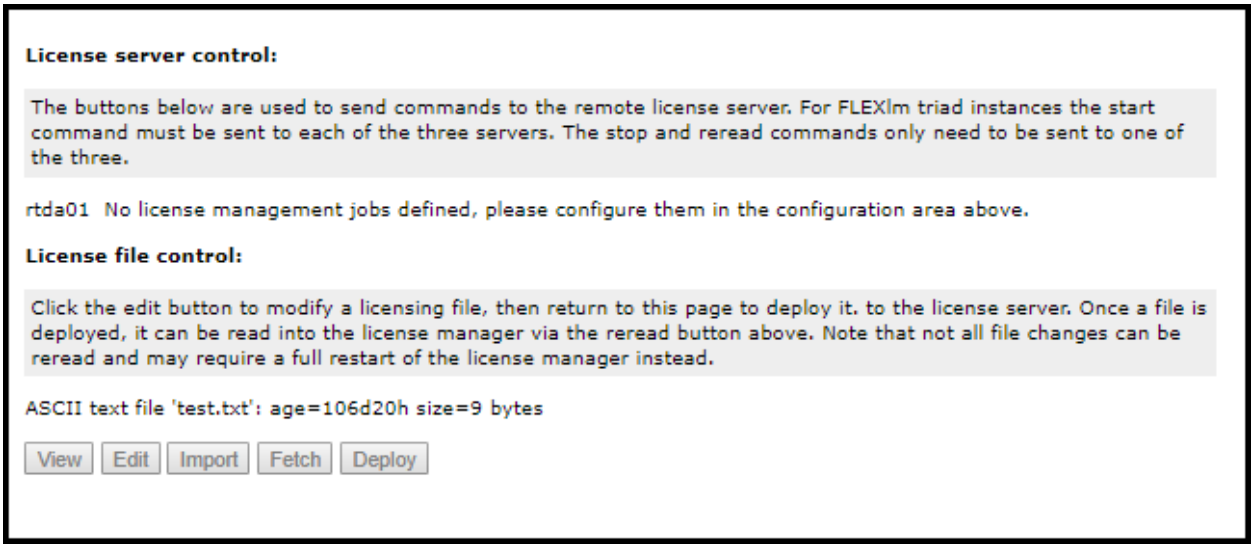


Figure 89: License Files and Commands

4.7.3 CONTROL CENTER TAB – AGENT STATUS

This shows the list of the running remote agents, which are required for management tasks.

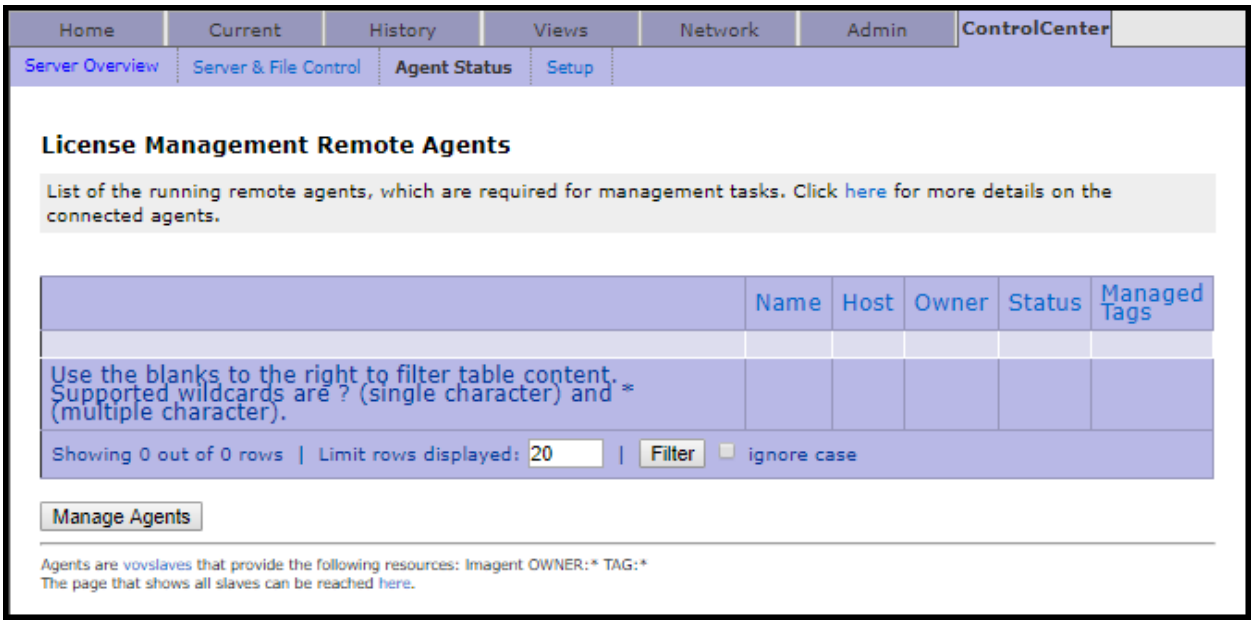


Figure 90: Agent Status Page

When you click the **Manage Agents** button, it will bring up the agent management page for agents that can be remotely controlled via ssh, rsh, or vovssd.

The Control Center's license management agents are configured in the same manner as monitoring agents with the exception that each agent can be assigned to a specific tag so that it will only interact with the license servers to which the tags are related. This allows for securing tags to their respective administrator personnel.

If such security is not required, the agent can be configured to interact with all tags found on the same machine on which the agent is running.

4.7.4 CONTROL CENTER TAB – SETUP

This page is used to setup the Control Center. Use this page when new license servers are added or to create a new license server from scratch.

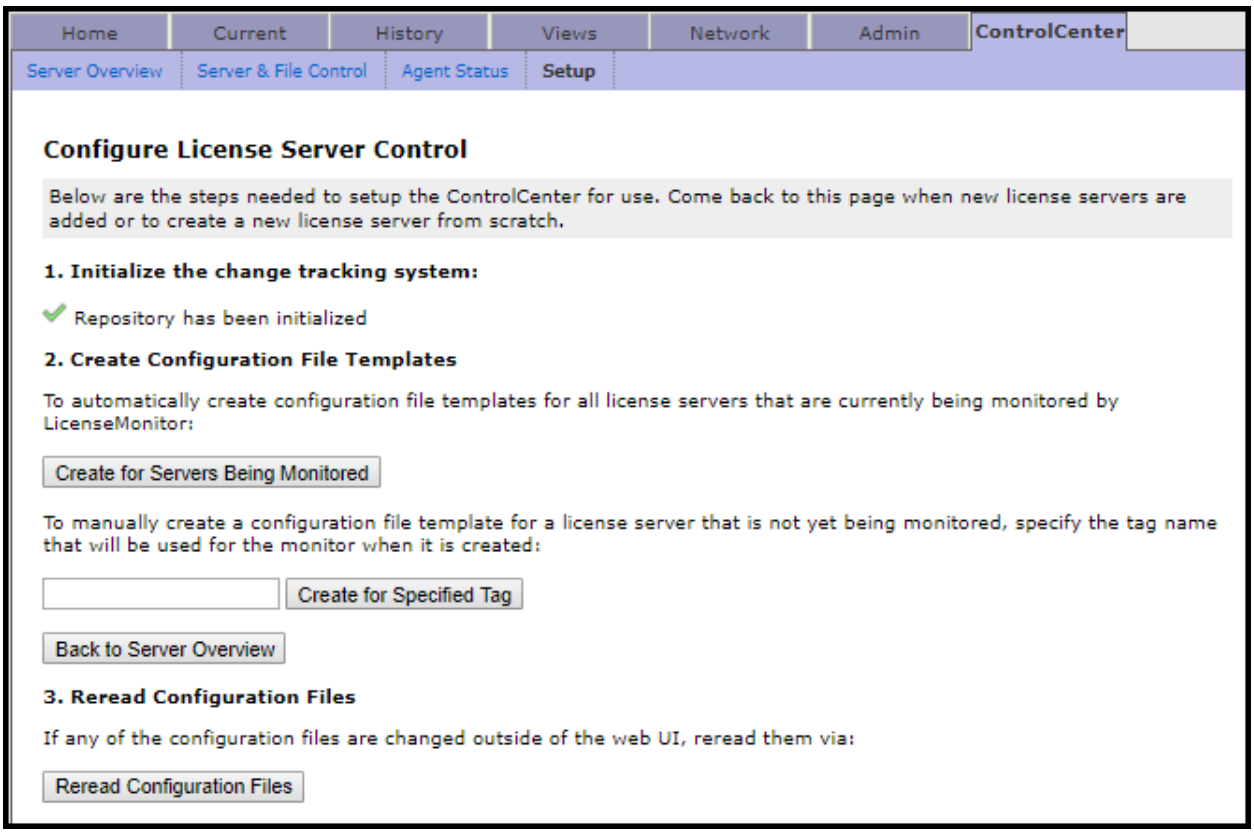


Figure 91: Setup

5 BASIC ADMIN OPERATIONS & SETUP

5.1 LOAD THE DATABASE

This section details the multiple methods by which LicenseMonitor loads data into the database, and the configuration options available to control the data that is loaded.

- Lmngr, load bv
- Vov sql_load
- Load checkouts
- Load denials

A need may arise to manually load checkout or denial data into the database. This will be required if importing historical checkout data that is obtained from parsing a debug log, or if reloading data for checkouts and/or denials. It can also be helpful in debugging database loading problems.

To manually load the database, first setup the CLI:

% vovproject enable licmon

Next, change to the directory that contains the data that is to be loaded. This data is stored in the checkouts/denials data files, located in licmon.swd/data under a respective subdirectory for each data type. The data is organized into files that are named for each day that contains data.

After setting up the CLI, the database loader command must be executed. The available commands are:

vovsql_load_checkouts

vovsql_load_denials

Click the links above to learn the arguments required and options supported for each command.

5.2 CONFIGURE SECURITY PARAMETERS FOR SPECIFIC USERS

When you first install LM, you will want to set permissions for specific users. Only administrators can perform this action.

1. Go to http://localhost:5555/admin.

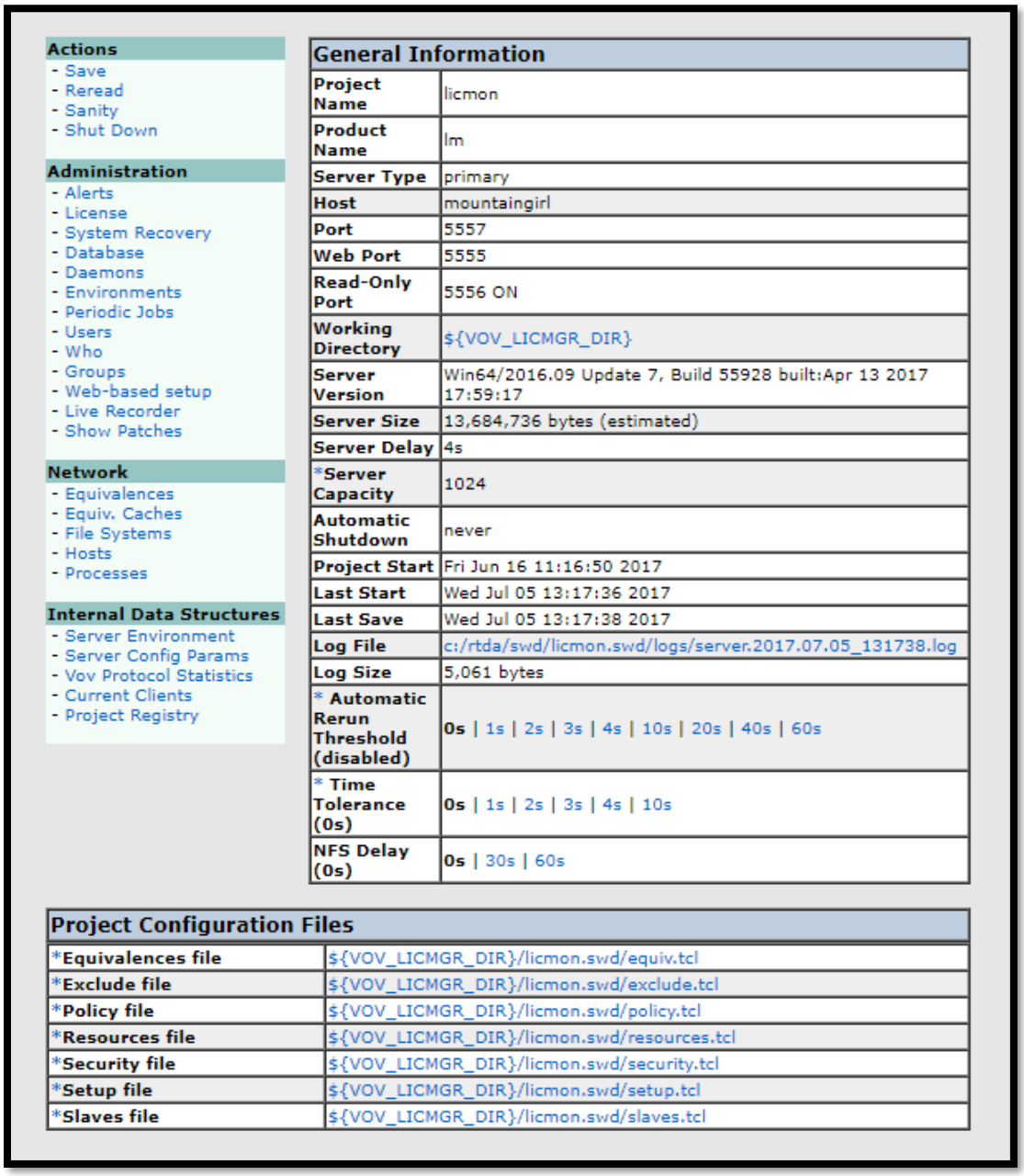


Figure 92: LM Admin Page

2. Scroll down to the Project Configuration Files section, click on **Security file** link.

   A new page will display, which explains how to set permissions. The page itself defines who has access to the VOV server for LM.

3. Set the security level for the user as Read only, User, Leader or Admin. See the table below for specifics on what each security level indicates.

User Security Level	Description
Read Only	Minimum privileges; a user can only browse the information but cannot change anything
User	A user can only execute established flows and view non critical information. In particular, a user can: Create, modify or forget his own jobs Create, modify or forget his own files Create, modify or forget his own set Modify or forget dependencies Create/modify/start/stop/forget own slave Remember jobs owned by other users
Leader	A leader can create and execute arbitrary flows and view all non-security related information. In particular, a leader can: Start or stop his own slaves Forget all jobs, including jobs owned by another user Save trace database to disk **Please note**: This level is rarely used
Admin	An admin has access to most security information. In particular, an admin can: Forget jobs owned by other users Stop jobs owned by other users (no user can modify another user's jobs) Stop the server Stop/modify/forget the slaves Refresh slave cache Destroy a user Destroy a host Create or destroy alerts Create, modify or destroy resource map Reserve resource Create, modify or destroy preemption rule Create, modify or destroy multiqueue objects (LM sites, NC queues, resources) Create, modify or destroy LM objects (licdaemons, features)

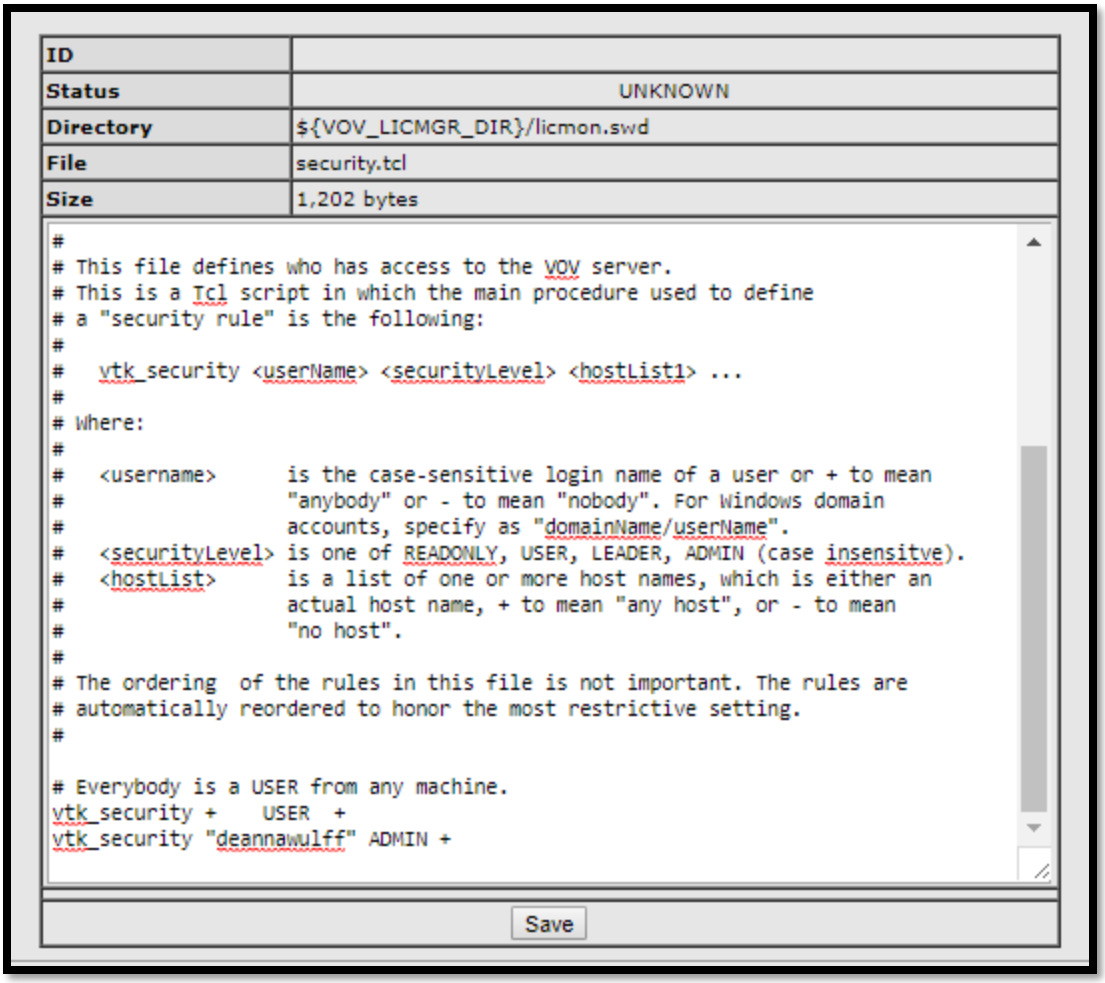


Figure 93: LM Admin Page for Setting User Security Parameters

The security rule is: vtk_security <userName> <securityLevel> <hostList1> where

- <username> is the case-sensitive login name of a user
- <securityLevel> is READONLY, USER, LEADER, ADMIN (case insensitve).
- <hostList> is a list of one or more host names, which is either an actual host name, + to mean

4. Configure the security parameters in accordance with these rules.
5. When done, click the **Save** button.

5.3 ADD A LICENSEMONITOR

1. To add a license monitor, go to the **Admin** tab, and select **Monitors** from the menu bar.

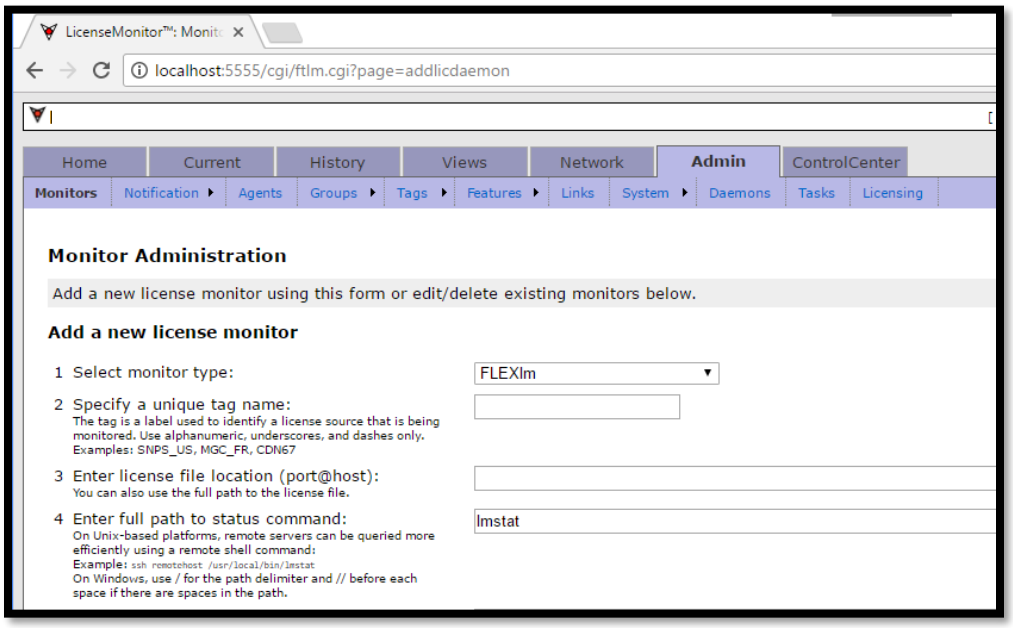


Figure 94: Adding a New LicenseMonitor

2. Enter details for at least sections 1-4.
   - Select monitor type.
   - Specify a unique tag name.
   - Enter license file locations.
   - Enter full path to status command.
3. On the bottom left click **Add New Monitor**.
4. Go to **Home** tab. The current checkouts should be populating shortly, within 30 seconds.
   - If you are a Unix user, you're done.
   - For Windows users, we recommend setting up LM as a service.

5.4 SAMPLE A LICENSE SERVER

1. Go to the command line (right-click start menu and select command prompt admin).
2. Enter the path to installation under the extraction directory.
   - Type **cd win64\bat**
   - Type **vovinit**
   - This initializes the command prompt with Runtime Software and enables the shell command prompt and initializes Runtime Software and checks that the rlmstat – that is running is VO.
3. Now sample a license server.
4. Enter **Rlmstat 7070@buffalo** where:

- **Rlmstat** = the script that connects and request information.
- 7070 = is the port
- Host = buffalo
- PORT@HOST

5. It will show that the system is running.
6. Verify the system is working – if the port doesn't exist, you will get a message indicating that.

5.5 CREATE A GROUP

Custom groups can be used to keep track of activity by department, location, and more. Configuration controls for existing custom groups can be organized by the group type and project type. To create a group, perform the following steps:

1. Go to the **Admin** page and select the **Groups** option and then **Custom Group Types**.
2. Select User or Host-based, enter a name and click the **New Type** button.

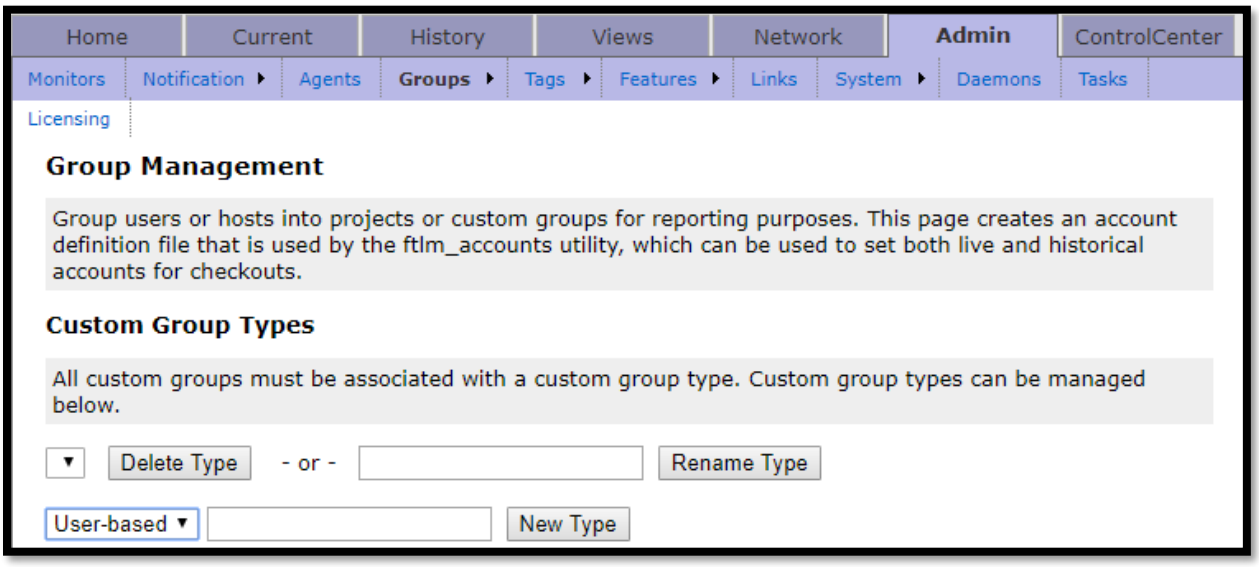


Figure 95: Groups Management

3. Go to **Custom Group** option.

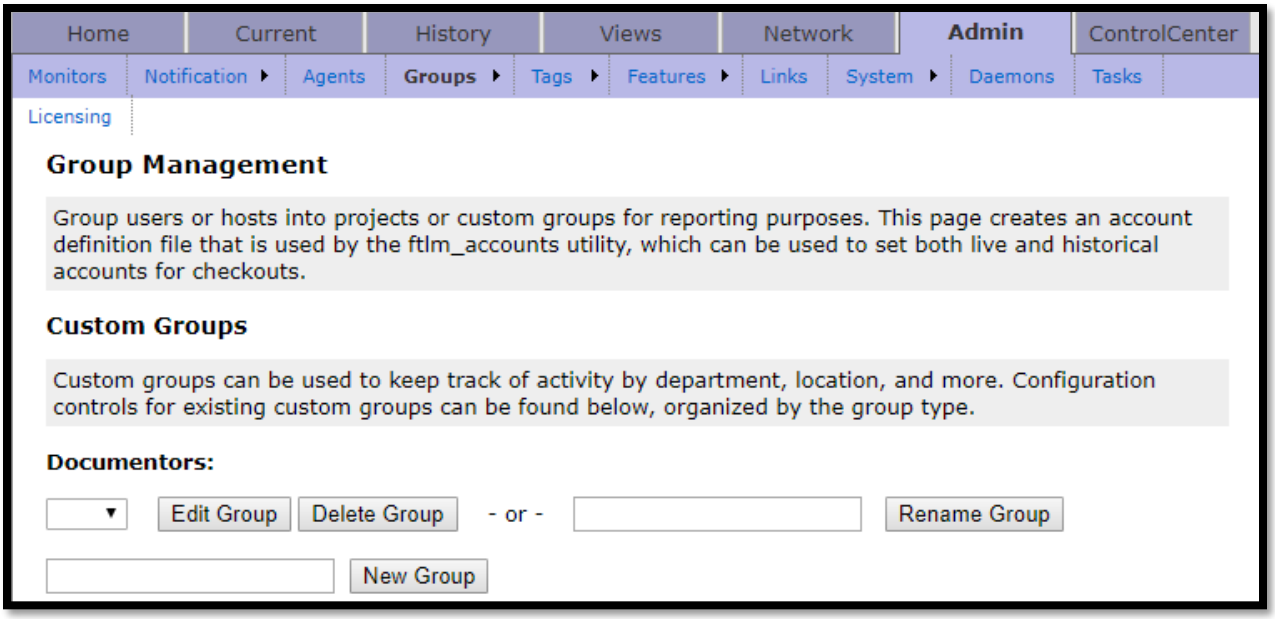


Figure 96: Custom Group Option

4. Click the **Edit Group** button. The following page will display.

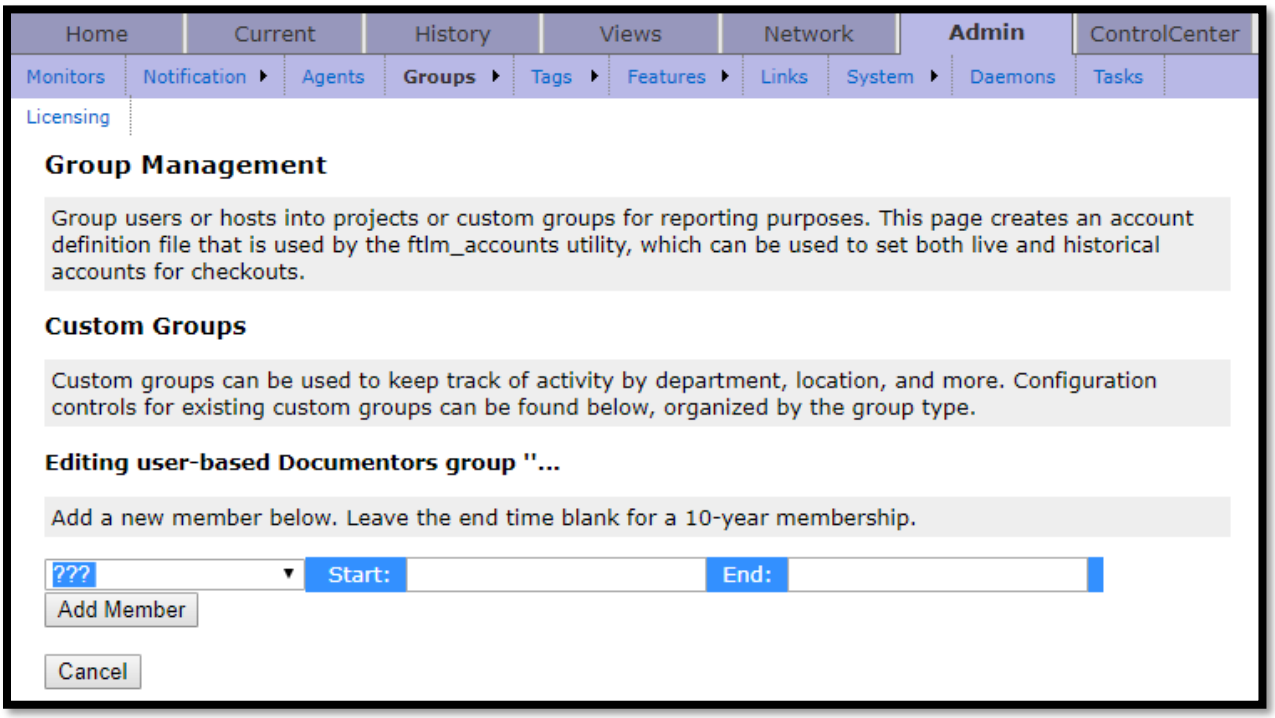


Figure 97: Editing a Group

5. Add Members to the group – either hosts or users – click the **Add Member** button.
6. To check on the group you generated, go to the **History** tab and generate a report. You can generate reports from there.

Please note: Groups won't show up on the daily reports page – the daily reports are pre-calculated, and the rest are calculated when you run the report, in real-time and so will show groups.

5.6 TRACK A PROJECT

LicenseMonitor provides project-based tracking of license usage. You might track a project, because you want to see how many licenses specific people or a team used, so you can make an estimate and budget for the next quarter or year. To track a project, you first must set it up and wait. The project data will be useful after a certain period of time has passed, for example a quarter or six months.

5.6.1 CREATE A PROJECT

To create a project, perform the following steps:

1. Go to the **Admin** page and select the **Groups** option and then **Projects**.

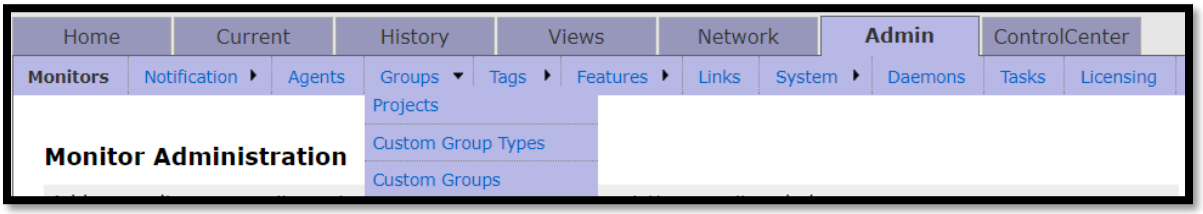


Figure 98: Admin Page - Project

2. Enter the **Project Name** and the **Members**, who you wish to monitor. The members will be listed as users in feature reports, for example. It's likely that you will enter multiple users.

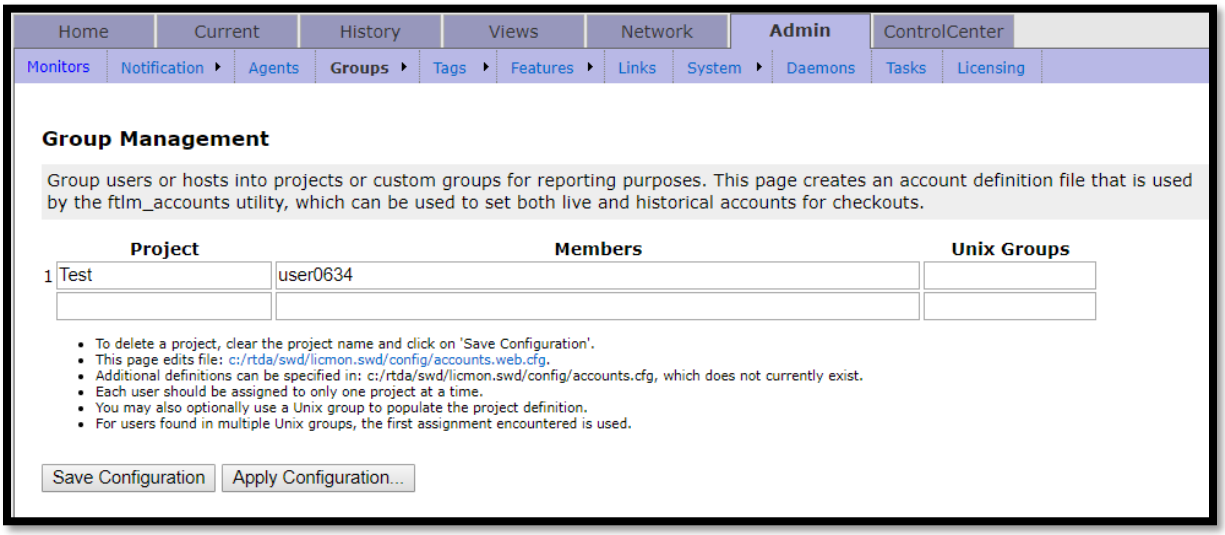


Figure 99: Group Management

3. Click the **Save Configuration** button and then the **Apply Configuration** button.
4. At this point, you are done creating a project and you will need to wait a specified time period before the data rendered is meaningful.

5.6.2 TRACK A PROJECT

To track a project, perform the following steps:

1. Go to the **History** page and select the **Usage** option.

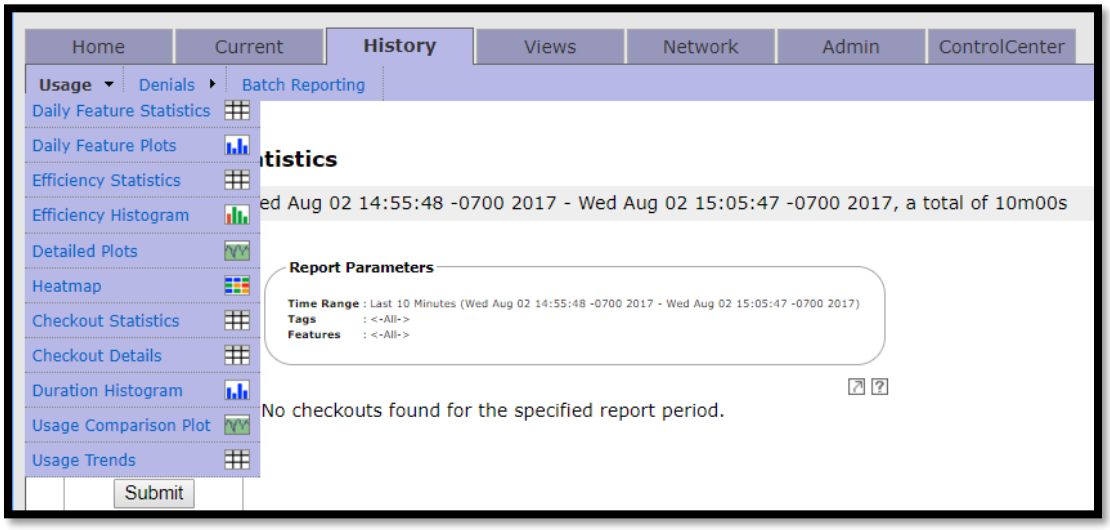


Figure 100: Usage Report Selection

2. Choose a report so you can evaluate the conditions of your project. You can evaluate data in daily plots, checkout statistics, efficiency statistics and many other reports. In this case, we will generate an efficiency statistics report.

3. To do so, select **Efficiency Statistics** from the **Usage** menu. Select the **Time Range**, **Tag** or **Feature** and the **Project** you wish to track

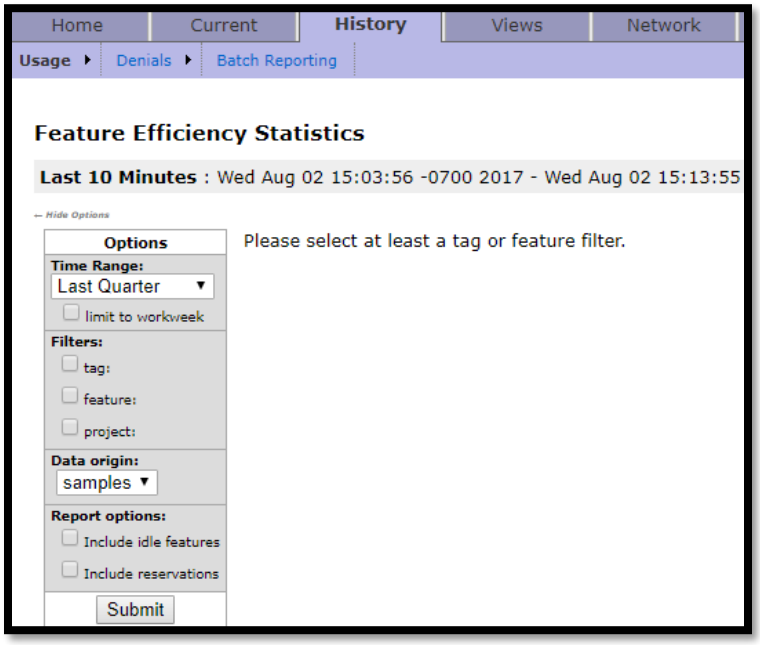


Figure 101: Feature Efficiency Statistics

In this case, we selected the Test project and the Feature (or License name) that we wished to track.

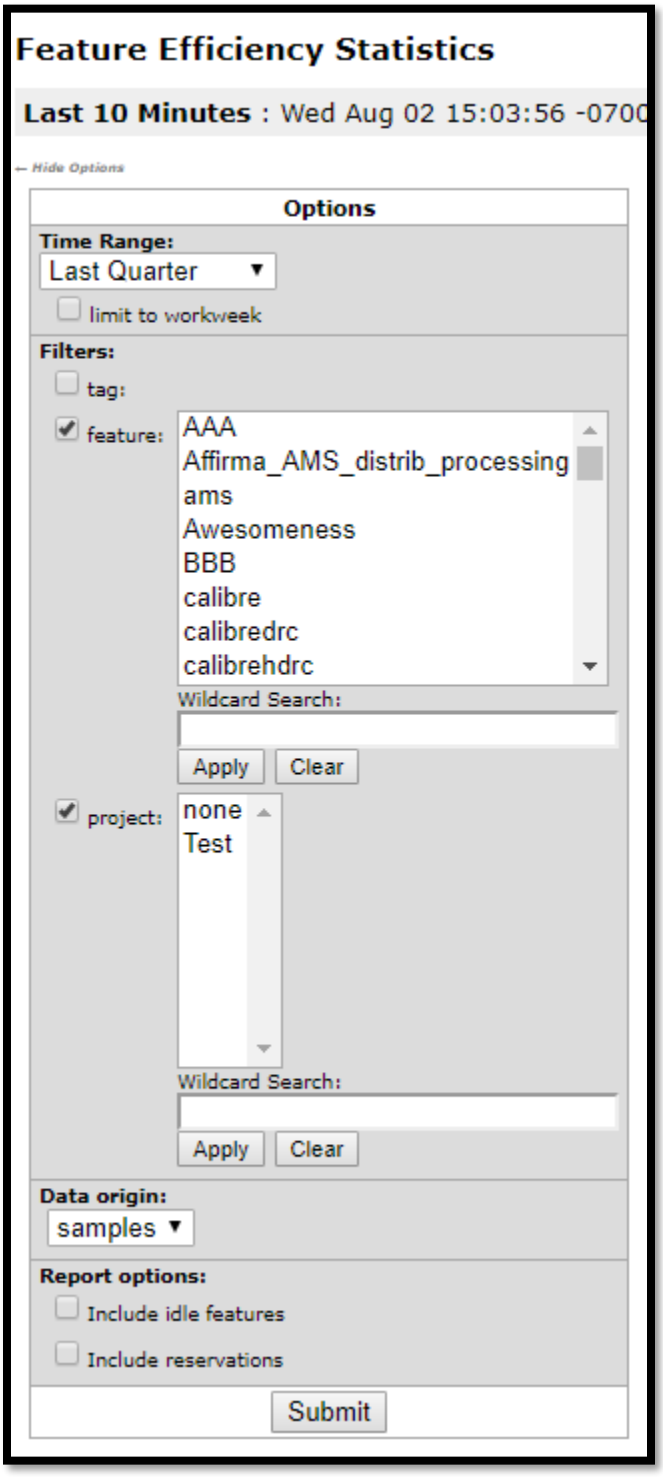


Figure 102: Feature Efficiency Statistics – Select Options

4. Select your project and click **Apply**. Select the feature (license) you wish to track, and click **Apply**.

5. When you are done, click the **Submit** button. A report will generate that displays project status.

5.7 CONFIGURE AN AGENT

LicenseMonitor can be configured to monitor hardware and process information if agents are configured the machines you wish to monitor. These agents will send the following machine information to License Monitor:

- CPU utilization
- Filesystem utilization
- Process listing
- Network traffic levels (Linux only)
- Machine load (Unix only)

Agents can be configured and controlled remotely from the LicenseMonitor server if certain conditions are met. Otherwise, agents can be configured locally on each machine monitored. In most cases, you will configure an agent to run remotely.

5.7.1 AGENT CONFIGURATION REQUIREMENTS

To remotely create and control of agents, the following must be true:

- A Runtime installation must be available on the machine monitored (either network-based or local).
- An RSH, SSH, or vovssd connection must be allowed between the LicenseMonitor server and the host to be monitored without a password prompt appearing. The vovssd daemon is provided by Runtime and provides secure connection capabilities on any configurable port for the purpose of starting and stopping agents remotely. This daemon is especially useful for Windows, which do not provide built-in remote connectivity capabilities.
- For networks where home directories are stored remotely and available to all machines via NFS, LicenseMonitor provides a utility called vovsshsetup to setup SSH keys, which allow SSH to connect to a remote machine without prompting for a password. After running the utility, one manual connection will need to be performed for each of the hosts so that its host key is added to the known_hosts file. Each host also must be able to mount the filesystem containing the LicenseMonitor software installation.

Instructions on how to configure these items is available in the Admin guide Chapter 5: Configuring Monitoring.

5.7.2 ADD AN AGENT – WEB GUI

To add and configure an agent, perform the following steps:

1. Go to the **Admin** Page and select **Agents** from the top menu. The follows page displays:

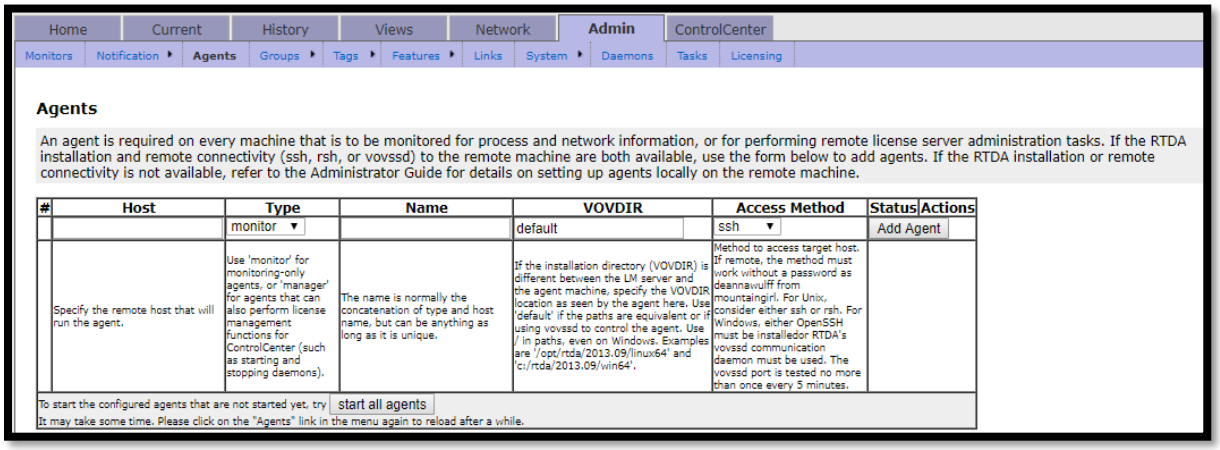


Figure 103: Agents Page

2. Specify the following attributes of your agent:
3. Enter the following specifications.
   - **Host**: Specify the remote host that will run the agent.
   - **Type**: Select **monitor** for monitoring-only agents, or **manager** for agents that can perform license management functions for ControlCenter (such as starting and stopping daemons).

     If you select **manager**, you will have the option of specifying a tag.

     Tag: Specify the tags that are to be managed by this agent. If the agent manages all tags on the host, specify the ALLTAGS keyword, which is shown by default.
   - **Name**: The name is normally the concatenation of type and host name, but can be anything as long as it is unique.
   - **VOVDIR**: If the installation directory (VOVDIR) is different between the LM server and the agent machine, specify the VOVDIR location as seen by the agent.

     Use the default if the paths are equivalent or if using vovssd to control the agent. Use / in paths, even on Windows. Examples are '/opt/rtda/2013.09/linux64' and 'c:/rtda/2013.09/win64'.
   - **Access Method**: Select the access method, local, rsh, ssh or vovssd.
     - If remote, the method must work without a password. For Unix, consider either ssh or rsh.
     - For Windows, either OpenSSH must be installed or RTDA's vovssd communication daemon must be used. The vovssd port is tested no more than once every 5 minutes.
4. Click the **Add Agent** button to register the agent with the system. The agent can now be started by clicking the **Start All Agents** button or by clicking the **Start** button.

   Please Note: For agents started via rsh or ssh, the default value is the value of $VOVDIR for the LicenseMonitor instance. For vovssd agents, the default value is $VOVDIR for the vovssd instance.

   If a different value of $VOVDIR is desired, you can override the default with file-based configuration.

5.7.3 ADD AN AGENT – FILE-BASED CONFIGURATION

To override default values and create an agent, perform the following steps:

1. To configure monitoring agents, go to http://localhost:5555/admin
2. Scroll down to the **Project Configuration Files** and click on the Slaves file link. The licmon.swd/slaves.table.tcl file.

Project Configuration Files	
*Equivalences file	${VOV_LICMGR_DIR}/licmon.swd/equiv.tcl
*Exclude file	${VOV_LICMGR_DIR}/licmon.swd/exclude.tcl
*Policy file	${VOV_LICMGR_DIR}/licmon.swd/policy.tcl
*Resources file	${VOV_LICMGR_DIR}/licmon.swd/resources.tcl
*Security file	${VOV_LICMGR_DIR}/licmon.swd/security.tcl
*Setup file	${VOV_LICMGR_DIR}/licmon.swd/setup.tcl
*Slaves file	${VOV_LICMGR_DIR}/licmon.swd/slaves.tcl

3. Add the hosts that are to be monitored.

   For example: DefineSlaveWithArgs HOSTNAME TYPE -rshcmd REMOTECMD -name AGENTNAME

   The value of HOSTNAME should be the DNS name or IP address of the host to be monitored.

   - For monitoring agents, the TYPE should be "lm".
   - For license management agents, the TYPE should be "licmgr".
   - Depending on the connection method desired, the REMOTECMD value should be one of rsh, ssh, or vovssd
   - If using vovssd, the argument "-vovssdport PORT" arguments must be passed as well, where PORT is the port number on which vovssd is running on the remote machine. For example:

     DefineSlaveWithArgs dragon lm -rshcmd vovssd -name lmdragon -vovssdport 16666
   - If the Runtime installation directory location ($VOVDIR) needs to be overridden use the -vovdir option to specify the desired location:

     DefineSlaveWithArgs dragon lm -rshcmd vovssd -name lmdragon -vovssdport 16666 \
     -vovdir /opt/rtda/2012.03/linux
4. When done, click the **Save** button.
5. Once the agent has been properly configured, it can now be started by clicking the **start all agents** button.

5.8 CONFIGURE A LICENSE SERVER MANAGER (ADMIN ONLY)

To configure a license server manager, perform the following steps:

1. Go to the **Control Center tab** and select the Server and **File Control** option.
2. Choose the License server tag you wish to configure or edit.

   The configuration will display.

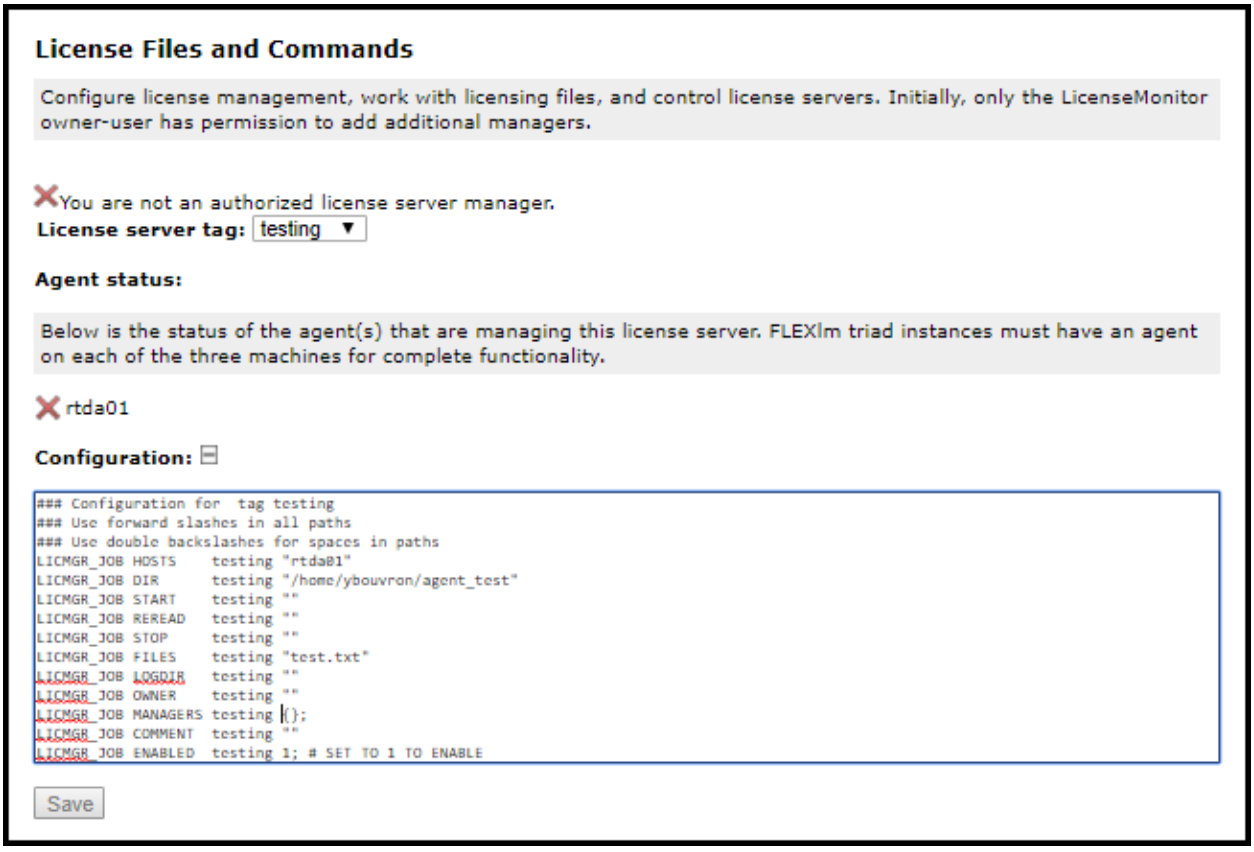


Figure 104: License Files and Commands

You can edit the following parameters:

- **HOSTS**: This shows the host on which the license server instance is running. This is normally one or three hosts. Multiple hosts should be separated by a space.
- **DIR**: The directory in which the license server instance is to be started. This is normally a single directory, but could be a list of directories if HOSTS refers to a triplet and the directory is different on each of the different hosts. If the HOSTS line shows more than one host, then the first directory is used for the first host, the second for the second host and so on. If there are less directories than hosts, then the last directory is used for each host in excess to the number of directories.
- **LOGDIR**: The default location for LicenseManager job logs is the directory specified by the DIR setting. If another location is desired, specify the absolute path with the LOGDIR setting.
- **START**: The command to start the daemon. This command will be executed in the directory specified. This command can be empty if the start capability is not wanted.

- **STOP**: The command to stop the daemon; this command will also be executed in the directory specified. This command can be empty of the stop capability if desire.
- **REREAD**: The command to force a reread of the license file. This command can be empty of the reread capability if desires.
- **FILES**: This is a list of paths relative to the directory DIR. Normally this is the license file and the options file, but the list may also include other files. These are the files that can be fetched and deployed by LicManager. The list can be empty if file fetching and publication capabilities are not wanted.
- **OWNER**: The user that owns the license daemon. Ideally, this should be the same user as the owner of LicenseMonitor, but in many cases this must be a different user. This user exists in the remote system(s) specified in the HOSTS line. If left empty, it is assumed that the owner is the same as the owner of LicenseMonitor.
- **MANAGERS**: The users of LicenseMonitor that have authorization to perform license management tasks. If left empty, it is assumed that the only manager is the same as the owner of LicenseMonitor.
- **COMMENT**: A comment field that can be used to communicate status between team members.
- **ENABLED**: A flag to enable the processing of the configuration file. To enable, set the flag to 1.

  The ControlCenter will try to fill in reasonable defaults for those tags that are already being monitored by using LicenseMonitor's tracked data.

3. Once you've configured the tag appropriately, click the **Save** button.

   This saves the configuration and creates the jobs for starting, stopping and rereading the daemon, and fetching and publishing jobs for each managed file specified in the configuration.

5.9 EDIT A NOTIFICATION

To configure the default notifications that come with LicenseMonitor, perform the following steps:

1. Go to the **Admin** tab and select the **Notification** option and then select **Health Check**.

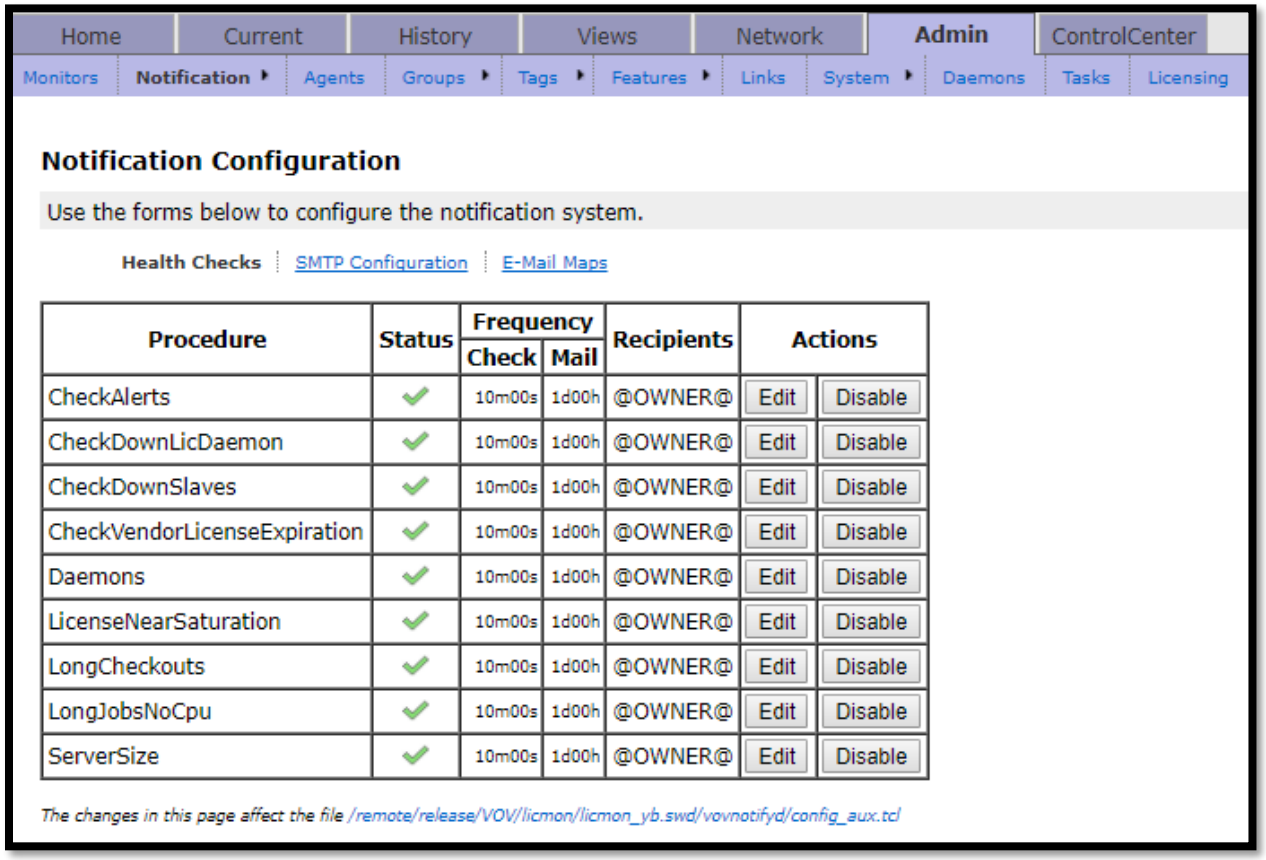


Figure 105: Editing a Notification

This displays all the following notifications; they have default values, which can be changed.

- **CheckAlerts**: This sends an email if there are active alerts in LM.
- **CheckDownLicDaemon**: This sends an email if LicenseMonitor has lost a connection to a server that it is monitoring:
- **CheckDownSlaves:** This sends an email if any of the slaves are down.
- **CheckVendorLicenseExpiration**: This sends an email if when license is going to expire. The default is 10 days before expiration.
- **Daemons**: This sends an email if the daemons are down.
- **LicenseNearSaturation**: This sends an email if the feature is nearly fully utilized; the default is 95 percent – that implies that 95 percent of the feature is being used.
- **LongCheckouts**: This sends an email if there is a checkout longer than 30 days.
- **LongJobsNoCpu**: This sends an email if the license is checked out – but there is no CPU activity.
- **ServerSize**: This sends an email if the size of the server increases by 1.5 times.

2. Click the **Edit** button for a specific alert. A new window displays.

   If you click the **Disable** button, you can disable the notification.

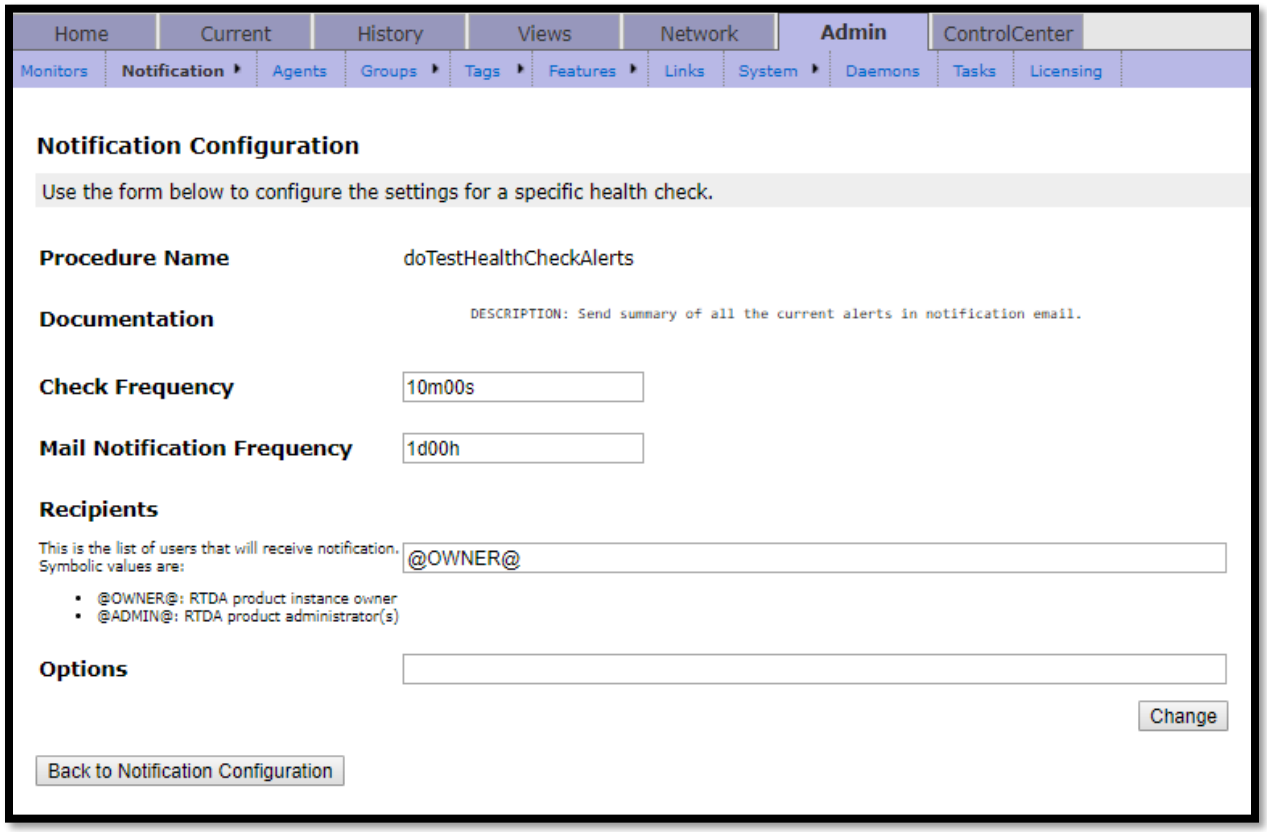


Figure 106: Configuring Notification Emails

3. From **Notification Configuration** page, you can change the following items:
   - **Check Frequency**: This sets the frequency for check.
   - **Mail Notification Frequency**: This sets the frequency for the notification.
   - **Recipients**: This is the list of owners who will receive notifications. Add emails separated by a space.
   - **Options**: The options are shown under the documentation section of this page, and you can enter in changes accordingly here.
4. Click the **Change** button to save your changes.

5.10 PARSE A DEBUG LOG

To investigate data obtained from a file or with the parsing file itself, you can parse a debug log and gather denial and/or utilization data. LicenseMonitor will parse the log every 12 hours, by default.

5.10.1 ADJUST THE PARSING RATE

To adjust the parsing rate, perform the following steps:

1. Go to the **Admin** tab and select the System option and then **Configuration** Information.

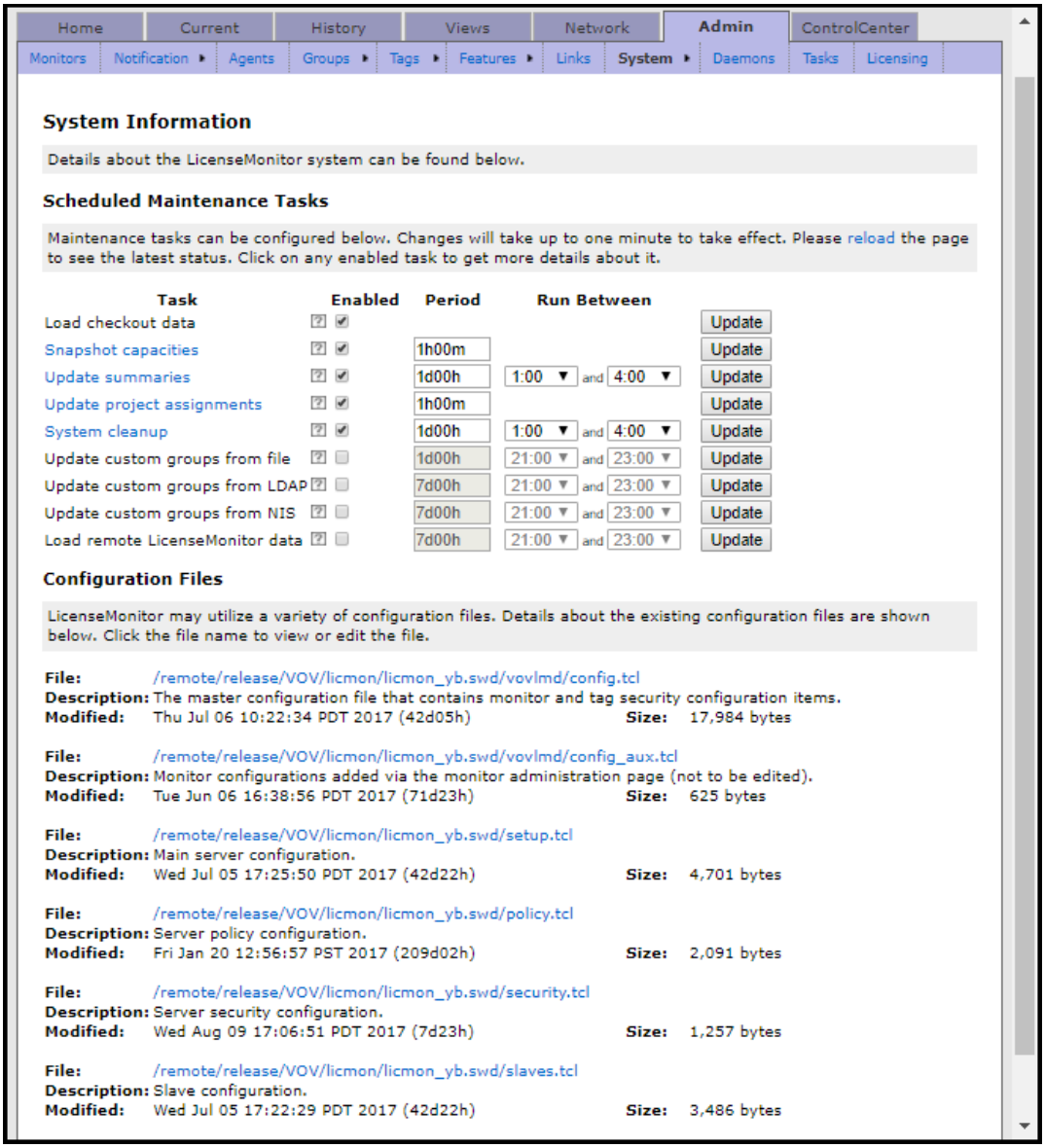


Figure 107: Adjust the Parsing Rate

2. Make changes to the time period as desired, and then click **Update**.

5.10.2 MANUALLY PARSE A DEBUG LOG

If the debug log environment is not suitable for live monitoring, logs can be manually parsed using the appropriate parsing command for each license manager type:

- FLEXlm™ debug logs
- DSLS™ debug logs
- Altium™ debug logs

This section describes how to enable FLEXlm™ debug logs using a static or a daily rotating debug log. We recommend using a daily rotating log.

This process takes several steps.

5.10.2.1 STATIC DEBUG LOGS

A static debug log is one that captures both the lmgrd and vendor daemon output. The lmgrd daemon contributes date stamps, while the vendor daemon contributes all license activity. (Lmgrd is the FLexLM daemon, which allows LM to gather data.) At license server startup time, pass the -l </path/to/debug/log> option to lmgrd. This will create a debug log that will contain all of the information necessary for LicenseMonitor to properly analyze the log contents. However, this file is not rotatable, and will require a restart of the server to rotate the log. This type of log will also grow over time, the rate at which is determined by the amount of activity on the license server. Hence, we recommend you use the daily rotating debug log.

5.10.2.2 ROTATING DEBUG LOGS (RECOMMENDED)

A rotating debug log is one that captures only the vendor daemon output, which means there will be no date stamps in the file. Because of this, there is a chance for inaccurate assumptions in the log. For example, if license activity ceases for more than 24 hours, the day will become unknown due to there not being a visible roll-over at midnight.

To address this, the log must be rotated daily, typically a few minutes after midnight. This ensures that the license activity is current for an 24-hour period and will keep the file size small. LicenseMonitor will need to be configured to automatically look for a daily log file. For this to work properly, the debug log must be rotated to a file with a name reflecting the current date, in the format of <fileName>.<YYYYMMDD>, using the lmswitch command in conjunction with a task scheduling facility.

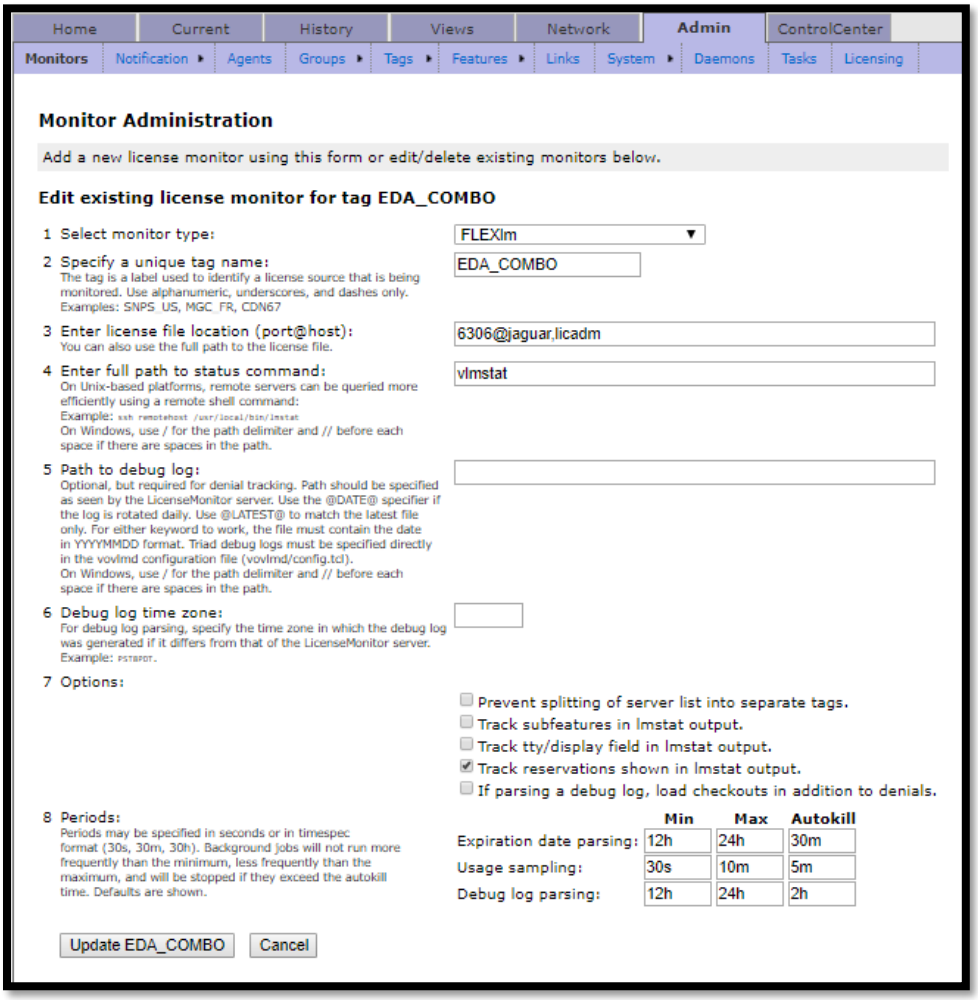
5.10.3 SET UP LM TO MANUALLY PARSE DEBUG LOGS

You must configure LM to look for a daily a log file a use standalone or a joint configuration. We recommend joint configuration

5.10.3.1 JOINT CONFIGURATION FOR PARSING DEBUG LOGS – WEB-BASED

To set up LM for joint configurations, perform the following steps:

1. Go to the **Admin** tab and select **Monitors**.
2. Scroll down to the **Edit Monitors** section and select a monitor – click **Edit. I**f you don't see the edit option – go to the file configuration section.



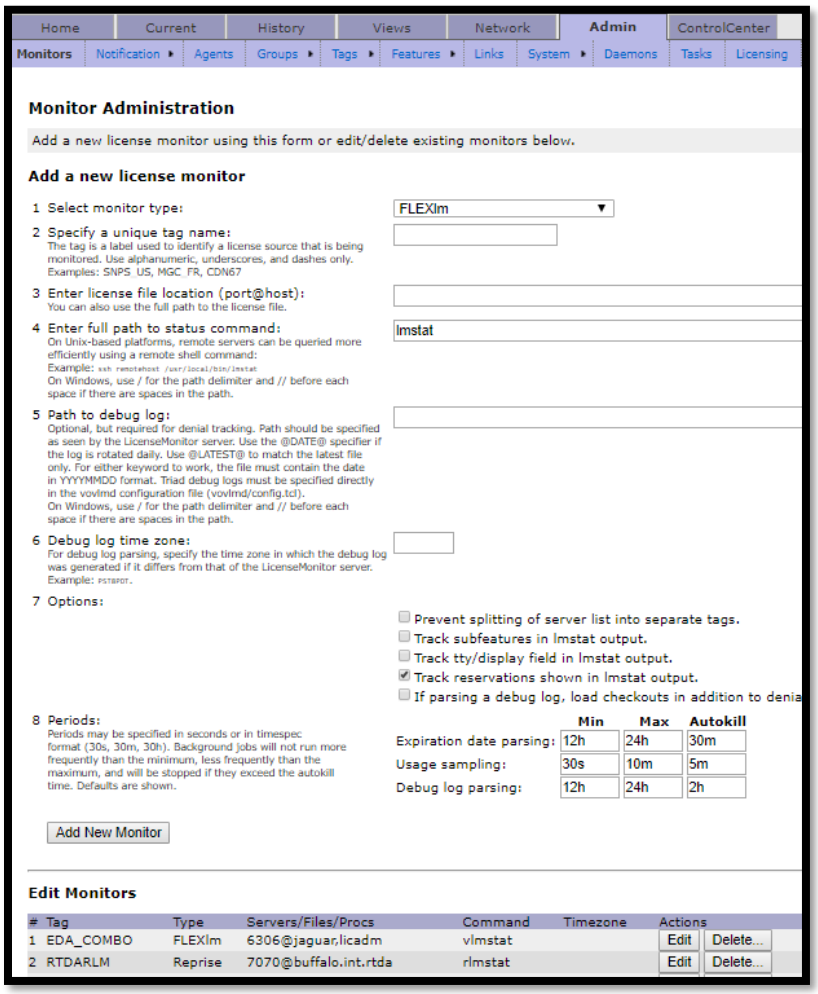
3. Enter the path to the debug log (use the @DATE@.nameoflog).

   Please note: For either key word to work the date must be in the following format yyyyMMDD
4. Enter the Time zone, if different from that of the LicenseMonitor
5. Click the **Update Tag Name** button.

5.10.3.2 STANDALONE CONFIGURATION FOR PARSING DEBUG LOGS – WEB-BASED

To set up LM for standalone configurations, perform the following steps:

1. Go to the **Admin** tab and select **Monitors**.



2. Select the Monitor Type.
3. Specify a unique tag name.
4. Enter the license file location.
5. Enter the full path to the status command, if needed.
6. Enter path to debug log (use the @DATE@.nameoflog) note that for either key word to work the date must be in the following format yyyyMMDD
7. Enter the Time zone, if different from that of the LicenseMonitor server.
8. From Options, you can click “If parsing a debug log, load checkouts in additional to denials”. Click this ONLY if you don’t have live sampling. We don’t recommend this.
9. Select periods – default periods can be changed, but we recommend you keep the defaults.
10. Add **New Monitor**.

5.10.3.3 JOINT CONFIGURATION FOR PARSING DEBUG LOGS – FILE-BASED CONFIGURATION

To add denial data from a debug log to an existing tag, perform the following steps:

1. Go to the command line interface.
2. Go to the path/to/licmon.swd – go to the licmon swd / vovlmd
3. Edit the config.tcl file and edit the tag.
4. Add -debuglog </path/to/log>
5. Save the file.

5.10.3.4 STANDALONE CONFIGURATION FOR PARSING DEBUG LOGS – FILE-BASED CONFIGURATION

To add denial data from a debug log to an existing tag, perform the following steps:

1. Go to the command line interface.
2. Go to the configuration commands section of the Admin Guide.
3. Choose the configuration that you'd like.
4. Edit the config.tcl file and edit the tag.
5. Add_DEBUG_LOG </path/to/log> -tag <TAG> [options].

For example, for FLEXLM debug log – add_DEBUG_LOG

- Go to CLI.
- Go to path/to/licmon.swd.
- Go to the licmon swd / vovlmd.
- Edit the config.tcl file and edit the tag.
- Add_DEBUG_LOG </path/to/log> -tag <TAG> [options]
- add_DEBUG_LOG </Users/ybouvron/rtda/Cadence/@DATE@.log> -tag CAD_LOG -tz PST8PDT -minPeriod 12h -maxPeriod 1d -autokill 2h

5.11 REMOVE A TAG

You may want to edit or remove tags that were created to a monitor a license server.
Please note: Any name change will only change the name going forward; it will not change any historical data. So if the tag changed was cad_WAN_SC and is changed to cad_WAN_AUS on Jan 1, 2017, you need to use the old name to pull reports prior to that date.

To remove a tag, perform the following steps:

1. Go to the **Admin** Page, and select the **Monitors** tab.

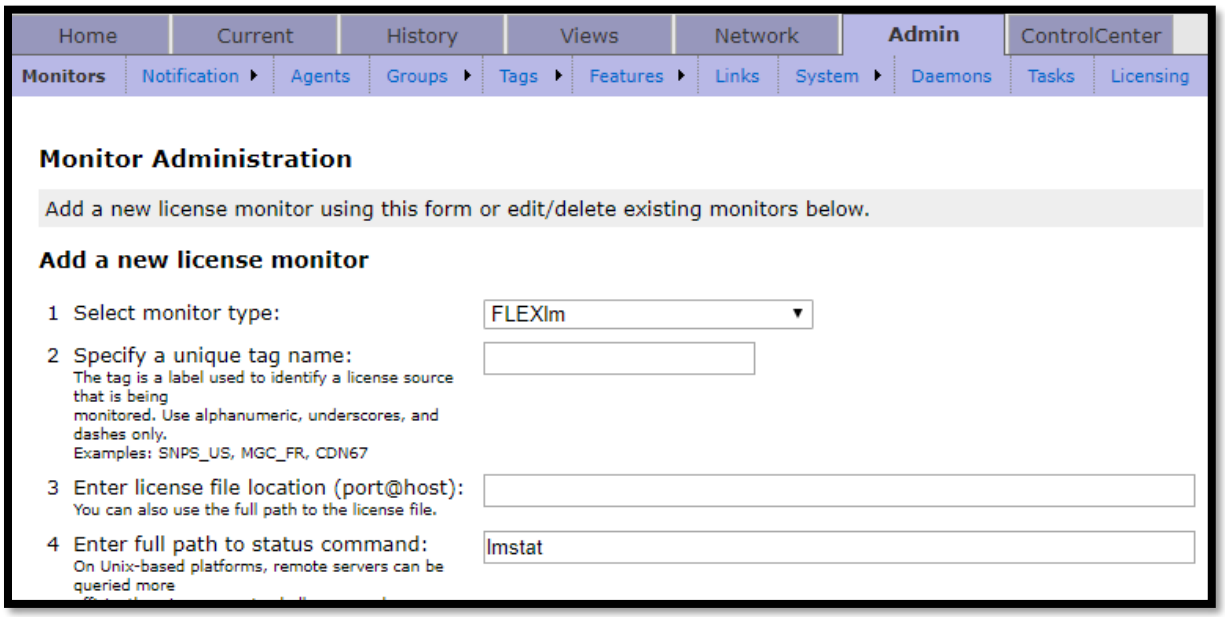


Figure 108: Admin Tab Monitors Option

2. Scroll down and find the tag that needs to be removed, and click the **Edit** button. A new window appears. Scroll down again, and click Delete" on the right hand side of that TAG.

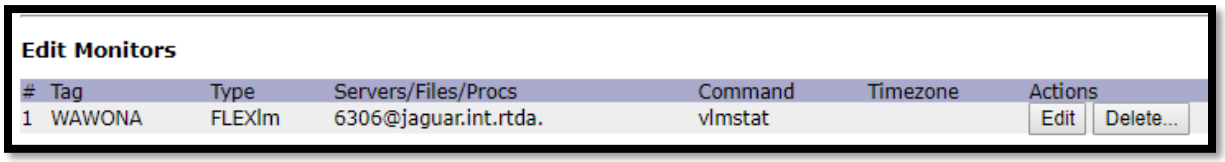


Figure 109: Edit Monitors

3. Go to the **Admin** page, and select the **Tags** tab and then **Server**.

   Please note: Ensure that the top left of the page says "Tag Administration (server)" and NOT "Tag Administration (database)" or it will delete the tag from the database.

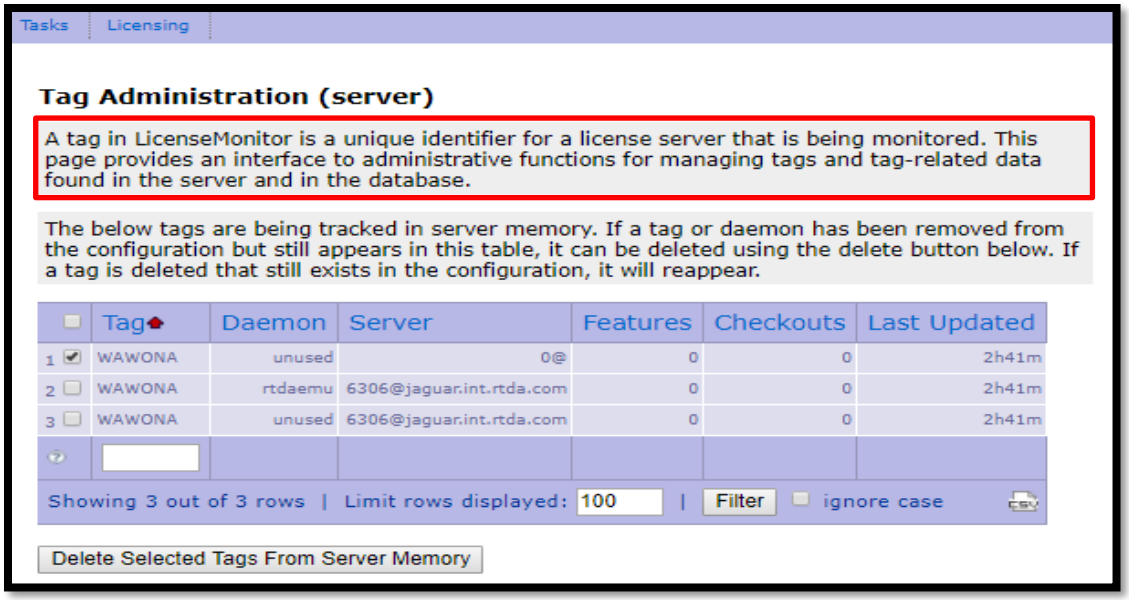


Figure 110: Tag Administration

4. Click the checkbox by the Tag you wish to delete.
5. Click the **Delete Selected Tags from Server Memory** button.
6. Go to the **Admin** Page and select the **Tasks** tab. The Periodic Job List will display. Find the ".info" and ".stat" jobs for the Tag of your choosing.

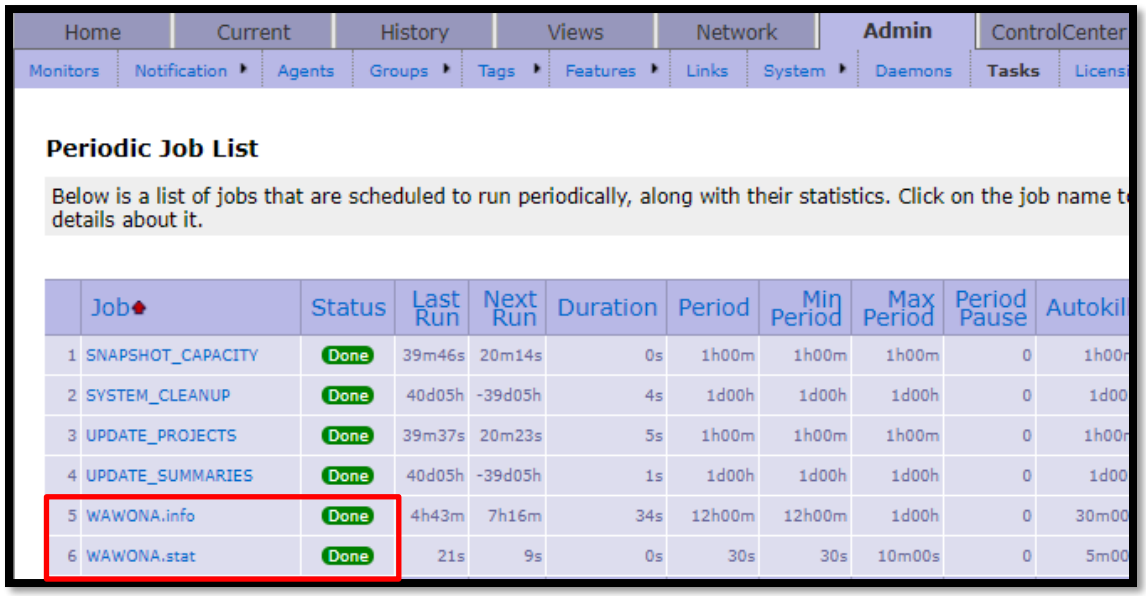


Figure 111: Periodic Job List

7. For each of the jobs, click on the Job name (highlighted in blue) and the **Admin Job** page will display.

Figure 112: Job Admin Page

8. In the upper right corner, click on the trash can icon to **Forget** the job, click **Confirm**.

5.12 RENAME A TAB

To rename a tag, perform the following steps:

1. Go to the Admin Page, and select the Monitors tab.
2. Scroll down to the bottom, find the tag that needs to be removed, and select “Edit”.
3. Change the name of the tag name and click the Update button at the bottom of screen.

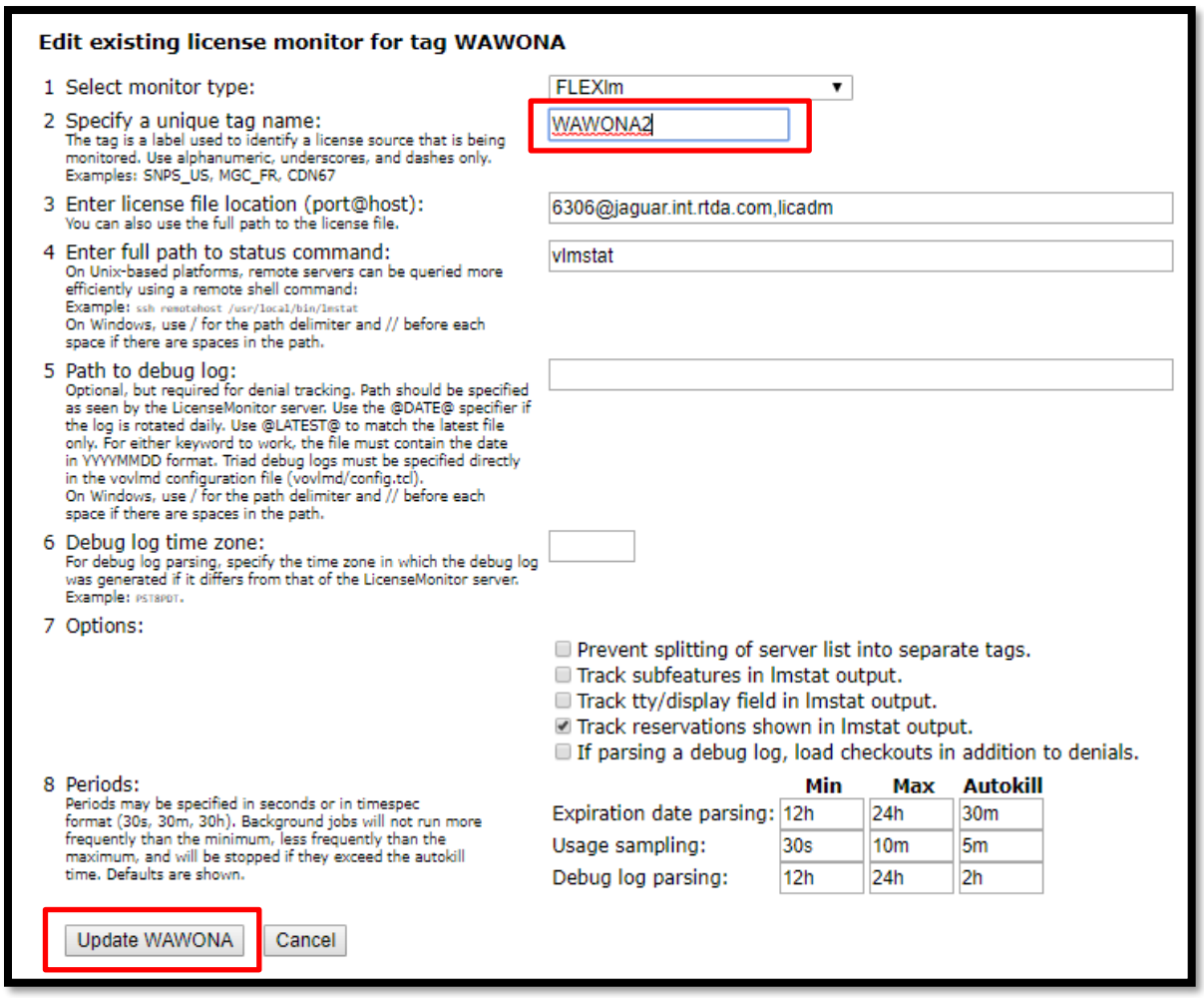


Figure 113: Renaming a Tag

4. You need to delete the tag you just renamed from two different places.
5. Go to the **Admin** page, and select the **Tags** tab and then Server.
6. Ensure that the top left of the page says "Tag Administration (server)" and NOT "Tag Administration (database)" or it will delete the tag from the database.

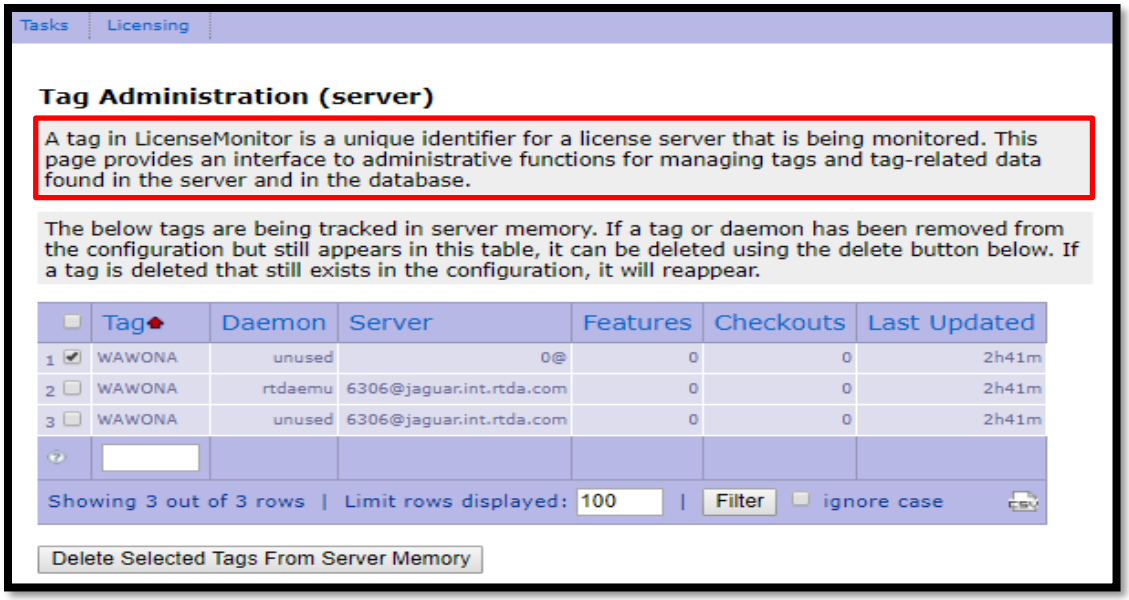


Figure 114: Tag Administration

7. Click the checkbox by the Tag you wish to delete.
8. Click the **Delete Selected Tags from Server Memory** button.
9. Go to the **Admin** Page and select the **Tasks** tab. The Periodic Job List will display.

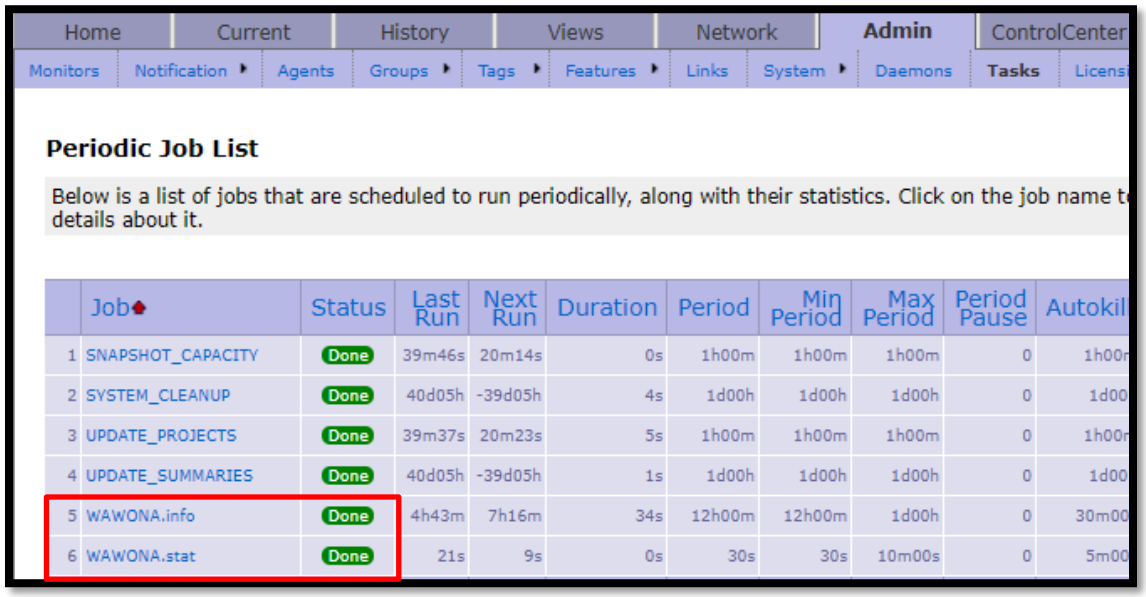


Figure 115: Periodic Job List

10. Find the ".info" and ".stat" jobs for the Tag of your choosing.
11. For each of the jobs, click on the Job name (highlighted in blue) and the **Admin** job page will display.

Figure 116: Job Admin Page

12. In the upper right corner, click on the trash can icon to **Forget** the job, click **Confirm**. You're done.

5.13 ENABLE LICENSEMONITOR TO DETECT SHORT LICENSE CHECKOUTS

If a given license checkout is not showing up in your checkout history report, it could be due to the timing of the sampling period. By default, LicenseMonitor uses a sampling period of 30 seconds to check the status of each license. To detect license checkouts less than 30 seconds, you need to change the sampling period.

5.13.1 CHANGE THE SAMPLING PERIOD FOR ONE LICENSEMONITOR INSTANCE

To change the sampling period, perform the following steps:

1. Go to **Admin** Page and the **Monitor** tab.
2. Scroll down to the last section, **Section 8**.

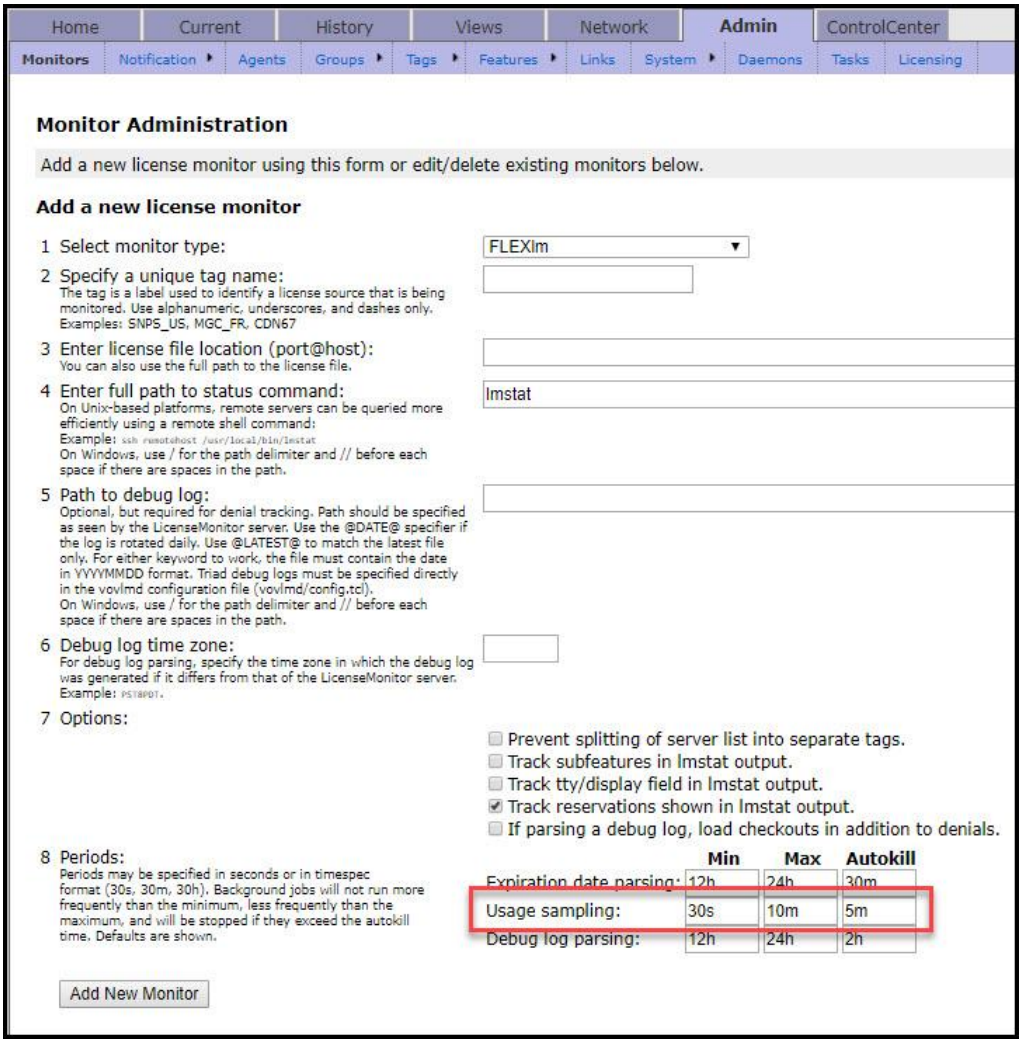


Figure 117: Admin Page – Monitor Option

3. Change the timing of the "Usage sampling" option to the desired minimum. You're done

5.13.2 REDUCE THE SAMPLING PERIOD FOR ALL LICENSE MONITORS

Please note: Reducing the sampling rate can significantly increase the load on your LicenseMonitor instance. We do not recommend setting the refresh rate below 10 seconds, without close monitoring of the system response following the configuration change. This is especially true on installations with a large number of license servers being monitored. If you still need faster sampling rate, more parsing resources may need to be configured. Please contact Runtime support.

To reduce the sampling period for all license monitors at once, perform the following steps using the Command Line Interface:

1. For Linux Installations, enter :

   ```
   vovproject enable licmon
   cd `vovserverdir -p vovlmd
   ```

   Windows Installations:

   ```
   vovproject enable licmon
   vovserverdir -p vovlmd
   cd /path/shown/above
   ```

2. Edit the file in this directory called "config.tcl". Look for the refresh rate line:

   ```
   Set VOVLM(refresh) 30
   ```

3. Change it to the desired sampling rate. LicenseMonitor will automatically pick up the change on its next cycle.

5.14 MOVE A LICENSEMONITOR DATABASE

To move a LicenseMonitor database, you need **Admin** permissions. Assuming you have those permissions, perform the following steps:

1. Login to LM.
2. Go to the **Admin** page of LM and select **System > Configuration Information** option.

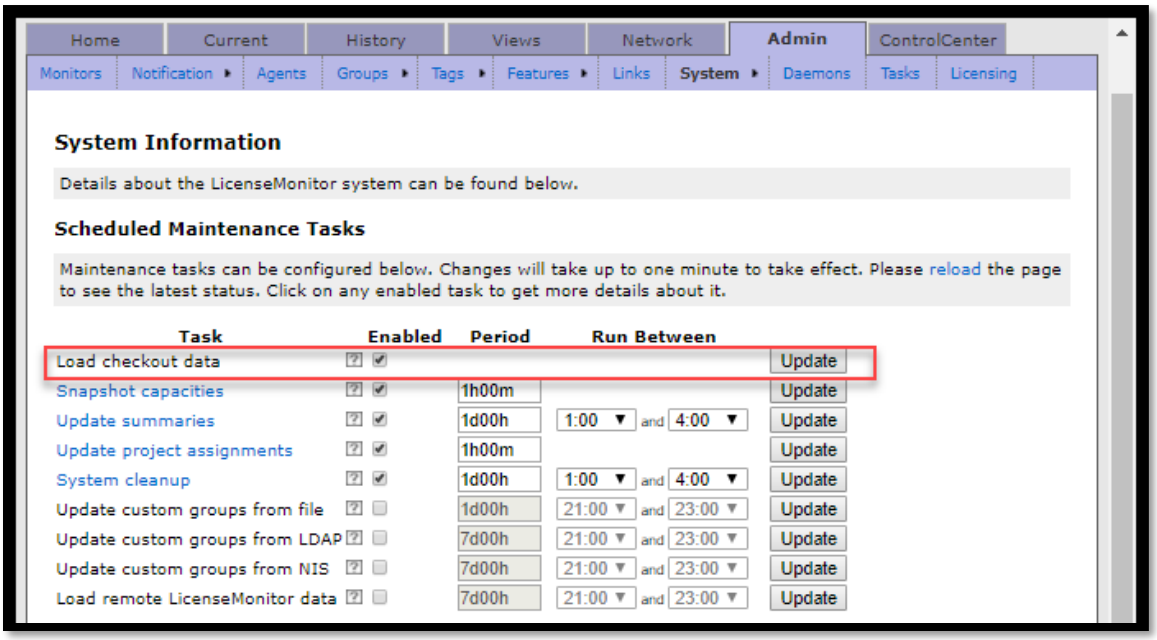


Figure 118: System Configuration

3. Uncheck **Load checkout data** box and click the **Update** button.
4. From the command line, run
   - %vovproject enable licmon
   - %pgmgr stop
5. Go to the directory where the licmon.swd is located and find where the database is stored under licmon.swd > db >config.tcl
6. Go to that directory and copy the entire postgresdb directory into the new location.
7. Edit the config file under licmon.swd>db.
8. Change the path of sqlconfig(datadir) to the new path.
9. Back in the xterm %pgmgr start.
10. Return to LM web interface and re-check the **Load checkout data** box and click the **Update** button.

    It may take a couple minutes for everything to start back up, but it should all be working now.

6 TROUBLESHOOTING

6.1 NO HISTORICAL DATA IS BEING DISPLAYED

If no historical data is being displayed, check the following items and take the recommended steps:

1. If the installation is new, it will take at least one hour for the database to be loaded with data by default. So wait the appropriate amount of time.
2. If viewing either the Daily Statistics or Daily Plots page under the **History** tab, the summarized data in these reports is built overnight, so you will not see data for the current day.
3. Verify that the license is visible and valid. Go to the **Admin** tab, and select the **Licensing** option. If your license is valid, it should display.

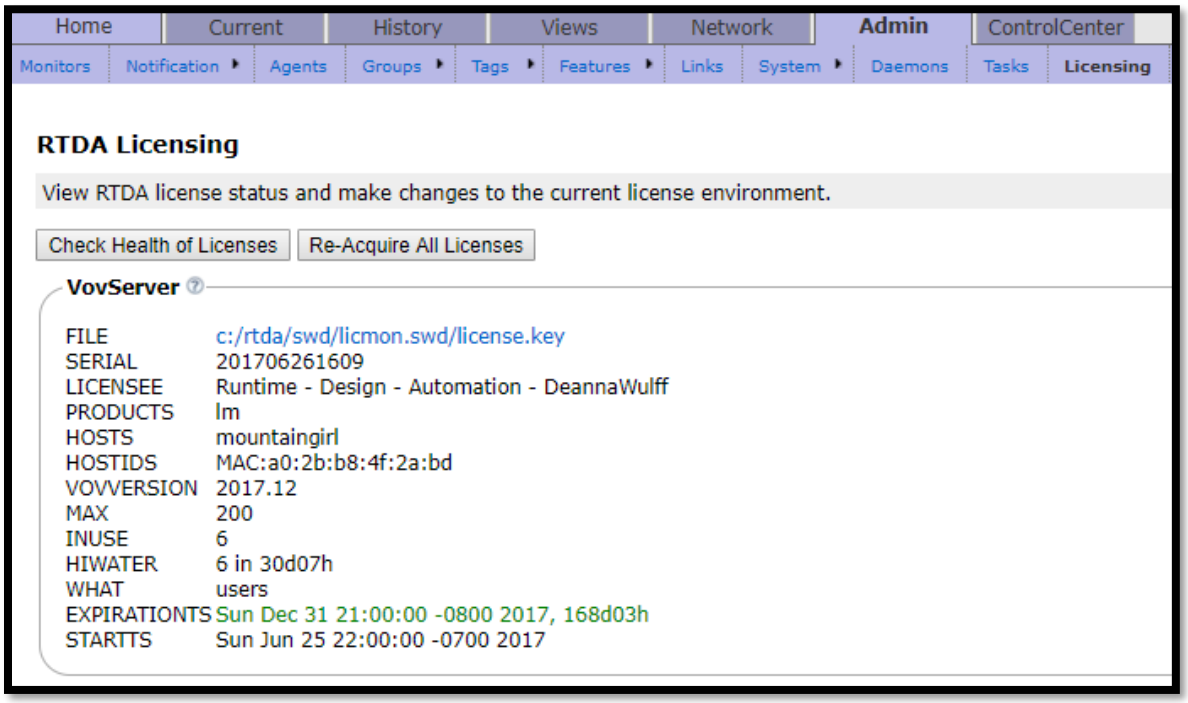


Figure 119: RDTA Licensing

4. Verify that the vovdbd daemon is running. Go to the **Admin** tab, and select **Daemons** option.
5. If the page shows that vovbd is not running, because it is down, then click the refresh button.

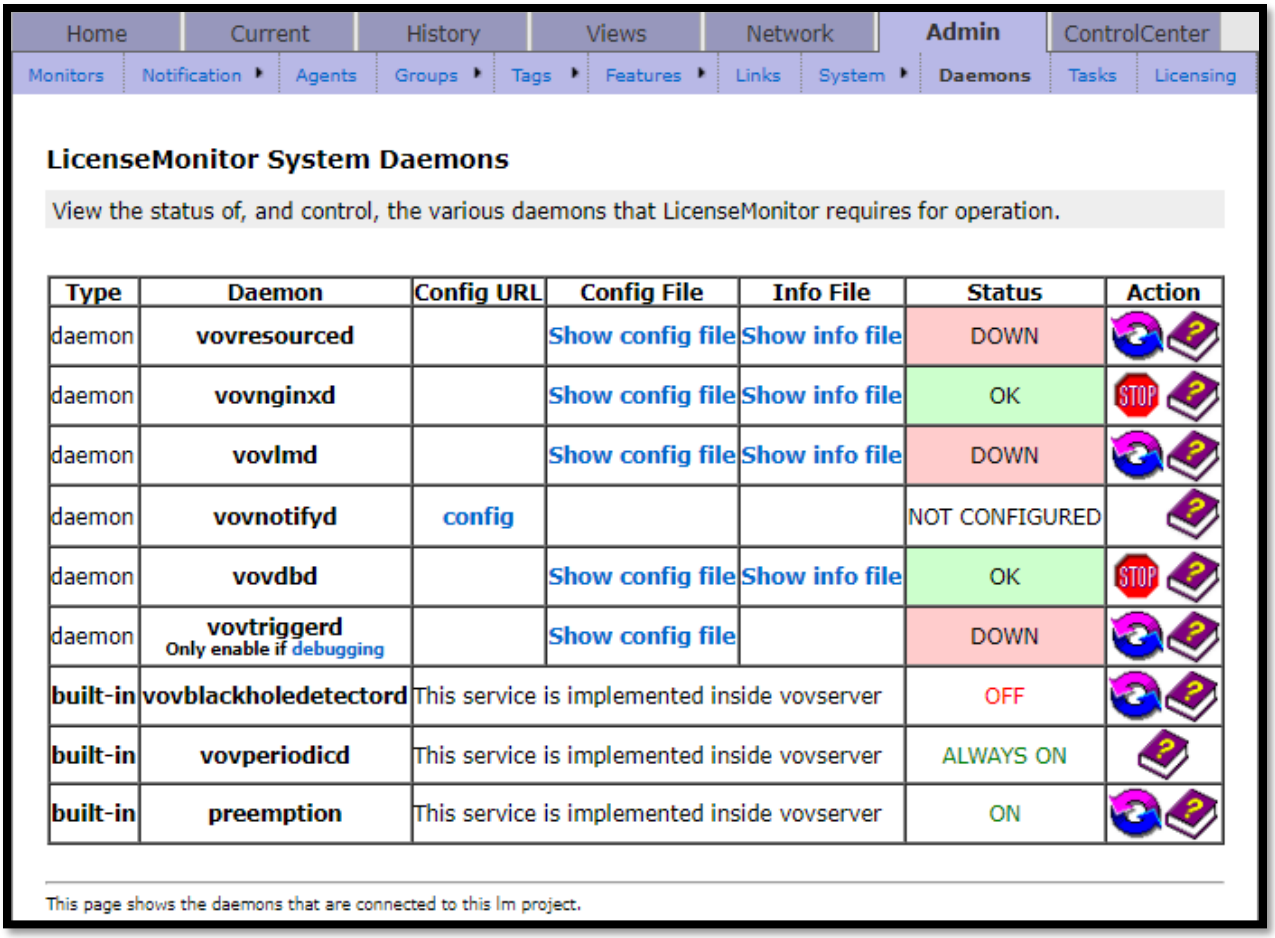


Figure 120: Daemons Page

6. Verify that the database is running. To do so, go to the **Admin** tab, and select the **System > Database Information** option.
7. If it's not running, then verify that the live_load_checkouts task script exists in the licmon.swd/tasks directory.

6.2 I'M NOT RECEIVING NOTIFICATION E-MAILS

1. If the **vovnotifyd** daemon is not configured or is down, you won't receive e-mails. To check the status of the vovnotifyd daemon, go to the **Admin** tab, and select the **Daemons** option.

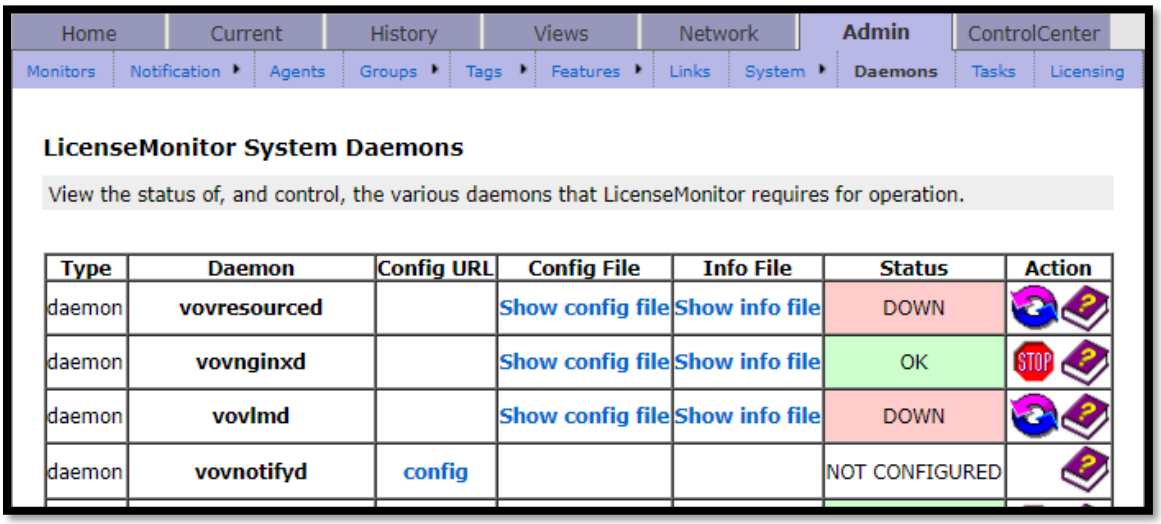
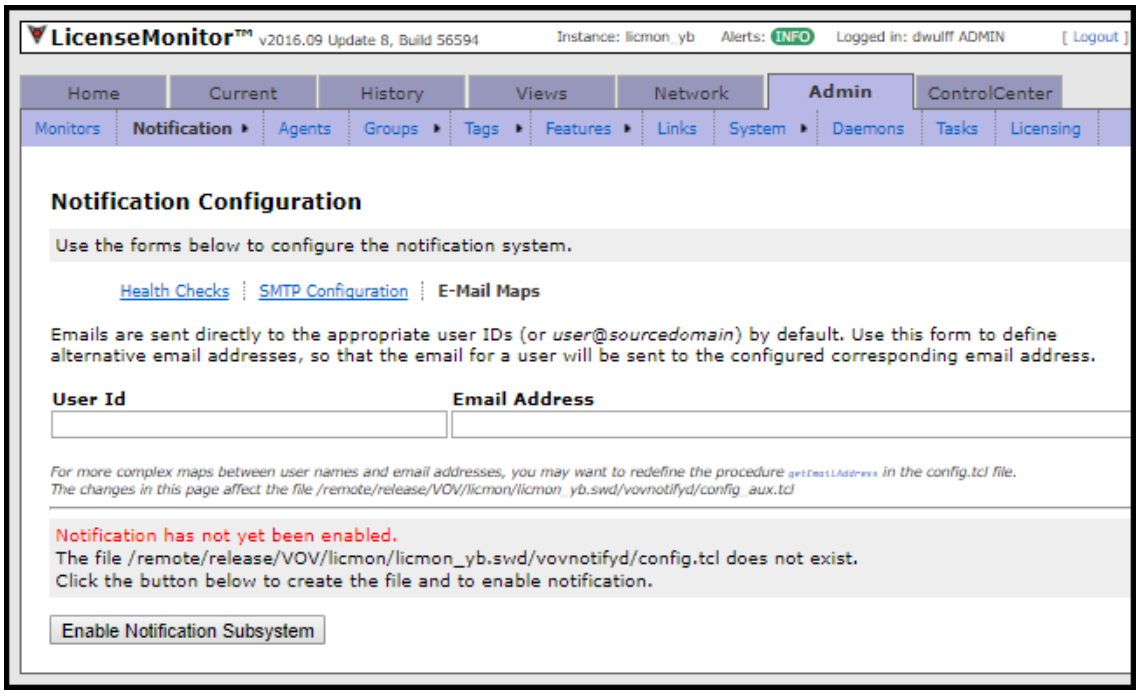


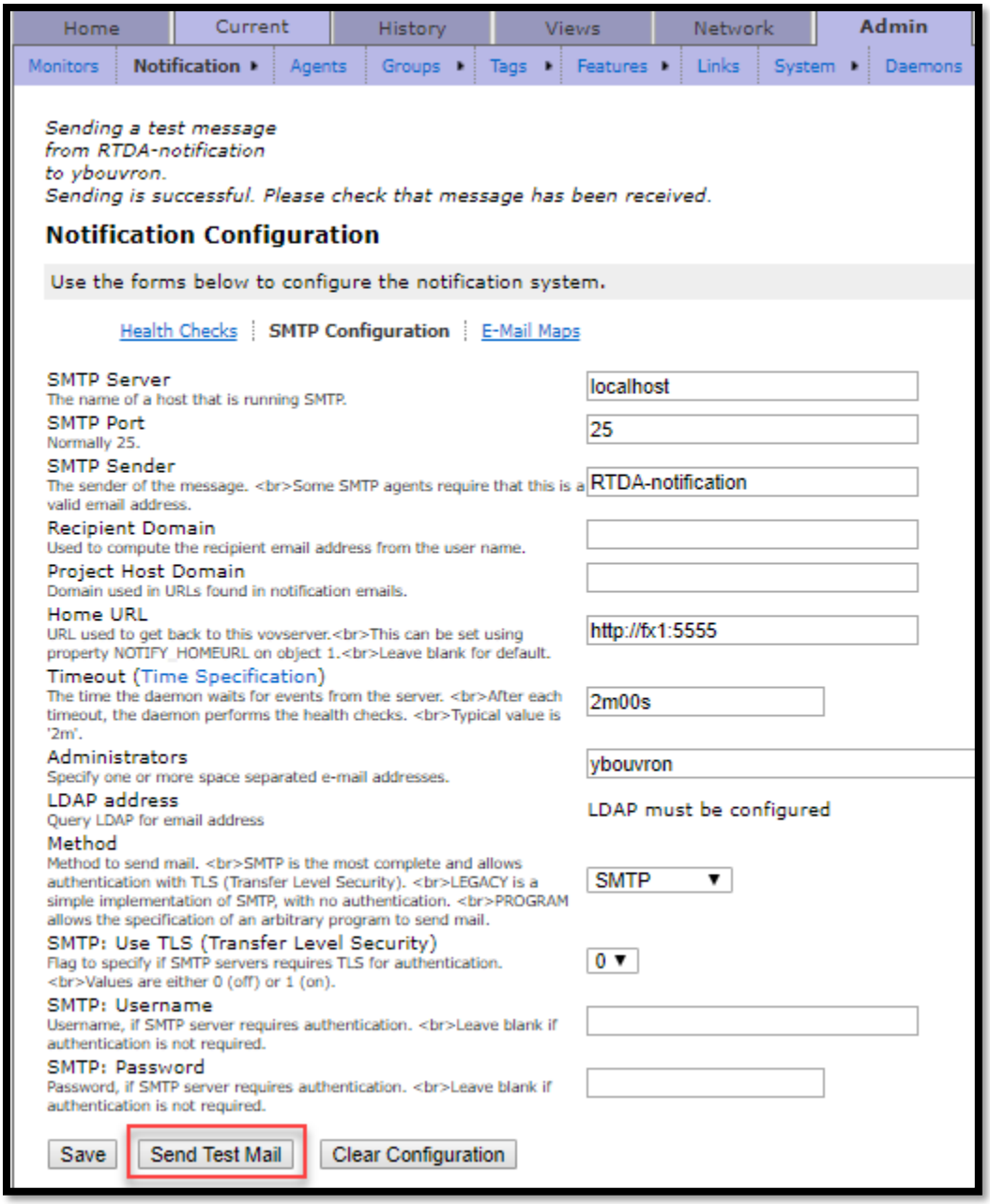
Figure 121: Daemon Status

2. If it shows not configured, then go to **Admin** tab, and select **Notifications** and then **Email Maps**.



3. Enter your **User ID** and **Email Address**, and click **Enable Notification Subsystem**.

   The new page appears.



4. Click **Send Test Mail**. If the mail is received, the configuration is correct and other notifications should work as well.
5. The vovnotifyd daemon uses operating system user names as the basis for email addresses. If this user name does not resolve in the email system, an email address map will need to be specified in the notification configuration.
6. Click on the **E-mail Maps**. From the Notification Configuration page, enter the user name and address. Click **Add**.
7. Now, send a test e-mail. If no email is received, contact customer support.

6.3 THE WEB INTERFACE IS NOT RESPONDING

- The vovserver is down.
- The vovnginxd daemon is down.
- DNS is not configured to allow a route to the LicenseMonitor server host.
- A firewall may be running that is blocking access to the LicenseMonitor server port (5555 by default).
- If the Runtime installation or the licmon.swd is located on a network share, verify that the share can be reached from the LicenseMonitor server host.

6.4 I'M NOT RECEIVING UPDATED DATA FROM LICENSE SERVERS

- The vovlmd daemon must be running to schedule the jobs. Check it via the **Admin > Daemons** page.
- Check that the parser slave is running via the /slaves page
  - Go to http://localhost:5555/admin.
  - Scroll down to the Project Configuration Files section, click on **Slaves file** link.
- Check that the load average on the system is not too high.
  - The default parser slave has 4 job slots and a maxload of 10.0.
  - If the load average is too high, the parser will halt the execution of new jobs until the load average drops below the maxload value.
  - Try to prevent other CPU-intensive processes from running on the same machine.
- Check the output of the most recent parsing job.
  - Go to the **Current** tab and select Data.
  - Or go to the licmon.swd/vovlmd directory to see if the status command is having problems executing.

6.5 ALERTS FOR A LICENSE SERVER BEING MONITORED ARE INTERMITTENTLY THROWN

Status command failures are commonly seen, possibly due to network connectivity glitches, bugs in the license server status command, or other external influences. Since LicenseMonitor keeps the most recent parsing job output only by default, this log cannot be used to track down the root cause of intermittent failures. There is an advanced debug feature available to keep an archive of all parsing runs for these cases though.

To enable this feature, go to the **Admin** tab and select the **Daemons** page.

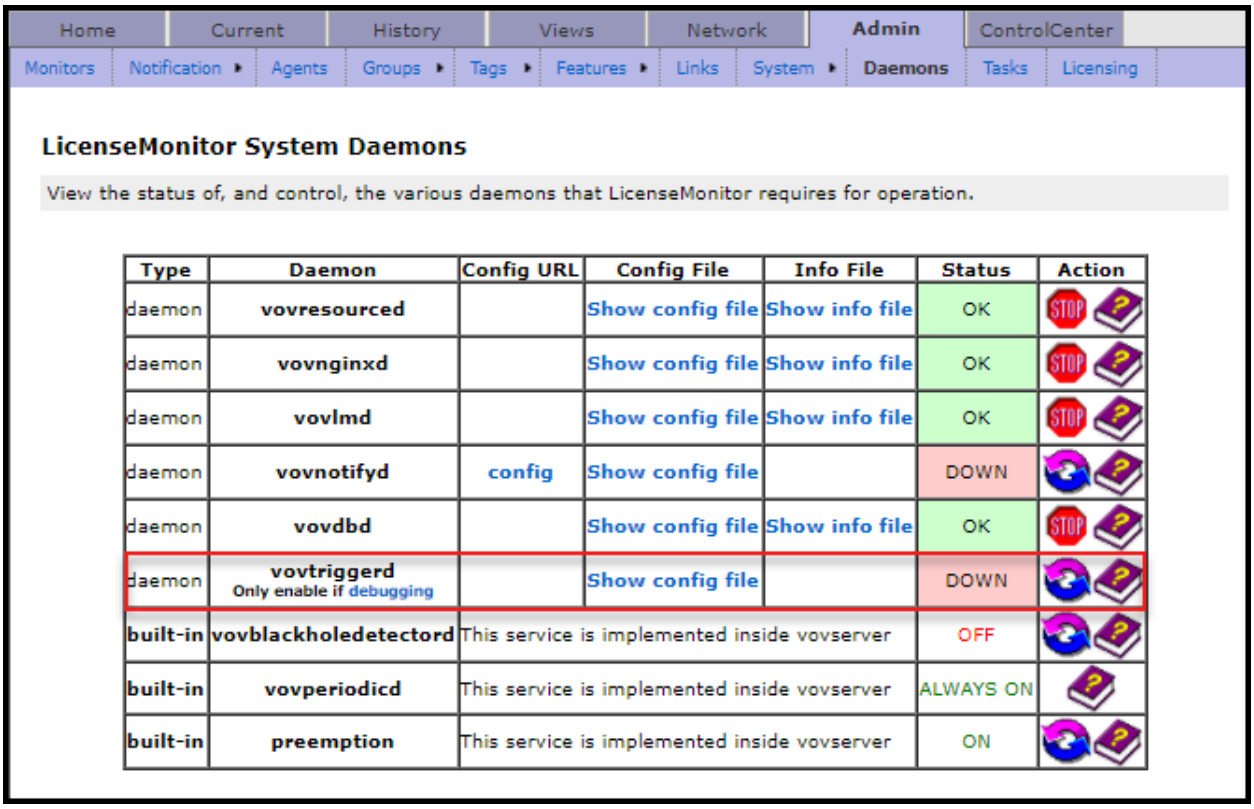


Figure 122: Vovtriggerd

- Activate the vovtriggerd daemon. This daemon will copy (and on Unix, compress) each parsing job log if the job fails.
- The copies are stored in the licmon.swd/logs/parser directory.

Please note: Only use this feature when needed, since it can consume 2-3 times the disk space required for normal operation.

6.6 IMAGES ARE NOT SHOWING UP IN WEB PAGES

The images are retrieved from the readonly port (5556 by default) of the licmon server via HTTP.

- Check that readonly port is enabled.
- Check DNS/NIS setup and /etc/nsswitch.conf to be sure that the licmon hostname resolves.
- Set env-var VOV_HOST_NAME in licmon.swd/setup.tcl to a value that resolves to the LM server machine.
- If an IP address is the only way to access the machine from other hosts, add VOV_HOST_HTTP_NAME with the desired IP address to the setup.tcl file and perform a reread. To make the change effective immediately, also enter the following commands at the shell. This sets the env-var in the running vovserver.

```
% vovproject enable licmon
% vovsh -x "vtk_server_setenv VOV_HOST_HTTP_NAME <VALUE>
```

- If you are viewing LM over a port-forwarded tunnel through ssh, e.g -L 5555:jaguar:5555, the host names differ on each end of the connection. The only way we know to deal with this is to make the LM host an alternate name for 'localhost'. For the above example, where the remote host is 'jaguar', your line in the hosts file would be similar to:

```
% 127.0.0.1 localhost jaguar
```

6.7 THE DROP-DOWN MENUS DO NOT STAY OPEN IN INTERNET EXPLORER

This is caused by compatibility view, which forces Internet Explorer to render pages and process scripts in an older engine that is not always compatible with newer web technologies.

Turn compatibility view off to ensure navigation and plotting elements work correctly.

6.8 I CANNOT SEE A SPECIFIC TAG ANYWHERE IN THE INTERFACE

By default, tags that are not actively being monitored via sampling are hidden from the user interface. There may be cases where visibility is still desired though. Such cases would be:

- A tag for a license server that no longer exists but reporting capability is still desired.
- A tag for a FLEXlm license server that is not being sampled, but instead is being populated via a debug log.
- A tag for an Altium license server, which is solely populated via a log.

To ensure visibility for tags that fall under these conditions, use the setTagAccess configuration procedure. Tag access is defined in the licmon.swd/vovlmd/config.tcl file using the setTagAccess procedure. This procedure takes two arguments:

1. A single tag or a list of tags.
2. A single user name or a list of user names that are to be granted access to the tag being configured. The ADMIN keyword can be used to grant access to all configured administrators. The EVERYBODY keyword can be used to grant access to all users. This is the default behavior when the tag is being actively monitored via sampling.

   Example:

```
#
# This is a fragment of vovlmd/config.tcl
#
setTagAccess IN_MGC  "gupta sandeep mario"
setTagAccess IN_SNPS "gupta sandeep mario"
setTagAccess EU_MGC  "franz javier"
setTagAccess EU_CDN  "javier oliver"
setTagAccess IN_CDN  EVERYBODY
setTagAccess "CN_MGC CN_SNPS" "wchen"
```

If visibility of a tag needs to be restored to all users, the procedure must be called with the EVERYBODY keyword.

6.9 WHAT IS THE DIFFERENCE BETWEEN LM SAMPLES DATA AND LOGS DATA IN A HISTORY DETAILS REPORT?

When generating a report with LicenseMonitor, you can choose from two types of data origins: samples data or logs data. Samples data is the most exact data, and therefore, it is the default setting.

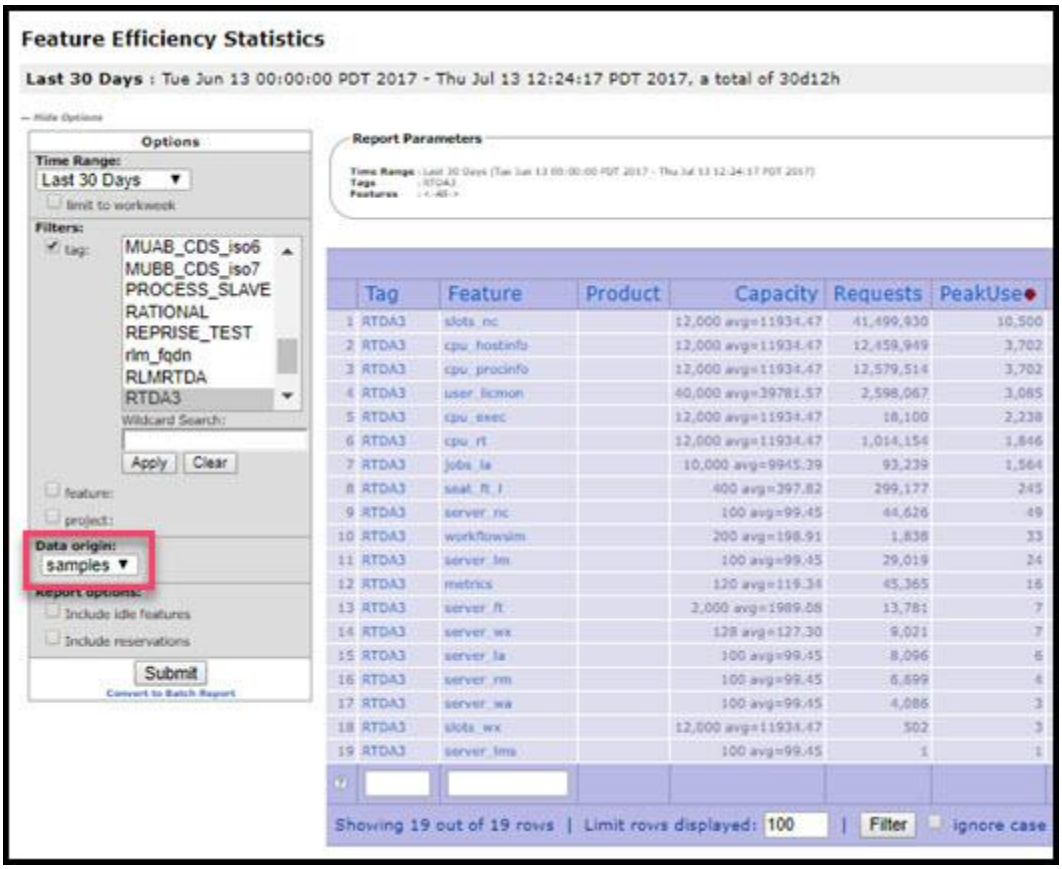


Figure 123: Data Origin

Samples data is derived from running lmstat, rlmstat, or the equivalent command for other licensing systems, against the live license server to obtain the current checkouts. This enables you retrieve denials data as well.

Logs data comes from parsing the debug log files from the license server. Unlike the samples data, logs data is inexact. It retrieves 1m resolution data, and does not retrieve the PIDs so it is impossible to match the OUT and IN lines to get correct checkout duration.

Only use the checkouts from logs data to get a general utilization number for time intervals when samples data is unavailable (e.g. before LM was started).

Please note: You will only have checkout data in the logs database if you have configured that tag to extract checkouts from the log files.