



FlexNet Report Designer 2016 R2

Guide

Package 2016 R2

Legal Information

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Introduction to FlexNet Report Designer Reporting

FlexNet Report Designer 2016 R2 is built on IBM Cognos Business Intelligence 10.2.2, and enables you to gather, collate, and report on usage activity within your enterprise. FlexNet Report Designer includes complete tools for managing, creating, and editing both simple and complex reports.



Important • *FlexNet Manager for Engineering Applications Foundation Edition does not include FlexNet Report Designer.*

The data on which you can report depends upon the Flexera Software application that you are using with FlexNet Report Designer:

- **FlexNet Manager for Cloud Infrastructure**—Enables you can report on your enterprise's usage of *public cloud infrastructure*. For use with FlexNet Manager for Cloud Infrastructure, FlexNet Report Designer Package 2016 R1 provides the compact reports that serve as dashboard elements for the Operational and Financial dashboards, as well as the detailed usage and spend reports that are available as drill-through layers behind the dashboards.
- **FlexNet Manager for Engineering Applications**—Enables you to report on your enterprise's usage of concurrently licensed applications, including applications that use FlexNet and IBM LUM licensing technology. For use with FlexNet Manager for Engineering Applications, FlexNet Report Designer Package 2016 R1 provides a robust set of reports for both feature and product usage, as well as pseudo-real-time data delivered via an Operational Dashboard.

FlexNet Report Designer Package 2016 R2 (**FlexNetManagerSuite.zip**) provides predefined reports and the reporting model on which FlexNet Report Designer reporting is based. This package also provides the reports that are used as elements in the application dashboards.

This document provides information about the data model and about the available reports provided with the Report Designer package.

- **FlexNet Report Designer Reports for Package 2016 R2**—Describes the predefined reports that are available with Package 2016 R2 when using Report Designer in the FlexNet Manager for Engineering Applications interface.
- **Report Designer Data Model for Package 2016 R2**—Provides detailed information about the data model for Package 2016 R2.

Cognos Roles

By default, your enterprise is licensed for a limited number of Cognos users, each of whom has permissions based upon the Cognos roles to which they are assigned.

The Cognos roles provide access to various pieces of reporting functionality, as described in the following table. By default, each role can be assigned to a limited number of users. To see how many FlexNet Manager for Engineering Applications users can be licensed for each Cognos role, refer to the table on the **Cognos Roles** page, in the FlexNet Manager for Engineering Applications user interface.

Cognos Role	Licensed	Available
Web Administrator	1 users	0 users
Analytic User	20 users	17 users

Figure 1-1: Table showing the number of licensed Cognos roles and the number of FlexNet Manager for Engineering Applications users for which the role is available.

Contact Flexera Software if your enterprise requires additional licenses for a particular Cognos role.

Table 1-1 • Cognos roles

Role	Description
Analytic User	A user assigned this role has access to all Cognos Reporting capabilities, including: <ul style="list-style-type: none">• Running and configuring FlexNet Report Designer reports.• Accessing the Operational Dashboard, and add/modify items on the Operational Dashboard.• Using Studio capabilities.• Using Cognos Workspace and Cognos Workspace Advanced capabilities.
Web Administrator	A user assigned this role has access to all Cognos Reporting capabilities (defined for the Analytic User role), and access to Cognos Administrative capabilities, including: <ul style="list-style-type: none">• Administering the Cognos BI Software environment in relation to server, security, and report-scheduling administration.• Viewing and using all functionality on the Cognos Administration page (in FlexNet Manager for Engineering Applications)—including testing the Cognos connection, importing Cognos packages, and updating the Cognos datasources.

Assigning Cognos Roles

By default, FlexNet Manager for Engineering Applications users *do not* have Cognos roles automatically assigned. A FlexNet Manager for Engineering Applications user with the **Assign Cognos Roles** permission must assign Cognos roles to users. For information on assigning Cognos roles, refer to your application's online Help Library.

FlexNet Report Designer Documentation

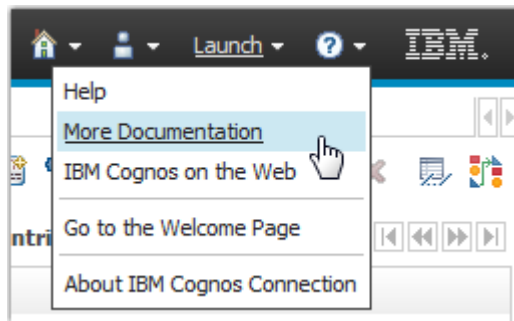
Flexera Software provides the following documentation for FlexNet Report Designer 2016 R2:

- For system requirements, see the *FlexNet Manager for Engineering Applications 2016 R2 Release Notes* or the *FlexNet Manager for Cloud Infrastructure 2016 R1 Release Notes*.
- For installation instructions, see the *FlexNet Manager for Engineering Applications 2016 R2 Installation Guide* or the *FlexNet Manager for Cloud Infrastructure 2016 R1 Installation Guide*.
- For detailed information about the current report package—including descriptions of the predefined reports and the data model—refer to this *FlexNet Report Designer 2016 R2 Guide*.

Working within FlexNet Report Designer: Additional Documentation from IBM

Because FlexNet Report Designer is built on IBM's Cognos Business Intelligence, much of the information that is relevant to operating within the reporting environment can be found in IBM's product documentation.

- To access the documentation that is available from within FlexNet Report Designer, click the menu-arrow to the right of the Help icon on the IBM Cognos Connection toolbar at the top of the **Cognos Reporting** screen (within FlexNet Manager for Engineering Applications or FlexNet Manager for Cloud Infrastructure).



- On the web, you can access Cognos Business Intelligence documentation from the IBM Knowledge Center:
http://www.ibm.com/support/knowledgecenter/SSEP7J_10.2.2/com.ibm.swg.ba.cognos.cbi.doc/welcome.html

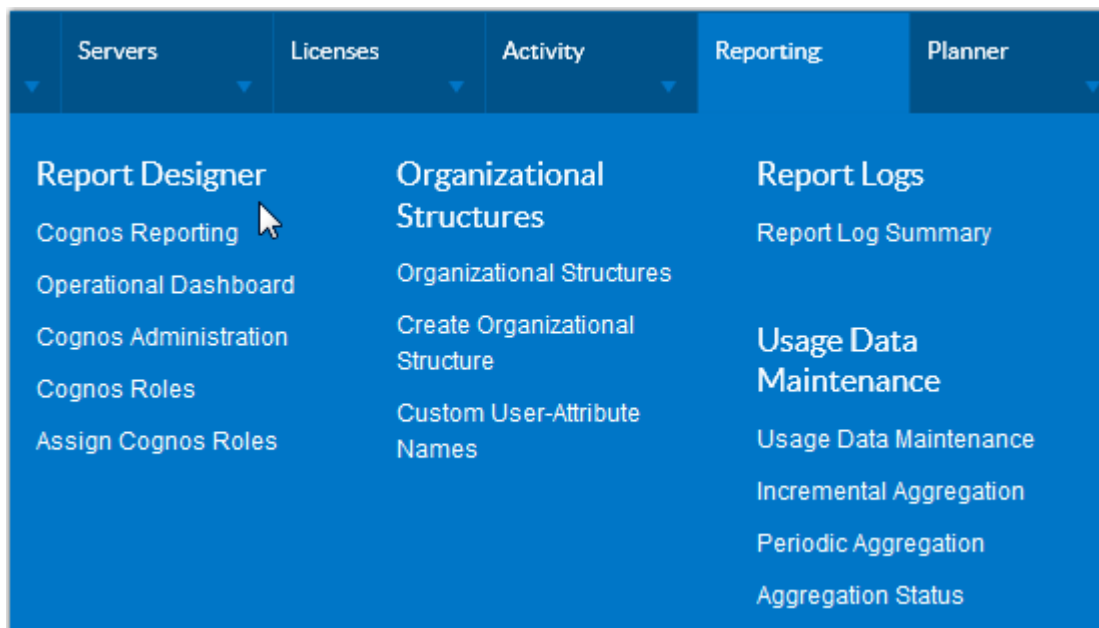
FlexNet Report Designer Reports for Package 2016 R2

This section describes the reports and dashboard elements that are available out-of-the-box in FlexNet Report Designer Package 2016 R2. Regardless of whether you are using FlexNet Report Designer 2016 R2 with FlexNet Manager for Cloud Infrastructure or FlexNet Manager for Engineering Applications, you can access all of the reports that are available in FlexNet Report Designer.



Important • Use of Package 2016 R2 **requires** FlexNet Report Designer 2016 R2.

You access FlexNet Report Designer reports using links in the **Report Designer** section, beneath the **Reporting** tab.



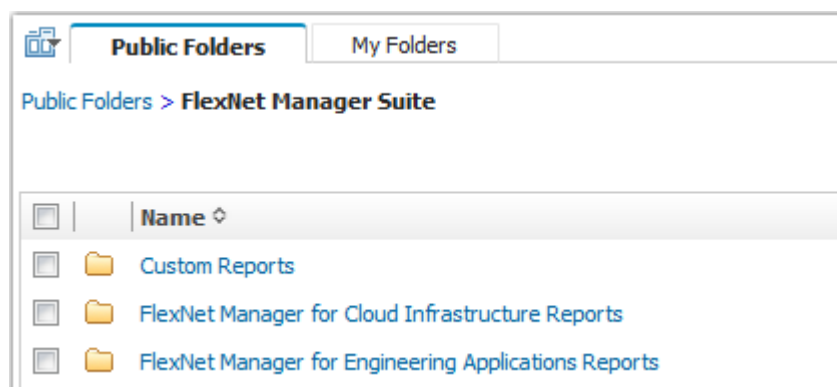
Accessing FlexNet Report Designer Reports



Task

To access the predefined reports for Package 2016 R2:

1. In a supported web browser, open the FlexNet Manager for Cloud Infrastructure or FlexNet Manager for Engineering Applications user interface. (Refer to the application-specific release notes for a list of supported web browsers.)
2. From the **Reporting** tab, under **Report Designer**, click **Cognos Reporting**.
3. In the Cognos Connection pane, click the **FlexNet Manager Suite** folder to open it.
4. On the next screen, click **FlexNet Manager for Cloud Infrastructure Reports** or **FlexNet Manager for Engineering Applications Reports**, depending on the application with which you are using FlexNet Report Designer.



5. On the next screen, click the folder containing the reports you want to run.
6. Click a report name to move to the report's prompt screen.



Note • These predefined reports are available only if you have Package 2016 R2 installed.

FlexNet Manager for Engineering Applications Reports

The **FlexNet Manager for Engineering Applications Reports** folder contains the following sub-folders (each of which contains a set of related reports).

Table 2-1 • Reports subfolders

Report subfolder	Description
Consumptive Token Reports	Specific to Autodesk's consumptive-token-based licensing, these reports provide information about the number of tokens consumed in a month.

Table 2-1 • Reports subfolders

Report subfolder	Description
Usage Statistics Reports	Self-contained reports that serve as elements within the Operational Dashboard.
Historical Feature Reports	Robust set of predefined reports that provide information about feature usage (including peaks and trends over time).
Product Reports	Available to organizations that are using investment-planning functionality (under the Planner tab in the user interface), these reports provide information regarding usage on the product level (including peaks and trends over time).
Tier-Based Usage Reports	For Autodesk customers, tier-based reports provide information about tier-based usage to assist in billing analysis.
Token-Capability Reports	Designed for organizations who use Cadence products, these reports provide information about how the individual capabilities (sub-features) contribute to the peak usage of their parent, <i>tokenized</i> features.
Usage Statistics Reports	These reports provide detailed information about how your organization uses products and/or features (including data on peak usage, unique users, and denials).

Consumptive Token Reports

These reports are specific to the Autodesk consumptive-token-based licensing model. The reports enable your organization to see the total number of tokens consumed in a month, with breakdowns by day and by product family.



Important • Both of the consumptive-token reports require information—**product family** and **token cost**—that is not contained in the report logs. Before running the reports, you must supply this information using an XML file. See the section, [Specifying Additional Feature Data Using an XML File](#), for information on how to provide the information to be used in the reports.

The following reports are available:

- [Consumptive Token Monthly Summary Report](#)
- [Consumptive Token Monthly Summary with Contract Report](#)

Consumptive Token Monthly Summary Report

The **Consumptive Token Monthly Summary** report provides a tabbed interface that shows token-consumption information for a specified month. Tokens are considered consumed when a user accesses a feature that has a token-cost associated with it. Because tokens are granted per day, continued use of the feature during the same day will not result in additional token consumption; however, use of the feature on a different day will result in the additional token consumption.

Tokens are consumed by product family. If a user checks out one feature from a product family, the tokens that are consumed will enable the user to use any other feature in the same product family without consuming additional tokens.



Important • *Consumptive-token reports rely on additional feature data (product family and token cost) that must be manually imported into FlexNet Manager for Engineering Applications using an XML file. See the section, [Specifying Additional Feature Data Using an XML File](#), for information.*

The report displays the following information for the specified month:

- Total number of tokens consumed
- Number of unique users
- Breakdown of token usage, both by days and by product families
- Out-of-scope tokens and usage hours (*Out-of-scope* usage refers to usage of tokens that are not part of your organization's contract with Autodesk.)

Running the Report

This is an active report. After you run the report, you must save the output file. The output file contains all the data necessary to view the report, so access to the FlexNet Manager for Engineering Applications Reporting server is not required.

This report may take a long time to run. Email delivery of the report is recommended.

Consumptive Token Monthly Summary with Contract Report

The **Consumptive Token Monthly Summary with Contract** report provides a tabbed interface that shows token-consumption information for a specified month, along with month-to-date token consumption and the token consumption for each month in the contract year. Tokens are considered consumed when a user accesses a feature that has a token-cost associated with it. Because tokens are granted per day, continued use of the feature during the same day will not result in additional token consumption; however, use of the feature on a different day will result in the additional token consumption.

Tokens are consumed by *product family*. If a user checks out one feature from a product family, the tokens that are consumed will enable the user to use any other feature in the same product family without consuming additional tokens.



Important • *Consumptive-token reports rely on additional feature data (product family and token cost) that must be manually imported into FlexNet Manager for Engineering Applications using an XML file. See the section, [Operational Dashboard Widgets](#), for information.*

The report displays the following information for the specified month:

- Total number of tokens consumed
- Number of unique users
- Breakdown of token usage, both by days and by product families
- Out of scope tokens and usage-hours (*Out-of-scope* usage refers to usage of tokens that are not part of the enterprise's contract with Autodesk.)
- Information about the tokens consumed to date, and the number of tokens consumed in each month during the contract year. This enables enterprises to compare the number of tokens consumed to the number of tokens to which they are entitled.

Running the Report

This is an active report. After you run the report, you must save the output file. The output file contains all the data necessary to view the report, so access to the FlexNet Manager for Engineering Applications Reporting server is not required.

This report may take a long time to run. Email delivery of the report is recommended.

Operational Dashboard Widgets

Report Designer Package 2016 R2 also provides the reports that are used as *widgets* in the Operational Dashboard. These are small, self-contained reports that you can move around the dashboard space. By default, the following report widgets are displayed.

- **Feature Usage**—An area graph that shows feature usage for a specified time period. The red line at the top of the graph represents total availability for the feature. Use the menus in the upper-left corner of the widget to filter usage data by time period and feature name (by selecting the vendor name first, then specifying the feature name for which you want to see usage data). The time period you specify for the Feature Usage report widget is the time period that is used for the Features by Peak Usage report widget. Changing the time period for either report updates the data displayed in the other report.
- **Features by Peak Usage**—A table showing the 100 features with the highest peak usage for a given time period. The table provides the vendor name, feature name, type of license (whether FlexNet or LUM), the peak percentage used within the time period, and a small area graph showing usage for the time period. (The red line represents total availability for the feature during the specified time period.) Selecting All Data for the time period shows data for a rolling two-week period. The time period you specify for the Features by Peak Usage report widget is the time period that is used for the Feature Usage report widget. Changing the time period for either report updates the data displayed in the other report.
- **Excessive Users (by time)**—A table that shows the users who have the highest feature usage (measured by time of usage and the number of licenses). Use the menu at the top to specify whether you want to see excessive usage across all features or only for a specific feature.

- **Feature Denials**—A bar graph that shows license denials for a rolling two-week period. Use the menu at the top of the widget to show all denials during the time period or only capacity-based denials, where a feature is denied because it is being used up to its current capacity. Viewing capacity-based denials can help you determine whether you need to free up some licenses or perhaps purchase some additional licenses for a specific feature.
- **License Server Status**—A table showing the status of the license servers in your environment. The Type column identifies whether the server is a FlexNet license server (FLEX) or a LUM license server (LUM).

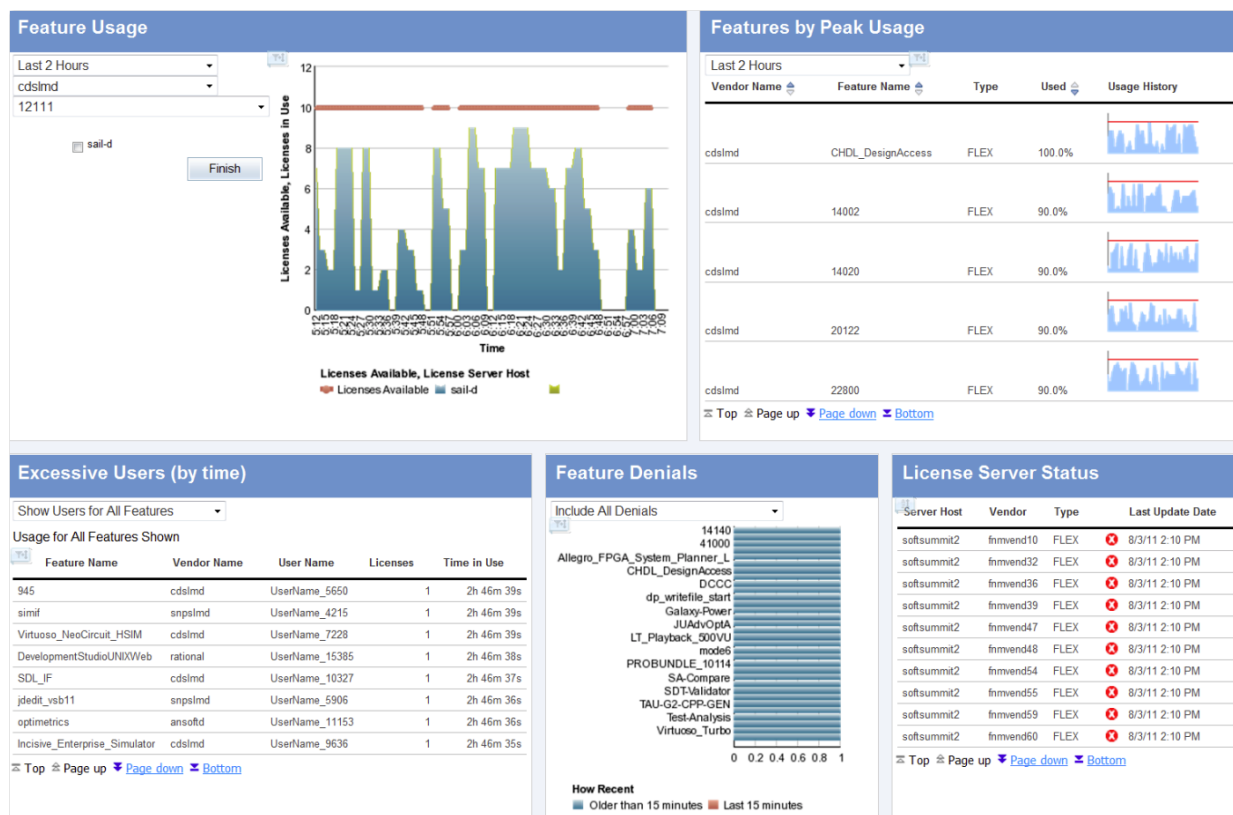


Figure 2-1: Operational Dashboard in FlexNet Manager for Engineering Applications

You can create your own reports and add them as report widgets to the dashboard.

See the *FlexNet Manager for Engineering Applications 2016 R2 Help Library* or the *FlexNet Manager for Engineering Applications 2016 R2 User Guide* for more information about the Operational Dashboard.

Historical Feature Reports

The following predefined feature-based reports are available for Package 2016 R2:

- **Feature Chargeback Report**
- **Feature Usage by Organization Table Report**
- **Feature Usage Table Report**
- **Feature Peak Usage Trend Report**

- [Organization Total Usage Chart Report](#)
- [Peak Usage by Organization Over Time Report](#)
- [Peak Usage by Server Over Time Report](#)
- [Peak Borrowed Licenses by Feature](#)
- [Peak Borrowed Licenses vs. Total Peak Licenses](#)
- [Users with Borrowed Licenses List](#)

To run a basic version of a report, click the report name. You will be shown the parameters you can set via drop-down menus, as well as the option to view a description of the report including explanations of the parameters. For all of the reports, you can choose to run the report using hourly, daily, or monthly data. Your choice will depend on whether you want more data granularity (hourly) or better report performance (monthly).

You can perform a number of other actions on each report, which are shown to the right of the report name. You can select the following:

- Set properties
- Run with options
- Open with Report Studio
- Create a report view of this report
- Schedule

Feature Chargeback Report

The Feature Chargeback report displays a summary of feature usage by organizational unit for a specified time period, along with the organizational unit's total cost of using each feature and the organizational unit's overall total cost for the time period. The report also provides a summary of the total hours used for all specified features and the total cost for all specified features during the time period.

This report requires you to specify an organizational structure. Within the report, you can drill through the hierarchical levels in your organizational structure, eventually arriving at per-user data.

Organization Unit	Feature	COST_FACTOR	Total Used Time (Hours)	Total Cost
Department A	sx_cdslink	250	434.8	108,693.12
	sx_wva	43	635.5	27,325.38
Department A			1,070.2	136,018.50
Department B	sx_cdslink	250	18.1	4,517.29
	sx_wva	43	1,897.4	81,589.18
Department B			1,915.5	86,106.47
Department C	sx_cdslink	250	73.1	18,266.32
	sx_wva	43	3,184.0	136,911.68
Department C			3,257.1	155,178.00
Department D	sx_cdslink	250	394.0	98,503.96
	sx_wva	43	509.0	21,887.93
Department D			903.0	120,391.89
Department E	sx_cdslink	250	0.0	11.87
	sx_wva	43	0.0	2.04
Department E			0.1	13.92
Summary			7,145.9	497,708.78

Figure 2-2: Portion of a Feature Chargeback report.

Feature Usage by Organization Table Report

This report displays the total used time for selected features for users in an organization, and allows for additional filtering by organizational units.

Feature Usage by Organization Table

Start Date: Jun 1, 2007 12:00:00 AM
End Date: Jul 31, 2007 12:00:00 AM
Vendor: magma
Features: BLAST_BUILDER, BLAST_CREATE, BLAST_FUSION_APX, BLAST_PLAN, BLAST_PLANPRO, BLAST_PLANSVP, BLAST_POWER, BLAST_RAIL, BLAST_SI, BLAST_SPEED, BLAST_VIEW, BLAST_WRAP, QUARTZ_TIME

Feature Name	Year	Month	Org Node Name L2	Org Node Name L3	Org Node Name L4	User Name	Total Used Time (hours)	First Name	Last Name	E-mail	Phone Number
BLAST_BUILDER	2007	June	Shanghai	B11	C113	robc	7.22	Rob	Cee	robc@server.com	555-1111
				B12	N/A	sophias	1.64	Sophia	See	sophias@server.com	555-1112
				B13	N/A	alexp	7.74	Alex	Pi	alexp@server.com	555-1113
		July	Shanghai	B12	N/A	sophias	7.53	Sophia	See	sophias@server.com	555-1112
				B13	N/A	alexp	29.83	Alex	Pi	alexp@server.com	555-1113
			Washington DC	B21	B22	lorie	0.03	Lori	Ee	lorie@server.com	555-1116
							tomv	0.69	Tommy	Vee	tomv@server.com
BLAST_CREATE	2007	June	Shanghai	B11	C113	robc	0.23	Rob	Cee	robc@server.com	555-1111
				B12	N/A	sophias	0.33	Sophia	See	sophias@server.com	555-1112
				B13	N/A	alexp	8.97	Alex	Pi	alexp@server.com	555-1113
		July	Shanghai	B12	N/A	sophias	0.07	Sophia	See	sophias@server.com	555-1112
				B13	N/A	alexp	13.22	Alex	Pi	alexp@server.com	555-1113
			Washington DC	B21	B22	lorie	0.03	Lori	Ee	lorie@server.com	555-1116
BLAST_FUSION_APX	2007	June	Shanghai	B11	C113	robc	0.01	Rob	Cee	robc@server.com	555-1111
				B13	N/A	alexp	9.27	Alex	Pi	alexp@server.com	555-1113
		July	Shanghai	B12	N/A	sophias	0.46	Sophia	See	sophias@server.com	555-1112
				B13	N/A	alexp	20.51	Alex	Pi	alexp@server.com	555-1113
			Washington DC	B21	B22	lorie	10.15	Lori	Ee	lorie@server.com	555-1116
BLAST_PLAN	2007	June	Shanghai	B13	N/A	alexp	0.16	Alex	Pi	alexp@server.com	555-1113
		July	Shanghai	B13	N/A	alexp	0.14	Alex	Pi	alexp@server.com	555-1113

[Filters\(show/hide\)](#)

Level 2 Org Node:

Level 3 Org Node:

Level 4 Org Node:

Figure 2-3: Feature Usage by Organization Table report

Feature Usage Table Report

This report displays the total used time for selected features, listed by license server. Optionally, peak usage may also be displayed *if* a license server-based organization has been created (prior to aggregation).

Feature Usage Table

Start Date: June 1, 2007

End Date: July 31, 2007

Vendor: magma

Features: BLAST_BUILDER, BLAST_CREATE, BLAST_FUSION_APX, BLAST_PLAN, BLAST_PLANPRO, BLAST_PLANSVP, BLAST_POWER, BLAST_SPEED, BLAST_VIEW

Feature Name	Year	Month	License Server Name	Availability Max Count	Peak Licenses	Available Time (hours)	Total Time Used (hours)	Percentage of Hours Used
BLAST_BUILDER	2007	June	ServerORD	2	2	192	16.61	8.65%
		June				192	16.61	8.65%
		July	ServerORD	2	2	336	38.08	11.33%
		July				336	38.08	11.33%
	2007					528	54.69	10.36%
BLAST_BUILDER						528	54.69	10.36%
BLAST_CREATE	2007	June	ServerORD	2	2	192	9.54	4.97%
		June				192	9.54	4.97%
		July	ServerORD	2	2	336	13.32	3.96%
		July				336	13.32	3.96%
	2007					528	22.85	4.33%
BLAST_CREATE						528	22.85	4.33%
BLAST_FUSION_APX	2007	June	ServerORD	2	2	192	9.29	4.84%
		June				192	9.29	4.84%
		July	ServerORD	2	2	336	31.11	9.26%
		July				336	31.11	9.26%
	2007					528	40.40	7.65%
BLAST_FUSION_APX						528	40.40	7.65%
BLAST_PLAN	2007	June	ServerORD	2	2	192	0.16	0.08%
		June				192	0.16	0.08%
		July	ServerORD	2	1	336	0.17	0.05%
		July				336	0.17	0.05%
	2007					528	0.33	0.06%
BLAST_PLAN						528	0.33	0.06%
BLAST_PLANPRO	2007	June	ServerORD	2	2	192	0.12	0.06%
		June				192	0.12	0.06%
		July	ServerORD	2	1	336	0.17	0.05%
		July				336	0.17	0.05%
	2007					528	0.29	0.05%
BLAST_PLANPRO						528	0.29	0.05%

Figure 2-4: Feature Usage Table report

Feature Peak Usage Trend Report

The Feature Peak Usage report shows the peak usage for selected features. It displays a column graph showing peak usage for each day, with a trend line that extends to a date beyond the last date on which usage was reported. This report can help you predict how many licenses your enterprise needs to purchase for a particular feature.

Organization Total Usage Chart Report

This report displays a chart depicting the total used time for selected features by portions of the organization. Drill-through functionality in the report enables you to look into lower levels of the organization.

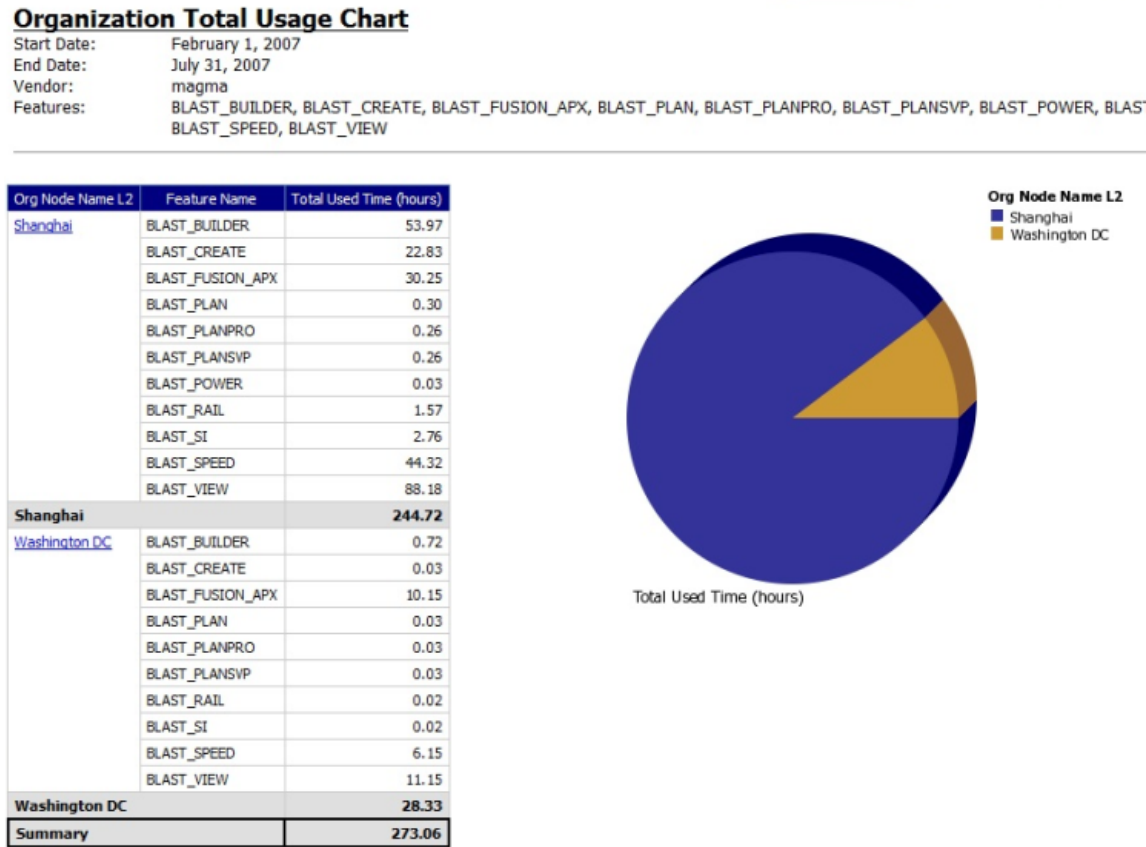


Figure 2-5: Organization Total Usage Chart report

Peak Usage by Organization Over Time Report

This report displays a chart for the peak usage of specified features by the entire organization, and by the different nodes within the organization. The report also shows feature availability. A separate chart is produced for each of the specified features.

Because this report requires you to select a server-based organization structure, the report will work only if a license server-based organization was created before aggregation was run. See the Organizational Structures and Report Data Aggregation sections in the FlexNet Manager for Engineering Applications Online Help Library (installed with the product) for relevant information.

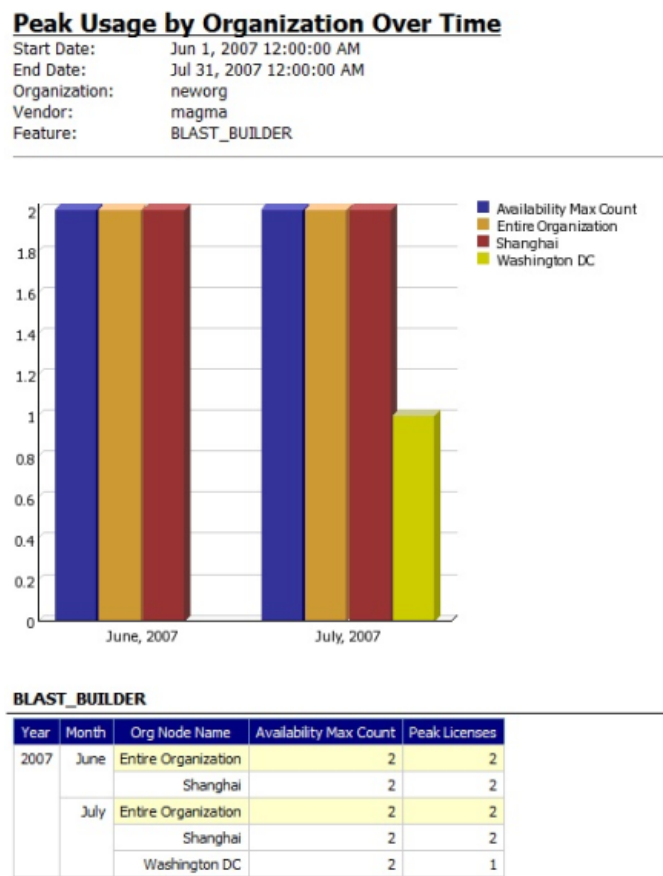


Figure 2-6: Peak Usage by Organization Over Time report

Peak Usage by Server Over Time Report

This report displays an area chart showing the peak licenses that have been used from each license server, with reference to the total number of available licenses.

To run this report, you must create a license server–based organization prior to running data aggregation (if one does not already exist). One of the required report parameters is Organization, which lists all of the license server–based organizations that are available. If no server-based organizations are available, the report cannot be run.

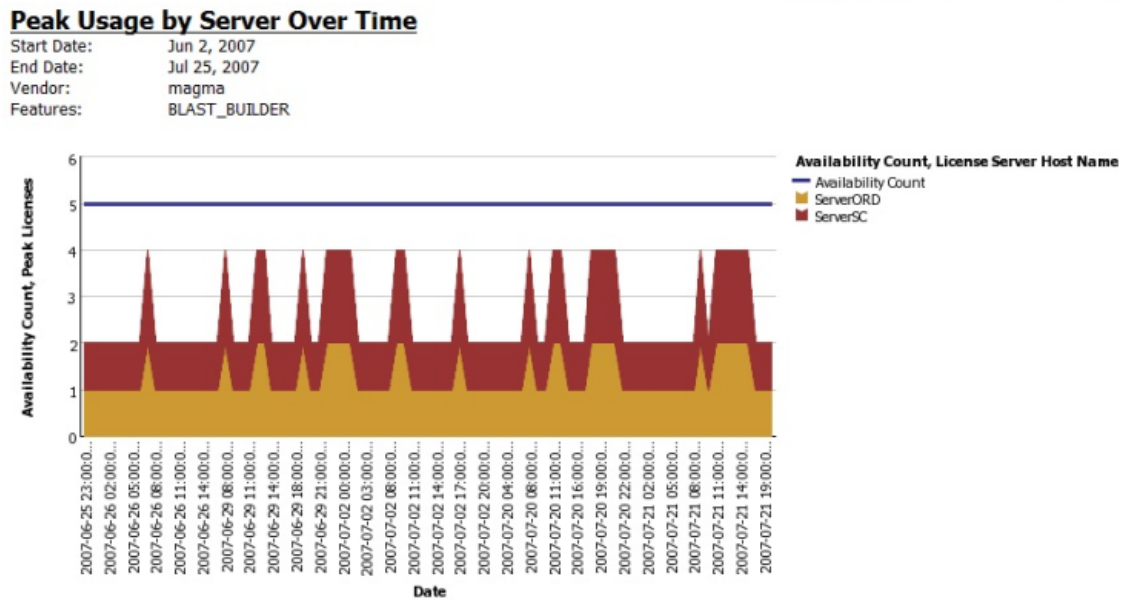


Figure 2-7: Peak Usage by Server Over Time report

Peak Borrowed Licenses by Feature

This report displays a column graph that shows the peak number of borrowed licenses across all features from a selected vendor, for a specified time period. You can drill down to the [Peak Borrowed Licenses vs. Total Peak Licenses](#) report and then to the [Users with Borrowed Licenses List](#).

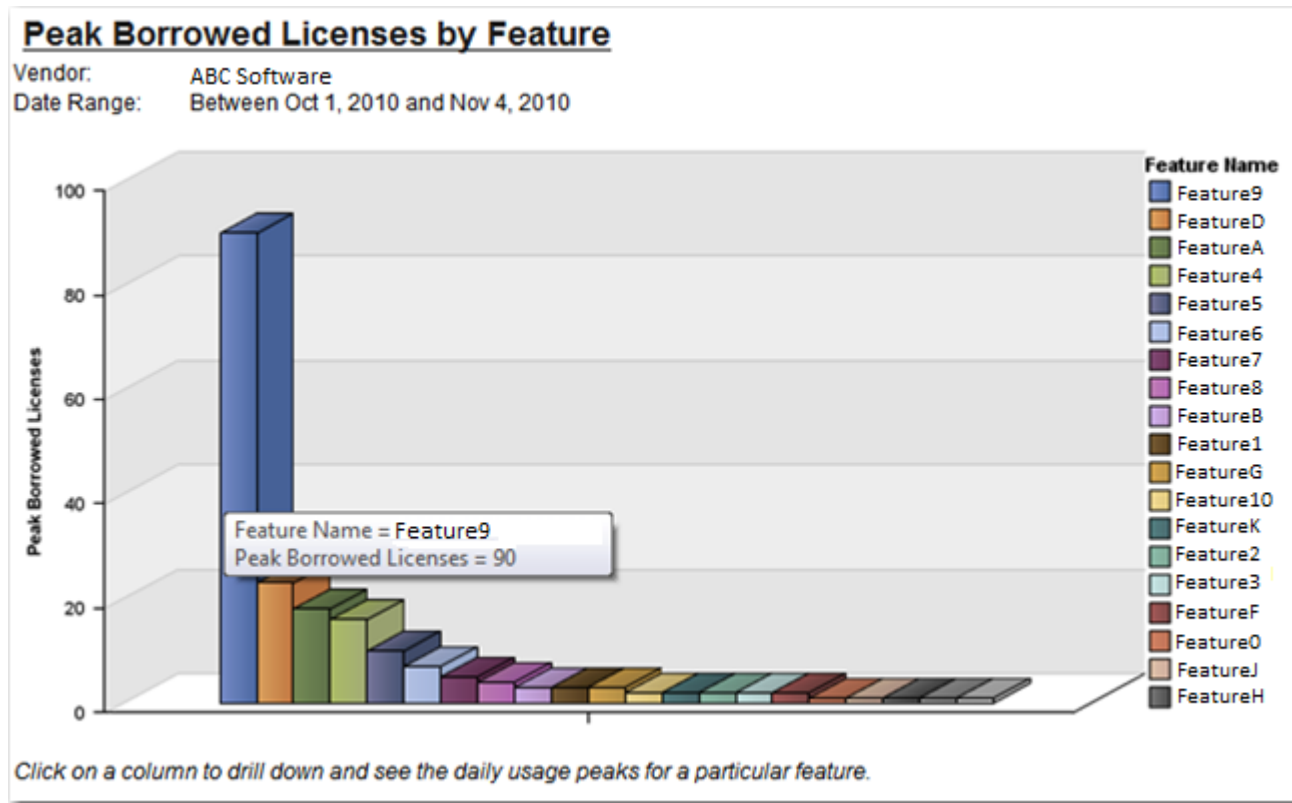


Figure 2-8: Peak Borrowed Licenses by Feature report

Peak Borrowed Licenses vs. Total Peak Licenses

This report displays a column graph comparing the overall peak licenses (including borrowed licenses) and the peak borrowed licenses for a selected vendor and feature, over a specified time period. You can drill down to the [Users with Borrowed Licenses List](#) to see the individual users with borrow license usage for a particular day.

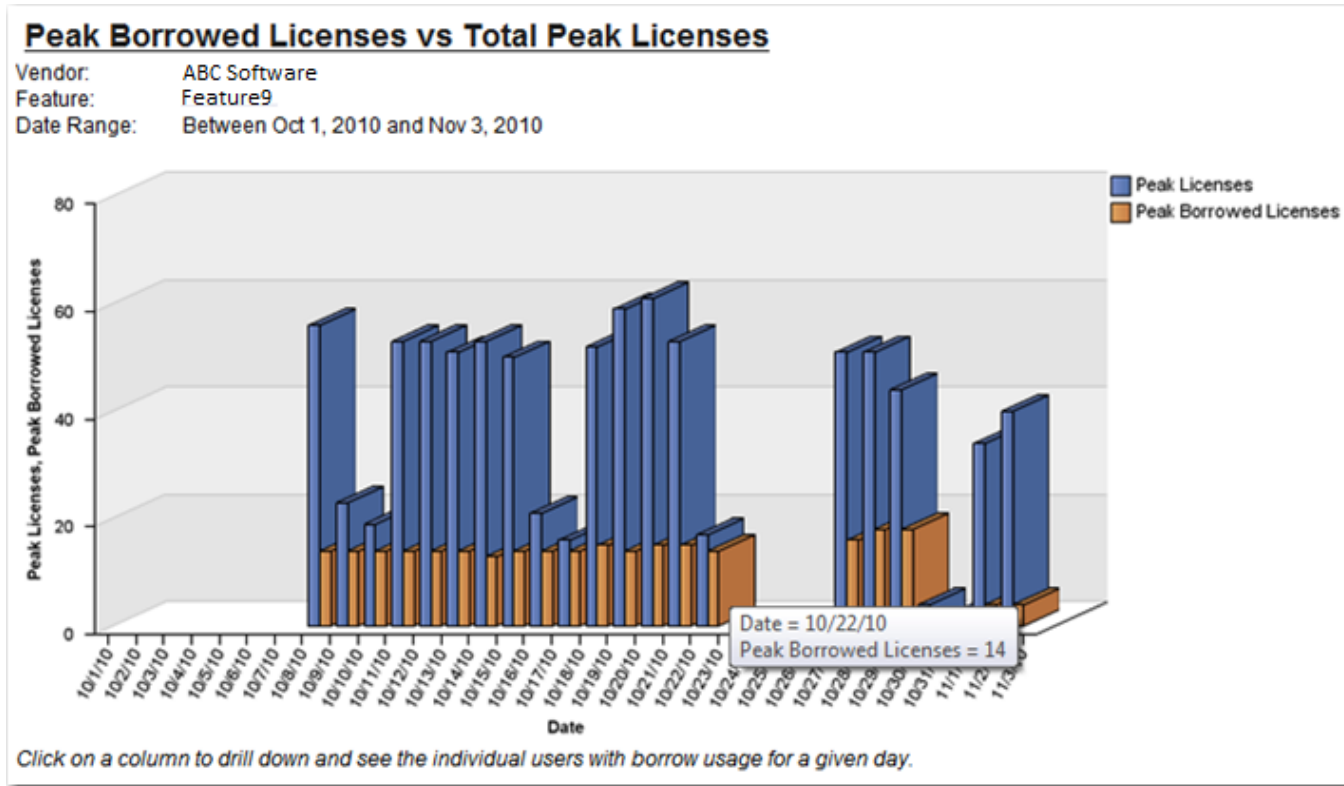


Figure 2-9: Peak Borrowed Licenses vs. Total Peak Licenses report

Users with Borrowed Licenses List

This report lists all users who consumed a borrowed license for a particular feature on a given day. It provides the following information in a table:

- User name
- Peak number of borrowed licenses consumed
- Last name
- First name
- Email address

Product Reports

FlexNet Manager for Engineering Applications offers product-based usage reports for customers who use Investment Planner.

The following product-based reports are available:

- [Product Chargeback Report](#)
- [Product Daily Peak Usage Report](#)
- [Product Peak Usage Occurrences Report](#)

- [Product Peak Usage Report](#)
- [Product Peak Usage Trend \(Remix\) Report](#)

Product Chargeback Report

This report, which is part of FlexNet Manager for Engineering Applications's investment-planning functionality, summarizes the product usage by individual organizational units in your enterprise and calculates a monetary value for that usage.

Product Daily Peak Usage Report

This report, which is part of FlexNet Manager for Engineering Applications's investment-planning functionality, shows the daily peak usage for selected products. You specify the time period for which you want to see usage, and whether the report should display absolute product usage values or product usage as a percentage of available licenses.

Product Peak Usage Occurrences Report

This report, which is part of FlexNet Manager for Engineering Applications's investment-planning functionality, displays a bar chart that indicates the number of occurrences for each peak usage value for a product during a specified time period. This provides a histogram of peak usage values.

Product Peak Usage Report

This report, which is part of FlexNet Manager for Engineering Applications's investment-planning functionality, shows the peak usage for selected products. The first view of the report displays peak usage by year. Drill-through functionality enables you to see peak usage by quarters, months, days, and hours.

Product Peak Usage Trend (Remix) Report

This report, which is part of FlexNet Manager for Engineering Applications's investment-planning functionality, displays peak product usage for each day in a specified time period, and uses that usage to draw a trend line that continues to a specified point in the future. A second trend line, parallel to the first, is drawn, elevated by the number of licenses required to keep the peak usage always beneath the trend line.

The purpose of this report is to accompany a remix, although it can be run independently.

Tier-Based Usage Reports

FlexNet Manager for Engineering Applications provides tier-based usage reports, specifically for customers who use Autodesk products (which use tier-based licensing).



Important • To enable tier-based usage reporting, you must first define tiers by grouping features together, using functionality available from the **Tiers** section under the **Reporting** tab in the FlexNet Manager for Engineering Applications user interface.

The following tier-based usage reports are available:

- [Tier Usage Report](#)
- [Tier Usage Hourly Report](#)
- [Tier Borrowed License Usage](#)
- [Tier Usage for Server Pools Daily Report](#)
- [Tier Usage for Server Pools Hourly Report](#)
- [Tier Usage for Server Pools Breakdown Report](#)

Tier Usage Report

The Tier Usage report displays the daily peak usage for a tier, and optionally calculates the cost of the usage (calculated using either the peak or the second-highest peak). This report can be used for billing purposes.

Data is presented in a list that shows costs, followed by a chart and list that shows peak usage for all the days in the specified time period. You can drill through to the hourly report by clicking one of the dates in the lists, which will launch the hourly report for that day, using the same options.

Options for configuring the report include:

- Calculate cost based on peak or second-highest peak, or not at all.
- Interval for the report, either the Previous Month, Previous Quarter, or a custom data range (where you specify start and end dates).
- Select the organization to report on (it is always the top level of the organization that is reported against).
- Select the tier to report on.
- Optionally include breakdown by features—there are three options: Tier data only, Feature data only, or Tier + Feature data.

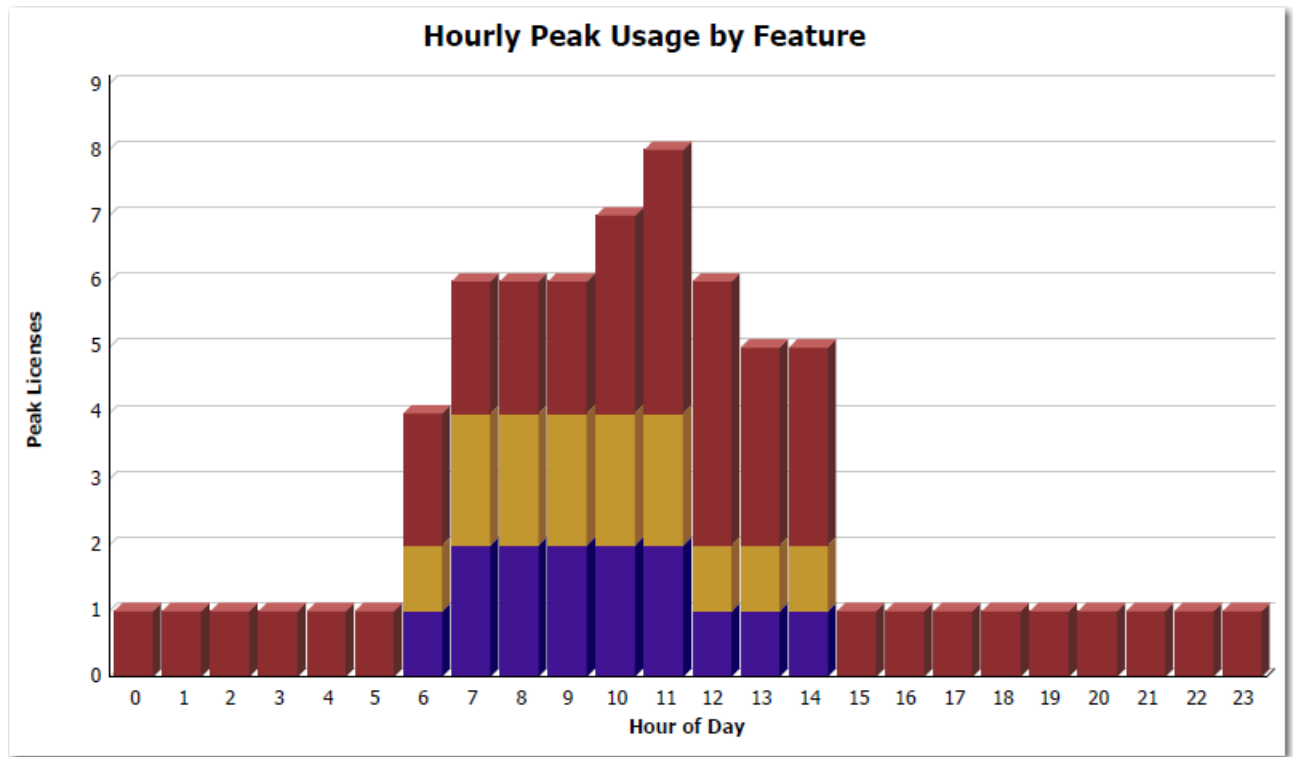


Figure 2-10: Part of the Tier Usage report, showing Hourly Peak Usage by Feature

Tier Usage Hourly Report

The Tier Usage Hourly report is similar to the [Tier Usage Report](#), except that it does not provide the option to calculate costs. To specify the reporting interval, you select start and end dates and times.

Tier Usage Hourly Report

Date:

Oct 20, 2010

Tier:

Tier A

Hourly Tier Usage

Hour of Day	Total Used Time (seconds)	Peak Licenses
0	3,600	1
1	3,600	1
2	3,600	1
3	3,600	1
4	3,600	1
5	3,600	1
6	4,287	4
7	14,594	6
8	21,600	6
9	21,600	6
10	23,117	7
11	20,882	7

Hourly Feature Usage

Hour of Day	Tier Name	Feature Name	Total Used Time (seconds)	Peak Licenses
0	Tier A	48800ACD_2006_0F	3,600	1
1	Tier A	48800ACD_2006_0F	3,600	1
2	Tier A	48800ACD_2006_0F	3,600	1
3	Tier A	48800ACD_2006_0F	3,600	1
4	Tier A	48800ACD_2006_0F	3,600	1
5	Tier A	48800ACD_2006_0F	3,600	1
6	Tier A	44400ADTRPVD_10_1F	313	1
44600ADTRPVSR_10_1F		314	1	
48800ACD_2006_0F		3,660	2	
7	Tier A	44400ADTRPVD_10_1F	3,808	2
44600ADTRPVSR_10_1F		3,810	2	
48800ACD_2006_0F		6,976	2	

Figure 2-11: Part of the Tier Usage Hourly report

Tier Borrowed License Usage

This report displays graphs showing the peak borrowed licenses for each tier, along with a breakdown to show which features had borrowed licenses that contributed to the borrowed licenses for the tier.

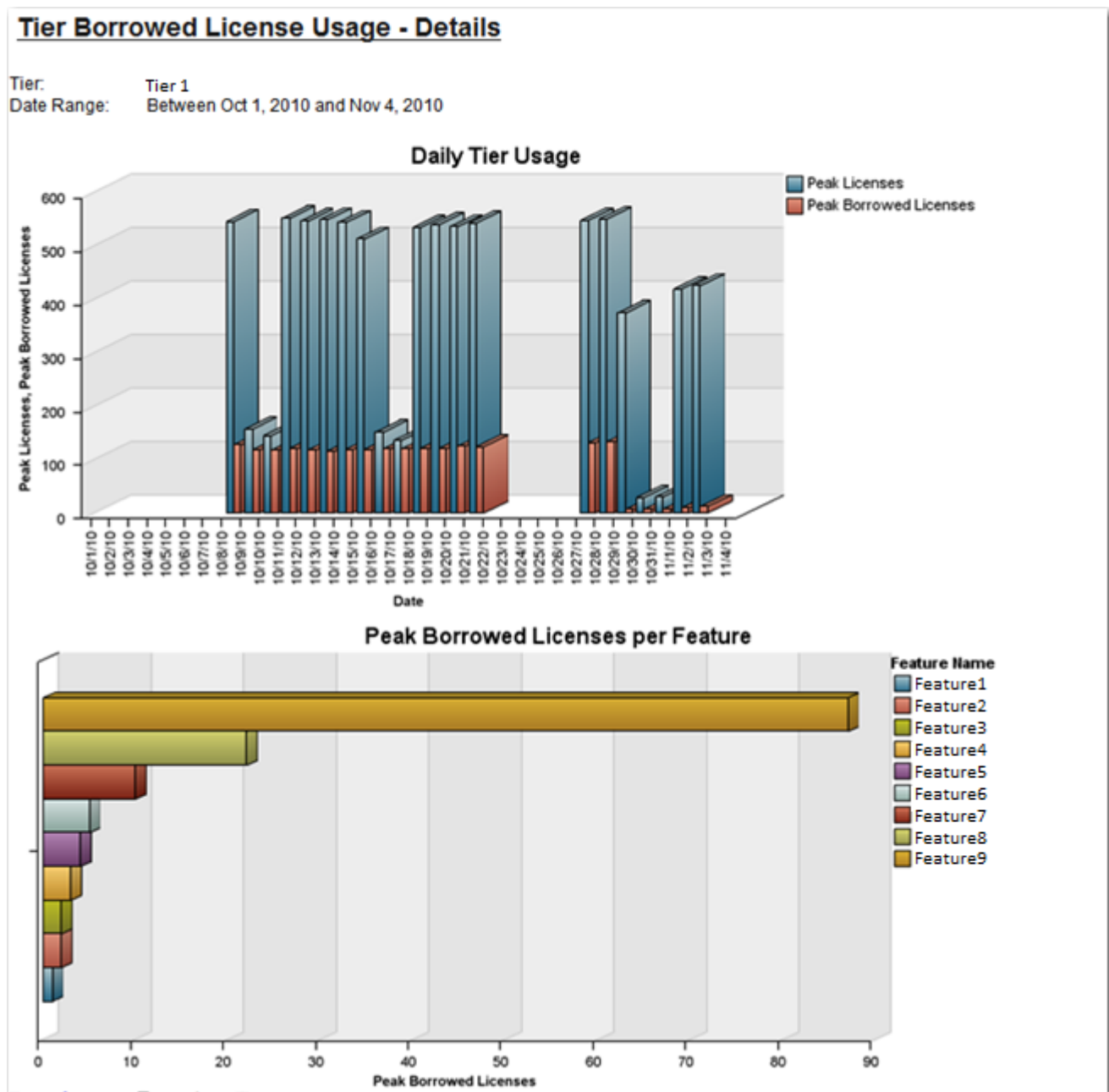


Figure 2-12: Tier Borrowed License Usage report

Tier Usage for Server Pools Daily Report

The Tier Usage for Server Pools Daily report shows, for a specified time period, the peak daily usage for a number of tiers for a specific server pool or for the entire organization. (A server pool is assumed to be an organizational unit on the second level of a license server-based organizational structure.)

This report can be used for billing analysis—specifically for comparing usage from different tiers. For example, a contract may state that licenses from one tier may be used for another tier, if available. Because license sharing may not be applicable to all tiers, you can exclude tiers before running the report.

The report highlights the day (or days) with the highest peak (or second highest peak) usage. The report displays two tables:

- The top table shows daily usage for multiple tiers for the selected server pool.
- The bottom table shows the days with the peak usage (and optionally second highest peak), as well as usage for all server pools on those days.

You can change the server pool, tier, and whether to highlight peak usage or second highest peak directly from the report page. In addition, you can click the date links to view the [Tier Usage for Server Pools Hourly report](#).

Tier Usage for Server Pools Hourly Report

The Tier Usage for Server Pools Hourly report shows, for a specified day, the peak hourly usage for a number of tiers for a specific server pool or for the entire organization. (A server pool is assumed to be an organizational unit on the second level of a license server-based organizational structure.)

This report can be used for billing analysis—specifically for comparing usage from different tiers. For example, a contract may state that licenses from one tier may be used for another tier, if available. Because license sharing may not be applicable to all tiers, you can exclude tiers before running the report.

The report highlights the hour with the highest peak usage. The report displays two tables:

- The top table shows hourly usage for multiple tiers for the selected server pool.
- The bottom table shows the hours with the peak usage, as well as usage for all server pools at that time.

You can change the server pool and tier directly from the report page. You can access this report from the [Tier Usage for Server Pools Daily report](#) by clicking one of the date links.

Tier Usage for Server Pools Breakdown Report

The Tier Usage for Server Pools Breakdown report provides more detail about the usage that contributes to the data shown in the [Tier Usage for Server Pools Daily](#) and the [Tier Usage for Server Pools Hourly](#) reports. It breaks down usage by individual server pools to enable comparison among the server pools and comparison to usage across the entire organization. In addition, it shows the usage of individual features relative to the overall usage in a tier.

This report shows usage only for a single, selected tier. (The [Tier Usage for Server Pools Daily](#) and the [Tier Usage for Server Pools Hourly](#) reports show usage from multiple tiers, to enable comparison.)

This report includes the following elements:

- **Tier Usage by Pools**—A stacked bar graph that shows daily peak usage, with different colors for each server pool, and a line to indicate usage for the entire organization. Because peak usage for separate server pools may not overlap in time with one another, peak usage for the entire organization will be less than or equal to the sum of the peaks for the server pools.
- **Feature Usage by Tier**—A stacked bar graph that shows daily peak usage for the entire organization, with different colors representing the peak usage of the individual features, and a line that shows the tier's peak usage. Because peak usage for different features may not overlap in time with one another, peak usage for the tier will be less than or equal to the sum of the peaks for the individual features.
- **Peak Usage by Pool**—This table displays the same data as the Tier Usage by Pools graph.
- **Peak Usage for Organization by Pool**—This table displays the same data as the Feature Usage by Tier graph.

You can change the server pool and tier directly from the report page.

Token-Capability Reports

FlexNet Manager for Engineering Applications 2016 R2 provides predefined reports that enable you to report on token-based license usage. These reports are designed for customers who use products from Cadence.

These reports enable you to see more granular information about usage; to see how individual capabilities (sub-features) contribute to the peak usage of their parent *tokenized* features. The following reports are available:

- [Token-Capability Peak Usage Report](#)
- [Token-Capability Peak Percentage Usage Report](#)
- [Token-Capability Day Report](#)
- [Token-Capability User Report](#)
- [Token-Capability Top Usage Report](#)
- [Consumptive Token Monthly Summary Report](#)
- [Consumptive Token Monthly Summary with Contract Report](#)

Token-Capability Peak Usage Report

This report can be run against hourly, daily, and monthly usage data. It displays a chart and a list, both of which show—over time—the counts of each capability that contribute to the parent tokenized feature's peak for that time period. The sum of these capability counts equals the feature's peak usage. The data can be displayed in two different formats—a horizontal list, suitable for a small number of data points, and a vertical list, which is better for larger amounts of data.

Options for configuring the report include:

- Time Interval—Hourly, Daily, or Monthly
- Organization—Specify the organization for which you want to display usage data.
- Feature—The menu contains only the features that are broken down into capabilities.
- List format—Specify how the data should be displayed in the report. You can change this setting from the main page of the report.

Token Capability Peak Usage Report

Date-Time Range: Between Apr 1, 2011 12:00 AM and Apr 2, 2011 11:59 PM
Tokenized Feature: Virtuoso_Multi_mode_Simulation

List Format:

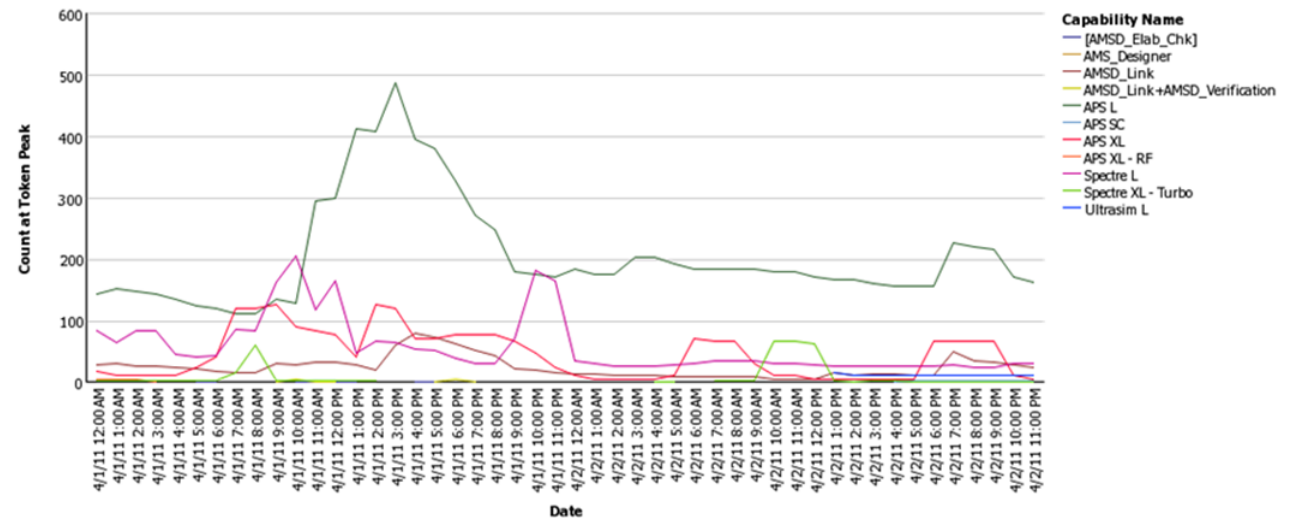


Figure 2-13: Part of a Token-Capability Peak Usage report

Token-Capability Peak Percentage Usage Report

This report is similar to the [Token-Capability Peak Usage Report](#) report, except that instead of showing the actual usage counts for the individual capabilities, it shows them as percentages, either of the feature peak or of availability. The chart can be displayed either as a line chart or a stacked bar chart, which is useful for seeing these values as percentages of the whole.

Options for configuring the report include:

- Time Interval—Hourly, Daily, or Monthly
- Organization—Specify the organization for which you want to display usage data.
- Feature—The menu contains only the features that are broken down into capabilities.
- Measure—Whether usage data should be displayed as a percentage of the feature peak, or of availability. You can change this setting from the main page of the report.
- Format—Whether data should be displayed in a horizontal or vertical list, and whether the chart should be a line chart or a stacked bar chart. You can change this setting from the main page of the report.

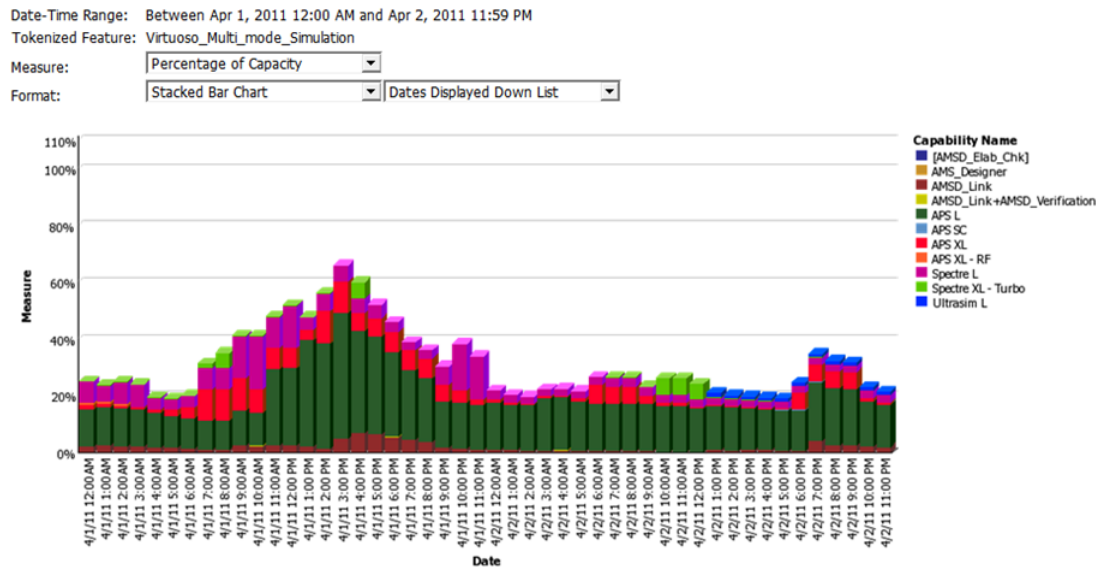


Figure 2-14: Part of a Token-Capability Peak Percentage Usage report

Token-Capability Day Report

The Token-Capability Day report shows—for a specified date and tokenized feature—how much of each capability was used (peak usage and total time), and by which users. This report is typically run for the previous day.

This report contains the following elements:

- **Stacked Capability Count at Token Peak**—Stacked area graph, where the x-axis shows the hours of the day, and the y-axis shows the number of capability licenses in use at Token Peak use. Different colors represent different capabilities. The total area matches Token Peak usage.
- **Capability Peak Usage**—Line graph, where the x-axis shows the hours of the day, and the y-axis shows peak capability. Each line shows a different capability, with different colors representing different capabilities.
- **Peak Licenses**—Table that shows capability usage for the day, including the count at token peak (which corresponds to the Stored Capability Count at Token Peak graph), Peak count (which corresponds to the Capability Peak Usage graph), and total usage time (in hours).
- **Capability Usage by User**—Table that shows capability usage by users, including the count at token peak (which corresponds to the Stored Capability Count at Token Peak graph), Peak count (which corresponds to the Capability Peak Usage graph), and total usage time (in hours).



Note • All counts are the number of tokens. FlexNet Manager for Engineering Applications does not keep track of how many tokens should be used for a given capability. For example, if Capability A requires 5 tokens to check out, and it is checked out twice, the count for that capability will equal 10, not 2.

Token-Capability User Report

The Token-Capability User report shows, for a specific user and tokenized feature, how many tokens have been used—how many for each capability, and how much time for each capability.

This report contains the following elements:

- Bar chart or line chart showing capability peak usage by hour for the selected user. If there are a large number of capabilities, the line chart may show the data more clearly.
- A table showing that lists the capabilities along with usage numbers for the selected user, and a pie graph showing capabilities by total time used.

Token-Capability Top Usage Report

The **Token-Capability Top Usage** report shows the total hours used for the top 10 capabilities and the total hours of usage for the top 10 capability consumers (users).

This report contains the following elements:

- **Capability Use (by total hours)**—Shows the total number of hours used for each of the top 10 capabilities. Within each capability bar, different colors represent the hours of usage for different users.
- **Top Capability Consumers (by total hours)**—Shows the total number of hours of usage for the top 10 capability consumers (users). Within each consumer bar, different colors represent the hours of usage for different capabilities.

Usage Statistics Reports

Usage Statistics reports provide detailed information on how products and features are being used in your enterprise. The reports provide data about peak usage, unique users, and ultimate denials for selected products or features. You can use the data in these reports to assist you in making decisions regarding renewals and contract remixes.

The Usage Statistics reports are available in the **FlexNet Manager for Engineering Applications Reports** folder, available from the **Cognos Reporting** page of the FlexNet Manager for Engineering Applications user interface.

Usage Statistics reports are available for:

- [Feature Usage Statistics Reports](#)—Peak usage, denials, and availability information for selected features.
- [Product Usage Statistics Reports](#)—Peak usage, denials and availability information for selected products.



Important • Before running Usage Statistics reports, you must complete the tasks described in the following section, [Prerequisites for Running Usage Statistics Reports](#).

Prerequisites for Running Usage Statistics Reports

In order to successfully run Usage Statistics reports for product- or feature-based reports, you must have organizational structures defined, and your organization's reporting data must be aggregated. For product-based reports, product-to-feature mapping must be in place.

Ensure that the following tasks are completed before running the reports. You complete these tasks using the FlexNet Manager for Engineering Applications user interface.

- For product-based reports, map features to products, using the functionality available under the **Planner** tab.

- For both product- and feature-based reports, define organizational structures using the pages available under the **Reporting** tab, in the **Organizational Structures** section.
- For both product- and feature-based reports, run data aggregation using the aggregation functionality available under the **Reporting** tab, in the **Usage Data Maintenance** section.

Refer to the FlexNet Manager for Engineering Applications 2016 R2 online help library for information on completing these tasks.

Feature Usage Statistics Reports

Feature Usage Statistics reports provide usage and availability information for a selected feature or group of features, for a specified group of users.



Note • Usage Statistics reports support the use of only user-based organizational structures.

Feature Peak Usage Summary Report

The **Feature Peak Usage Summary** report is the entry point to all of the other feature usage-statistics reports. It provides a tabular overview of a group's feature-usage activity, including peak usage, denials, unique users, and overall number of usage hours.

The Feature Peak Usage Summary report serves as the gateway to the other reports, which are available as drill-through reports. To access the detailed reports, click the links within the Feature Peak Usage Summary report.

Statistics Detailed Reports

The detailed reports are available as drill-through links from the Feature Peak Usage Summary report.

- **Feature Peak Usage Details**—Column graph that shows the selected feature's daily peak usage over the reporting period, along with optional lines for maximum availability and average peak usage.
- **Count of Peak Occurrences**—Column graph that shows, for the selected feature, how many times (days) a given peak-usage number occurred during the reporting period.
- **License Request Daily Denials**—Column graph that shows the number of ultimate denials for the feature over the reporting period.
- **Denial Details**—Provides information about each denial that occurred on a given day, for the selected feature.

Running the Feature Usage Statistics Reports

The Feature Usage Statistics reports are available in the **FlexNet Manager for Engineering Applications Reports** folder, available from the **Cognos Reporting** page of the FlexNet Manager for Engineering Applications user interface.

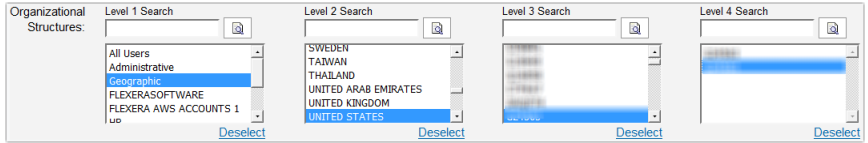
The initial interface for the Feature Usage Statistics reports is the Feature Peak Usage Summary report. From this report, you can click links to the drill-through reports, which provide more granular data.



Task

To run the Feature Usage Statistics reports:

1. To ensure that data are available, complete the [Prerequisites for Running Usage Statistics Reports](#) (page 33).
2. From the **Reporting** tab, under **Report Designer**, click **Cognos Reporting**.
3. In the **Cognos Connection** pane, in the **Public Folders** tab, click the **FlexNet Manager Suite** link to open the package containing the report folders.
4. Click the **FlexNet Manager for Engineering Applications Reports** link, then click the **Usage Statistics Reports** link.
5. Click one the **Feature Usage Statistics** link to display the **Feature Peak Usage Summary** prompt page.
6. In the prompt page, specify the information that you want to see in the report. You can search for items in any of the lists using the search boxes above the lists.

Prompt	Description
Organizational Structures	<p>Select, by organizational-structure level, the group of users for whom you want to view usage data. When you select an item in the Level 1 Search list, (other than All Users), a Level 2 Search list is displayed, containing the members of the Level 1 selection. This is repeated down to Level 4.</p>  <p>Note • For Usage Statistics reports, data is available only for user-based organizational structures.</p>
Software Producers	<p>Select the software producers for whom you want to see usage data, then click the right-arrow to move them to the right selection box. Press the Ctrl key while selecting items to select multiple items at one time.</p> <p>This selection filters the items that are available in the Vendor Daemons prompt.</p>
Vendor Daemons	<p>Select the vendor daemons whose features you want to see, then click the right-arrow to move them to the right selection box. Press the Ctrl key while selecting items to select multiple items at one time.</p> <p>This selection filters the items that are available in the Features prompt.</p>
Features	<p>Select the features for which you want to see usage data, then click the right-arrow to move them to the right selection box. Press the Ctrl key while selecting items to select multiple items at one time.</p>

7. Click **Run report**.

Feature Peak Usage Summary Report

When you run a Feature Usage Statistics report, the first view is the **Feature Peak Usage Summary** report. This report provides a view of your organization's feature usage for a given time period, and it includes the information described in [Table 2-2](#).

You can view data for the past 3 months, 6 months, or 12 months by clicking the corresponding tab at the top of the report. The reporting period covers *n* complete months of data prior to the current date. The reporting period begins on the first day of the first month and ends on the last day of the last month in the period. For example, if you run the report on 06/12/2016, the following date ranges apply:

- 3 Months: 03/01/2016–05/31/2016
- 6 Months: 12/01/2015–05/31/2016
- 12 Months: 06/01/2015–05/31/2016

You can view more detailed usage data by clicking a link within the report.

Table 2-2 • Feature Peak Usage Summary Report information


Metric	Description
Feature name	Display name of the feature.
Available	<p>The maximum number of feature licenses available during the reporting period.</p> <p>If a delta icon  is displayed to the left of the number, it indicates that the maximum number of available licenses has changed at least once during the period.</p>
Peak	<p>The highest daily peak usage that occurred during the reporting period, for a specific feature.</p> <p>Click a number link to open the Feature Peak Usage Details Report for a feature.</p>
Count of peak	<p>The number of times during the reporting period that the highest daily peak usage occurred. For example, if the highest daily peak usage during the period was 20 and this usage number occurred twice during the reporting period, the Count of peak value would be 2.</p> <p>Click a number link to open the Count of Peak Occurrences Report (Feature).</p>
Average peak	The average daily peak during the period. This is the sum of the daily peaks divided by the number of days in the reporting period.
Denials	<p>The number of ultimate denials for this feature during the reporting period.</p> <p>Click a number link to open the License Request Daily Denials Report (Feature).</p>
Unique users	Number of unique users who used this feature during the reporting period.

Table 2-2 • Feature Peak Usage Summary Report information

Metric	Description
Hours of usage	Total number of hours this feature was in use during the reporting period.

<div> 3 Months 6 Months 12 Months </div>							
<h2>Feature Peak Usage Summary</h2> (Show/hide) Report Settings							
Feature name	Available	Peak	Count of peak	Average peak	Denials	Unique users	Hours of usage
111		5	1	7	1	8	2.42
21400	Δ	2	1	55	1	12	256.52
300	Δ	21	16	1	7	52	8,274.45
305	Δ	2	1	14	1	5	19.78
32140		18	1	1	0	2	0.00
32150	Δ	6	1	1	1	2	0.22
32500	Δ	7	2	7	1	16	572.32
32760		1	1	2	1	2	0.22
33301		18	0	0	0	2	0.00
34500		21	20	1	10	59	14,819.90
34510		18	17	1	9	2	14,766.78
945		21	1	2	0	2	0.01
adv_package_designer_expert		2	2	17	1	6	82.24
Advanced_Package_Designer		2	2	6	1	1	81.90
Affirma_sim_analysis_env	Δ	69	28	1	16	3	60,736.31

Figure 2-15: Feature Peak Usage Summary report

Feature Peak Usage Details Report

The **Feature Peak Usage Details** report presents a column graph that shows the daily peak number of licenses used for the reporting period. This enables you to see the variation in peak license usage from day to day, for the selected feature.

- Select the **Show maximum availability** checkbox to display a line showing the maximum license availability for the feature over the period.
- Select the **Show average peak usage** checkbox to display a line showing the feature's average daily peak usage over the period.

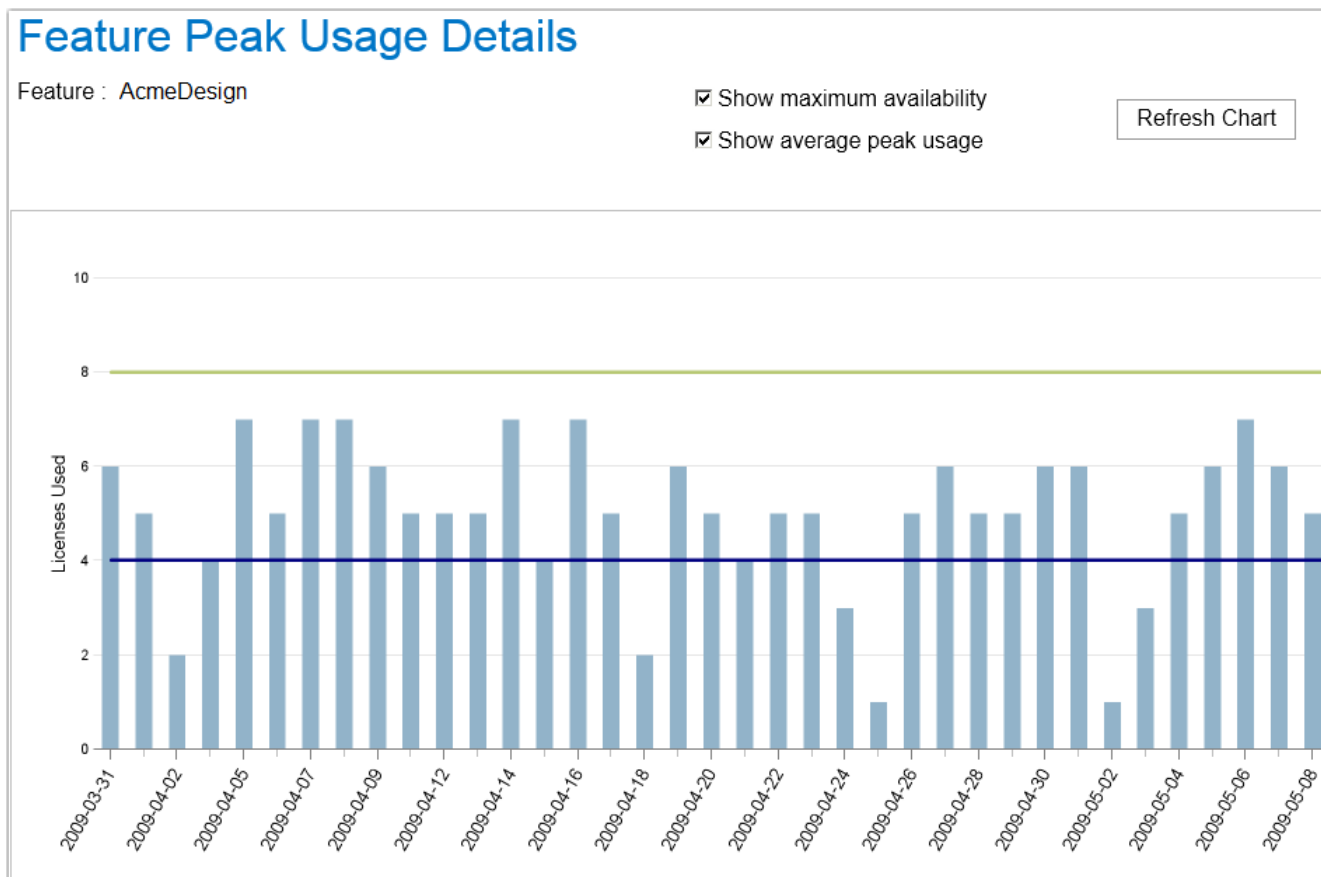


Figure 2-16: Feature Peak Usage Details report

Count of Peak Occurrences Report (Feature)

The **Count of Peak Occurrences** report for features shows the number of times (occurrences) that daily peak license usage for the selected feature was equal to n during the period. This enables you to see how often different peak-usage levels are occurring throughout a period, and where peak-usage levels are clustered.

This report also provides the following textual information at the top:

- Maximum number of licenses available during the reporting period.
- Maximum peak used during the reporting period.
- Average peak usage during the reporting period.

Hover your mouse pointer over a column to view the exact number of peak occurrences for a given peak usage. In the following image, daily peak usage of 4 licenses occurred 8 times during the reporting period. The maximum peak usage was 7, and this occurred 22 times during the reporting period.

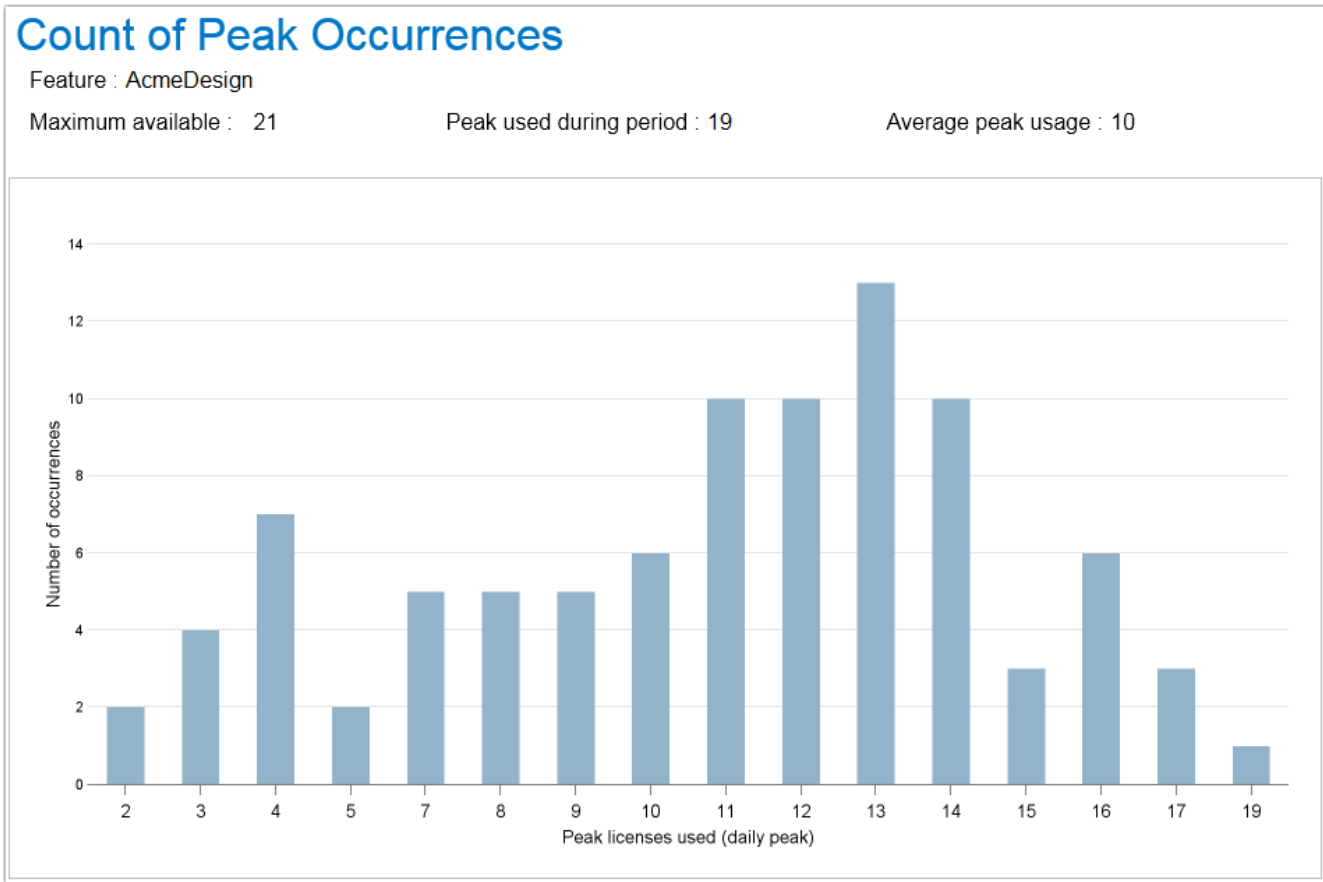


Figure 2-17: Count of Peak Occurrences report for a feature

License Request Daily Denials Report (Feature)

The License Request Daily Denials report shows the number of ultimate denials per day, for a given feature. In this report, you can do the following:

- Hover your pointer over a column in the graph to see the number of ultimate denials that occurred on a specific day.
- Click on a column to open the [Denial Details Report \(Feature\)](#), which provides information about the denials that occurred on that day.

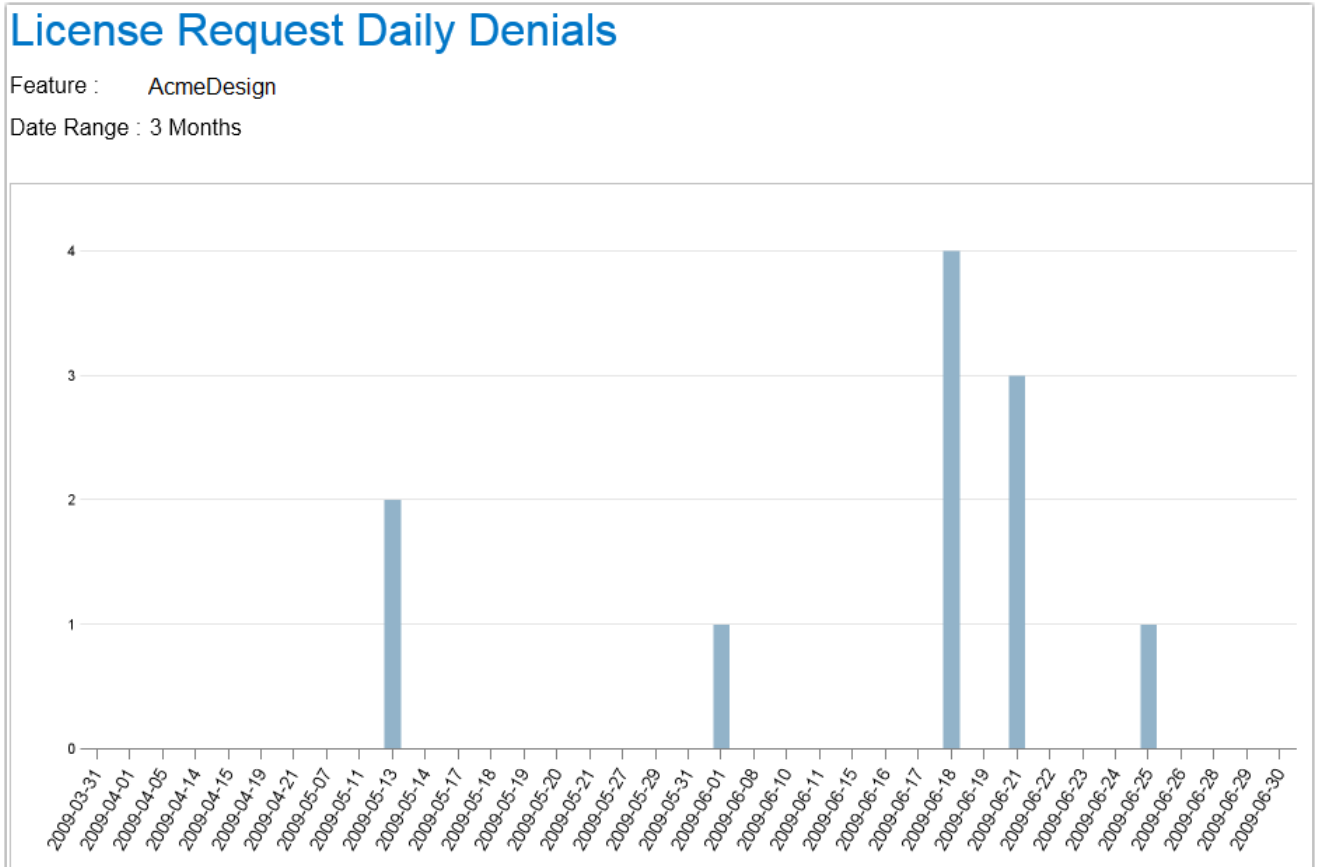


Figure 2-18: License Request Daily Denials report

Denial Details Report (Feature)

The **Denial Details** report provides details about each denial that occurred for a feature on a given date. It provides the following information:

- License server host name for the server that issued the denial
- User name of the user who received the denial
- Date and specific time of the denial
- Denial reason

Denial Details

Feature : 32500
Date : May 27, 2009

License Server Host Name	User Name	Event Date Time	Reason
License_server_1	User_1	Apr 20, 2009 6:41:40 PM	Licensed number of users already reached.
License_server_1	User_2	Apr 20, 2009 4:25:55 PM	Licensed number of users already reached.
License_server_1	User_2	Apr 20, 2009 6:43:19 PM	Licensed number of users already reached.
License_server_2	User_2	Apr 20, 2009 6:43:20 PM	Licensed number of users already reached.
License_server_2	User_1	Apr 20, 2009 6:43:23 PM	Licensed number of users already reached.

Figure 2-19: Denial Details report

Product Usage Statistics Reports

Product Usage Statistics reports provide usage and availability information for a selected product or group of products, for a specified group of users.



Note • Usage Statistics reports support the use of only user-based organizational structures.

Product Peak Usage Summary Report

The **Product Peak Usage Summary** report is the entry point to all of the other product usage-statistics reports. It provides a tabular overview of a group's product-usage activity, including peak usage, denials, unique users, and overall number of usage hours.

The Product Peak Usage Summary report serves as the gateway to the other reports, which are available as drill-through reports. To access the detailed reports, click the links within the Product Peak Usage Summary report.

Statistics Detailed Reports

The detailed reports are available as drill-through links from the Product Peak Usage Summary report.

- **Product Peak Usage Details**—Column graph that shows the selected product's daily peak usage over the reporting period, along with an optional line for average peak usage.
- **Count of Peak Occurrences (Product)**—Column graph that shows, for the selected product, how many times (days) a given peak-usage number occurred during the reporting period.
- **License Request Daily Denials**—Column graph that shows the number of ultimate denials for the product over the reporting period.
- **Denial Details**—Provides information about each denial that occurred on a given day, for the selected product.

Running the Product Usage Statistics Reports

The Product Usage Statistics reports are available in the **FlexNet Manager for Engineering Applications Reports** folder, available from the **Cognos Reporting** page of the FlexNet Manager for Engineering Applications user interface.

The initial interface for the Product Usage Statistics reports is the Product Peak Usage Summary report. From this report, you can click links to the drill-through reports, which provide more granular data.



Task

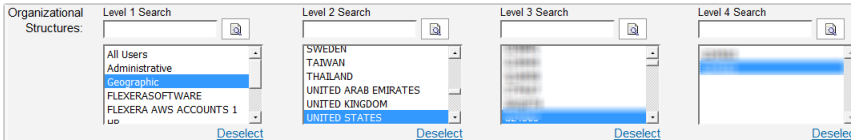
To run the Product Usage Statistics reports:

1. To ensure that data are available, complete the [Prerequisites for Running Usage Statistics Reports](#) (page 33).
2. From the **Reporting** tab, under **Report Designer**, click **Cognos Reporting**.
3. In the **Cognos Connection** pane, in the **Public Folders** tab, click the **FlexNet Manager Suite** link to open the package containing the report folders.
4. Click the **FlexNet Manager for Engineering Applications Reports** link, then click the **Usage Statistics Reports** link.
5. Click one the **Product Usage Statistics** link to display the **Product Peak Usage Summary** prompt page.



Note • Data on product-based usage are available only if you have mapped features to products using the functionality available under the **Planner** tab. For information, see the *FlexNet Manager for Engineering Applications 2016 R2 Online Help*.

6. In the prompt page, specify the information that you want to see in the report. You can search for items in any of the lists using the search boxes above the lists.

Prompt	Description
Organizational Structures	<p>Select, by organizational-structure level, the group of users for whom you want to view usage data. When you select an item in the Level 1 Search list, (other than All Users), a Level 2 Search list is displayed, containing the members of the Level 1 selection. This is repeated down to Level 4.</p>  <p>Note • For Usage Statistics reports, data is available only for user-based organizational structures.</p>
Software Producers	<p>Select the software producers for whom you want to see usage data, then click the right-arrow to move them to the right selection box. Press the Ctrl key while selecting items to select multiple items at one time.</p> <p>This selection filters the items that are available in the Products prompt.</p>
Products	<p>Select the products for which you want to see usage data, then click the right-arrow to move them to the right selection box. Press the Ctrl key while selecting items to select multiple items at one time.</p>

7. Click **Run report**.

Product Peak Usage Summary Report

When you run a Product Usage Statistics report, the first view is the **Product Peak Usage Summary** report. This report provides a view of your organization's product usage for a given time period, and it includes the information described in [Table 2-2](#).

You can view data for the past 3 months, 6 months, or 12 months by clicking the corresponding tab at the top of the report. The reporting period covers n complete months of data prior to the current date. The reporting period begins on the first day of the first month and ends on the last day of the last month in the period. For example, if you run the report on 06/12/2016, the following date ranges apply:

- 3 Months: 03/01/2016–05/31/2016
- 6 Months: 12/01/2015–05/31/2016
- 12 Months: 06/01/2015–05/31/2016

You can view more detailed usage data by clicking a link within the report.

Table 2-3 • Product Peak Usage Summary Report information



Metric	Description
Product name	Display name of the product.
Available	<p>The maximum number of product licenses available during the reporting period.</p> <p>If a delta icon  is displayed to the left of the number, it indicates that the maximum number of available licenses has changed at least once during the period.</p> <p></p> <p>Important • Product-availability information is available only if you have input contract data using investment-planning functionality (available under the Planner tab in FlexNet Manager for Engineering Applications). For information on using this functionality, see the Investment Planning section in the product's online help.</p>
Peak	<p>The highest daily peak usage that occurred during the reporting period, for a specific product.</p> <p>Click a number link to open the Product Peak Usage Details Report for a product.</p>
Count of peak	<p>The number of times during the reporting period that the highest daily peak usage occurred. For example, if the highest daily peak usage during the period was 20 and this usage number occurred twice during the reporting period, the Count of peak value would be 2.</p> <p>Click a number link to open the Count of Peak Occurrences Report (Product).</p>

Table 2-3 • Product Peak Usage Summary Report information

Metric	Description
Average peak	The average daily peak during the period. This is the sum of the daily peaks divided by the number of days in the reporting period.
Denials	The number of ultimate denials for this product during the reporting period. Click a number link to open the License Request Daily Denials Report (Product) .
Unique users	Number of unique users who used this product during the reporting period.
Hours of usage	Total number of hours this product was in use during the reporting period.

3 Months	6 Months	12 Months
----------	----------	-----------

Product Peak Usage Summary

[\(Show/hide\) report settings](#)

Product name ▲	Available	Peak	Count of peak	Average peak	Denials	Unique users	Hours of usage
Advanced Packaging Engineer 3D		7	9	3	45	997	944.63
Allegro(R) Design Entry CIS 210		12	1	6	20	492	2,830.12
Allegro(R) Design Entry HDL 210		4	27	2	54	487	781.42
Assura(TM) Design Rule Checker		4	1	1	3	31	225.34
Assura(TM) Graphical User Interface Option		6	1	2		31	371.95
Assura(TM) Layout Vs. Schematic Verifier		3	2	1		31	143.99
Automatic Cell Characterization		17	2	9		52	4,337.48
Autoplace option for SPECCTRA(R) autorouter (AR256U)		1	1	1	1	1	0.00
BONeS DESIGNER PRO		2	1	1		3	245.74
Cadence (R) First Encounter - GPS		1	49	1	4	7	436.50
Cadence (R) SOC Encounter - GPS		2	17	1	16	8	755.75
Cadence(R) Accelerated Transistor-level Simulator		18	1	3		39	1,024.03
Cadence(R) Chip I/O Planner		1	18	1	2	83	8.53

Figure 2-20: Product Peak Usage Summary report

Product Peak Usage Details Report

The **Product Peak Usage Details** report presents a column graph that shows the daily peak number of licenses used for the reporting period. This enables you to see the variation in peak license usage from day to day, for the selected product.

Select the **Show average peak usage** checkbox to display a line showing the product's average daily peak usage over the period.

Product Peak Usage Details

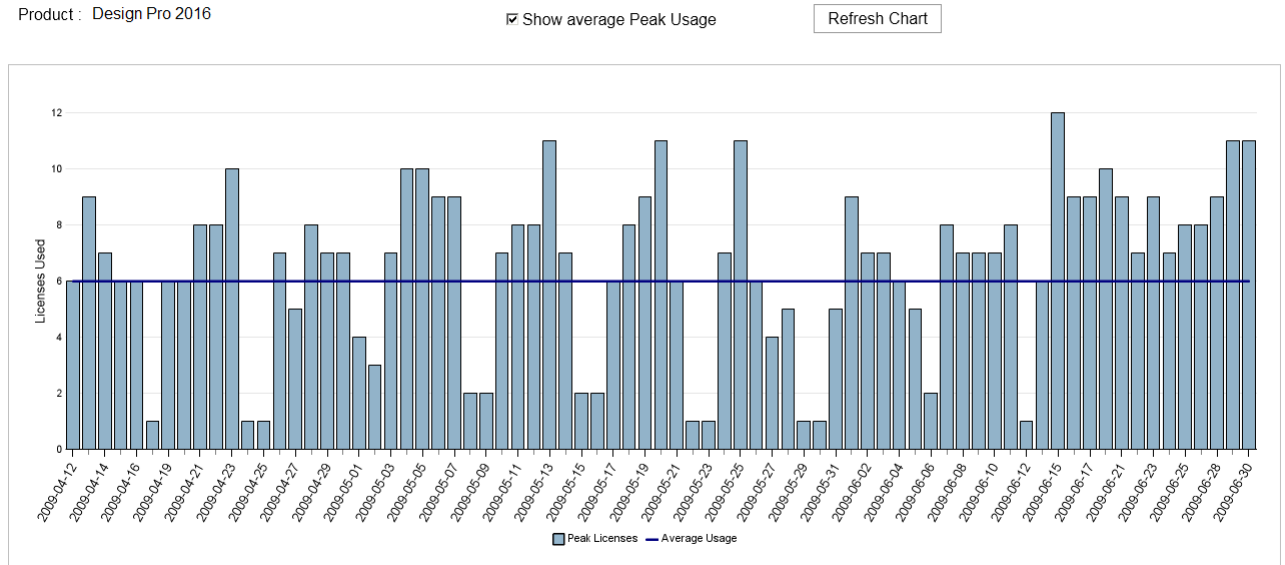


Figure 2-21: Product Peak Usage Details report

Count of Peak Occurrences Report (Product)

The **Count of Peak Occurrences** report for a product shows the number of times (occurrences) that daily peak license usage for the selected product was equal to n during the period. This enables you to see how often different peak-usage levels are occurring throughout a period, and where peak-usage levels are clustered.

This report also provides the following textual information at the top:

- Maximum peak used during the reporting period.
- Average peak usage during the reporting period.

Hover your mouse pointer over a column to view the exact number of peak occurrences for a given peak usage. In the following image, daily peak usage of 7 licenses occurred 15 times during the reporting period. The maximum peak usage was 12, and this occurred once during the reporting period.

Count of Peak Occurrences

Product : Design Pro 2016

Average peak usage : 6

Peak used during period : 6

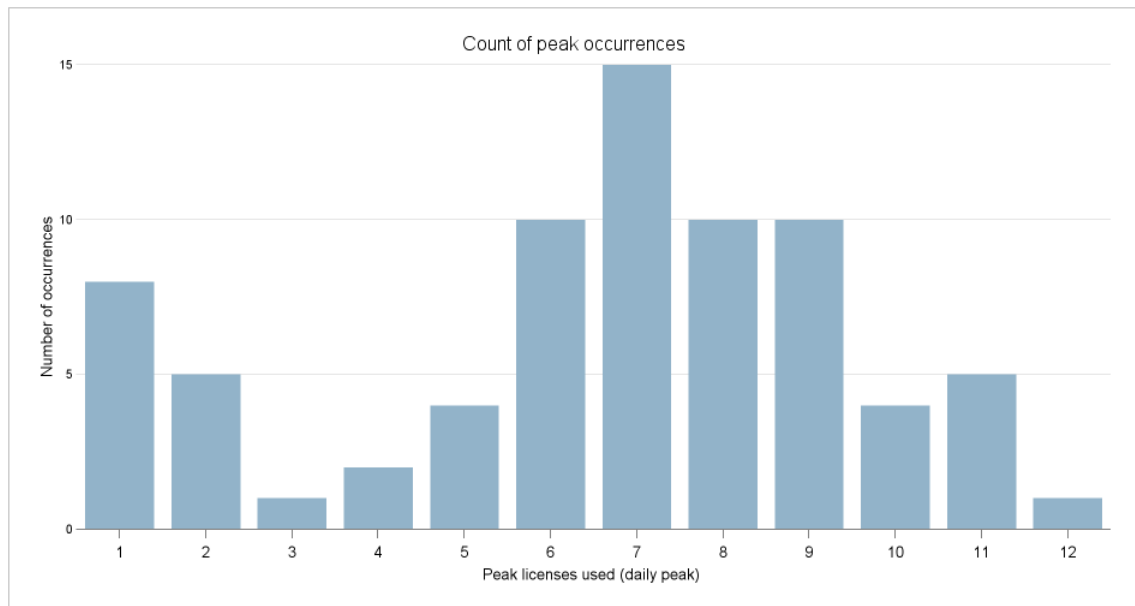


Figure 2-22: Count of Peak Occurrences report for a product

License Request Daily Denials Report (Product)

The License Request Daily Denials report shows the number of ultimate denials per day, for a given product. In this report, you can do the following:

- Hover your pointer over a column in the graph to see the number of ultimate denials that occurred on a specific day.
- Click on a column to open the [Denial Details Report \(Product\)](#) report, which provides information about the denials that occurred on that day.

License Request Daily Denials

Date Range : 3 Months

Product : Design Pro 2016

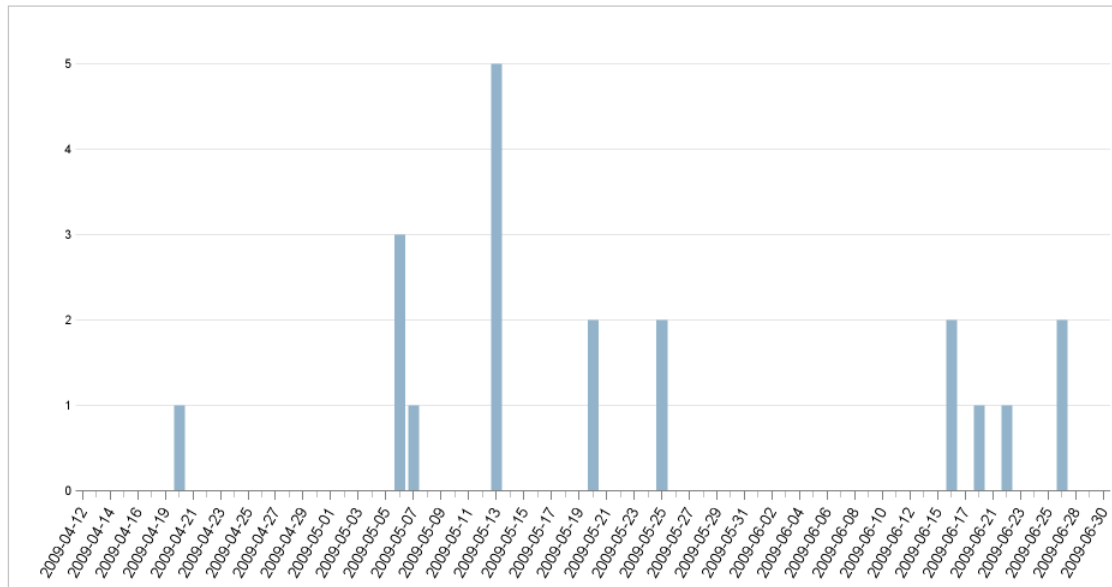


Figure 2-23: License Request Daily Denials report for a product

Denial Details Report (Product)

The **Denial Details** report provides details about each denial that occurred for a product on a given date. It provides the following information:

- License server host name for the server that issued the denial
- User name of the user who received the denial
- Date and specific time of the denial
- Denial reason

Denial Details

Product : Design Pro 2016

Date : May 13, 2009

License Server Host Name	User Name	Event Date Time	Reason
License_server_1	User_1	Apr 20, 2009 6:41:40 PM	Licensed number of users already reached.
License_server_1	User_2	Apr 20, 2009 4:25:55 PM	Licensed number of users already reached.
License_server_1	User_2	Apr 20, 2009 6:43:19 PM	Licensed number of users already reached.
License_server_2	User_2	Apr 20, 2009 6:43:20 PM	Licensed number of users already reached.
License_server_2	User_1	Apr 20, 2009 6:43:23 PM	Licensed number of users already reached.

Figure 2-24: Denial Details report for a product

Specifying Additional Feature Data Using an XML File

You can use an XML file to specify additional feature data for use in FlexNet Report Designer reports. Using an XML file, you can specify the following feature information:

- User-friendly feature name—using the **displayName** attribute.
- Product family for use in [consumptive-token-based reports](#)—using the **softwareCategory** attribute.
- Token cost for use in [consumptive-token-based reports](#) or cost factor for use in chargeback reports ([Feature Chargeback Report](#) or [Product Chargeback Report](#))—using the **costFactor** attribute.

You can import feature data in the XML file, in one of the following ways:

- At the command line, [using the command importVendorFeatureInfo](#). The XML file containing the feature information can have any name.
- By [copying an XML file](#) named **vendor_feature.xml** to the directory `<data_dir>\vendorFeatureInfo`. The XML file *must be named* **vendor_feature.xml**.

Specifying Feature Information: XML Attributes

You can use the attributes in the XML file to specify feature information.

To specify information about product family and token cost for consumptive-token-based reports, use the attributes as described in the following table.

Table 2-4 • Information for consumptive-token-based reports

Attribute in XML file	Information
costFactor	Use for the following: <ul style="list-style-type: none">• Chargeback reports: Specify a cost factor for use in use in chargeback reports (Feature Chargeback Report or Product Chargeback Report).• Consumptive-token reports: Specify a token cost. For every license checkout of a given feature in the product family on a given day, a specified number of tokens is consumed.
displayName	Feature display name. Use this attribute to specify a user-friendly feature name.
softwareCategory	Use in consumptive-token reports to specify a product family. Every feature in a consumptive-token-based licensing model is assigned to a product family, and each product family has an associated token cost.

Importing an XML File at the Command Line

You can import an XML file to provide additional feature data and to update existing feature data, using the command `importVendorFeatureInfo`. The XML file should include a list of vendors with features. Feature information (displayName, softwareCategory, and costFactor) will be updated for the features specified in the XML file.

The properties specified in the XML file (costFactor, displayName, and/or softwareCategory) will be updated in the RPTDW tables. Properties that are not specified in the XML file will be set to NULL in the database. This way, the XML file provides the most current information about what information is in the database. For more information, see [Example XML File and Impact on the Database](#).



Important • If the XML file lists a feature, but does not specify a value for some of the feature's properties (costFactor, displayName, and/or softwareCategory), those properties will be set to NULL in the RPTDW table in the database.

In order for all feature information to be accurately updated, it is recommended that you run the importVendorFeatureInfo command *after aggregation has finished*. The XML import does not insert new features into the database; it only updates features that already exist in the database. To ensure that all features exist in the database, you must run aggregation prior to importing the XML file.

Command-Line Syntax

```
flexnet importVendorFeatureInfo -u<user> -p<password> -f"<filename_with_path>" [-s<server>]
```

For example:

```
flexnet importVendorFeatureInfo -uadmin -padmin -f"c:\vendorFeatureInfo.xml"
```

A sample XML file can be found in the following directory:

```
<reporting_server_installation_dir>\site\sample\VendorFeatureInfoSample.xml
```

Table 2-5 • importVendorFeatureInfo Parameters

Parameter	Description
-u <user>	Specifies the user to run this command. The user must be assigned a role with the View And Manage Investment Planner permission in FlexNet Manager for Engineering Applications. If no such users are configured, the user admin can be specified.
-p <password>	Specifies the password for the user.
-f <filename_with_path>	Specifies an XML file containing the vendors and features to be imported. If the path name contains spaces, the value must be enclosed in double quotation marks.
-s <server>	Specifies the URL for the FlexNet Manager for Cloud Infrastructure or FlexNet Manager for Engineering Applications Admin server. For example: http://localhost:8888/flexnet This is an optional argument. If no argument is specified, then the server URL is assumed to be: http://127.0.0.1:8888/flexnet

Importing an XML File by Copying the File to a Directory

You can use an XML file named `vendor_feature.xml` to provide and update information about cost factor, software category, and display name (for both vendor and feature). FlexNet Manager for Engineering Applications will automatically import the information at the end of the aggregation process.

The properties specified in the XML file (`costFactor`, `displayName`, and/or `softwareCategory`) will be updated in the RPTDW tables. Properties that are not specified in the XML file will be set to NULL in the database. This way, the XML file provides the most current information about what information is in the database. For more information, see [Example XML File and Impact on the Database](#).



Important • If the XML file lists a feature, but does not specify a value for some of the feature's properties (`costFactor`, `displayName`, and/or `softwareCategory`), those properties will be set to NULL in the RPTDW table in the database.



Task

To import feature data using an XML file:

1. Ensure that the XML file is named **vendor_feature.xml**. (Rename the file if necessary.)
2. Create the following directory in the shared data directory:

`<data_dir>\vendorFeatureInfo\`
3. Copy the file **vendor_feature.xml** into the directory: `<data_dir>\vendorFeatureInfo\`

When aggregation is run, the file **vendor_feature.xml** will be imported and the RPTDW tables will be updated with the information contained in the file. If the XML file does not specify a property, the unspecified property will be set to NULL in the database.

Example XML File and Impact on the Database

The following is an example XML file to specify additional feature information that is not contained in the report logs.

```
<AllVendors>
  <vendor name="vendor1">
    <feature name="f1" displayName="feature1" softwareCategory="sc1" costFactor="32" />
    <feature name="f2" softwareCategory="sc1" costFactor="31" />
    <feature name="f3" />
  </vendor>
</AllVendors>
```

In the previous example, the following updates would be made to the database:

- For vendor **vendor1**, the displayName property will be set to NULL because it is not specified.
- For feature **f1**, all properties (displayName, softwareCategory, and costFactor) will be updated because they are all specified.
- For feature **f2**, the softwareCategory and costFactor properties will be updated, while the displayName property will be set to NULL because it is not specified.
- For feature **f3**, all properties (displayName, softwareCategory, and costFactor) will be set to NULL because they are not specified.

FlexNet Manager for Cloud Infrastructure Reports

This folder contains the predefined reports that are provided for reporting on cloud usage and spending. This includes the [Cloud Financial Dashboard](#) (AWS Financial Dashboard), the [Cloud Operational Dashboard](#) (AWS Operational Dashboard), and (within the [AWS Detailed Reports](#) subfolder) all of the reports that are available as drill-through reports from the dashboards.

Cloud Financial Dashboard

The **Cloud Financial Dashboard** (AWS Financial Dashboard) is displayed as the first page you see when you sign in to FlexNet Manager for Cloud Infrastructure. You can also view this dashboard from within FlexNet Report Designer.

This dashboard contains a number of dashboard elements that provide data regarding your organization's spending on cloud services. Click on the data within a dashboard element to drill down to more granular detail in a predefined report.

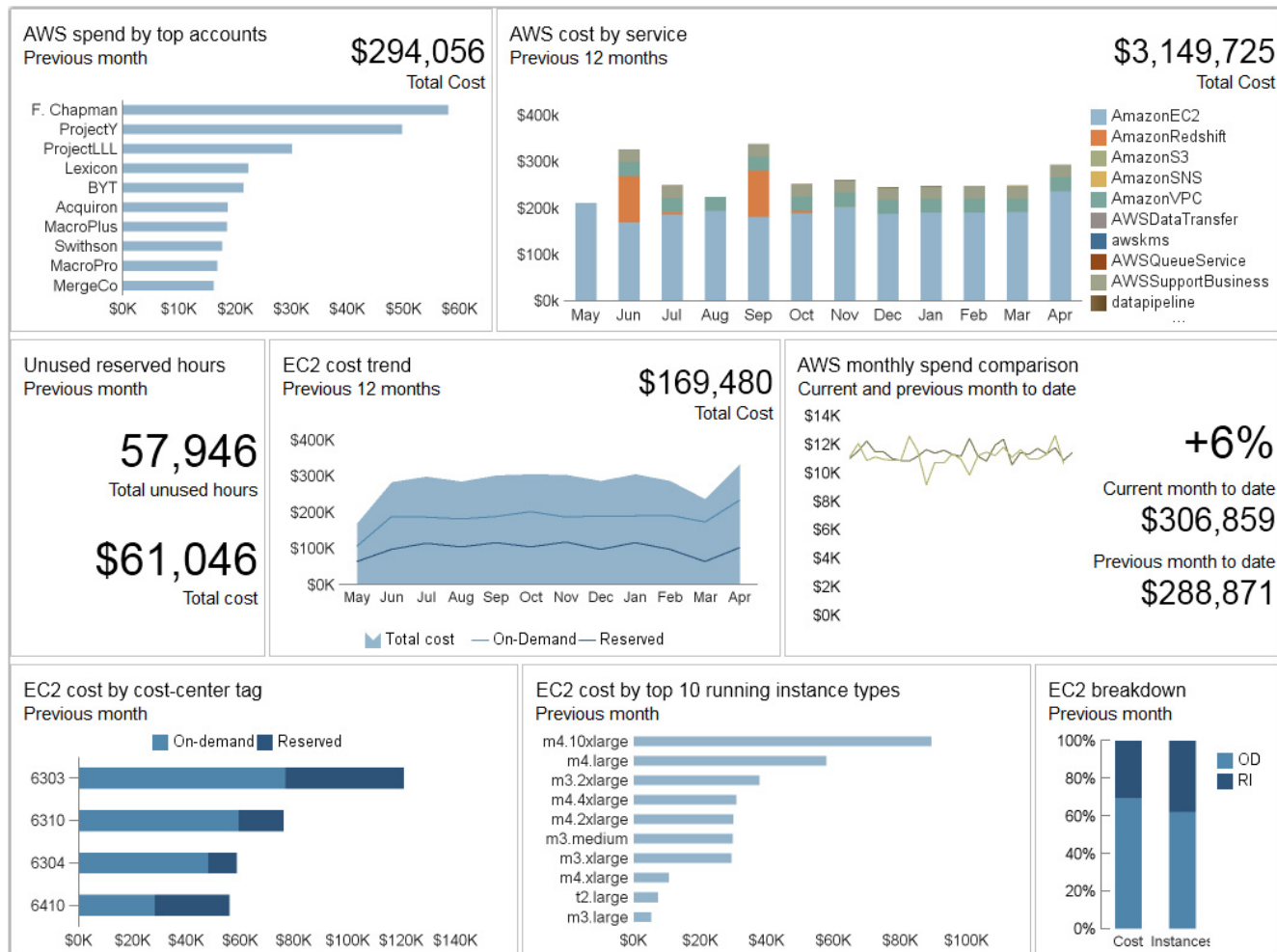


Figure 2-25: Cloud Financial Dashboard

The Cloud Financial Dashboard contains the elements described in the following table.

Table 2-6 • Cloud Financial Dashboard elements

Dashboard element	Description
AWS spend by top accounts	Shows the previous month's AWS spending the organization's top 10 accounts. Click on a bar to open the AWS Spend by Account Report .
AWS cost by service	For the previous 12 months, this column graph shows the monthly total cost, along with a breakdown by service. Click a column to open the AWS Monthly Spend Summary by Service Report .
Unused reserved hours	Provides the total number of unused reservation hours, along with the total cost of those unused hours. Click the dashboard element to open the Unused Reserved Instance Hours Report .

Table 2-6 • Cloud Financial Dashboard elements

Dashboard element	Description
EC2 cost trend	For the previous 12 months, shows the total EC2 cost (area), along with the spending trends for on-demand and reserved instances. Click the graph to open the EC2 Monthly Spend Report .
AWS monthly spend comparison	Compares current month-to-date with previous month-to-date spending on AWS products. The line graphs show daily spending.
EC2 cost by cost-center tag	Shows the top-spending cost centers, with a breakdown of spending for on-demand and reserved instance usage. Click a bar to open the EC2 Cost by Tag Report , where you can view costs by selected tag key and value combinations.
EC2 cost by top 10 running instance types	Shows, for the past month, the top 10 running instance types for your organization. Click a bar to open the EC2 Cost by Instance Type Report .
EC2 breakdown	Comparison of on-demand vs. reserved instances, in terms of cost and number of instances. Click the dashboard element to open the EC2 Instance Breakdown Report .

Cloud Operational Dashboard

The **Cloud Operational Dashboard** (AWS Operational Dashboard) can be accessed from the **Cloud Infrastructure** tab in FlexNet Manager for Cloud Infrastructure. You can also view this dashboard from within FlexNet Report Designer.

This dashboard contains a number of dashboard elements that provide data regarding your organization's utilization of cloud services. Click on the data within a dashboard element to drill down to more granular detail in a predefined report.

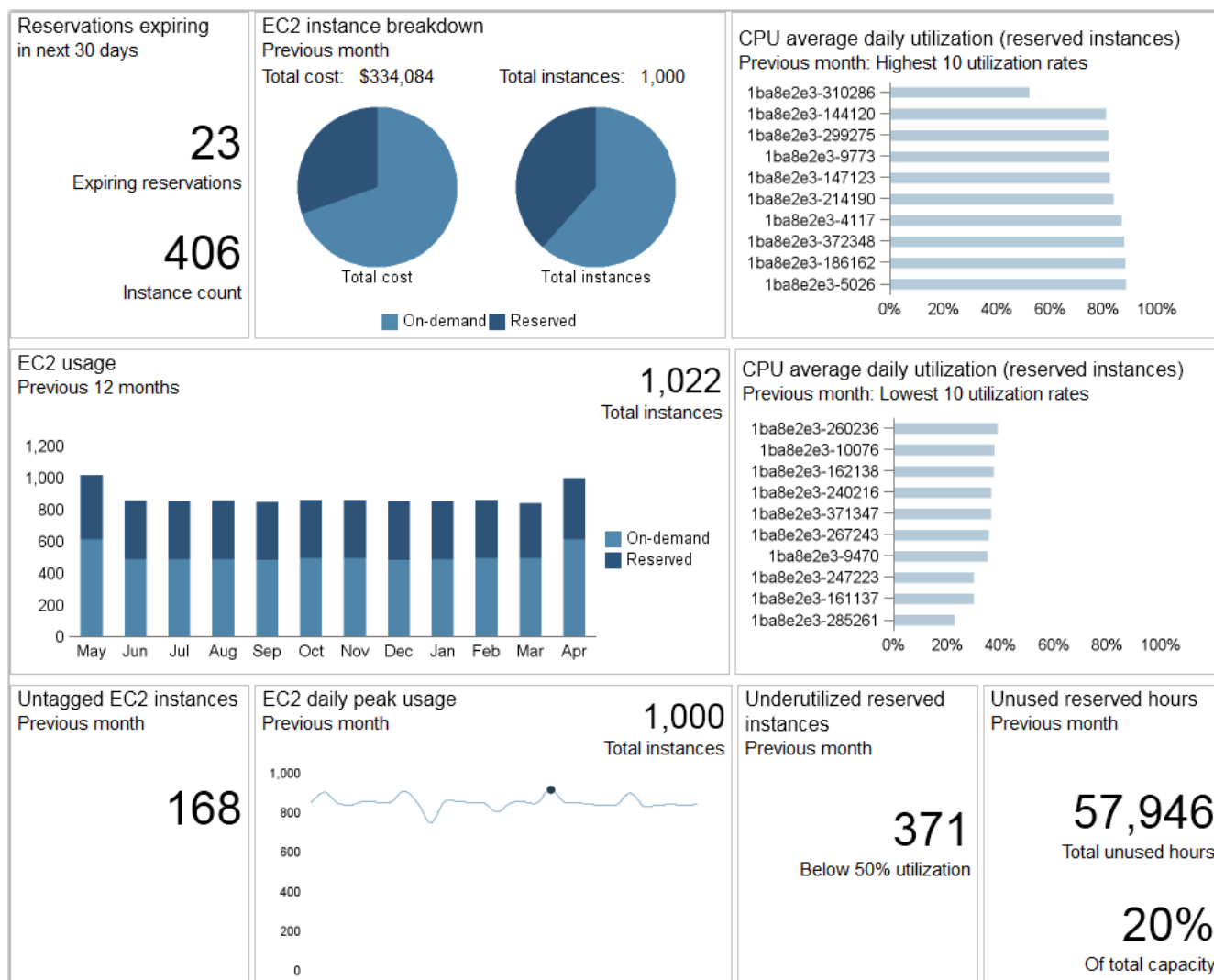


Figure 2-26: Cloud Operational Dashboard

The Cloud Operational Dashboard contains the dashboard elements described in the following table.

Table 2-7 • Cloud Operational Dashboard elements

Dashboard element	Description
Reservations expiring in next 30 days	Shows the reservations—and the number of instances covered by the reservations—that expire within the next 30 days. Click the dashboard element to open the Expiring Reservations Report .
EC2 instance breakdown	Comparison of on-demand vs. reserved instances, in terms of cost and number of instances. Click the dashboard element to open the EC2 Instance Breakdown Report .

Table 2-7 • Cloud Operational Dashboard elements

Dashboard element	Description
CPU average daily utilization (reserved instances): Highest 10 utilization rates	Shows the 10 reserved instances that had the highest utilization rates for the past month. Click a bar to open the CPU Average Daily Utilization for Reserved Instances Report , sorted by highest average utilization rate.
CPU average daily utilization (reserved instances): Lowest 10 utilization rates	Shows the 10 reserved instances that had the lowest utilization rates for the past month. Click a bar to open the CPU Average Daily Utilization for Reserved Instances Report , sorted by lowest average utilization rate.
EC2 usage	For the previous 12 months, shows the number of on-demand and reserved instances used during each month. The number in the upper-right corner (Total instances) is the count of unique instances in use over the course of the previous 12 months. Click a column to open the EC2 Usage Report .
Untagged EC2 instances	Displays the number of untagged EC2 instances for the previous month. Click the number to open the Untagged EC2 Instances Report .
EC2 daily peak usage	For the previous month, shows the daily instance-usage trend. The number in the upper right corner (Total instances) is the count of unique instances in use over the course of the previous month. Click one of the text areas to open the EC2 Daily Peak Usage Report .
Underutilized reserved instances	For the previous month, displays the number of reserved instances whose utilization rate fell below 50 percent. Click the number to open the Underutilized Reserved Instances Report , where you can filter the reserved instances by different threshold percentages.
Unused reserved hours	For the previous month, displays the number of unused reserved-instance hours, and the percentage of total capacity that the unused hours represent. Click to open the Unused Reserved Instance Hours Report .

AWS Detailed Reports

The reports in the **AWS Detailed Reports** folder provide detailed information about your organization's AWS usage and spending. These reports are available as drill-down details from the dashboard elements, and can also be accessed directly from within FlexNet Report Designer.

Account Spend by AWS Product Report

The **Account Spend by AWS Product** report shows the spend-per-product and the total spend for a selected account, for a selected time period. You can sort any of the columns in the report.

Account Spend by AWS Product	
Period:	Previous Month
Account:	F. Chapman
Product name	Cost
Amazon Elastic Compute Cloud	\$29.45
Amazon RDS Service	\$81.00
Amazon Simple Storage Service	\$172.80
Amazon Virtual Private Cloud	\$30,118.50
AWS Data Pipeline	\$540.00
AWS Data Transfer	\$2.70
AWS Support (Business)	\$27,000.00
Total	\$57,944.45

Figure 2-27: Account Spend by AWS Product report

AWS Spend by Account Report

The **AWS Spend by Account** report shows a tabular view of the spending on AWS products by account.

You can change the **Period** using the menu at the top of the report, to show spending by previous month, quarter, six months, or year. You can sort the report by any of the columns.

Click the **Total spend** amount for an account to open the [AWS Monthly Spend Summary by Service Report](#).

AWS Spend by Account		
Period:	Previous Month	
Account	Total spend	Payer account
Acquiron	\$18,661.31	Fraser Chapman
BYT	\$21,435.32	Fraser Chapman
F. Chapman	\$57,944.45	Fraser Chapman
JWB	\$13,122.50	Fraser Chapman
Lexicon	\$22,321.38	Fraser Chapman
MacroPlus	\$18,539.67	Fraser Chapman
MacroPro	\$16,802.74	Fraser Chapman
MainCo	\$11,643.26	Fraser Chapman
MergeCo	\$16,087.76	Fraser Chapman
ProjectLLL	\$30,125.00	Fraser Chapman
ProjectY	\$49,679.77	Fraser Chapman
Swithson	\$17,692.98	Fraser Chapman
Total	\$294,056.14	

Figure 2-28: AWS Spend by Account report

AWS Monthly Spend Summary by Service Report

The **AWS Monthly Spend Summary by Service** report provides a summary of the monthly spending on individual AWS products by account (or for all accounts).

AWS Monthly Spend Summary by Service		
Period:	Previous 12 months	Account: All accounts
		Refresh
Month	Service	Total Cost
May	AmazonEC2	\$230,931.04
	AmazonS3	\$151.20
	AmazonVPC	\$25,825.50
	AWSDataTransfer	\$2.70
	AWSSupportBusiness	\$27,000.00
	datapipeline	\$464.40
Apr	AmazonEC2	\$236,141.14
	AmazonRDS	\$81.00
	AmazonS3	\$172.80
	AmazonVPC	\$30,118.50
	AWSDataTransfer	\$2.70
	AWSSupportBusiness	\$27,000.00
Mar	datapipeline	\$540.00
	AmazonEC2	\$191,978.10
	AmazonRDS	\$2.70

Figure 2-29: AWS Monthly Spend Summary by Service report

CPU Average Daily Utilization for Instance Report

The **CPU Average Daily Utilization for Instance** report displays the average CPU utilization trend for a particular instance over time. The dot represents the peak average utilization for the period. Hover over the peak to view the peak utilization value.

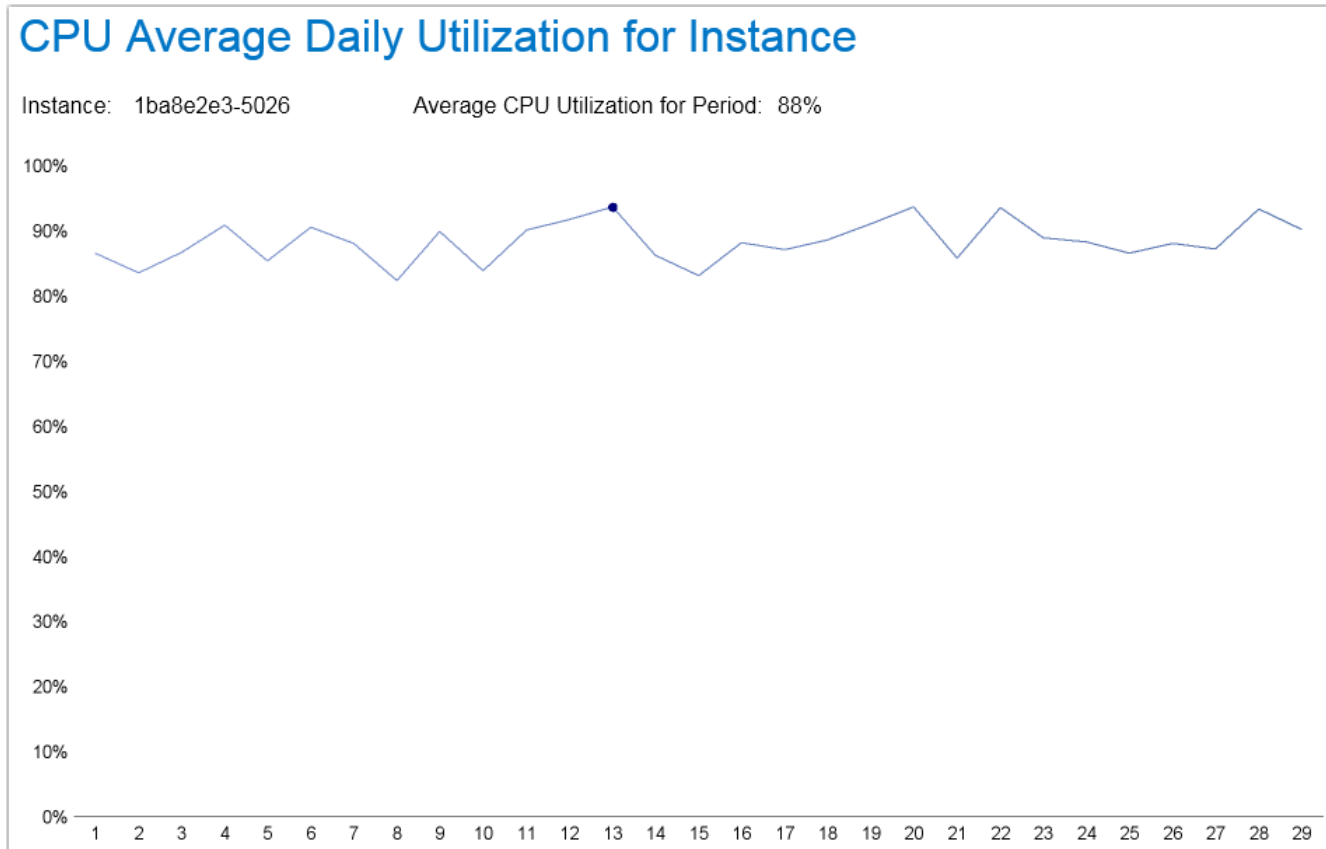


Figure 2-30: CPU Average Daily Utilization for Instance report

CPU Average Daily Utilization for Reserved Instances Report

The **CPU Average Daily Utilization for Reserved Instances** report lists reserved instances by average CPU utilization. You can sort the report to view the list by highest or lowest CPU utilization rates. This report also provides information about the instance type and the account that owns the reserved instance.

Click an instance ID to open the [CPU Average Daily Utilization for Instance Report](#).

CPU Average Daily Utilization for Reserved Instances

Instance ID	Instance type	Account	Average CPU utilization ▼
1ba8e2e3-5026	m4.large	ProjectY	88%
1ba8e2e3-186162	m3.large	ProjectLLL	88%
1ba8e2e3-372348	m3.xlarge	ProjectLLL	88%
1ba8e2e3-4117	m3.medium	ProjectY	87%
1ba8e2e3-214190	m4.xlarge	MergeCo	84%
1ba8e2e3-147123	m4.2xlarge	ProjectY	82%
1ba8e2e3-9773	m4.2xlarge	ProjectY	82%
1ba8e2e3-299275	t2.large	Acquiron	82%
1ba8e2e3-144120	t2.medium	Swithson	81%
1ba8e2e3-310286	m3.medium	MacroPro	52%
1ba8e2e3-379355	m4.4xlarge	ProjectLLL	51%
1ba8e2e3-5329	m3.xlarge	ProjectY	50%
1ba8e2e3-297273	m4.2xlarge	MainCo	50%
1ba8e2e3-4319	t2.small	Swithson	50%
1ba8e2e3-189165	m4.large	MergeCo	50%
1ba8e2e3-189165	m4.large	ProjectY	50%
1ba8e2e3-154130	m3.2xlarge	ProjectY	50%
1ba8e2e3-242218	m3.large	ProjectLLL	50%
1ba8e2e3-190166	m3.medium	MacroPro	50%
1ba8e2e3-204180	m3.2xlarge	MacroPro	49%

Figure 2-31: CPU Average Daily Utilization for Reserved Instances report

EC2 Cost by Instance Type Report

The **EC2 Cost by Instance Type** report provides information—for a selected time period and selected account (or all accounts)—about the cost by instance type and region.

EC2 Cost by Instance Type

Period: Account:

Instance type	Region	Number	Total cost	Account
m3.2xlarge	us-east-1b	2	\$602.60	Swithson
m3.2xlarge	us-east-1c	1	\$668.72	Swithson
m3.large	us-east-1b	2	\$476.82	Swithson
m3.medium	us-east-1b	10	\$2,827.83	Swithson
m3.medium	us-east-1c	7	\$2,244.78	Swithson
m3.xlarge	us-east-1b	1	\$787.40	Swithson
m3.xlarge	us-east-1c	3	\$1,536.40	Swithson
m4.10xlarge	us-east-1b	1	\$2,371.53	Swithson
m4.10xlarge	us-east-1c	1	\$2,322.11	Swithson
m4.2xlarge	us-east-1c	4	\$2,242.89	Swithson
m4.4xlarge	us-east-1b	1	\$1,266.71	Swithson
m4.4xlarge	us-east-1c	3	\$1,415.32	Swithson
m4.large	us-east-1b	13	\$1,974.81	Swithson
m4.large	us-east-1c	17	\$4,003.68	Swithson
m4.xlarge	us-east-1b	1	\$532.38	Swithson
t2.large	us-east-1b	4	\$275.67	Swithson
t2.large	us-east-1c	4	\$226.29	Swithson
t2.medium	us-east-1b	8	\$261.69	Swithson
t2.medium	us-east-1c	5	\$141.86	Swithson
t2.micro	us-east-1c	1	\$12.86	Swithson

Figure 2-32: EC2 Cost by Instance Type report

EC2 Cost by Tag Report

The **EC2 Cost by Tag** report provides—for a given time period—EC2 usage and cost information by the selected tag name and value.

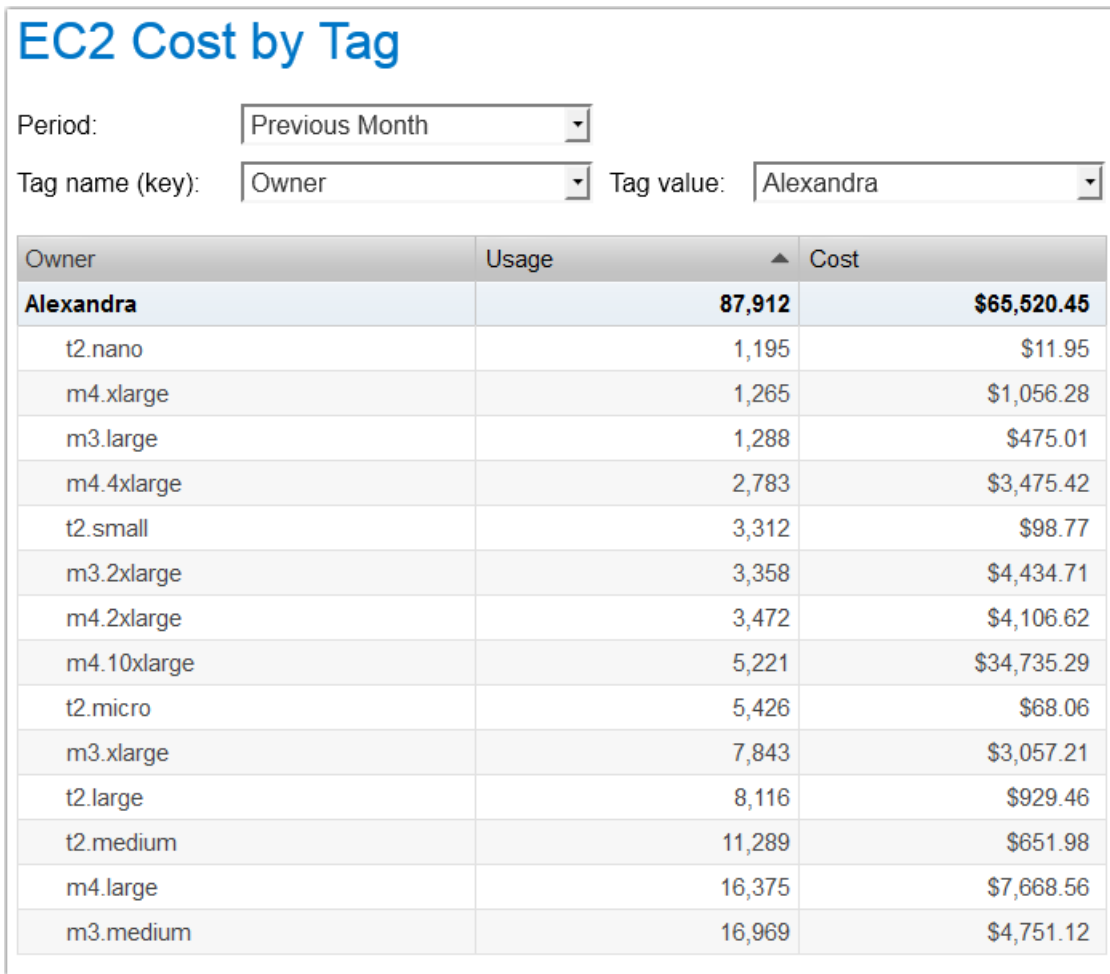


Figure 2-33: EC2 Cost by Tag report

EC2 Daily Peak Usage Report

The **EC2 Daily Peak Usage** report shows the daily peak usage for the selected time period and selected account (or all accounts). The report shows total peak usage, as well as the breakdown between reserved and on-demand instances.

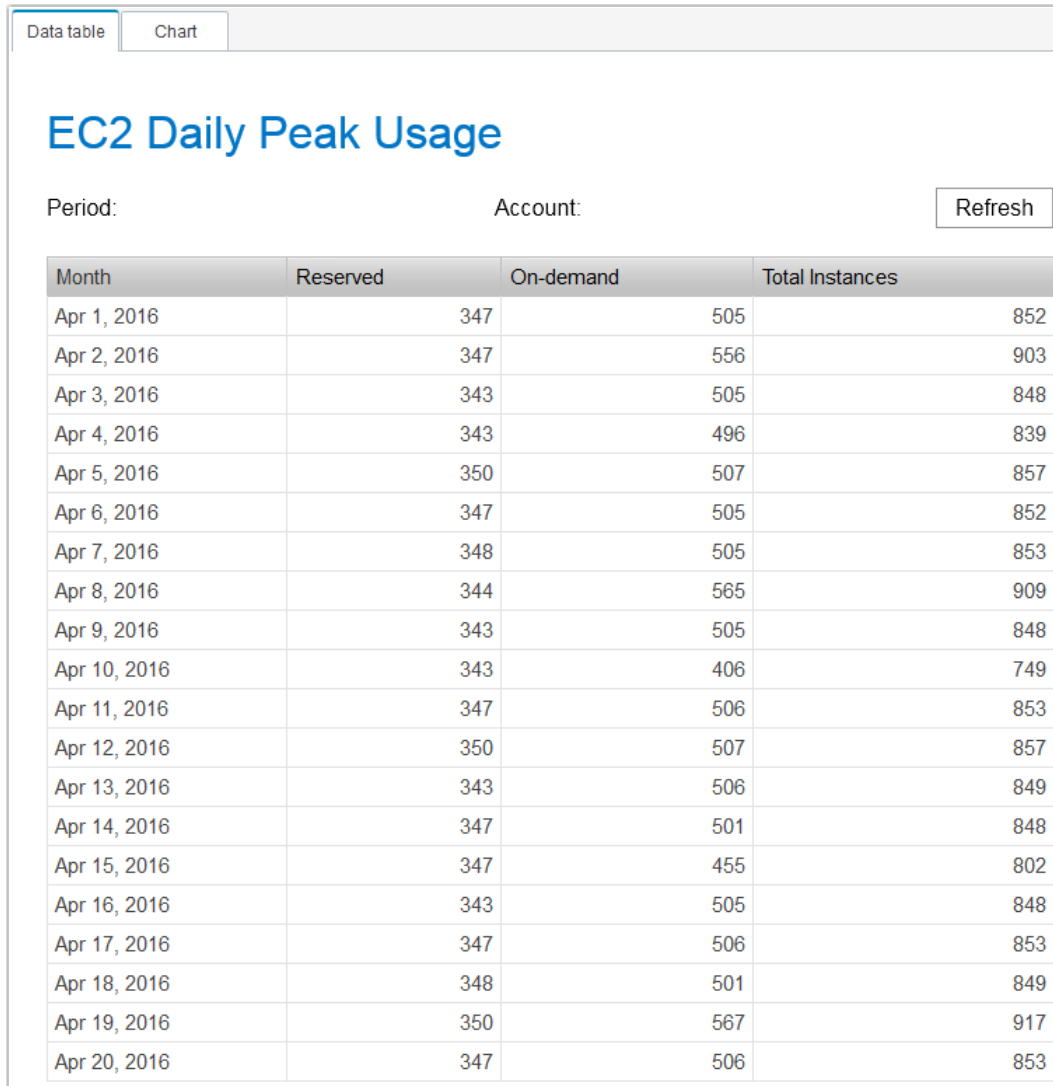


Figure 2-34: EC2 Daily Peak Usage report

EC2 Instance Breakdown Report

The EC2 Instance Breakdown report shows, for a selected time period and selected account (or all accounts), the comparison between on-demand and reserved instances. Click the **Total Usage** number link to open the [EC2 Instance Summary Report](#).

EC2 Instance Breakdown

Period: Account:

Month	Reserved Usage	Reserved Cost	On-demand Usage	On-demand Cost	Total Usage	Total Cost
Mar	348	\$62,924.69	509	\$173,266.48	857	\$236,191.18
Feb	368	\$96,934.70	508	\$190,426.37	876	\$287,361.07
Apr	384	\$101,594.64	627	\$232,567.72	1011	\$334,162.37
Total	402	\$261,454.04	630	\$596,260.58	1032	\$857,714.62

Figure 2-35: EC2 Instance Breakdown report

EC2 Instance Summary Report

The EC2 Instance Summary report shows, for a selected time period and selected account (or all accounts), the summary of all running instances.

EC2 Instance summary

Period: Account:

Resource ID	Reserved Instance	Instance family	Instance Type	Platform	Region	Hours	Cost	Account
1ba8e2e3-10076	No	m4	m4.large	Windows	us-west-1c	667	\$455.09	MacroPro
1ba8e2e3-10076	Yes	m4	m4.large	Windows	us-west-1c	667	\$455.09	MacroPro
1ba8e2e3-10177	No	m3	m3.xlarge	Linux/UNIX	us-west-2b	46	\$7.50	MacroPro
1ba8e2e3-10177	Yes	m3	m3.xlarge	Linux/UNIX	us-west-2b	46	\$7.50	MacroPro
1ba8e2e3-10177	No	m3	m3.xlarge	Linux/UNIX	us-west-2b	644	\$105.04	ProjectLLL
1ba8e2e3-10177	Yes	m3	m3.xlarge	Linux/UNIX	us-west-2b	644	\$105.04	ProjectLLL
1ba8e2e3-10278	No	m4	m4.large	Windows	us-west-2c	667	\$455.09	ProjectY
1ba8e2e3-10278	Yes	m4	m4.large	Windows	us-west-2c	667	\$455.09	ProjectY
1ba8e2e3-10379	No	m3	m3.xlarge	Linux/UNIX	us-west-2b	46	\$7.50	MacroPro
1ba8e2e3-10379	Yes	m3	m3.xlarge	Linux/UNIX	us-west-2b	46	\$7.50	MacroPro
1ba8e2e3-10379	No	m3	m3.xlarge	Linux/UNIX	us-west-2b	644	\$105.04	ProjectLLL
1ba8e2e3-10379	Yes	m3	m3.xlarge	Linux/UNIX	us-west-2b	644	\$105.04	ProjectLLL
1ba8e2e3-10480	No	m3	m3.2xlarge	Windows	us-west-2c	644	\$427.62	MacroPro
1ba8e2e3-10480	Yes	m3	m3.2xlarge	Windows	us-west-2c	644	\$427.62	MacroPro
1ba8e2e3-10581	No	m3	m3.medium	Windows	us-east-1b	644	\$63.31	MainCo
1ba8e2e3-10581	Yes	m3	m3.medium	Windows	us-east-1b	644	\$63.31	MainCo
1ba8e2e3-10682	No	m3	m3.large	Windows	us-west-1b	644	\$238.15	MacroPro
1ba8e2e3-10682	Yes	m3	m3.large	Windows	us-west-1b	644	\$238.15	MacroPro
1ba8e2e3-10783	No	t2	t2.large	Linux/UNIX	us-west-1c	644	\$22.22	MacroPro
1ba8e2e3-10783	Yes	t2	t2.large	Linux/UNIX	us-west-1c	644	\$22.22	MacroPro

Figure 2-36: EC2 Instance Summary report

EC2 Monthly Spend Report

The EC2 Monthly Spend is a tabbed report that provides data in both tabular and graphical formats. In the data-table view, you can see a summary of monthly spending, for the selected time period. Click an account-name link to open the [EC2 Monthly Spend Summary by Account Report](#).

Data table Graph				
EC2 Monthly Spend				
Period: Previous 12 months		Refresh		
Month	Account	Reserved	On-demand	Total EC2
May		\$63,757.22	\$105,723.00	\$169,480.22
	MainCo	\$1,991.34	\$6,025.50	\$8,016.84
	ProjectY	\$19,645.68	\$19,659.00	\$39,304.68
	MergeCo	\$11,308.12	\$8,551.50	\$19,859.62
	ProjectLLL	\$6,085.82	\$12,733.50	\$18,819.32
	MacroPro	\$5,277.76	\$8,830.50	\$14,108.26
	BYT	\$13,383.09	\$8,532.00	\$21,915.09
	Acquiron	\$1,623.21	\$10,005.00	\$11,628.21
	Lexicon	\$0.00	\$7,621.50	\$7,621.50
	MacroPlus	\$0.00	\$9,115.50	\$9,115.50
	JWB	\$0.00	\$6,837.00	\$6,837.00
	Swithson	\$4,442.19	\$7,812.00	\$12,254.19
Jun		\$96,934.70	\$186,910.20	\$283,844.90
	MainCo	\$3,584.41	\$10,837.80	\$14,422.21
	ProjectY	\$34,115.31	\$41,342.40	\$75,457.71
	MergeCo	\$20,156.80	\$15,076.80	\$35,233.60
	ProjectLLL	\$9,586.03	\$18,208.80	\$27,794.83
	MacroPro	\$8,749.03	\$15,633.00	\$24,382.03
	BYT	\$10,428.21	\$15,454.80	\$25,883.01
	Acquiron	\$2,921.78	\$18,009.00	\$20,930.78
	Lexicon	\$0.00	\$13,770.00	\$13,770.00
	MacroPlus	\$0.00	\$16,048.80	\$16,048.80

Figure 2-37: EC2 Monthly Spend report

EC2 Monthly Spend Summary by Account Report

The EC2 Monthly Spend Summary by Account is a tabbed report that provides data in both tabular and graphical formats. In the data-table view, you can see a summary of monthly spending, for the selected time period and the selected account.

EC2 Monthly Spend Summary by Account

Period: Previous 12 months Account: MainCo Refresh

Month	Reserved	On-demand	Total EC2
Apr	\$4,069.47	\$11,587.17	\$15,656.64
Mar	\$2,854.25	\$4,790.20	\$7,644.45
Feb	\$3,584.41	\$6,469.20	\$10,053.61
Jan	\$2,846.29	\$8,829.00	\$11,675.29
Dec	\$3,584.41	\$8,024.40	\$11,608.81
Nov	\$2,516.24	\$10,837.80	\$13,354.04
Oct	\$3,584.41	\$10,837.80	\$14,422.21
Sep	\$3,011.15	\$10,837.80	\$13,848.95
Aug	\$3,584.41	\$10,837.80	\$14,422.21
Jul	\$3,584.41	\$8,024.40	\$11,608.81
Jun	\$3,584.41	\$10,837.80	\$14,422.21
May	\$1,991.34	\$6,025.50	\$8,016.84
Total	\$38,795.21	\$107,938.87	\$146,734.08

Figure 2-38: EC2 Monthly Spend Summary by Account

EC2 Usage Report

The EC2 Usage report shows, for the selected time period and selected account (or all accounts), the total number of reserved and on-demand instances in use during the month, along with the breakdown by purchasing option. Click the Total instances value to open the [EC2 Instance Summary Report](#).

EC2 Usage

Period: Account:

Month ▲	Reserved	On-demand	Total Instances
May	406	614	1020
Jun	368	489	857
Jul	365	501	866
Aug	366	502	868
Sep	365	497	862
Oct	365	507	872
Nov	365	511	876
Dec	368	499	867
Jan	365	503	868
Feb	368	508	876
Mar	348	509	857
Apr	384	627	1011
Total	406	636	1042

Figure 2-39: EC2 Instance Usage report

Expiring Reservations Report

The **Expiring Reservations** report shows your reservations that are expiring within the next 30, 60, or 90 days. It provides the reservation ID, instance type, platform, region, count (number of instances covered by the reservation), reservation term (12 or 36 months), reservation start date, and reservation end date.

Expiring Reservations

Expires within:

Reserved instance ID ▲	Instance type	Platform	Region	Count	Term (months)	Start date	Expiration Date
1ba8e2e3-408384	m4.large	windows	us-west-2b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-409385	t2.small	Linux/UNIX	us-west-2c	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-410386	m3.medium	Windows with SQL Standard	us-east-1b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-411387	m3.medium	Linux/UNIX	us-west-1b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-412388	t2.small	windows	us-west-1c	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-413389	t2.medium	Linux/UNIX	eu-west-1c	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-414390	m4.xlarge	Windows with SQL Standard	eu-west-1b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-415391	m4.large	Linux/UNIX	eu-west-1b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-416392	m4.2xlarge	Windows with SQL Standard	us-east-1c	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-417393	m4.4xlarge	Linux/UNIX	eu-west-1b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-418394	m4.10xlarge	Windows with SQL Standard	us-west-2b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-419395	t2.medium	Linux/UNIX	us-west-2c	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-420396	t2.large	windows	us-west-2b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-421397	m4.large	Linux/UNIX	us-west-2c	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-422398	m3.xlarge	Windows with SQL Standard	us-west-1b	1	12	Jun 17, 2015	Jun 17, 2016
1ba8e2e3-423399	m3.2xlarge	Linux/UNIX	us-west-1c	1	12	Jun 17, 2015	Jun 17, 2016

Figure 2-40: Expiring Reservations report

Reserved EC2 Instances Report

The **Reserved EC2 Instances** report provides information about your organization's reservations, including reservation ID, instance type, platform, region, reservation term (12 or 36 months), reservation start date, and the fixed price that was paid upfront for the reservation.

Reserved EC2 Instances

Reserved instance ID ▲	Instance type	Platform	Region	Term(months)	Start date	Expiration Date	Fixed Price
1ba8e2e3-10076	m4.large	Windows with SQL Standard	us-west-1c	12	Jul 13, 2015	Jul 13, 2016	\$6,206.00
1ba8e2e3-10177	m3.xlarge	Linux/UNIX	us-west-2b	12	Jul 13, 2015	Jul 13, 2016	\$923.00
1ba8e2e3-10278	m4.large	Windows with SQL Standard	us-west-2c	12	Jul 13, 2015	Jul 13, 2016	\$6,206.00
1ba8e2e3-10379	m3.xlarge	Linux/UNIX	us-west-2b	12	Jul 13, 2015	Jul 13, 2016	\$923.00
1ba8e2e3-10480	m3.2xlarge	windows	us-west-2c	12	Jul 13, 2015	Jul 13, 2016	\$6,858.00
1ba8e2e3-10581	m3.medium	windows	us-east-1b	12	Jul 13, 2015	Jul 13, 2016	\$735.00
1ba8e2e3-10682	m3.large	Windows with SQL Standard	us-west-1b	12	Jul 13, 2015	Jul 13, 2016	\$3,561.00
1ba8e2e3-10783	t2.large	Linux/UNIX	us-west-1c	12	Jul 13, 2015	Jul 13, 2016	\$806.00
1ba8e2e3-10884	m4.large	windows	eu-west-1c	12	Jul 13, 2015	Jul 13, 2016	\$1,540.00
1ba8e2e3-10985	t2.small	Linux/UNIX	eu-west-1b	12	Jul 13, 2015	Jul 13, 2016	\$163.00
1ba8e2e3-11086	m3.medium	Windows with SQL Standard	eu-west-1b	12	Jul 13, 2015	Jul 13, 2016	\$1,607.00
1ba8e2e3-11187	m3.medium	Linux/UNIX	us-east-1c	12	Jul 13, 2015	Jul 13, 2016	\$353.00
1ba8e2e3-11288	m3.medium	Windows with SQL Standard	eu-west-1b	12	Jul 13, 2015	Jul 13, 2016	\$1,607.00
1ba8e2e3-11389	t2.medium	Linux/UNIX	us-west-2c	12	Jul 13, 2015	Jul 13, 2016	\$403.00
1ba8e2e3-11490	m4.xlarge	Windows with SQL Standard	us-west-2b	12	Jul 13, 2015	Jul 13, 2016	\$7,510.00
1ba8e2e3-11591	m4.large	Linux/UNIX	us-west-2c	12	Jul 13, 2015	Jul 13, 2016	\$832.00
1ba8e2e3-11692	m4.2xlarge	windows	us-west-2b	12	Jul 13, 2015	Jul 13, 2016	\$6,552.00
1ba8e2e3-11793	m4.4xlarge	Linux/UNIX	us-west-2c	12	Jul 13, 2015	Jul 13, 2016	\$6,383.00
1ba8e2e3-11894	m4.10xlarge	Windows with SQL Standard	us-west-2b	12	Jul 13, 2015	Jul 13, 2016	\$75,082.00
1ba8e2e3-11995	t2.medium	Linux/UNIX	us-west-2c	12	Jul 13, 2015	Jul 13, 2016	\$403.00

Figure 2-41: Reserved EC2 Instances report

Underutilized Reserved Instances Report

The **Underutilized Reserved Instances** report lists—for the selected period and account (or all accounts—the reserved instances that fall below a specified average-utilization threshold.

Underutilized Reserved Instances						
Period: <input type="text" value="Previous Month"/> Account: <input type="text" value="All accounts"/> Threshold: <input type="text" value="50%"/>						
Instance type	Platform	Region	Count	Account name	Average utilization	
m3.2xlarge	Linux	eu-west-1c	47	BYT	48%	
m3.2xlarge	Linux	us-east-1b	35	MainCo	46%	
m3.2xlarge	Linux	us-east-1b	46	Swithson	46%	
m3.2xlarge	Linux	us-west-1b	35	ProjectLLL	45%	
m3.2xlarge	Linux	us-west-1c	46	MacroPro	47%	
m3.2xlarge	Linux	us-west-2b	44	MacroPro	47%	
m3.2xlarge	Linux	us-west-2b	46	ProjectY	47%	
m3.2xlarge	Linux	us-west-2c	44	MacroPro	45%	
m3.2xlarge	Linux	us-west-2c	48	MergeCo	44%	
m3.2xlarge	Linux	us-west-2c	45	ProjectY	43%	
m3.large	Linux	eu-west-1b	48	ProjectY	48%	

Figure 2-42: Underutilized Reserved Instances report

Untagged EC2 Instances Report

The **Untagged EC2 Instances** report provides information—for the selected time period and account (or all accounts)—about the instances that do not have tags associated with them. The report provides the instance ID, instance type, usage hours, cost, and the account that owns the instance. It also indicates whether the instance has a reservation applied (Reserved = Yes).

Untagged EC2 Instances

Period: Account:

Instance ID	Instance type	Usage hours	Cost	Reserved	Account
1ba8e2e3-10076	m4.large	1	\$455.09	Yes	MacroPro
1ba8e2e3-10177	m3.xlarge	1	\$7.50	Yes	MacroPro
1ba8e2e3-10177	m3.xlarge	1	\$101.29	Yes	ProjectLLL
1ba8e2e3-10278	m4.large	1	\$455.09	Yes	ProjectY
1ba8e2e3-10379	m3.xlarge	1	\$7.50	Yes	MacroPro
1ba8e2e3-10379	m3.xlarge	1	\$101.29	Yes	ProjectLLL
1ba8e2e3-10480	m3.2xlarge	1	\$412.34	Yes	MacroPro
1ba8e2e3-10581	m3.medium	1	\$61.04	Yes	MainCo
1ba8e2e3-10682	m3.large	1	\$229.65	Yes	MacroPro
1ba8e2e3-10783	t2.large	1	\$21.42	Yes	MacroPro
1ba8e2e3-10985	t2.small	1	\$11.55	Yes	ProjectY
1ba8e2e3-11086	m3.medium	1	\$21.10	Yes	ProjectLLL
1ba8e2e3-11086	m3.medium	1	\$92.85	Yes	ProjectY
1ba8e2e3-11187	m3.medium	1	\$754.20	Yes	MainCo
1ba8e2e3-11288	m3.medium	1	\$113.95	Yes	Acquiron
1ba8e2e3-11591	m4.large	1	\$39.62	Yes	MergeCo
1ba8e2e3-11692	m4.2xlarge	1	\$362.14	Yes	MergeCo
1ba8e2e3-11793	m4.4xlarge	1	\$316.88	Yes	MergeCo
1ba8e2e3-11995	t2.medium	1	\$19.84	Yes	MergeCo
1ba8e2e3-12096	t2.large	1	\$51.35	Yes	MacroPro

Figure 2-43: Untagged EC2 Instances report

Unused Reserved Instance Hours Report

The **Unused Reserved Instance Hours** report shows, for a given period, the number of unused reserved-instance hours and the associated cost of those hours.

Unused Reserved Instance Hours

Period:

Instance family	Instance type	Platform	Region	Unused hours	Total cost
m3	2xlarge	Linux/UNIX	eu-west-1c	99	\$39.39
	2xlarge	Linux/UNIX	us-east-1b	267	\$112.57
	2xlarge	Linux/UNIX	us-west-1b	198	\$64.21
	2xlarge	Linux/UNIX	us-west-1c	168	\$54.48
	2xlarge	Linux/UNIX	us-west-2b	198	\$64.21
	2xlarge	Linux/UNIX	us-west-2c	838	\$271.76
	2xlarge	Windows	us-west-1b	168	\$233.69
	2xlarge	Windows	us-west-1c	76	\$50.46
	2xlarge	Windows	us-west-2b	488	\$568.30
	2xlarge	Windows	us-west-2c	244	\$284.15
	large	Windows	eu_west-1b	274	\$101.05
	large	Windows	eu-west-1b	76	\$28.03
	large	Windows	eu-west-1c	76	\$28.03
	large	Windows	us-east-1b	343	\$139.43
	large	Windows	us-west-1b	419	\$154.95
	large	Windows	us-west-1c	925	\$342.07
	large	Windows	us-west-2b	403	\$149.03
	large	Windows	us-west-2c	152	\$56.21
	medium	Linux/UNIX	eu_west-1b	175	\$8.68
	medium	Linux/UNIX	eu-west-1c	175	\$8.68

Figure 2-44: Unused Reserved Instance Hours

Report Designer Data Model for Package 2016 R2

The Report Designer Package 2016 R2 data model comprises several discrete models that contain all of the related information that would be required to generate a report on a specific topic. After you select which model to use, each piece of data will be correctly related to every other piece of data, provided you include only items from that selected model. To select which model to use, first you should make some decisions about what content your report will include. This will dictate which model you should use.

Note that the first three models—Feature-Org OLAP, Feature-Leaf OLAP, and Product-Org OLAP—are used for reporting on historical usage data (from report logs), while the Operational Data model is the current usage data collected directly from the license servers.

The models included are:

- **Feature-Org OLAP**—Set of models for online analytical processing for feature-license usage by an organization over time. Uses historical usage data (from report logs). Data are available hourly, daily, or monthly.
- **Feature-Leaf OLAP**—Set of models for online analytical processing for feature-license usage by a user, from a license server host, and/or for a project, over time. Uses historical usage data (from report logs). Data are available hourly, daily, or monthly.
- **Product-Org OLAP**—Set of models for online analytical processing for product-license usage by an organization over time. Uses historical usage data (from report logs). Data are available hourly, daily, or monthly.
- **Operational Data**—Set of models for online analytical processing for feature usage from a single license server or from all license servers. This model enables processing of usage for both FlexNet and LUM license servers and serves as the basis for the report widgets available to the Operational Dashboard. Uses current usage data collected directly from your enterprise's license servers.
- **Tier-Feature-Org OLAP**—Set of models for online analytical processing for tier-based license usage by an organization over time. Uses historical usage data (from report logs). This model is for use by Autodesk customers.
- **Cadence-Token-Feature-Org OLAP**—Set of models for online analytical processing for token-based license usage by an organization over time. Uses historical usage data (from report logs). This model is for use by Cadence customers.
- **Usage Stats for Time Range**—Set of models for reporting on product or feature usage, availability, and denials. Reporting on product usage is available if you have mapped features to products.

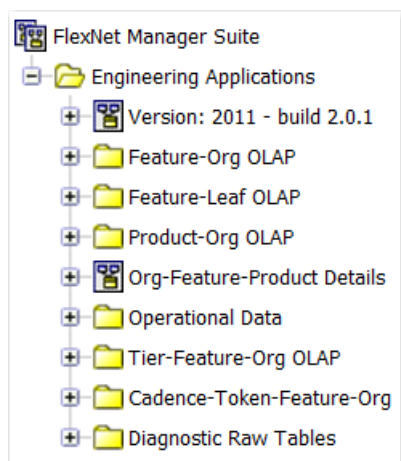


Figure 3-1: Folder structure in Query Studio (Cognos)

Within each historical data model, you can choose to use hourly, daily, or monthly data for your report. Hourly data provides more granularity; however, monthly data results in faster report performance. For the models that use organization structures (Feature-Org OLAP and Product-Org OLAP), multiple levels are available. Your choice of level depends on what data you want to see and the depth of your enterprise's hierarchy.

Determining Which Model To Use

Before creating a report, answer the following questions:

- Will the report deal with historical data (data from report logs) or with operational (current) data? (The [following example](#) focuses on building a report that uses historical data.)
- Will the report deal with product usage or feature usage?
- If it is Feature Usage, will it use an organizational structure? All Product Usage reports must use an organizational structure.
- Do you need to report on tier-based (Autodesk) or token-based (Cadence) usage?
- Will the report rely on hourly, daily, or monthly data? Monthly data is desirable for faster report performance, although monthly is not available for Operational data.
- Is there a specific level of the organization that should be reported on?

Each of these questions is closely related to the path that should be taken down the data model hierarchy (in Query Studio or Report Studio), to determine from which model you should pull items to create a report.

Using Historical Or Operational (Real-Time) Data

Historical data is more accurate because it comes from report logs. Because of this, however, the data is not available immediately. Report logs must first be imported (rotated), which typically happens daily, and then the imported report-log data must be aggregated before it is available for reports.

Operational data is more readily available because it is collected more often, but it is less accurate due to incomplete processing (for example, no special processing of duplicate-grouped events). Operational data is available for a period of only two weeks. In addition, operational data does not take into account any organizational structures that might exist.

Example: Determining Which Model To Use



Note • This example focuses on building a report that uses historical data (data from report logs) rather than operational (current) data.

Consider the following example: Assume aggregation has been completed and there is already in place an organizational structure with the following levels below the top level: Business Unit, Cost Center, and User. To create a report that displayed quarterly feature usage by business unit, you would find your model as follows:

1. First, open the 'Feature-Org OLAP' folder because you are interested in Feature usage (not product), and would like to use your Organizational Structure instead of leaf data.
2. Second, select the 'Feature Monthly' subfolder. Because this is a quarterly report, Monthly data contains enough granularity, and would yield better performance than Daily or Hourly data
3. Finally, you would choose the model F-M Level2. In the previous assumptions, Business Unit occupies the second level of the organization (underneath the top level), so the Level2 model is the correct choice.

With that choice made, any data available from F-M Level2 can be added to our report with assurances that it will be correctly linked to the rest of the data in our report, as long as everything was taken from this same model.

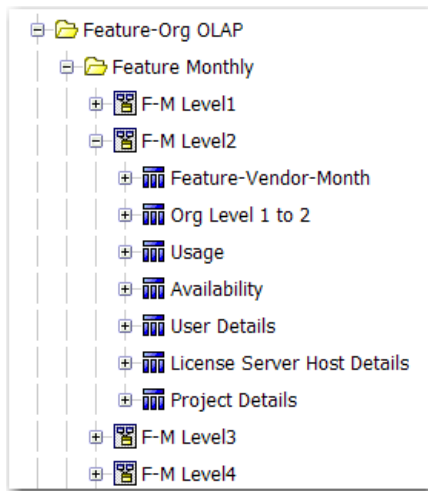


Figure 3-2: Feature-Org OLAP folder expanded for F-M Level2

Data Model Descriptions

Feature-Org OLAP

Feature-Org OLAP provides a set of models for online analytical processing for feature-license usage by an organization over time. In Cognos, the Feature-Org OLAP folder contains three subfolders:

- Feature Monthly—Report will use monthly data.
- Feature Daily—Report will use daily data.
- Feature Hourly—Report will use hourly data.

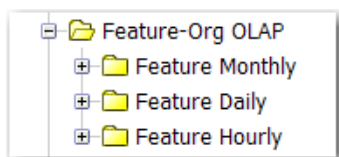


Figure 3-3: Feature-Org OLAP folder in Report Studio (Cognos)

Within each of the Feature-Org OLAP subfolders, there are five levels (namespaces), each of which represents a level in your organizational structure, with Level1 representing the top level. The level you select depends upon which level in your enterprise's organizational structure you are reporting on.

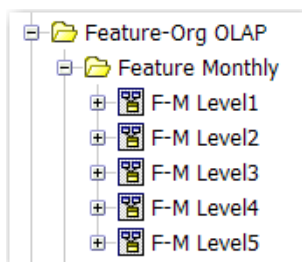


Figure 3-4: Feature Monthly folder expanded to show the levels

Within each level namespace are query subjects, some of which vary from one level to the next. When you choose a level to report on, you must work only with the query subjects in that level. For example, the following figure shows the query subjects that are available to work with when reporting on feature license usage using monthly data for Level3 of your organization.

The Feature Daily and the Feature Hourly folders are structured same way as the Feature Monthly folder. The difference is that this model is built on daily and hourly aggregation data, respectively. For the Feature Daily model, the data granularity is one day and, for the Feature Hourly model, the data granularity is one hour.

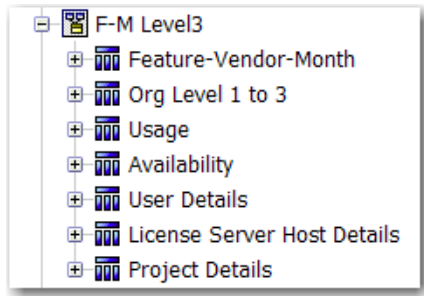


Figure 3-5: F-M Level3 namespace expanded to show query subjects.

F-M/D/H Level1

The Level1 namespace contains the following query subjects. Click the link to go to a description of the query subject.

Level1 namespaces do not have User Details, License Server Host Details, or Project Details query subjects because leaf-level objects cannot be Level1 organizational units.

- [Feature-Vendor-Month/Day/Hour](#)
- [Org Level 1](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [Tier](#)

F-M/D/H Level2

The F-M Level2 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Feature-Vendor-Month/Day/Hour](#)
- [Org Level 1 to 2](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [User Details](#)
- [License Server Host Details](#)
- [Project Details](#)
- [Tier](#)

F-M/D/H Level3

F-M Level3 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Feature-Vendor-Month/Day/Hour](#)
- [Org Level 1 to 3](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [User Details](#)
- [License Server Host Details](#)
- [Project Details](#)
- [Tier](#)

F-M/D/H Level4

The F-M Level4 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Feature-Vendor-Month/Day/Hour](#)
- [Org Level 1 to 4](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [User Details](#)
- [License Server Host Details](#)
- [Project Details](#)
- [Tier](#)

F-M/D/H Level5

The F-M Level5 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Feature-Vendor-Month/Day/Hour](#)
- [Org Level 1 to 5](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [User Details](#)
- [License Server Host Details](#)
- [Project Details](#)
- [Tier](#)

Tier-Feature-Vendor

The Tier-Feature-Vendor namespace enables you to create a report that shows the relationship among Tiers, Features, and Vendors. It contains the following query subjects. Click the link to go to a description of the query subject.

- [Vendor of Feature](#)
- [Tier of Features](#)
- [Feature of a Tier](#)

Feature-Leaf OLAP

Feature-Leaf OLAP provides a set of models for online analytical processing for feature-license usage by a user, from a license server host, and/or for a project, over time. In Cognos, the Feature-Leaf OLAP folder contains three namespaces:

- Monthly—Report will use monthly data.
- Daily—Report will use daily data.
- Hourly—Report will use hourly data.

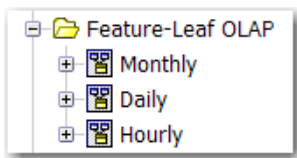


Figure 3-6: Feature-Leaf OLAP folder in Report Studio (Cognos).

Within each namespace are query subjects, which are the same for all of the namespaces. The only difference is the data on which the model is built. For example, the Monthly model is built on the monthly aggregation data (data granularity of one month), the Daily model is built on daily aggregation data (data granularity of one day), and the Hourly model is built on hourly aggregation data (data granularity of one hour).

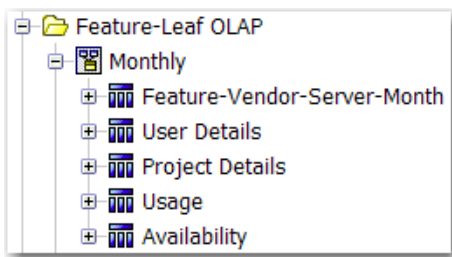


Figure 3-7: Feature-Leaf OLAP model with Monthly namespace expanded to show query subjects.

Monthly/Daily/Hourly

The namespaces in the Feature-Leaf OLAP model contain the following query subjects. Click the link to go to a description of the query subject.

- [Feature-Vendor-Month/Day/Hour](#) (contains some additional, self-explanatory properties that pertain to license server host)
- [User Details](#)
- [Project Details](#)
- [Usage \(Leaf Level–Based\)](#)
- [Availability](#)

Product-Org OLAP

Product-Org OLAP provides a set of models for online analytical processing for product-license usage by an organization over time. In Cognos, the Product-Org OLAP folder contains three subfolders:

- Product Monthly—Report will use monthly data.
- Product Daily—Report will use daily data.
- Product Hourly—Report will use hourly data.

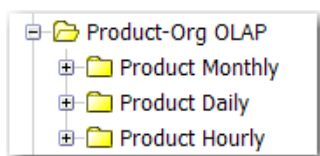


Figure 3-8: Product-Org OLAP folder in Report Studio (Cognos).

Within each of the Product-Org OLAP subfolders, there are five levels (namespaces), each of which represents a level in your organizational structure, with Level1 representing the top level. The level you select depends upon which level in your enterprise's organizational structure you are reporting on.

Both the Feature Daily and the Feature Hourly folders are structured same way as the Feature Monthly folder. The difference is that this model is built on daily and hourly aggregation data, respectively. For the Feature Daily model, the data granularity is one day and, for the Feature Hourly model, the data granularity is one hour.

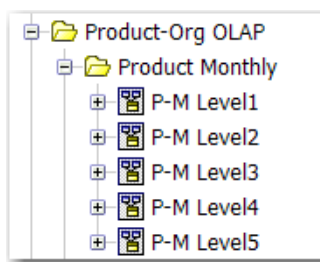


Figure 3-9: Product Monthly folder expanded to show the levels (namespaces).

Within each level namespace are query subjects, some of which vary from one level to the next. When you choose a level to report on, you must work only with the query subjects in that level. For example, the following figure shows the query subjects that are available to work with when reporting on feature license usage using monthly data for Level3 of your organization.

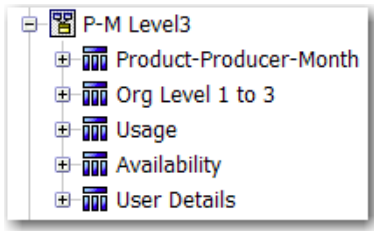


Figure 3-10: P-M Level3 namespace expanded to show query subjects

P-M/D/H Level1

The Level1 namespace contains the following query subjects. Click the link to go to a description of the query subject.

Level1 namespaces do not have User Details, License Server Host Details, or Project Details query subjects because leaf-level objects cannot be Level1 organizational units.

- [Product-Producer-Month/Day/Hour](#)
- [Org Level 1](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)

P-M/D/H Level2

The Level2 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Product-Producer-Month/Day/Hour](#)
- [Org Level 1 to 2](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [User Details](#)

P-M/D/H Level3

The Level3 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Product-Producer-Month/Day/Hour](#)
- [Org Level 1 to 3](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [User Details](#)

P-M/D/H Level4

The Level4 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Product-Producer-Month/Day/Hour](#)
- [Org Level 1 to 4](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [User Details](#)

P-M/D/H Level5

The Level5 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Product-Producer-Month/Day/Hour](#)
- [Org Level 1 to 5](#)
- [Usage \(Organization Structure–Based\)](#)
- [Availability](#)
- [User Details](#)

Org-Feature-Product Details (Namespace)

The Org-Feature-Product Details namespace contains the following query subjects: Org Type, Feature, Vendor, Product, Software Producer, Tier of Features, License Server Host Details, and Hybrid Org Details. All these query subjects are standalone and do not have any underlying relationships. These query subject are useful for pre-populating prompts in the reports.

Tier-Feature-Org OLAP

The Tier-Feature-Org OLAP provides a set of models for online analytical processing for tier-based license usage by an organization over time. This is for use by enterprises who use Autodesk products.

In Cognos, the Tier-Feature-Org OLAP folder contains three subfolders:

- Tier-Feature Monthly—Report will use monthly data.
- Tier-Feature Daily—Report will use daily data.
- Tier-Feature Hourly—Report will use hourly data.

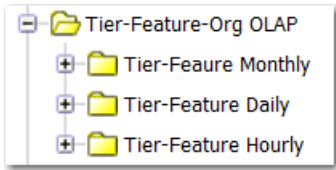


Figure 3-11: Tier-Feature-Org OLAP folder in Report Studio (Cognos)

Within each of the Tier-Feature-Org OLAP subfolders, there are five levels (namespaces), each of which represents a level in your organizational structure, with Level1 representing the top level. The level you select depends upon which level in your enterprise's organizational structure you are reporting on.

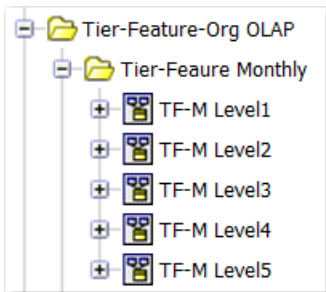


Figure 3-12: Tier Feature Monthly folder expanded to show the levels

Within each level namespace are query subjects, some of which vary from one level to the next. When you choose a level to report on, you must work only with the query subjects in that level. For example, the following figure shows the query subjects that are available to work with when reporting on feature license usage using monthly data for Level3 of your organization.

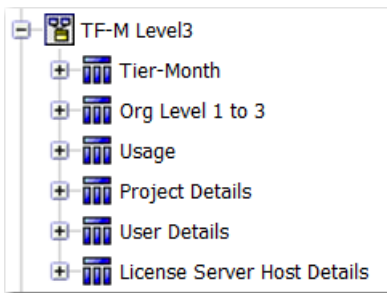


Figure 3-13: TF-M Level3 namespace expanded to show query subjects.

The Tier-Feature Daily and the Tier-Feature Hourly folders are structured same way as the Tier-Feature Monthly folder. The difference is that this model is built on daily and hourly aggregation data, respectively. For the Tier-Feature Daily model, the data granularity is one day and, for the Tier-Feature Hourly model, the data granularity is one hour.

TF-M/D/H Level1

The Level1 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Tier-Month/Day/Hour](#)

- [Org Level 1](#)
- [Usage \(Organization Structure–Based\)](#)

TF-M/D/H Level2

The TF-M Level2 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Tier-Month/Day/Hour](#)
- [Org Level 1 to 2](#)
- [Usage \(Organization Structure–Based\)](#)
- [Project Details](#)
- [User Details](#)
- [License Server Host Details](#)

TF-M/D/H Level3

The TF-M Level3 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Tier-Month/Day/Hour](#)
- [Org Level 1 to 3](#)
- [Usage \(Organization Structure–Based\)](#)
- [Project Details](#)
- [User Details](#)
- [License Server Host Details](#)

TF-M/D/H Level4

The TF-M Level4 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Tier-Month/Day/Hour](#)
- [Org Level 1 to 4](#)
- [Usage \(Organization Structure–Based\)](#)
- [Project Details](#)
- [User Details](#)
- [License Server Host Details](#)

TF-M/D/H Level5

The TF-M Level5 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Tier-Month/Day/Hour](#)
- [Org Level 1 to 5](#)
- [Usage \(Organization Structure–Based\)](#)
- [Project Details](#)
- [User Details](#)
- [License Server Host Details](#)

Cadence-Token-Feature-Org OLAP

The Cadence-Token-Feature-Org OLAP provides a set of models for online analytical processing for token-based license usage by an organization over time. This is for use by enterprises who use Cadence products.

In Cognos, the Cadence-Token-Feature-Org OLAP folder contains three subfolders:

- Capability of Feature Monthly—Report will use monthly data.
- Capability of Feature Daily—Report will use daily data.
- Capability of Feature Hourly—Report will use hourly data.

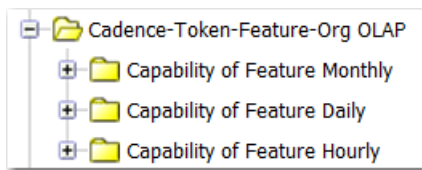


Figure 3-14: Cadence-Token-Feature-Org OLAP folder in Report Studio (Cognos)

Within each of the Cadence-Token-Feature-Org OLAP subfolders, there are five levels (namespaces), each of which represents a level in your organizational structure, with Level1 representing the top level. The level you select depends upon which level in your enterprise's organizational structure you are reporting on.

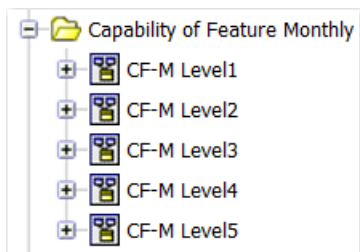


Figure 3-15: Capability of Feature Monthly folder expanded to show the levels

Within each level namespace are query subjects, some of which vary from one level to the next. When you choose a level to report on, you must work only with the query subjects in that level. For example, the following figure shows the query subjects that are available to work with when reporting on feature license usage using monthly data for Level3 of your organization.

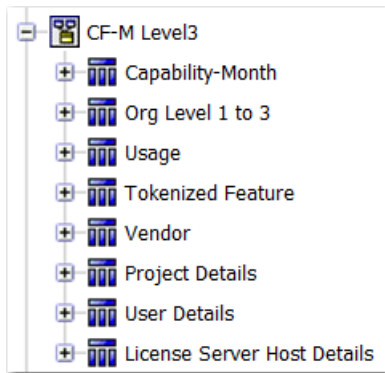


Figure 3-16: CF-M Level3 namespace expanded to show query subjects.

The Capability of Feature Daily and the Capability of Feature Hourly folders are structured same way as the Capability of Feature Monthly folder. The difference is that this model is built on daily and hourly aggregation data, respectively. For the Capability of Feature Daily model, the data granularity is one day and, for the Capability of Feature Hourly model, the data granularity is one hour.

CF-M/D/H Level1

The Level1 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Capability-Month/Day/Hour](#)
- [Org Level 1](#)
- [Usage \(Organization Structure–Based\)](#)
- [Tokenized Feature](#)
- [Vendor](#)

CF-M/D/H Level2

The Level2 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Capability-Month/Day/Hour](#)
- [Org Level 1 to 2](#)
- [Usage \(Organization Structure–Based\)](#)
- [Tokenized Feature](#)
- [Vendor](#)

- [Project Details](#)
- [User Details](#)
- [License Server Host Details](#)

CF-M/D/H Level3

The Level3 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Capability-Month/Day/Hour](#)
- [Org Level 1 to 3](#)
- [Usage \(Organization Structure–Based\)](#)
- [Tokenized Feature](#)
- [Vendor](#)
- [Project Details](#)
- [User Details](#)
- [License Server Host Details](#)

CF-M/D/H Level4

The Level4 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Capability-Month/Day/Hour](#)
- [Org Level 1 to 4](#)
- [Usage \(Organization Structure–Based\)](#)
- [Tokenized Feature](#)
- [Vendor](#)
- [Project Details](#)
- [User Details](#)
- [License Server Host Details](#)

CF-M/D/H Level5

The Level5 namespace contains the following query subjects. Click the link to go to a description of the query subject.

- [Capability-Month/Day/Hour](#)
- [Org Level 1 to 5](#)

- Usage (Organization Structure–Based)
- Tokenized Feature
- Vendor
- Project Details
- User Details
- License Server Host Details

Query Subjects

Feature-Vendor-Month/Day/Hour

Describes all the given Features with their Vendors known for each month/day/hour on the Time line. Feature/Vendor information comes from entitlement regardless of the usage. The properties available will vary depending on the namespace.

Table 3-1 • Feature-Vendor-Month/Day/Hour properties

Property	Description
Vendor Name	Vendor name.
Feature Name	Feature name.
Year	Year.
Month	Month name. For example, December.
Month Num	Month number. For December, this would be 12.
Quarter	Quarter number.
Quarter Name	Quarter name.
Date (1st of Month)	First date of a month.
Month of Quarter	Whether the month is the first, second, or third in a given quarter.
Feature Software Category	Feature software category.
Cost Factor	Feature cost factor.
License System	License system.
Feature Display Name	Feature display name.

Table 3-1 • Feature-Vendor-Month/Day/Hour properties

Property	Description
Vendor Display Name	Vendor display name.
Time ID	Reference to the first day of a month in the Time Dimension query subject.
Feature ID	Reference to a Feature.
Vendor ID	Reference to a Vendor Daemon.
Software Producer ID	Reference to a Software Producer of a Feature.

Org Level 1

This query subject contains the list of top organization units for different organization structure types.

Table 3-2 • Org Level 1 Properties

Property	Description
Org Node Name L1	Organization structure Level 1 node name.
Org Type Name	Organization name.
Org Node ID L1	The organization node ID that is referenced from the Usage query subject.
Org Node Display Name L1	The display name for the organization structure Level 1 node name.

Usage (Organization Structure-Based)

This query subject describes feature license utilization on the top level of organization structures.

Some of the query subject properties will vary, depending on which model you are working with.

Table 3-3 • Usage Properties

Property	Description
Usage Events	Number of times a feature/product has been started within the time interval (hour/day/month) referenced by TIME_ID.
Ultimate Denials	<p>Total number of "true" denials during 1 month beginning at the time point referenced by TIME_ID.</p> <p>A true denial is an ultimate denial or folded denial, based on the configured false denials interval.</p>

Table 3-3 • Usage Properties

Property	Description
Peak Licenses	The peak (maximum) number of licenses used concurrently for a feature/product within the time interval (hour/day/month) referenced by TIME_ID.
Count at Token Peak	Actual count for a given capability at the time where the tokenized feature peak occurred. It is not necessarily that tokenized feature (sum of all capabilities) peak would coincide in time with any individual capability peak.
Total Used Time (hours)	Calculated cumulative time a license has been used during this month in hours. For example, 2 licenses in use during 1 hour would result in 2 hours of total use time.
Total Used Time (seconds)	Calculated cumulative time a license has been used during this month in seconds. For example, 2 licenses in use during 1 hour would result in 2 hours of total use time.
Borrowed Usage Events	The number of licenses that have been borrowed during the interval (hour/day/month) referenced by TIME_ID.
Peak Borrowed Licenses	Peak number of borrowed licenses in use during one month, beginning at the time referenced by TIME_ID.
Elapsed Time at Peak (hours)	<p>The amount of time that was spent with the peak number of licenses checked out. For example, if there was one license checked out for an eight-hour day, and then a second license was checked out just for three hours during that day, the peak would be 2, and the Elapsed Time at Peak would be 3 hours.</p> <p>Applies to Product-Org OLAP only.</p>
Elapsed Time at Peak (seconds)	<p>The amount of time that was spent with the peak number of licenses checked out. For example, if there was one license checked out for the entire hour, and then a second license was checked out just for three minutes during that hour, the peak would be 2, and the Elapsed Time at Peak would be 180 seconds (3 minutes).</p> <p>Applies to Product-Org OLAP only.</p>
Duration at Capacity (hours)	<p>The amount of time spent when the number of checked-out licenses was equal to (or greater) than the number of licenses available. For the example provided in the Elapsed Time at Peak (hours) description, if there were three licenses available, the Duration at Capacity would be zero, but if there were only two licenses available, the Duration at Capacity would be the same as the Elapsed Time at Peak: 3 hours.</p> <p>Applies to Product-Org OLAP only.</p>
Duration at Capacity (seconds)	<p>The amount of time spent when the number of checked-out licenses was equal to (or greater) than the number of licenses available. For the example provided in the Elapsed Time at Peak (seconds) description, if there were three licenses available, the Duration at Capacity would be zero, but if there were only two licenses available, the Duration at Capacity would be the same as the Elapsed Time at Peak: 180 seconds.</p> <p>Applies to Product-Org OLAP only.</p>

Table 3-3 • Usage Properties

Property	Description
Org Node ID	Reference to Organization Unit.
Time ID	Reference to Time.
Feature ID	Reference to Feature. Applies to Feature-Org OLAP only.
Product ID	Reference to Product. Applies to Product-Org OLAP only.
Tier ID	Reference to Tier. Applies to Tier-Feature-Org OLAP only.
Capability ID	Reference to Capability. Applies to Cadence-Token-Feature-Org OLAP only.
License Server DB Key (Hybrid Org Filter)	Internal surrogate key. Set to NULL to show usage for all license servers. Applies to <i>hybrid</i> (multi-dimensional) organizational structures. For information about hybrid organizational structures, see the online help library.
License Server Name (Hybrid Org Filter)	Name of the license server for which to aggregate usage data. Applies to <i>hybrid</i> (multi-dimensional) organizational structures. For information about hybrid organizational structures, see the online help library.
License Server Display Name (Hybrid Org Filter)	Display name of the license server for which to aggregate usage data. Applies to <i>hybrid</i> (multi-dimensional) organizational structures. For information about hybrid organizational structures, see the online help library.

Availability

This query subject describes a feature availability. This is global availability across an organization structure.

Some of the query subject properties will vary, depending on whether you are working with the Feature-Org OLAP or the Product-Org OLAP model

Table 3-4 • Availability Properties

Property	Description
Availability Max Count	Maximum available count of a feature's or product's licenses within a given month.
Available Time (hours)	Calculated cumulative time a license has been available during this month in hours. For example, 2 licenses were available during 24 hours would result in 48 hours of total available time.

Table 3-4 • Availability Properties

Property	Description
Available Time (seconds)	Calculated cumulative time a license has been available during this month in seconds. For example, 2 licenses were available during 24 hours would result in 172,800 seconds of total available time.
Average List Price	Average list price to purchase a perpetual license for this product (before discounts). Applies to Product-Org OLAP only.
Average Net Price	Average net price to purchase a perpetual license for this product (after discounts). Applies to Product-Org OLAP only.
Average Net Cost	Average net price paid for a license (time-based or perpetual) for this product. Applies to Product-Org OLAP only.
Average Annual Fee	Average access fee (time-based licenses) or maintenance fee (perpetual licenses) for this product. Applies to Product-Org OLAP only.
Time ID	Reference to Time.
Feature ID	Reference to Feature. Applies to Feature-Org OLAP only.
Product ID	Reference to Product. Applies to Product-Org OLAP only.

Org Level 1 to 2

This query subject describes an organization as a flat structure with two levels of an organization structure hierarchy.

Table 3-5 • Org Level 1 to 2 Properties

Property	Description
Org Node Name L1	Organization structure Level 1 Node name
Org Node Name L2	Organization structure Level 2 Node name. (Usage is defined for this level node.)
Org Type Name	Organization name.
Org Node ID L1	The organization node ID on Level 1.
Org Node ID L2	The organization node ID that is referenced from the Usage query subject.

Table 3-5 • Org Level 1 to 2 Properties

Property	Description
Start Date L2-1	The Effective start date (inclusive) of the hierarchy relationship between L2 node and L1 node.
End Date L2-1	The Effective end date (exclusive) of the hierarchy relationship between L2 node and L1 node.
Time ID Start L2-1	Reference to the Effective start date (inclusive) of the hierarchy relationship between L2 node and L1 node.
Time ID End L2-1	Reference to the Effective end date (exclusive) of the hierarchy relationship between L2 node and L1 node.
User ID L2	Reference to a User. It is not null when a node is a leaf level User node. If a node is an intermediate node with children, it is always null.
Project ID L2	Reference to a Project. It is not null when a node is a leaf level Project node. If a node is an intermediate node with children, it is always null.
License Server Host ID L2	Reference to a License Server Host. It is not null when a node is a leaf level License Server Host node. If a node is an intermediate node with children, it is always null.
Org Node Display Name L1	The display name for the organization structure Level 1 node name.
Org Node Display Name L2	The display name for the organization structure Level 2 node name.

User Details

This query subject describes user detail information.

Table 3-6 • User Details Properties

Property	Description
User ID	Primary key.
User Name	User login ID.
First Name	Custom property populated by Organization Structure XML import.
Last Name	Custom property populated by Organization Structure XML import.
E-mail	Custom property populated by Organization Structure XML import.
Phone Number	Custom property populated by Organization Structure XML import.

Table 3-6 • User Details Properties

Property	Description
Mobile Number	Custom property populated by Organization Structure XML import.
Address 1	Custom property populated by Organization Structure XML import.
Address 2	Custom property populated by Organization Structure XML import.
City	Custom property populated by Organization Structure XML import.
Postal Code	Custom property populated by Organization Structure XML import.
State/Province	Custom property populated by Organization Structure XML import.
Country	Custom property populated by Organization Structure XML import.
Department	Custom property populated by Organization Structure XML import.
Status	Custom property populated by Organization Structure XML import.

License Server Host Details

This query subject describes license server host details.

Table 3-7 • License Server Host Details Properties

Property	Description
License Server Host ID	Primary key.
License Server Host Name	License server host name.
License Server Host Display Name	License server host display name.

Project Details

This query subject describes project details.

Table 3-8 • Project Details Properties

Property	Description
Project ID	Primary key.
Project Name	Project name.
Project Display Name	Project display name.

Org Level 1 to 3

This query subject describes an organization as a flat structure with three levels of an organization structure hierarchy.

Table 3-9 • Org Level 1 to 3 Properties

Property	Description
Org Node Name L1	Organization structure Level 1 Node name.
Org Node Name L2	Organization structure Level 2 Node name.
Org Node Name L3	Organization structure Level 3 Node name. (Usage is defined for this level node.)
Org Type Name	Organization name.
Org Node ID L1	The organization node ID on Level 1.
Org Node ID L2	The org. node ID on Level 2.

Table 3-9 • Org Level 1 to 3 Properties

Property	Description
Org Node ID L3	The org. node ID that is referenced from the Usage query subject.
Start Date L2-1	The Effective start date (inclusive) of the hierarchy relationship between L2 node and L1 node.
End Date L2-1	The Effective end date (exclusive) of the hierarchy relationship between L2 node and L1 node.
Time ID Start L2-1	Reference to the Effective start date (inclusive) of the hierarchy relationship between L2 node and L1 node.
Time ID End L2-1	Reference to the Effective end date (exclusive) of the hierarchy relationship between L2 node and L1 node.
Start Date L3-2	The Effective start date (inclusive) of the hierarchy relationship between L3 node and L2 node.
End Date L3-2	The Effective end date (exclusive) of the hierarchy relationship between L3 node and L2 node.
Time ID Start L3-2	Reference to the Effective start date (inclusive) of the hierarchy relationship between L3 node and L2 node.
Time ID End L3-2	Reference to the Effective end date (exclusive) of the hierarchy relationship between L3 node and L2 node.
User ID L3	Reference to a User. It is not null when a node is a leaf level User node. If a node is an intermediate node with children, it is always null.
Project ID L3	Reference to a Project. It is not null when a node is a leaf level Project node. If a node is an intermediate node with children, it is always null.
License Server Host ID L3	Reference to a License Server Host. It is not null when a node is a leaf level License Server Host node. If a node is an intermediate node with children, it is always null.
Org Node Display Name L1	The display name for the organization structure Level 1 node name.
Org Node Display Name L2	The display name for the organization structure Level 2 node name.
Org Node Display Name L3	The display name for the organization structure Level 3 node name.

Org Level 1 to 4

This query subject describes an organization as a flat structure with four levels of an organization structure hierarchy.

Table 3-10 • Org Level 1 to 4 Properties

Property	Description
Org Node Name L1	Organization structure Level 1 Node name.
Org Node Name L2	Organization structure Level 2 Node name.
Org Node Name L3	Organization structure Level 3 Node name.
Org Node Name L4	Organization structure Level 4 Node name. (Usage is defined for this level node.)
Org Type Name	Organization name.
Org Node ID L1	The organization node ID on Level 1.
Org Node ID L2	The org. node ID on Level 2.
Org Node ID L3	The org. node ID that is referenced from the Usage query subject.
Org Node ID L4	The organization node ID that is referenced from the Usage query subject.
Start Date L2-1	The Effective start date (inclusive) of the hierarchy relationship between L2 node and L1 node.
End Date L2-1	The Effective end date (exclusive) of the hierarchy relationship between L2 node and L1 node.
Time ID Start L2-1	Reference to the Effective start date (inclusive) of the hierarchy relationship between L2 node and L1 node.
Time ID End L2-1	Reference to the Effective end date (exclusive) of the hierarchy relationship between L2 node and L1 node.
Start Date L3-2	The Effective start date (inclusive) of the hierarchy relationship between L3 node and L2 node.
End Date L3-2	The Effective end date (exclusive) of the hierarchy relationship between L3 node and L2 node.
Time ID Start L3-2	Reference to the Effective start date (inclusive) of the hierarchy relationship between L3 node and L2 node.
Time ID End L3-2	Reference to the Effective end date (exclusive) of the hierarchy relationship between L3 node and L2 node.

Table 3-10 • Org Level 1 to 4 Properties

Property	Description
Start Date L4-3	The Effective start date (inclusive) of the hierarchy relationship between L4 node and L3 node.
End Date L4-3	The Effective end date (exclusive) of the hierarchy relationship between L4 node and L3 node.
Time ID Start L4-3	Reference to the Effective start date (inclusive) of the hierarchy relationship between L4 node and L3 node.
Time ID End L4-3	Reference to the Effective end date (exclusive) of the hierarchy relationship between L4 node and L3 node.
User ID L4	Reference to a User. It is not null when a node is a leaf level User node. If a node is an intermediate node with children, it is always null.
Project ID L4	Reference to a Project. It is not null when a node is a leaf level Project node. If a node is an intermediate node with children, it is always null.
License Server Host ID L4	Reference to a License Server Host. It is not null when a node is a leaf level License Server Host node. If a node is an intermediate node with children, it is always null.
Org Node Display Name L1	The display name for the organization structure Level 1 node name.
Org Node Display Name L2	The display name for the organization structure Level 2 node name.
Org Node Display Name L3	The display name for the organization structure Level 3 node name.
Org Node Display Name L4	The display name for the organization structure Level 4 node name.

Org Level 1 to 5

This query subject describes an organization as a flat structure with four levels of an organization structure hierarchy.

Table 3-11 • Org Level 1 to 5 Properties

Property	Description
Org Node Name L1	Organization structure Level 1 Node name.
Org Node Name L2	Organization structure Level 2 Node name.
Org Node Name L3	Organization structure Level 3 Node name.

Table 3-11 • Org Level 1 to 5 Properties

Property	Description
Org Node Name L4	Organization structure Level 4 Node name.
Org Node Name L5	Organization structure Level 5 Node name. (Usage is defined for this level node.)
Org Type Name	Organization name.
Org Node ID L1	The organization node ID on Level 1.
Org Node ID L2	The org. node ID on Level 2.
Org Node ID L3	The org. node ID that is referenced from the Usage query subject.
Org Node ID L4	The organization node ID that is referenced from the Usage query subject.
Org Node ID L5	The organization node ID that is referenced from the Usage query subject.
Start Date L2-1	The Effective start date (inclusive) of the hierarchy relationship between L2 node and L1 node.
End Date L2-1	The Effective end date (exclusive) of the hierarchy relationship between L2 node and L1 node.
Time ID Start L2-1	Reference to the Effective start date (inclusive) of the hierarchy relationship between L2 node and L1 node.
Time ID End L2-1	Reference to the Effective end date (exclusive) of the hierarchy relationship between L2 node and L1 node.
Start Date L3-2	The Effective start date (inclusive) of the hierarchy relationship between L3 node and L2 node.
End Date L3-2	The Effective end date (exclusive) of the hierarchy relationship between L3 node and L2 node.
Time ID Start L3-2	Reference to the Effective start date (inclusive) of the hierarchy relationship between L3 node and L2 node.
Time ID End L3-2	Reference to the Effective end date (exclusive) of the hierarchy relationship between L3 node and L2 node.
Start Date L4-3	The Effective start date (inclusive) of the hierarchy relationship between L4 node and L3 node.
End Date L4-3	The Effective end date (exclusive) of the hierarchy relationship between L4 node and L3 node.

Table 3-11 • Org Level 1 to 5 Properties

Property	Description
Time ID Start L4-3	Reference to the Effective start date (inclusive) of the hierarchy relationship between L4 node and L3 node.
Time ID End L4-3	Reference to the Effective end date (exclusive) of the hierarchy relationship between L4 node and L3 node.
Start Date L5-4	The Effective start date (inclusive) of the hierarchy relationship between L5 node and L4 node.
End Date L5-4	The Effective end date (exclusive) of the hierarchy relationship between L5 node and L4 node.
Time ID Start L5-4	Reference to the Effective start date (inclusive) of the hierarchy relationship between L5 node and L4 node.
Time ID End L5-4	Reference to the Effective end date (exclusive) of the hierarchy relationship between L5 node and L4 node.
User ID L5	Reference to a User. It is not null when a node is a leaf level User node. If a node is an intermediate node with children, it is always null.
Project ID L5	Reference to a Project. It is not null when a node is a leaf level Project node. If a node is an intermediate node with children, it is always null.
License Server Host ID L5	Reference to a License Server Host. It is not null when a node is a leaf level License Server Host node. If a node is an intermediate node with children, it is always null.
Org Node Display Name L1	The display name for the organization structure Level 1 node name.
Org Node Display Name L2	The display name for the organization structure Level 2 node name.
Org Node Display Name L3	The display name for the organization structure Level 3 node name.
Org Node Display Name L4	The display name for the organization structure Level 4 node name.
Org Node Display Name L5	The display name for the organization structure Level 5 node name.

Usage (Leaf Level–Based)

This query subject describes usage facts on the leaf level (not organization structure based).

Table 3-12 • Usage Properties

Property	Description
Usage Events	Number of times a feature/product has been started within the time interval (hour/day/month) referenced by TIME_ID.
Ultimate Denials	Total number of "true" denials during 1 month beginning at the time point referenced by TIME_ID. A true denial is an ultimate denial or folded denial, based on the configured false denials interval.
Peak Licenses	The peak (maximum) number of licenses used concurrently for a feature/product within the time interval (hour/day/month) referenced by TIME_ID.
Total Time Used (hours)	Calculated cumulative time a license has been used during this month in hours. For example, 2 licenses in use during 1 hour would result in 2 hours of total use time.
Total Time Used (seconds)	Calculated cumulative time a license has been used during this month in seconds. For example 2 licenses in use during 1 hour would result in 172,800 seconds of total use time.
User ID	Reference to User.
Project ID	Reference to Project.
Feature ID	Reference to Feature.
License Server Host ID	Reference to License Server Host.
Time ID	Reference to Time.

Product-Producer-Month/Day/Hour

Describes all the given Products with their Producers known for each month on the Time line. The properties available will vary depending on the query subject.

Table 3-13 • Feature-Vendor-Month properties

Property	Description
Producer	Producer name.
Product Name	Product name.
Product Version	Product version.

Table 3-13 • Feature-Vendor-Month properties

Property	Description
Product Number	Product number.
Year	Year.
Month Num	Month number. For December, this would be 12.
Month	Month name. For example, December.
Time ID	Reference to the first day of a month in the Time Dimension query subject.
Product ID	Reference to a Product.
Software Producer ID	Reference to a Software Producer of a Feature.
Product Category	Product category.
Product Family	Product family.
Product Notes	Product notes.
Software Producer Category	Software producer category.
Software Producer Notes	Software producer notes.
Quarter	Quarter number.
Quarter Name	Quarter name.
Date (1st of Month)	First date of a month.
Month of Quarter	Whether the month is the first, second, or third in a given quarter.

Tier

This query subject describes any tier association that the feature has.

Table 3-14 • Tier Properties

Property	Description
Tier ID	Primary key.
Tier Name	Tier name.
Tier Cost	Cost (expressed as an integer) associated with the tier.

Vendor of Feature

This query subject describes the feature vendor.

Table 3-15 • Vendor of Feature Properties

Property	Description
Vendor Name	Name of the feature vendor.
Vendor License System	Vendor License System (1 = FLEX, 2 = LUM, 3 = SENTINEL, 4 = Elan, 5 = MathLM, 6 = Bentley, 7 = Reprise, 8 = LM-X License Manager, 9 = SPLM).
Vendor ID	ID associated with the feature vendor.
Vendor Display Name	Custom property.

Tier of Features

This query subject describes a tier containing features.

Table 3-16 • Tier of Features Properties

Property	Description
Tier Name	Name of the tier.
Tier ID	Primary key.
Tier Cost	Cost associated with the tier.

Feature of a Tier

This query subject describes the feature that is part of a tier.

Table 3-17 • Feature of a Tier Properties

Property	Description
Feature Name	Name of the feature.
Feature Software Category	Custom property.
Feature Cost Factor	Custom property.
Feature ID	ID associated with the feature.
Vendor ID	ID associated with the feature vendor.

Table 3-17 • Feature of a Tier Properties

Property	Description
Feature Display Name	Custom property.

Operational Data

The Operational Data query subjects are divided into two namespaces, [Feature Real Time \(by Server\)](#), and [Feature Real Time \(Servers Combined\)](#), which provides the usage data from the first namespace aggregated slightly so that usage from multiple license servers has been combined, which is necessary to get accurate peak usage numbers for features that are served by more than one license server.

Both namespaces have data by the minute, which is the most granular data as collected by the agent, and then aggregated into hourly and daily values.

The Servers Combined namespace also includes a folder with query subjects that represent lists of top features used, by their utilization percentage. The same values could be derived by the other existing query subjects, but accessing them through these lists provides better performance, which is desirable for the Operational Dashboard.

Unlike the familiar aggregation of historical data, the aggregation for the Servers Combined hourly and daily data, and for combining usage from multiple servers, is done implicitly as part of the data connection; no extra step is necessary.

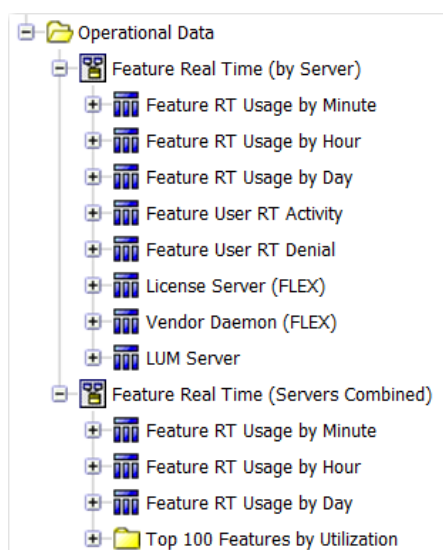


Figure 3-17: Operational Data folders expanded to show the levels and query subjects (in Query Studio)

Feature Real Time (by Server)

This namespace contains data that reflects all of the current usage data as it is collected from the individual license servers. It contains the following query subjects:

- [Feature RT Usage by Minute](#)—This is the feature usage data retrieved by the agent in its most raw form. Usage levels for each feature are recorded by the minute.

- **Feature RT Usage by Hour**—Same as Feature RT Usage by Minute, except that the data has been aggregated so that a single record represents all usage for a given feature (from one license server) during one hour.
- **Feature RT Usage by Day**—Same as Feature RT Usage by Hour, except that the data has been aggregated so that a single record represents all usage for a given feature (from one license server) during one entire day.
- **Feature User RT Activity**—Represents all the users that had any feature checked out at the last time data was gathered. This can be used to identify which users are currently using a feature, and determine how long they have had these licenses checked out.
- **Feature User RT Denial**—Represents denials to license checkout requests, and which users received them.
- **License Server (FLEX)**—Status information about individual FlexNet license servers.
- **Vendor Daemon (FLEX)**—Status information about individual FlexNet vendor daemons.
- **LUM Server**—Status information about individual LUM servers.

Feature Real Time (Servers Combined)

This namespace provides the usage data from the first namespace—**Feature Real Time (by Server)**—aggregated slightly so that usage from multiple license servers has been combined. This is necessary to get accurate peak usage numbers for features that are served by more than one license server. It contains the following query subjects:

- **Feature RT Usage by Minute**—Usage levels for each feature are recorded by the minute, combined across all license servers.
- **Feature RT Usage by Hour**—Same as Feature RT Usage by Minute, except that the data has been aggregated so that a single record represents all usage for a given feature (from all license servers) during one hour.
- **Feature RT Usage by Day**—Same as Feature RT Usage by Hour, except that the data has been aggregated so that a single record represents all usage for a given feature (from all license servers) during one entire day.

Top 100 Features by Utilization

The query subjects in this folder represent the top 100 features, in terms of their utilization percentage (maximum licenses used / available licenses). The following query subjects are available:

- **Top Feature Usage (Last 30 Minutes)**
- **Top Feature Usage (Last Hour)**
- **Top Feature Usage (Last 2 Hours)**
- **Top Feature Usage (Last Day)**
- **Top Feature Usage (Last 3 Days)**
- **Top Feature Usage (Overall)**


Operational Data Query Subjects

The query subjects described in this section apply only to the Operational Data folder.

Feature RT Usage by Minute/Hour/Day

The properties apply to the Feature RT Usage by Minute/Hour/Day query subjects found in both Feature Real Time (by Server) and Feature Real Time (Servers Combined). The data presented for Feature Real Time (Servers Combined) represents the combined usage from all license servers that serve the feature.

Table 3-18 • Feature RT Usage by Minute/Hour/Day Properties

Property	Description
Date	<ul style="list-style-type: none"> by Minute—Timestamp indicating when the data was collected. by Hour—Timestamp representing the start of the hour represented (ex. 4/5/2012 13:00:00 indicates this record is representing usage from 1:00 p.m. to 1:59 p.m. on April 5). by Day—Timestamp representing the start of the day (midnight) represented.
Feature Name	Name of the feature.
License Server Host	Name of the host of the license server that served this feature.
	 <p>Note • This property is not part of the Feature RT Usage by Minute/Hour/Day query subject that is in Feature Real Time (Servers Combined).</p>
Vendor Name	Name of the vendor for this feature.
Licensing System	Licensing system used to serve this feature: FLEX or LUM.
Licenses in Use	<ul style="list-style-type: none"> by Minute—The number of licenses that were in use (checked out) for this feature at the time the data was collected (Date). by Hour—Not applicable. by Day—Not applicable.
Maximum Licenses in Use	<ul style="list-style-type: none"> by Minute—Not applicable. by Hour—The maximum or peak number of licenses that were in use simultaneously during this hour, for this feature. by Day—The maximum or peak number of licenses that were in use simultaneously during this day, for this feature.
Licenses Available	<ul style="list-style-type: none"> by Minute—Number of licenses available at the time when the data was collected (Date). by Hour—The maximum number of licenses available simultaneously during this hour. by Day—The maximum number of licenses available simultaneously during this day.

Feature User RT Activity

Table 3-19 • Feature User RT Activity Properties

Property	Description
Date	The timestamp indicating when this data was collected, meaning that at this time, the user had the feature checked out. There should never be more than one record per combination user, user host, vendor, feature, version, and license server host.
Feature Name	Name of the feature.
Feature Version	Version of the feature in use.
License Server Host	Name of the host of the license server that served this feature.
Vendor Name	Name of the vendor for this feature.
Licensing System	Licensing system used to serve this feature: FLEX or LUM.
User Name	The user that is currently using this feature.
User Host	Name of the host machine from which the user is accessing this feature.
Licenses in Use	The number of licenses the user currently has checked out for this feature.
Elapsed Time	The time elapsed since the user first checked out the licenses for this feature. This field can be used to identify users that may have checked out features for an unexpectedly long time, and perhaps should be able to check in and free up these licenses.

Feature User RT Denial

Table 3-20 • Feature User RT Denial Properties

Property	Description
Date	The timestamp indicating when this data was collected.
Feature Name	Name of the feature.
Feature Version	Version of the feature in use.
License Server Host	Name of the host of the license server that received the feature use request and issued the denial.
Vendor Name	Name of the vendor for this feature.
Licensing System	Licensing system used to serve this feature: FLEX or LUM.
User Name	The user that requested the feature and received the denial.

Table 3-20 • Feature User RT Denial Properties

Property	Description
User Host	Name of the host machine from which the user was attempting to access the feature.
Denial Count	Number of licenses requested.
Reason Code	Code indicating the reason for the denial. A value of -4 indicates that all available licenses are already in use.

License Server (FLEX)

Table 3-21 • License Server (FLEX) Properties

Property	Description
ID	An identifier number.
Name	Name of the FlexNet license server.
Server Host Name	Name of the host where the FlexNet license server is running.
Status	Value indicating the status of the license server. <ul style="list-style-type: none">• 180 = Up• 170 = Manageable and Up• 160 = Rereading• 150 = Starting• 140 = Stopping• 130 = Unknown• 100 = Down
Last Update Date	Timestamp indicating when this data was collected.

Vendor Daemon (FLEX)

Table 3-22 • Vendor Daemon (FLEX) Properties

Property	Description
Name	Name of the vendor daemon.
Status	Value indicating the status of the vendor daemon. <ul style="list-style-type: none"> • 180 = Up • 170 = Manageable and Up • 160 = Rereading • 150 = Starting • 140 = Stopping • 130 = Unknown • 100 = Down
ID	An identifier number.
License Server ID	ID of the FlexNet license server. This maps to the ID field of License Server (FLEX).
Last Update Date	Timestamp indicating when this data was collected.

LUM Server

Table 3-23 • LUM Server Properties

Property	Description
ID	An identifier number.
Name	Name of the LUM server.
Server Host Name	Name of the host where the LUM server is running.
Vendor	Name of the vendor for this LUM server.

Table 3-23 • LUM Server Properties

Property	Description
Status	Value indicating the status of the LUM server. <ul style="list-style-type: none">• 180 = Up• 170 = Manageable and Up• 160 = Rereading• 150 = Starting• 140 = Stopping• 130 = Unknown• 100 = Down
Last Update Date	Timestamp indicating when this data was collected.
Creation Date	Timestamp indicating when this LUM server was added to FlexNet Manager for Engineering Applications

Top Feature Usage (*time period*)

The Top 100 Features by Utilization folder contains multiple Top Feature Usage query subjects, each of which applies to a different time period (for example, Last 2 Hours). The properties described in the following table apply to all of the Top Feature Usage query subjects.

Table 3-24 • Top Feature Usage (*time period*) Properties

Property	Description
Feature Name	Name of the feature.
Vendor Name	Name of the vendor.
Licensing System	Licensing system used to serve this feature: FLEX or LUM.
Maximum Utilization	Maximum percentage of licenses used for the given time period: licenses in use / availability

Tier-Month/Day/Hour

Describes all the given tiers known for each month/day/hour on the Time line. The properties available will vary depending on the namespace.

Table 3-25 • Tier-Month/Day/Hour properties

Property	Description
Tier Name	Tier name.
Year	Year.
Month	Month name. For example, December.
Month Num	Month number. For December, this would be 12.
Day of Month	Number, day of month.
Hour of Day	Number, hour of day.
Date	Full date.
Time ID	Reference to the first day of a month in the Time Dimension query subject.
Date (seconds)	Unix representation of date in seconds starting from 01/01/1970.
Quarter	Quarter number.
Quarter Name	Quarter name.
Month of Quarter	Whether the month is the first, second, or third in a given quarter.
Week	Number, week of month.
Date (1st of Month)	First date of a month.
Day of Year	Number of the day in the year.
Day of Quarter	Number of the day in the quarter.
Day of Week Num	Number, day of week.
Day of Week	Name of day of week.
Weekday Flag	1 for week day, 0 for weekend.
Tier ID	Reference to a tier.
Tier Cost	Cost associated with the tier.

Capability-Month/Day/Hour

Describes all the given capabilities known for each month/day/hour on the Time line. The properties available will vary depending on the namespace.

Table 3-26 • Capability-Month/Day/Hour properties

Property	Description
Capability Name	Capability name.
Year	Year.
Month	Month name. For example, December.
Month Num	Month number. For December, this would be 12.
Day of Month	Number, day of month.
Hour of Day	Number, hour of day.
Date	Full date.
Time ID	Reference to the first day of a month in the Time Dimension query subject.
Date (seconds)	Unix representation of date in seconds starting from 01/01/1970.
Quarter	Quarter number.
Quarter Name	Quarter name.
Month of Quarter	Whether the month is the first, second, or third in a given quarter.
Week	Number, week of month.
Date (1st of Month)	First date of a month.
Day of Year	Number of the day in the year.
Day of Quarter	Number of the day in the quarter.
Day of Week Num	Number, day of week.
Day of Week	Name of day of week.
Weekday Flag	1 for week day, 0 for weekend.
Capability ID	Reference to a Capability of the Cadence Token Based License.
Feature ID	Reference to a Tokenized feature name (provided in a license file).

Table 3-26 • Capability-Month/Day/Hour properties

Property	Description
Capability Display Name	Custom property.

Tokenized Feature

Table 3-27 • Tokenized Feature Properties

Property	Description
Feature Name	Name of the feature.
Feature ID	ID associated with the feature.
Vendor ID	ID associated with the feature vendor.
Feature Display Name	Custom property.
Feature Software Category	Custom property.
Feature Cost Factor	Custom property.

Vendor

Table 3-28 • Vendor Properties

Property	Description
Vendor Name	Name of the software vendor.
Vendor ID	ID associated with the feature vendor.
Vendor Display Name	Custom property.
Vendor License System	Vendor License System (1 = FLEX, 2 = LUM, 3 = SENTINEL, 4 = Elan, 5 = MathLM, 6 = Bentley, 7 = Reprise, 8 = LM-X License Manager, 9 = SPLM).

Usage Stats for Time Range

The Usage Stats for Time Range query subjects are divided into two folders—**Feature Usage Stats for Time Range** and **Product Usage Stats for Time Range**, which provide data about peak usage, availability, and denials for feature usage and product usage, respectively.

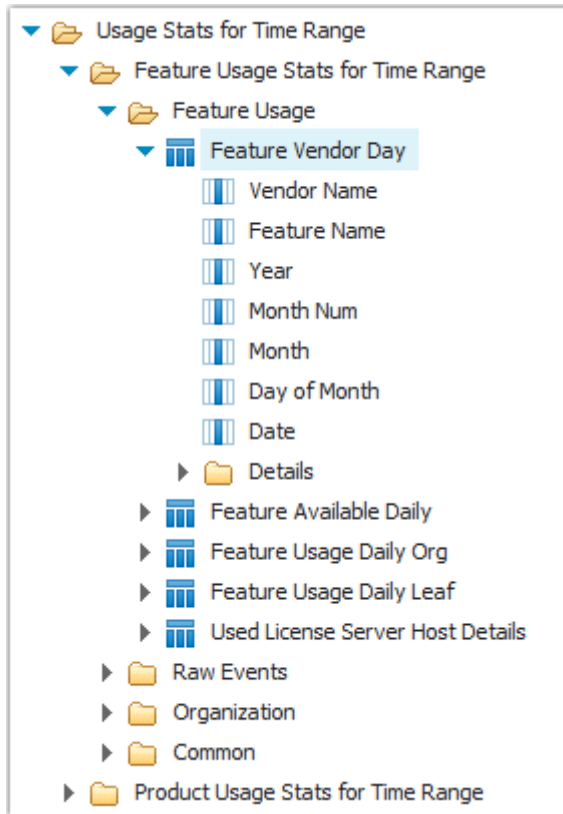


Figure 3-18: Usage Stats for Time Range model expanded to show Feature Vendor Day query subject and its properties

Feature Usage Stats for Time Range

This folder contains the query subjects for reporting on feature usage, availability, and denials. It contains the following subfolders, which contain the query subjects.

- [Feature Usage](#)
- [Raw Events](#)
- [Organization](#)
- [Common](#)

Feature Usage

This folder contains query subjects that describe the features, along with their vendors and license server hosts. The Feature Usage folder contains the following query subjects:

- [Feature Vendor Day](#)
- [Feature Available Daily](#)
- [Feature Usage Daily Org](#)
- [Feature Usage Daily Leaf](#)

- [Used License Server Host Details](#)

Feature Vendor Day

This query subject provides information about the feature, vendor, and usage day.

Table 3-29 • Feature Usage properties

Property	Description
Vendor Name	Vendor name.
Feature Name	Feature name.
Year	Year.
Month Num	Month number. For December, this would be 12.
Month	Month name. For example, December.
Day of Month	The numbered day of the month. For December 15, this would be 15.
Date	The date, encoded as a number. The format is applied by the reporting engine according to locale.

Feature Vendor Day Details

Within the [Feature Vendor Day](#) folder, the **Details** folder contains properties that may be used less frequently.

Table 3-30 • Feature Vendor Day Details properties

Property	Description
Time ID	Reference to the first day of a month in the Time Dimension query subject.
Feature ID	Reference to a Feature.
Vendor Display Name	Vendor display name.
License System	License system.
Software Producer ID	Reference to a Software Producer of a Feature.
Quarter	Quarter number.
Quarter Name	Quarter name.
Month of Quarter	Number specifying whether the month is the first (1), second (2), or third (3) in a given quarter.
Week	Number specifying the week of the month (1-5).

Table 3-30 • Feature Vendor Day Details properties

Property	Description
Day of Year	Number of the day in the year.
Day of Quarter	Number of the day in the quarter.
Day of Week Num	Number, day of week.
Day of Week	Name of day of week.
Weekday Flag	1 for week day, 0 for weekend.
Vendor ID	Reference to a Vendor Daemon.
Feature Display Name	Display name of feature.
Feature Software Category	Feature software category.
Feature Cost Factor	Feature cost factor.

Feature Available Daily

This query subject provides information about the feature's availability. Additional properties are available in the **Details** folder.

Table 3-31 • Feature Available Daily properties

Property	Description
Availability Count	Maximum available count of a feature's or product's licenses within a given month.
Available Time (hours)	Calculated cumulative time a license has been available during this month in hours. For example, 2 licenses were available during 24 hours would result in 48 hours of total available time.
Available Time (seconds)	Calculated cumulative time a license has been available during this month in seconds. For example, 2 licenses available during 24 hours would result in 172,800 seconds of total available time.

Feature Available Daily Details

Within the [Feature Available Daily](#) folder, the **Details** folder contains properties that may be used less frequently..

Table 3-32 • Feature Available Daily Details properties

Property	Description
Feature ID	Reference to Feature.

Table 3-32 • Feature Available Daily Details properties

Property	Description
Time ID	Reference to Time.

Feature Usage Daily Org

This query subject provides information about feature usage at the organizational-structure node level.

Table 3-33 • Feature Usage Daily Org properties

Property	Description
Usage Events	Number of times a feature has been started within the time interval (hour/day/month) referenced by TIME_ID.
Ultimate Denials	Total number of <i>true denials</i> during a given day. <i>A true denial</i> is an ultimate denial, based on the configured false-denials interval.
Peak Licenses	The peak (maximum) number of licenses used concurrently for a feature within the time interval (hour/day/month) referenced by TIME_ID.
Total Time Used (hours)	Calculated cumulative time a license has been used during this month in hours. For example, 2 licenses in use during 1 hour would result in 2 hours of total use time.
Total Time Used (seconds)	Calculated cumulative time a license has been used during this month in seconds. For example 2 licenses in use during 1 hour would result in 172,800 seconds of total use time.
Borrowed Usage Events	The number of licenses that have been borrowed during the time interval (hour/day/month) referenced by TIME_ID.
Peak Borrowed Licenses	Peak number of borrowed licenses in use during one month, beginning at the time referenced by TIME_ID.

Feature Usage Daily Org Details

Within the [Feature Usage Daily Org](#) folder, the **Details** folder contains properties that may be used less frequently.

Table 3-34 • Feature Usage Daily Org Details properties

Property	Description
Feature ID	Reference to Feature.
Org Node ID	Reference to Org Node.
Time ID	Reference to Time.

Feature Usage Daily Leaf

This query subject provides information about feature usage from a given license server by a user working on a given project (optionally depending upon the LM_PROJECT environment variable setting on a client machine).

Table 3-35 • Feature Usage Daily Leaf properties

Property	Description
Usage Events	Number of times a feature has been started within the time interval (hour/day/month) referenced by TIME_ID.
Ultimate Denials	Total number of <i>true denials</i> during a given day. A <i>true denial</i> is an ultimate denial, based on the configured false-denials interval.
Peak Licenses	The peak (maximum) number of licenses used concurrently for a feature within the time interval (hour/day/month) referenced by TIME_ID.
Total Time Used (hours)	Calculated cumulative time a license has been used during this time increment (day) in hours. For example, 2 licenses in use during 1 hour would result in 2 hours of total use time.
Total Time Used (seconds)	Calculated cumulative time a license has been used during this time increment (day), in seconds. For example, 2 licenses in use during 1 hour would result in 7,200 seconds of total use time.
Borrowed Usage Events	The number of licenses that have been borrowed during the time interval (hour/day/month) referenced by TIME_ID.
Peak Borrowed Licenses	Peak number of borrowed licenses in use during one day, beginning at the time referenced by TIME_ID.

Feature Usage Daily Leaf Details

Within the [Feature Usage Daily Leaf](#) folder, the **Details** folder contains properties that may be used less frequently.

Table 3-36 • Feature Usage Daily Leaf Details properties

Property	Description
Feature ID	Reference to feature.
License Server Host ID	Reference to a license server host.
User ID	Reference to a user.
Project ID	Reference to a project.
Time ID	Reference to time.

Used License Server Host Details

This query subject provides information about the license server that served the feature.

Table 3-37 • Used License Server Host Details properties

Property	Description
License Server Host ID	Reference to a license server host. Primary key.
License Server Host Name	License server host name.
License Server Host Display Name	License server host display name.

Raw Events

When FlexNet Manager for Engineering Applications provides detailed reports about denials, it uses relevant data from the query subjects contained in the Raw Events folder.

RL Vendor Daemon

This query subject provides information about the license server and vendor daemon.

Table 3-38 • RL Vendor Daemon properties

Property	Description
Vendor Name	Name of the vendor for the feature.
Vendor Version	Version of the vendor for this feature.
License Server Host Name	Name of the host of the license server that received the feature use request and issued the denial.

RL Vendor Daemon Details

Within the [RL Vendor Daemon](#) folder, the **Details** folder contains properties that may be used less frequently.

Table 3-39 • RL Vendor Daemon Details properties

Property	Description
Catalog ID	Reference to the primary key of RL Log Catalog query subject.
License Server Host ID	Reference to a license server host.

RL Denial Events

This query subject provides information about the denial events for a feature.

Table 3-40 • RL Denial Events Properties

Property	Description
Event Date Time	The date and time of the denial event, up to one-second precision.
Feature Name	Name of the feature.
Feature Version	Version of the feature in use.
User Name	User login ID.
User Host Name	Name of the host machine from which the user is accessing the feature.
User IP Address	IP address of the machine from which the user is accessing the feature; where the user starts an application that requests a license for a feature.
Licenses Count	Count of denied licenses.

RL Denial Event Details

Within the [RL Denial Events](#) folder, the **Details** folder contains properties that may be used less frequently.

Table 3-41 • RL Denial Events Details properties

Property	Description
Catalog Section ID	Reference to the Report Log files table.
Event ID	Denial event ID: <ul style="list-style-type: none">• 5 is a regular denial.• 12 is an ultimate denial.
Event Time (Unix)	Date and time of denial event in seconds.
Event Time Offset	Sequence order of the event within a second. In instances where multiple report-log events occur within one second, this defines the order of occurrence of all events assigned to the same second.
Client Display	Refer to the FlexNet Publisher documentation.
Client Flex Version	Refer to the FlexNet Publisher documentation.
Client Platform	Refer to the FlexNet Publisher documentation.
Client Project	LM_PROJECT value, if any.

Table 3-41 • RL Denial Events Details properties

Property	Description
User Group	Refer to the FlexNet Publisher documentation.
Host Group	Refer to the FlexNet Publisher documentation.
Process ID	Operating system process ID.
Reason ID	Reference to the Reason table (which explains the reason for the denial).
Product Version	Product version.
RL Feature ID	Reference to the feature ID.

RL Log Catalog

This query subject provides information about imported report-log files.

Table 3-42 • RL Log Catalog properties

Property	Description
File Name	Report log file names, as stored in the rl data repository. This is the .rl file name in the file system on the FlexNet Manager for Engineering Applications server side. This is UUID-based file name given by FlexNet Manager for Engineering Applications for uniqueness. It differs from the original file name given by the FlexNet Agent during report-log rotation.
Original File Name	Report log file name as created on the FlexNet Agent machine.
File Size	Report log file size.
Vendor Name	Vendor daemon name.
Date Start	Start date of the report log file.
Date End	End date of the report log file.

RL Log Catalog Details

Within the [RL Log Catalog](#) folder, the **Details** folder contains properties that may be used less frequently.

Table 3-43 • RL Log Catalog Details properties

Property	Description
Log Catalog ID	Primary key.
Last Modified Date	Time when the record was inserted into the table.

Table 3-43 • RL Log Catalog Details properties

Property	Description
Owner ID	Reserved.
License Group	Reserved.
Host Name 1	License server host name. For a triad, this is the master.
Host Name 2	In a triad, the second license server host name.
Host Name 3	In a triad, the third license server host name.
Load Status	Status that is set during import of the report log file.
Agent Source ID1	Reserved.
Agent Source ID2	Reserved.
Agent Source ID3	Reserved.
Transform Status	<p>Indicates the aggregation process status.</p> <ul style="list-style-type: none"> ● 0—Default value ● 1—In aggregation ● 2—Aggregation completed <p>When aggregation fails or is canceled, transform status of the report logs is set back to 0. During startup of the FlexNet Manager for Engineering Applications Reporting server, the transform status of the remaining report logs is set back to 0 (from 1).</p>
License System	<p>License system code.</p> <ul style="list-style-type: none"> ● 1—FLEX ● 2—LUM ● 3—Sentinel ● 4—Elan ● 5—MathLM ● 6—Bentley ● 7—Reprise ● 8—LM-X License Manager ● 9—SPLM ● 10, 11, 12—Custom codes ● 13—DSLS

RL Catalog Section

This is a mapping entity that connects report log files ([RL Log Catalog](#)) to Feature, Usage and Denial events tables.

Table 3-44 • RL Catalog Section properties

Property	Description
Log Catalog ID	Reference to the RL Log Catalog table.
Catalog Section ID	Reference that is used in the Feature, Usage, and Denials tables.

RL Denial Reason

This query subject provides the denial reason.

Table 3-45 • RL Denial Reason properties

Property	Description
Reason ID	Primary key.
Reason	Denial reason explanation.

Organization

This folder contains the following query subjects that flatten the hierarchical organization structure, to create a representation that can be used by FlexNet Report Designer. In this flattened representation, each previous level is repeated for every child.

If you are building a report for a particular level n , you should select the query subject Org Level 1 to n . For example, to build a report for organizational-structure-level 3, you would use the query subject Org Level 1 to 3.

- [Org Level 1](#) (page 89)
- [Org Level 1 to 2](#) (page 92)
- [Org Level 1 to 3](#) (page 95)
- [Org Level 1 to 4](#) (page 97)
- [Org Level 1 to 5](#) (page 98)

Organization Types

This query subject provides information about the organizational-structure type—whether it is a user-based, license server-based, or project-based organizational structure.

Table 3-46 • Organization Types properties

Property	Description
Org Type Name	Organization name.

Table 3-46 • Organization Types properties

Property	Description
Include User	Indicates the type of organizational structure. Values are 0 or 1. Only one of the properties can be equal to 1, which indicates that the organizational structure is of that type.
Include Host	
Include Project	For example, if Include User = 1, it is a user-based organizational structure.
Status	Active or inactive. (Inactive is a deleted organizational structure.)
ID	Primary key.

Organization to User Map

This query subject contains the user-to-parent mapping records. The number of records depends upon the level at which the user exists in the organizational structure. There will be a record for the user, and a record for each parent, grandparent, and so on.

For example, if a user (leaf node) has the following organizational-structure hierarchy:

AcmeCo -> Engineering -> Team B -> Ellison

The following records will be stored:

- AcmeCo, Ellison
- Engineering, Ellison
- Team B, Ellison

Table 3-47 • Organization to User Map properties

Property	Description
Parent Org Node Name	Name of the parent or grandparent node until it reaches the root node name.
Parent Org Node ID	Node ID of the parent/grandparent in the organizational-structure hierarchy—until it reaches the root org node ID.
User Name	User name.
User ID	ID reference to the User details table.
Parent Level	Parent/grandparent level in the organizational-structure hierarchy.
ID	Primary key.
Org Type Name	Organization name.
Start Date	Start date of the relationship with the parent/grandparent node.
End Date	End date of the relationship with the parent/grandparent node.

Table 3-47 • Organization to User Map properties

Property	Description
Time ID Start	Reference to Time Dimension table for the relationship start time.
Time ID End	Reference to Time Dimension table for the relationship end time.
User Org Node ID	User ID in the Organization hierarchy.

Common

This folder contains the following query subjects:

- [Software Producer](#)
- [User Details](#) (page 93)

Software Producer

This query subject contains information about the software producer.

Table 3-48 • Software Producer properties

Property	Description
Software Producer ID	Primary key.
Software Producer Name	Name of the software producer.
Software Producer Category	Primary type of product made by the software producer. This is defined by the enterprise using functionality available under the Planner tab in FlexNet Manager for Engineering Applications.

Time All

This query subject contains information related to time and date.

Table 3-49 • Time All properties

Property	Description
Date	Full date, with precision to one hour.

Time All Details

Within the **Time All** folder, the **Details** folder contains properties that may be used less frequently.

Table 3-50 • Time All Details properties

Property	Description
Time ID	Primary key.
Seconds UTC	Unix representation of the date in seconds starting from 01/01/1970.
Date Name	Date, formatted as: Weekday, Month dd, yyyy For example: Tuesday, March 1, 2016
Year	Year
Quarter	1, 2, 3, or 4
Quarter Name	Q1, Q2, Q3, or Q4
Month Num	Month as a number: 1 through 12
Month	Month name: January through December
Month of Quarter	Whether the month is the first, second or third in a given quarter: 1, 2, or 3
Week	Number, week of month
Day of Year	Number of the day in the year.
Day of Quarter	Number of the day in the quarter.
Day of Month	Number of the day in the month.
Day of Week Num	Number of the day of the week: 1 through 7
Day of Week	Name of the day of the week.
Weekday Flag	1 for weekday, 0 for weekend.
Hour of Day	Number of the hour of the day.

Vendor

This query subject contains information about the feature's vendor.

Table 3-51 • Vendor properties

Property	Description
Vendor ID	ID associated with the vendor.
Vendor Name	Name of the software vendor.
Vendor Display Name	Vendor display name.
Vendor License System	Number that identifies the vendor license system: 1 = FLEX, 2 = LUM, 3 = Sentinel, 4 = Elan, 5 = MathLM, 6 =Bentley, 7 = Reprise, 8 = LM-X License Manager, 9 = SPLM
Software Producer ID	ID associated with the software producer.

Product Usage Stats for Time Range

This folder contains the query subjects for reporting on product usage, availability, and denials. It contains the following subfolders, which contain the query subjects.

- [Product Usage](#)
- [Raw Events](#) (page 119)
- [Organization](#) (page 123)
- [Common](#)

Product Usage

This folder contains query subjects that describe the products, along with their software producers. Query subjects in the **Details** folder provide more detailed information about the product and its usage.

The Product Usage folder contains the following query subjects:

- [Product](#)
- [Product Usage Daily Org](#)
- [Product Available Daily](#)

Product

This query subject contains product information.

Table 3-52 • Product properties

Property	Description
Product Name	Product name.
Product Number	Product number.
Product Version	Product version.
Product Category	Product category.
Product Family	Product family.

Product Details

Within the [Product](#) folder, the **Details** folder contains properties that may be used less frequently.

Table 3-53 • Product Details properties

Property	Description
Product ID	Reference to a product.
Software Producer ID	ID associated with the software producer.

Product Usage Daily Org

This query subject provides information about product usage for user-based organization structures.

Table 3-54 • Product Usage Daily Org properties

Property	Description
Usage Events	Number of times a product has been started within the time interval (hour/day/month) referenced by TIME_ID.
Ultimate Denials	Total number of <i>true denials</i> during one day beginning at the time point referenced by TIME_ID. <i>A true denial</i> is an ultimate denial or folded denial, based on the configured false denials interval.
Peak Licenses	The peak (maximum) number of licenses used concurrently for a product within the time interval (hour/day/month) referenced by TIME_ID.
Elapsed Time at Peak (hours)	Reserved for future use.

Table 3-54 • Product Usage Daily Org properties

Property	Description
Total Used Time (hours)	Calculated cumulative time a license has been used during this month in hours. For example, 2 licenses in use during 1 hour would result in 2 hours of total use time.
Elapsed Time at Capacity (hours)	Reserved for future use.

Product Usage Daily Org Details

Within the [Product Usage Daily Org](#) folder, the **Details** folder contains properties that may be used less frequently.

Table 3-55 • Product Usage Daily Org Details properties

Property	Description
Product ID	Reference to Product.
Org Node ID	Reference to Org Node.
Time ID	Reference to Time.
Total Time Used (seconds)	Calculated cumulative time a license has been used during this month in seconds.
Elapsed Time at Peak (seconds)	Reserved for future use.
Elapsed Time at Capacity (seconds)	Reserved for future use.

Product Available Daily

This query subject provides information about the product's availability. Additional properties are available in the **Details** folder.

Table 3-56 • Product Available Daily properties

Property	Description
Availability Count	Maximum available count of a product's licenses within a given month.
Available Time (hours)	Calculated cumulative time a license has been available during this month in hours. For example, 2 licenses were available during 24 hours would result in 48 hours of total available time.
Average List Price	Average list price to purchase a perpetual license for this product (before discounts).
Average Net Price	Average net price to purchase a perpetual license for this product (after discounts).

Table 3-56 • Product Available Daily properties

Property	Description
Average Net Cost	Average net price paid for a license (time-based or perpetual) for this product.
Average Annual Fee	Average access fee (for time-based licenses) or maintenance fee (for perpetual licenses) for this product.

Product Available Daily Details

Within the [Product Available Daily](#) folder, the **Details** folder contains properties that may be used less frequently..

Table 3-57 • Product Available Daily Details properties

Property	Description
Product ID	Reference to Product.
Time ID	Reference to Time.

Common

This folder contains the following query subjects:

- [Software Producer](#) (page 125)
- [Time All](#) (page 125)
- [User Details](#) (page 93)
-

Feature Product Map

This query subject contains information related to feature-to-product mapping.

Table 3-58 • Feature Product Map properties

Property	Description
Product ID	Reference to Product table.
Feature ID	Reference to Feature table.

Feature Product Map Details

Within the [Feature Product Map](#) folder, the **Details** folder contains properties that may be used less frequently..

Table 3-59 • Feature Product Map Details properties

Property	Description
ID	Primary key.
Min Feature Version	The minimum feature version requirement for the product.
Feature Qty	Defines the number of features that one product license can cover.

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