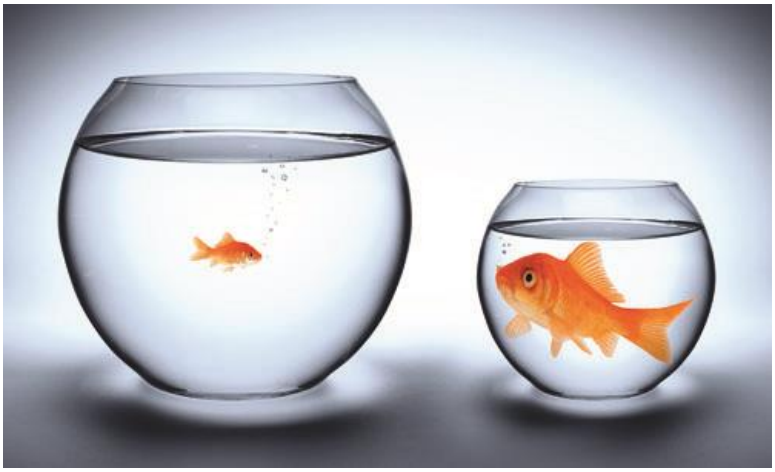


RIGHT-SIZING SOFTWARE INVENTORY

Leveraging Altair SAO

ABSTRACT

Altair SAO users can right-size their software inventory to get maximum utilization and optimize software spend. In this article you'll see various right-sizing use cases to help you optimize your own licenses and pay for only what you need, no more and no less.

Alhad Joshi

Leveraging Altair SAO to right-size software inventory

Background

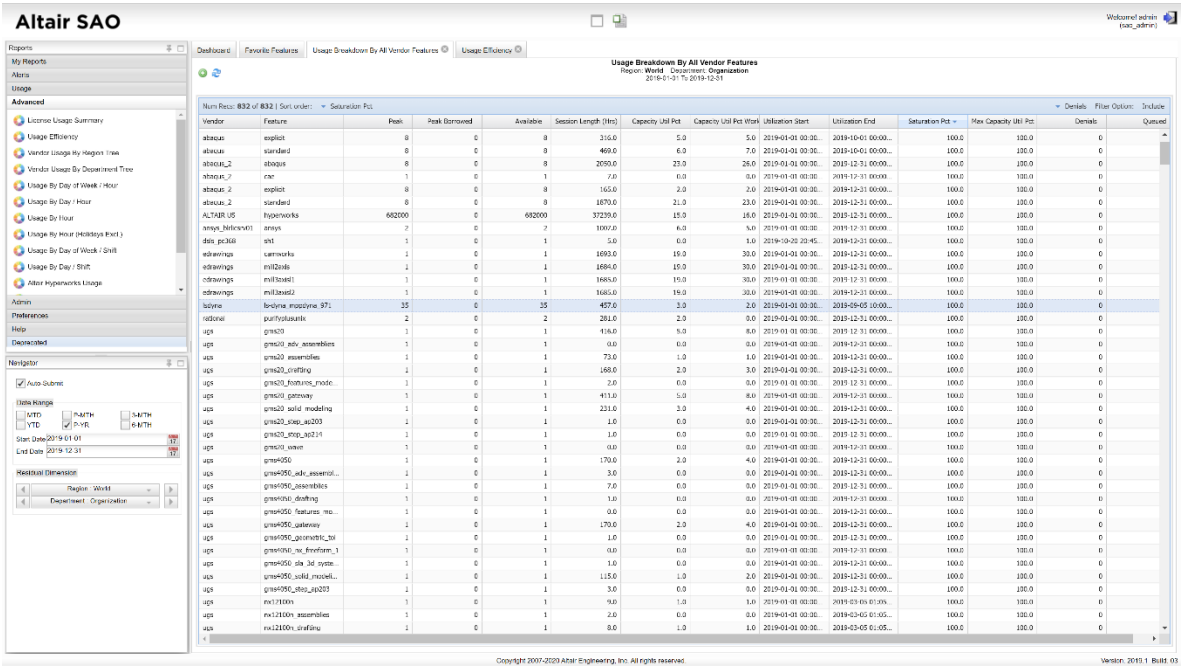
Many companies use sophisticated and expensive software systems to conduct their business. Software vendors typically offer a shared licensing business model where users access software subject to availability of licenses for a given software feature, as opposed to the named-user or node-locked licenses prevalent many years ago. Companies purchase a pool of licenses for required features intended to be shared by a group of users. Many companies use Altair SAO to track software license usage and analyze usage patterns.

This article is a guide for exploring right-sizing opportunities exposed by Altair SAO. Simply understanding usage patterns is not enough to optimize software spend. There are many cases to consider. This article will point out the most interesting categories to inspect. *Every customer should review cases that could apply to them.*

How

1. Inspect peak usage and denials for user-interactive software

Check the Summary Usage Report over a time period as shown below:

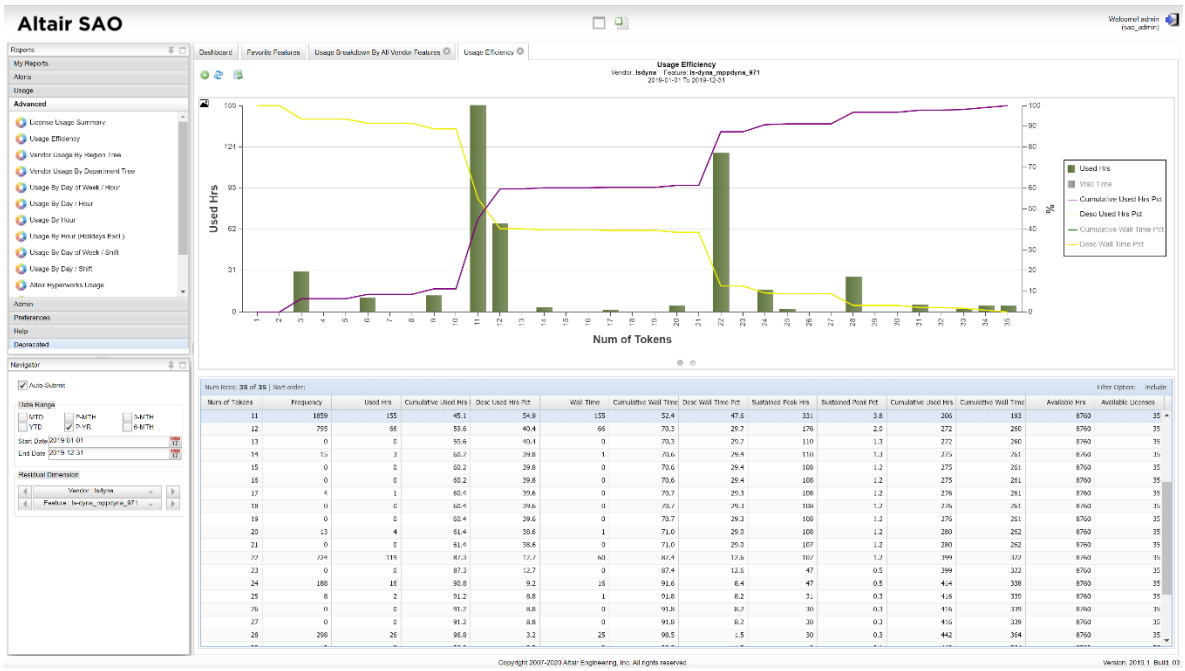


This table provides multi-key sorting functionality. Select the Saturation column heading and drag it to the multi-key-sort bar at the top of the table. Then select the Denials column heading and drag it to the bar. Sort the table by clicking on the Saturation button in the bar, and then sort by Denials by clicking on the Denials button in the bar. Saturation is calculated as Maximum Peak/Total Available Licenses.

There are 3 cases to consider:

a. 100% saturation and 0 or very few denials (less than 2 denials per 100 checkout requests)
b. Less than 100% saturation

For (a) and (b), check the Usage Efficiency Chart shown below:



The chart shows usage at every license count from 1 through the maximum number of available licenses. Inspect the Cumulative Usage curve. Its maximum value is 100%. Follow the curve towards lower license counts. You can select a license count that will reduce usage within acceptable levels, like 95%. If you select the corresponding license count, which will be lower than the maximum license count, you can have fewer licenses with minimal impact on productivity.

In cases where the maximum saturation is less than 100%, there will be no usage detected at higher license counts, implying that those many licenses were NEVER used. This indicates 'shelf ware', or unused licenses which can be safely eliminated.

c. 100% saturation with many denials

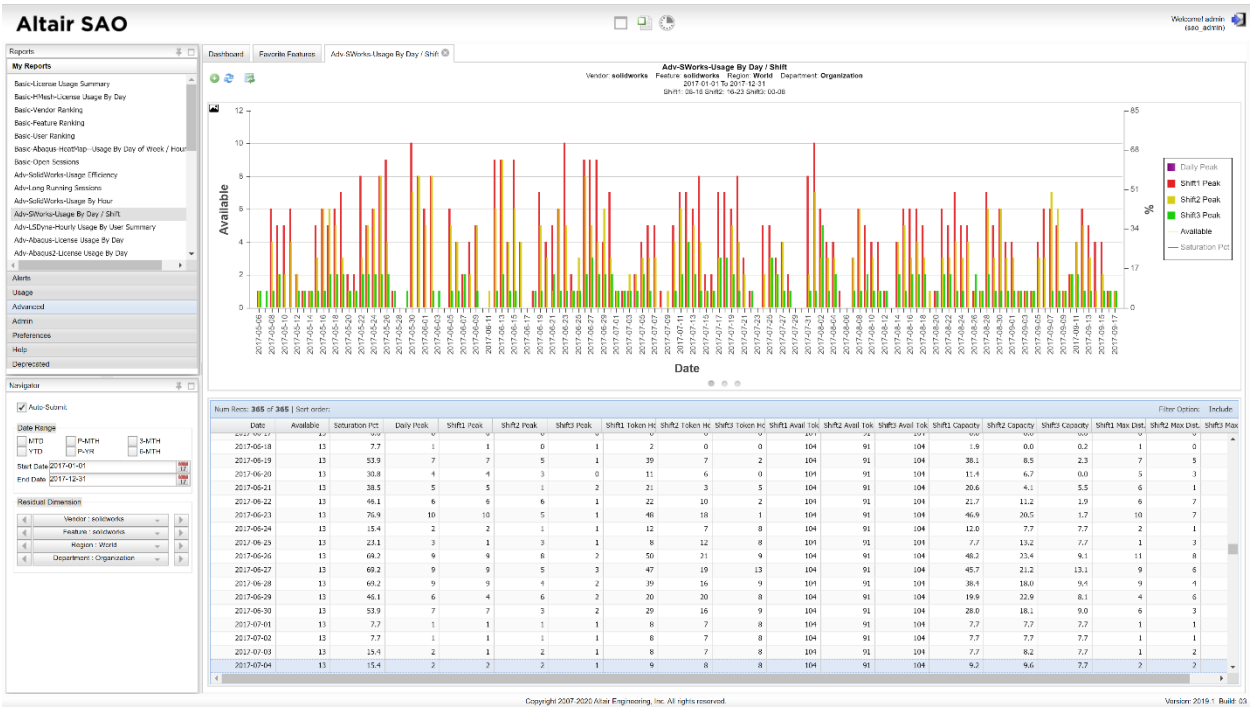
This case shows that all available licenses were used, and the high number of denials in the system indicates that this feature could use additional licenses in order to reduce denials. This case can be analyzed by Altair SAO Predict, which will show the most appropriate license count that will result in an acceptable Denials Probability, which can be defined as (total denials/(total denials + total checkouts)). This is described in section (5).

Note:
It is critical to report denials that are caused by lack of licenses. Altair SAO can filter out all other denials.

2. Implement staggered work time for user-interactive software if possible

Some countries divide their workday into multiple shifts. Recently, even in western countries, some companies have allowed users to work from home.

Set up work shifts as appropriate and view the License Usage by Shift report shown below:

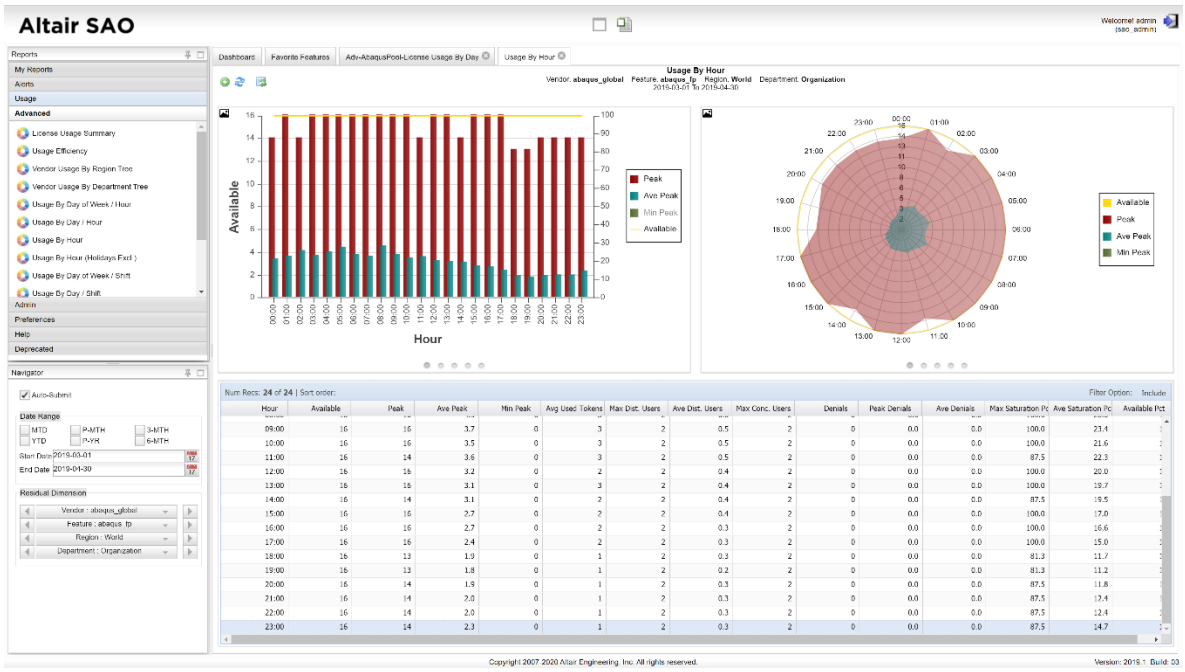


This shows the peak license usage for given software for every defined shift. These usage patterns allow you to organize users into different work shifts in order to have more equitable maximum peak usage in each shift. This will allow higher total capacity utilization for interactive software.

For user-interactive software, 1 software license leased for a period of 1 year will show a maximum capacity utilization of about 25% (1880 user-hours/8700 available license-hours). Breaking usage into multiple shifts can potentially double this capacity utilization. Otherwise it's not possible to achieve capacity utilization higher than 25%.

3. Check total capacity utilization of batch (HPC run) software

Access the Usage Pattern over a 24-hour period as shown in the report below:



This report shows an overall usage pattern over a 24-hour cycle averaged over the reporting period. The objective for HPC software is to achieve a very circular usage pattern which will indicate maximum peak usage over 24 hours on average. If the peaks are never reached, it will be possible to reduce the license counts. If the peaks are always observed to be equal to the available license counts and the total waiting time for this software feature is reasonable, the license usage is efficient. If the capacity utilization is less than 80%, licenses can be reduced but waiting time may increase.

Corporate philosophy ultimately dictates what license levels are required. If 0 wait time is of utmost importance then high license levels are called for, and that can lead to low capacity utilization unless the workload keeps all licenses occupied 24x7 while maintaining 0 wait time.

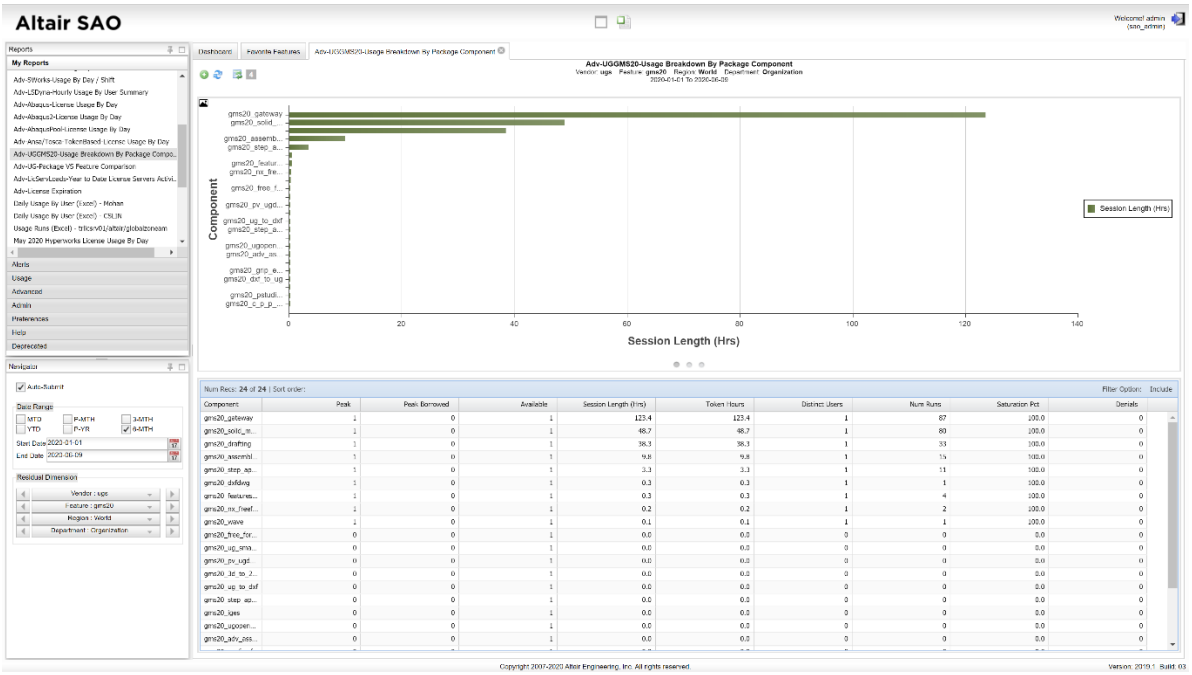
Analysis showing a relationship between license counts and wait times will be needed. Altair SAO Predict will support such analysis in a future version.

4. Evaluate package (software bundle) license usage

Some software suppliers provide software packages that include different software features. Customers purchase package licenses. When a package license is checked out, the user can access any and all software features available in that package.

In some cases, software suppliers offer customers the option of purchasing package components independently.

Inspect the package component usage ranking chart like the one shown below:



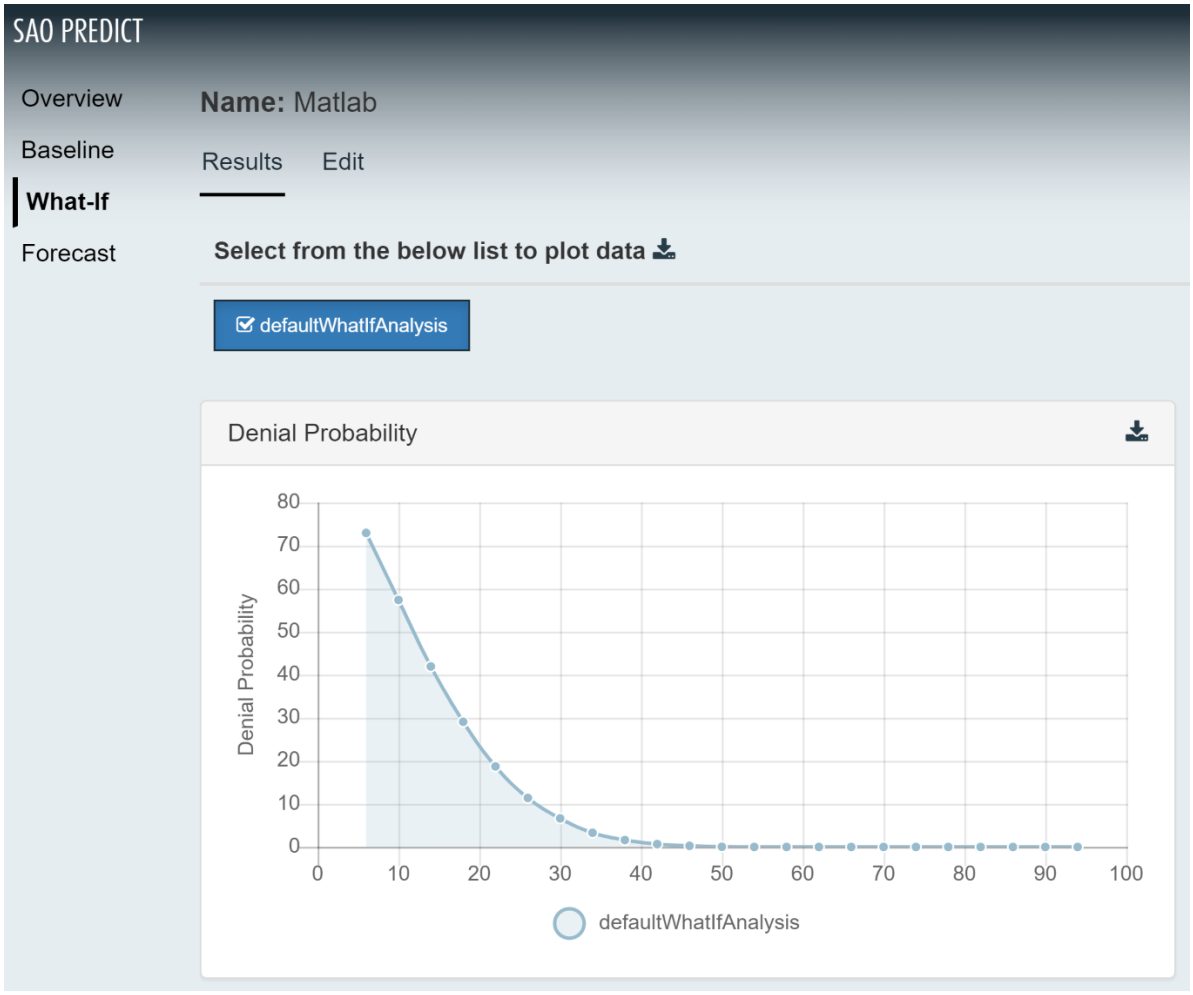
In this case, of the 24 package features, only 5 have significant usage. The other features have very little or 0 usage. It is worthwhile to whether it could be beneficial to keep only the features that are used and drop features that have not been used at all.

It is possible to use Altair SAO Predict to evaluate usage of each package component to determine the number of licenses needed. You can then calculate the total cost of required software features and compare that to the cost of the package licenses to determine which strategy will save money.

5. Tune license counts for desirable Denial Probability % for user-interactive software

Check out the license usage summary report to determine which software features have 100% saturation and high denial probability. This situation calls for increased license counts. The question to answer is what license counts could provide a desired Denial Probability %. The target is entirely driven by corporate philosophy. With a target for Denial Probability % to be achieved and historical software usage transactions over a time period, the license manager simulator can provide guidance for tuning license counts.

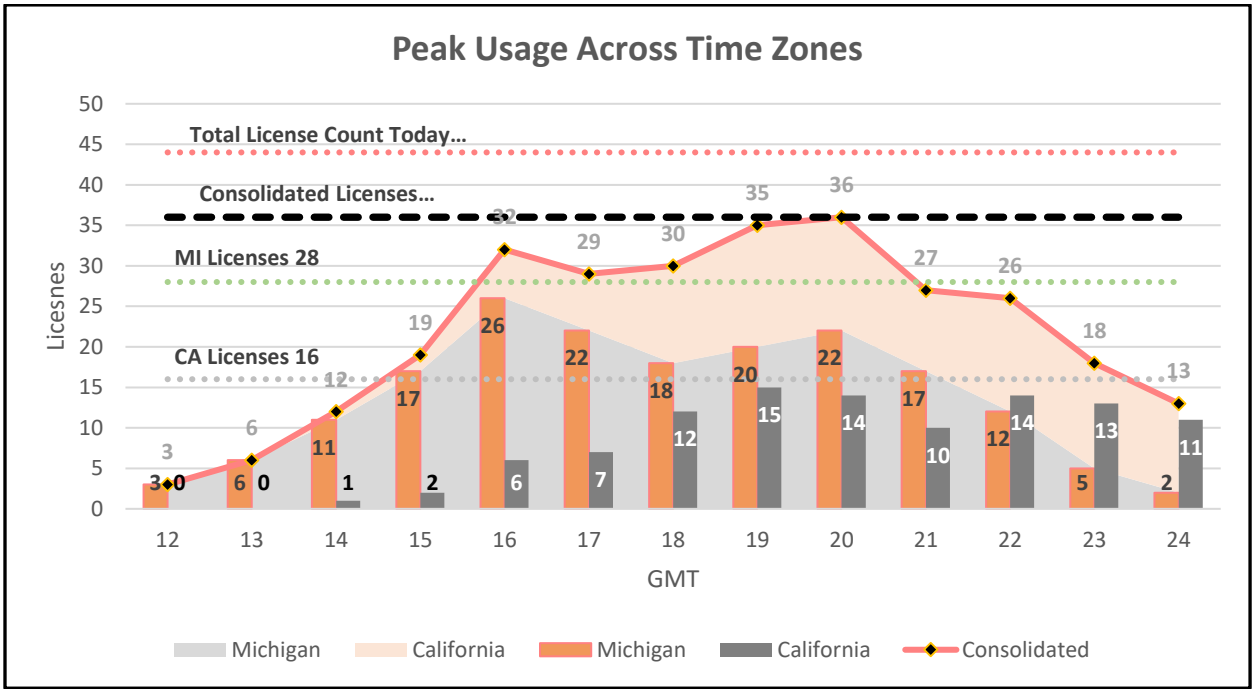
Examine the following plot showing the effect of changing license counts on denials probability:



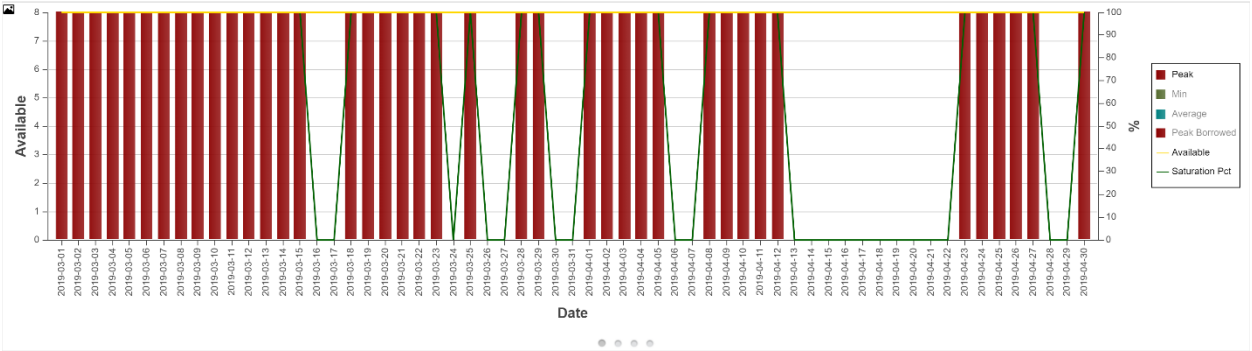
As the license count is increased, Denial Probability % decreases. At some point, for a given usage pattern, this metric will decrease to 0. This data curve provides guidance regarding the most appropriate license count for a target Denial Probability % value.

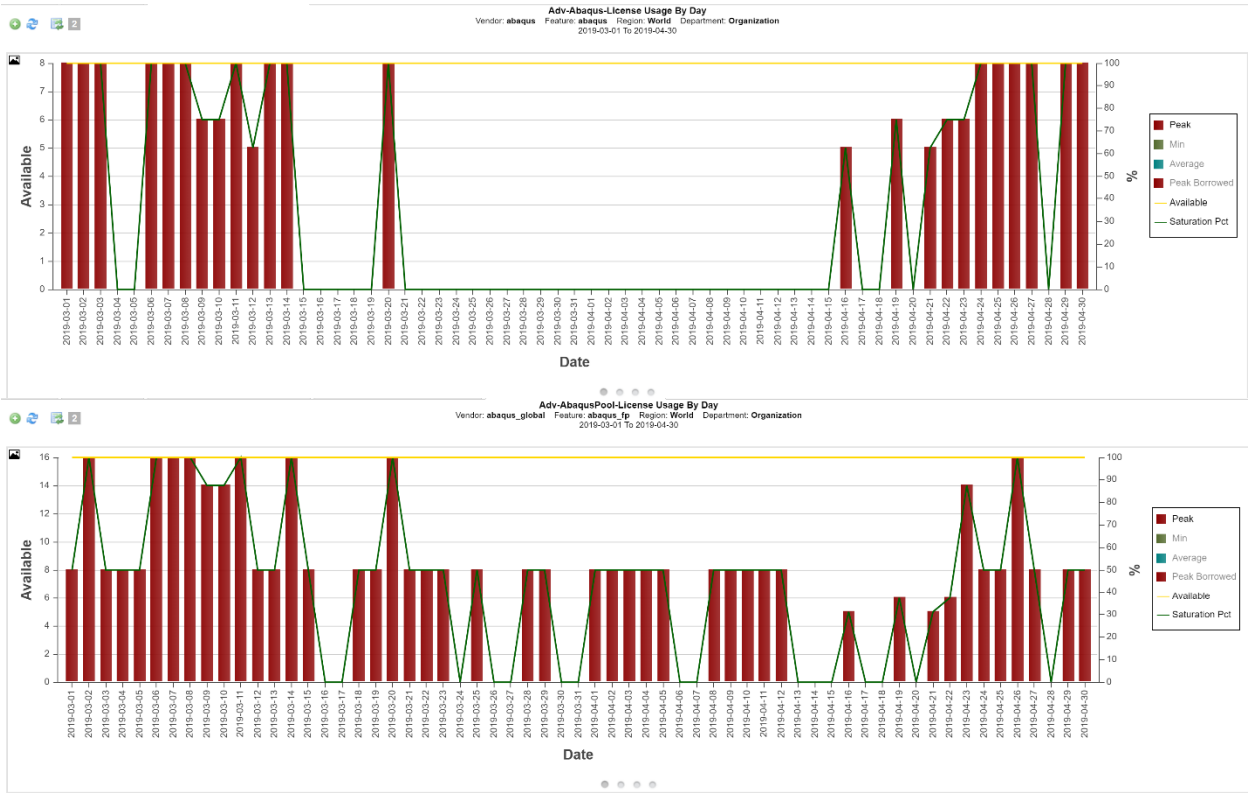
6. Inspect integrated license usage reports across multiple vendor daemons

If there are multiple license servers serving licenses from different license files, and there are users in different time zones, check out reports for a vendor pool/feature pool and look for maximum peak usage. If this peak is less than the total license availability, there are opportunities for reducing licenses by replacing multiple vendor daemons with one vendor daemon and one license file.



Altair SAO provides admin tools to enable feature and vendor pooling. Once a vendor pool is defined and feature pools are defined within vendor pools for the same feature existing in each vendor's license files, these can be selected for license usage reporting. The following shows license usage for a vendor named *abaqus* and feature *abaqus*, another vendor named *abaqus2* and feature *abaqus*, and combined license usage of the vendor pool named *abaqus_pool* and feature pool *abaqus_pool*.



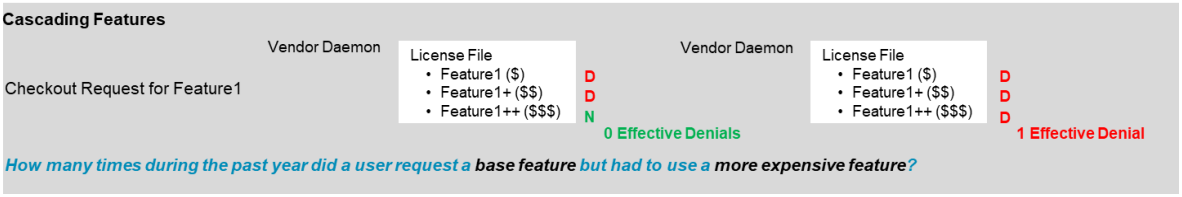


When companies merge, they often acquire software licenses for the same software but served by different vendor daemons. In order to integrate such licenses, the company needs to check the actual peak usage for a feature, served by different vendor daemons from different license files. If there are users spread across different time zones within a software supplier's licensing zone (like Americas, EMEA or APAC), usage is spread around, resulting in actual peaks being lower than the sum of all available licenses. In this case, a new license file with the required number of user licenses can save on license counts.

Similarly, a company could create such pools across different license zones to check for peaks and evaluate whether it could be beneficial to have a global license pool, which could cost more because of a supplier's business model, or maintain different license pools.

7. Inspect usage of Cascading features

Some software suppliers provide software features with increasing functionality and added cost. An example is given below. Users check out the package with the functionality they need, and if no licenses are available for that package, the license manager checks for the availability of advanced features and can check out an advanced feature if a license for it is available.

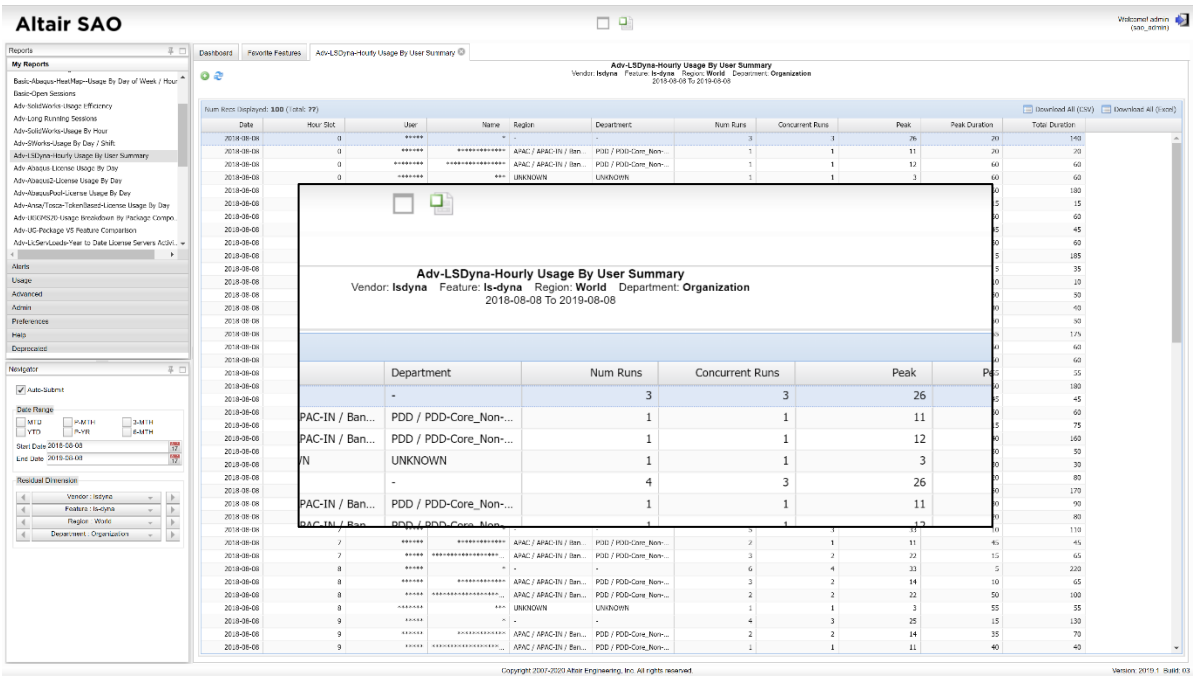


The question to ask in this case is, "*How many times during the past year did a user request a lower-functionality feature but was compelled to use a more expensive feature?*" This can be answered by Altair SAO because of its Denials Management functionality. When a package is not available a denial is generated, and the license manager checks the next available package, generates a denial if a license for it is not available, or grants a license. Analyzing such denial chains is the only way this question can be answered.

This allows right-sizing of license counts for such cascading features in order to avoid using more expensive features when not needed.

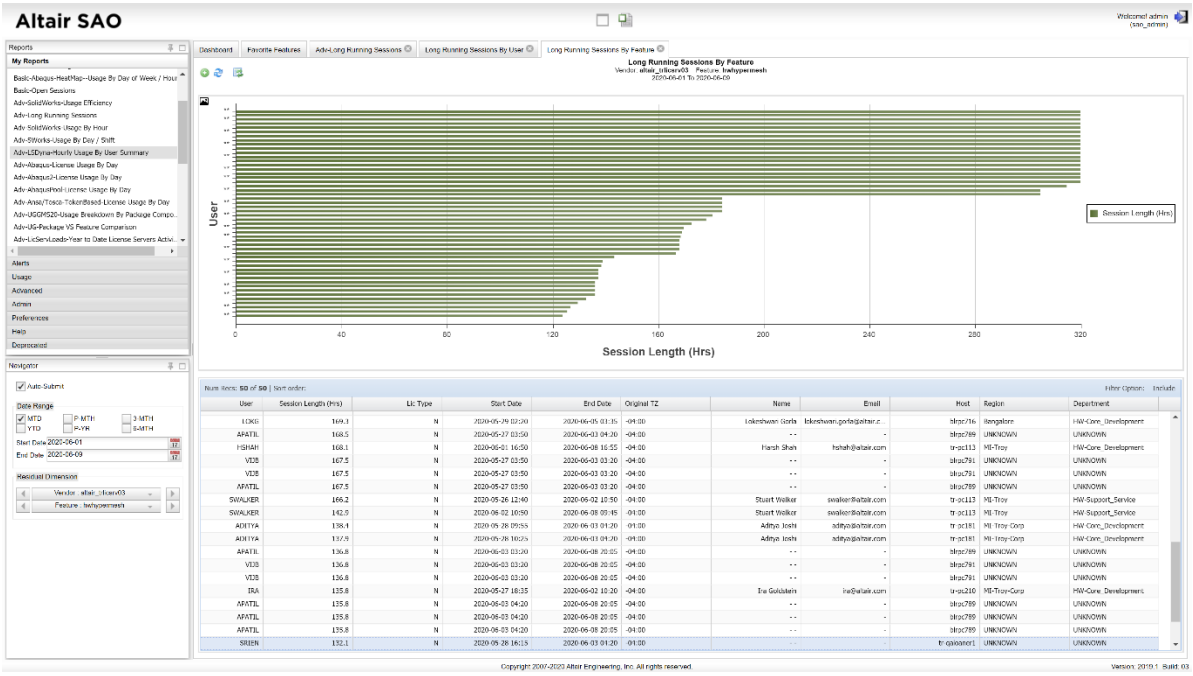
8. Inspect concurrent use of licenses by a user for unlevelled software

Check hourly usage by user summary report for a given software feature. This report lists all users who have more than one license checked out at the same time during a reporting time period. Unlevelled software features use tokens or licenses for every instance of running software. Put a stop to that practice. Such users check out multiple concurrent licenses, 1 per instance, depriving other users.



9. [Look for users that check out user-interactive software for exceedingly long periods of time]

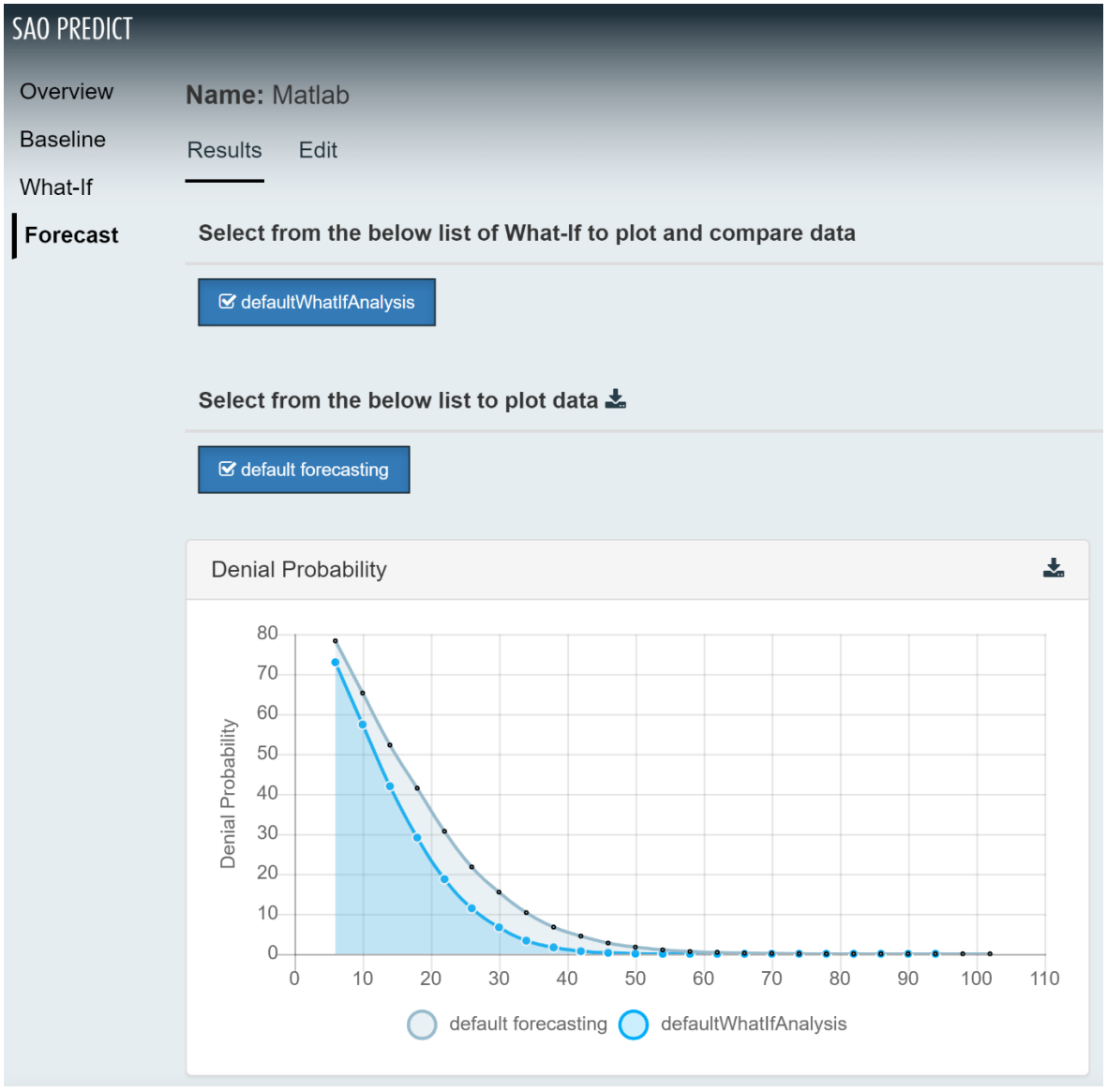
Check the long-running sessions report to identify users who habitually check out software for unnecessarily long periods of time, locking a license. Companies can encourage users to check in licenses when the software is not in use, but this is typically not enforceable unless the license manager provides a way to configure idle timeouts to release a license.



10. [Adjust license counts for any software for the following year]

Software licenses are typically renewed once a year. For software that is expensive or frequently used, planning license requirements for the following year is prudent. Altair SAO provides usage transactions for all tracked software features. If the company knows about expected changes to the user count for any software feature, Altair SAO Predict can help forecast what license counts will be most appropriate for the expected user base in the following year.

The following graph shows the comparison of the Denials Probability metric for the current reporting period, and what could be expected if several users were added to the current user count. To maintain the same performance target, in this case Denials Probability, the forecasting data curve will provide guidance for selecting an appropriate license count.



11. Inspect usage of License Reservation Pools*

License administrators can create reservation pools for named user groups, usually defined in the Option files.

It is worthwhile to inspect usage of reserved licenses on an ongoing basis. For example, if a group has been allocated 9 reserved licenses but at the most 7 were used simultaneously, implying that 2 licenses never saw any usage, these 2 licenses are completely wasted. Because reservations are enforced, users who need access to software that is fully saturated will not be able to use reserved licenses even if they are available at that time. *This feature is being added to Altair SAO.

Altair SAO also offers the functionality to set up Soft Limits, where the license administrator can allocate maximum peak usage for a given department and region. Soft limits are not enforced, but any violations are recorded. Such violations can be considered while calculating chargebacks to departments or regions using the SAO Cost Analysis functionality.

12. Inspect usage of Node-locked and User-based licenses*

Companies purchase node-locked licenses for some software. This is either a legacy scenario, or a company determines that certain high-usage users deserve a dedicated license.

Some software suppliers offer subscription models where every user needs to have a live subscription to use the software. Some of these companies are eliminating shared license pools entirely.

In either scenario, the only control a company could have is to ensure that all node-locked licenses and user subscriptions are used during the year. If such licenses or subscriptions are not used, the administrators can reallocate them to other users who could be drawing licenses from a floating pool of licenses (when that option is available) or eliminate user subscriptions in the following financial year.

Altair SAO tracks usage of Network Named Users at this time. *A new module under development will allow tracking of any software running on PCs (Windows/Linux/Mac), some of which could be node-locked licenses. This will enable SAO to determine which software is installed on machines but never used, allowing system admins to reallocate such software to someone who can use it and exclude them from using the shared license pools.

Crystal Ball

Licensing trends seem to be migrating back to named-user and node-locked licenses. More software suppliers are providing licenses using hosted systems. There is also a trend towards pay-per-use licensing. Shared license pools are advantageous to software users but not software suppliers. Pay-per-use licensing could come with huge sticker shock.

Companies might need to install gateways limiting usage of pay-per-use software to levels that they can plan for in order to have better control over software spend.

In the meantime, until shared licensing is the predominant model, it is worthwhile to inspect every use case and implement strategies to maximize software license utilization.