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TOP 10 ISSUES FACING LICENSE MANAGERS

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Introduction

An organization's software asset management (SAM) team wears many hats. Team members are responsible for setting up and maintaining license servers, installing licenses, ensuring compliance, assisting users, monitoring license availability, and generating usage reports. At many companies they also perform requirements analysis, remix software pools, manage contracts, and negotiate new contracts with vendors.

There are many recurring software management challenges common to every SAM team. They boil down to:

1. Identifying excess and unused software licenses

2. Spotting software licenses in short supply

3. Getting on-demand reports in close to real time

4. Tracking high-usage times for licenses in limited quantities

5. Monitoring licenses from multiple license managers

6. Automating notification of events that impact license access

7. Publishing automatically generated standard reports

8. Managing chargebacks to different organizations

9. Estimating the effective work week of software pool utilization

10. Managing licenses, daemons, and option files from a single cockpit

This paper explores the top 10 issues license administrators face and how each can be tackled using Altair Monitor™.

## 1. Identifying Excess and Unused Software Licenses

Determining exactly how many licenses a company requires can be difficult. Requirements fluctuate over time and no one has a crystal ball to foresee future changes in demand. This often results in purchasing more licenses than required, and idle software licenses are a waste of precious dollars.

Monitor provides several methods of identifying idle software licenses. Its Efficiency Statistics Report shows capacity, peak usage, and utilization, all on a single screen. It also shows the number of licenses needed to meet demand 95%, 99%, and 99.9% of the time.

	Tag	Feature	Product	Capacity	Requests	PeakUse ⬇	AvgUse	IdleTime%	Denials	Denial%	95.0% (time in use) #	95.0% (time in use) %	99.0% (time in use) #	99.0% (time in use) %	99.9% (time in use) #	99.9% (time in use) %
1	CADENCE	NanoRoute	PNR	25	950	25	20	22	123	12.95	21	84.00	22	88.00	25	100.00
2	CADENCE	FirstEncounter	PNR	30	2,025	30	18	40	133	6.57	24	80.00	27	90.00	30	100.00
3	CADENCE	Virtuoso	LAYOUT	60	455	58	52	21	65	14.29	45	75.00	53	88.33	58	96.67
4	SYNOPSYS-VCS-1	VCS	VERF	1,500	198,348	1,470	1023	38	0	0	1,253	83.53	1,376	91.73	1,470	98.00
5	ATRENTA	SpyGlass	VERF	1,000	19,712	950	645	52	0	0	835	83.50	875	87.50	950	95.00

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Another way to look at the data is with the Checkout Count and Checkout Duration graphs, which help visualize utilization by user, making it easy to spot usage at a glance.
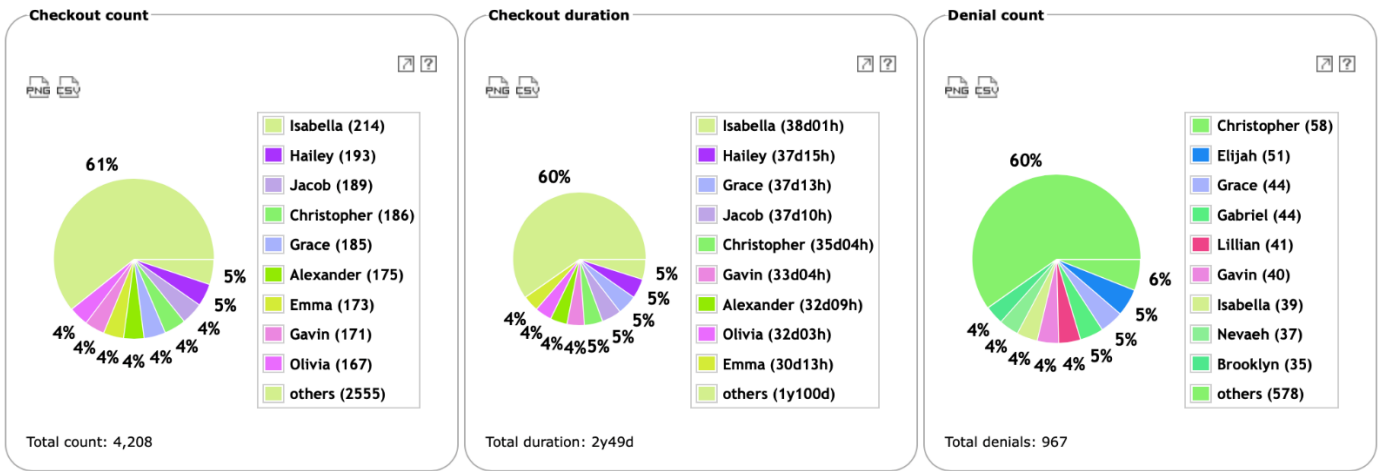
The Detailed Plot shows usage patterns over time.
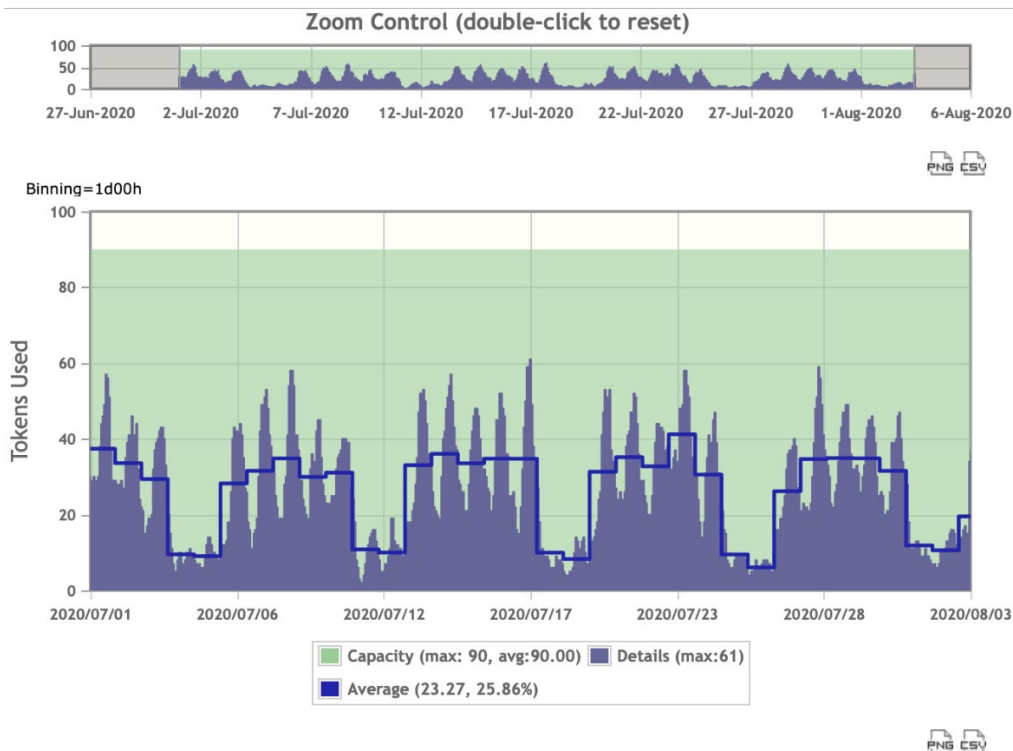
The information in these three views requires a robust set of metrics to track utilization and identify both over- and under-capacity of every license feature in the software pool. Monitor provides all the tools for quick identification of underutilized software licenses.

2. Spotting Software Licenses in Short Supply

The flip side of having too many licenses is having too few. Having too few licenses means users are waiting in queues, resulting in lower user efficiency and economic loss. The key is to strive to find the perfect balance of not having too many licenses nor too few.

	Tag	Feature	Denials ⬇	Users	Latest	Graphs
1	ATRENTA	SpyGlass	0	0	0s	
2	CADENCE	Virtuoso	920	125	4h18m22s	
3	SYNOPSYS	PrimeTime	1	1	13m02s	
Σ			Σ 921	Σ 126		

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By observing the user mix and number of license denials, particularly for the tools that contribute most to software cost, a software mix that maximizes available budget can be determined. Always pay closest attention to the licenses that are collectively most expensive.

	Tag	Daemon	Feature	Expires	Capacity	Users	Email	Used	Queued	Utilization ⬇	Oldest Checkout	Graphs
1	ATRENTA	atrlmd	SpyGlass	20210701	70	60	📧	35	0	50%	1h05m	
2	CADENCE	cdslmd	Virtuoso	20211231	200	125	📧	200	10	100%	1h04m	
3	SYNOPSYS	snpslmd	PrimeTime	20210401	450	280	📧	355	0	79%	8h16m	

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The Current Feature report can be used to quickly identify license features being used at 100% capacity. It provides a strong indicator that there may be too few licenses.
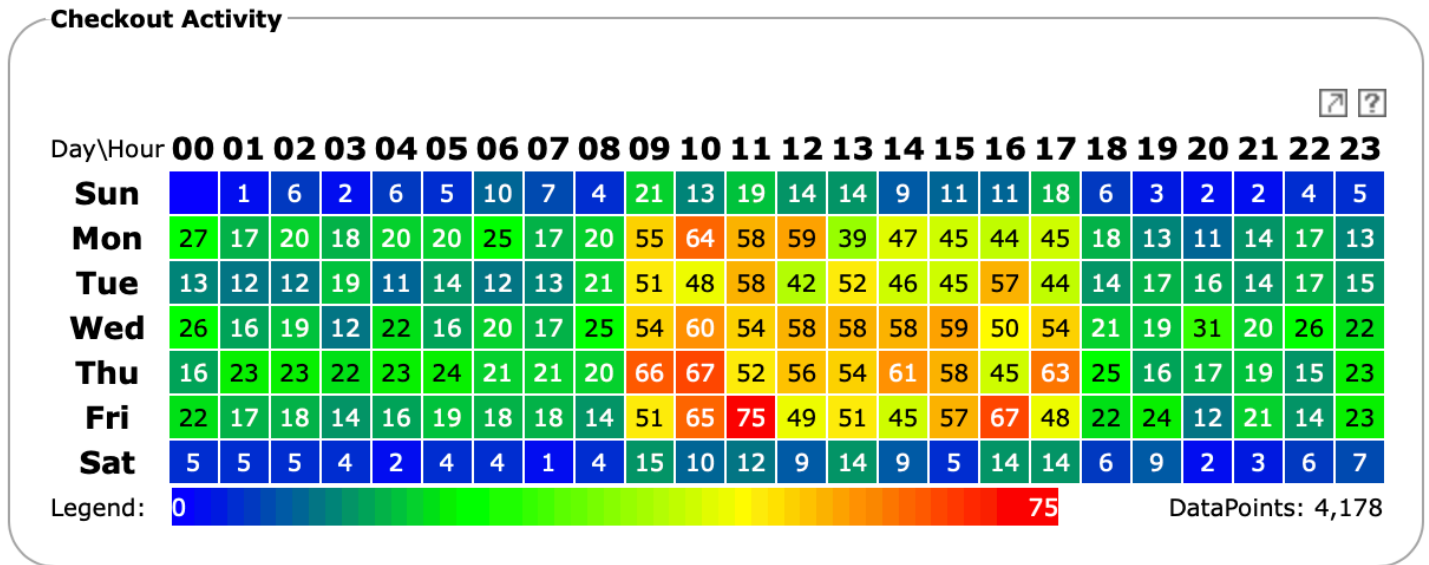
3. Getting On-demand Reports in Close to Real Time

There are many reasons usage data can be required at a moment's notice. It may be to find out why engineers are denied licenses. It may be in response to a SAM system alarm about an impending issue. It can also be the result of a call from a senior manager who needs data for a meeting on short notice. Waiting 15 minutes or hours for usage data reports to run won't do.

Monitor was designed as an on-demand reporting solution and has been optimized for that scenario. Most reports return results in seconds. Regardless of what report or graph is needed, and how urgently, Monitor delivers.

4. Tracking High-usage Times for Licenses in Limited Quantities

Having enough of every software license so that engineers never get a denial — when they're unable to run software until a license becomes available — is seldom affordable or cost-effective. The impact on engineering wait times can be reduced when there is an easy way to identify times of high usage. Just as one tries to avoid rush hour traffic during the daily commute, an engineer can avoid license denials by avoiding runs during times of high license usage congestion.

Checkout Activity

Day\Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sun		1	6	2	6	5	10	7	4	21	13	19	14	14	9	11	11	18	6	3	2	2	4	5
Mon	27	17	20	18	20	20	25	17	20	55	64	58	59	39	47	45	44	45	18	13	11	14	17	13
Tue	13	12	12	19	11	14	12	13	21	51	48	58	42	52	46	45	57	44	14	17	16	14	17	15
Wed	26	16	19	12	22	16	20	17	25	54	60	54	58	58	58	59	50	54	21	19	31	20	26	22
Thu	16	23	23	22	23	24	21	21	20	66	67	52	56	54	61	58	45	63	25	16	17	19	15	23
Fri	22	17	18	14	16	19	18	18	14	51	65	75	49	51	45	57	67	48	22	24	12	21	14	23
Sat	5	5	5	4	2	4	4	1	4	15	10	12	9	14	9	5	14	14	6	9	2	3	6	7

Legend: 0 ———————————— 75   DataPoints: 4,178

Monitor provides a heatmap to help you track "rush hour traffic syndrome." The heatmap helps you visualize periods of high usage or congestion over a 24x7 clock. Color coding allows hours of lower usage to be identified at a glance. Each square identifies peak usage during that hour of the week.

5. Monitoring Licenses From Multiple License Managers

Most license monitoring tools limit support to the most popular license managers or charge separately for less popular ones. While RLM, FLEXlm, and LUM are most popular, they represent less than 15% of all license managers in use by EDA tool suppliers. This leads to additional costs since more admin time is needed to create or use separate interfaces to other license managers. It can also cause inconsistent reporting and monitoring between vendors.

Monitor supports more license managers, out of the box and at no extra charge, than any other SAM tool on the market, including FLEXlm, RLM, LUM, Altium, BETA CAE, ClearCase, Sentinel HASP and Sentinel RMS, Dassault, GNS, Green Hills, ELAN, ICAD, LSTC, Silvaco, T-Systems, and X-Formation. You can even monitor the usage of tools that do not use a license manager at all and wrap in-house scripts and software to monitor their usage.

6. Automating Notification of Events that Impact License Access

There are many events that can impact an engineer's ability to check out a software license. These include a hung or down license daemon, a crashed license server, or network failure. An alert system that notifies license administrators, managers, and engineers any time such a failure occurs is essential.

Monitor provides the most robust alert system of any SAM tool on the market. It not only monitors and alerts personnel of a system failure, it also monitors the license server infrastructure for indicators of imminent failure, such as excessive CPU load, a triad server that's offline, a license feature that is nearly saturated, excessively long checkouts, or licenses that are about to expire.

	Severity	Module	Description	Count	First	Last↓	Actions
1 ☐	URGENT	vovserver:license	LicenseMonitor license violation: too many users Current users=0 (licensed max=-1)	4	4m45s	43s	✔ 🗑
2 ☐	URGENT	vovserver:license	RTDA license is in grace period Communications error with license server (-17) Connection refused at server (-111)	3	4m41s	43s	✔ 🗑
⑦Σ				Σ7			

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With Monitor watching the license server infrastructure, license administrators will never be blindsided by system failures.

7. Publishing Automatically Generated Standard Reports

Every business has a set of standard reports distributed to various departments. These include utilization and chargeback reports for finance and design managers who are contractually required to produce compliance reports for vendors, requirements of software pool remixes, and compliance monitoring reports. It can be a burden to manually generate these reports every month or every quarter.

Monitor includes a batch reporting facility to automatically generate reports. The reports can be stored in any location accessible by a web interface. Monitor reports can also be viewed on a case-by-case basis, making it possible to provide information such as the current users of certain licenses or how long the queue is to get a specific license — without having to open up Monitor on the user's desktop and have them navigate to the information.

8. Managing Chargebacks to Different Organizations

Most corporations that internally share a common pool of design software charge the cost of that software back to the individual departments or groups that use it. The criteria or formulas for determining how much each entity is charged vary based on corporate policy. Some corporations charge based on actual usage, while others split costs based on the number of engineers with access to the software pool. Chargebacks can be done at a project, division, or group level, and it is fairly common for corporations to modify the method they use after restructuring organizations.

	Tag	Feature	User	LDAP	Email	Host	Project
1	SNPS3	PrimeTime	rjones	📁	✉	bserv_04	mars
2	SNPS3	PrimeTime	aroberts	📁	✉	uno	jupiter
3	SNPS2	PrimeTime	Jacob	📁	✉	bserv_04	venus
4	SNPS3	PrimeTime	btjanes	📁	✉	mserv_44	jupiter

Monitor supports any chargeback method and simplifies modifications due to organizational changes by linking to LDAP or Active Directory.

Monitor provides a tcl API which allows you to create custom reports and statistics by username, project, or a custom group name which can be defined or populated via LDAP or Active Directory. It can enable you to report usage in detail, down to the individual engineer and software tool. Regardless of what chargeback method a company employs, Monitor has it covered.`
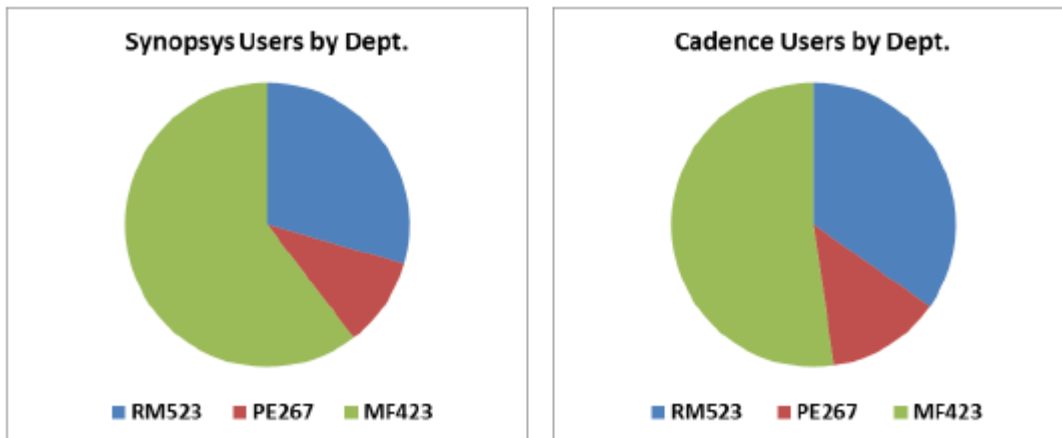
9. Estimating the Effective Work Week of Software Pool Utilization

CFOs, CIOs, and CEOs often want to understand the utilization of the software pool, which represents a significant annual expenditure for mid-sized and large corporations. Their first question is usually, "What is the average utilization of software licenses per week?" The problem with average utilization is that many SAM tools base this calculation on 24-hour days, or a 168-hour week, whereas the actual engineering work week is closer to 60 or 80 hours. Utilization from 8 a.m. to 6 p.m. is usually high, close to 98%, but weekly average usage when nights and weekends are included is only 50%.

Monitor is capable of work-week filtering. The parameters in the work week can be set to ignore off hours, such as 8 p.m. to 8 a.m. and weekends. The result is a much more meaningful representation of average software pool utilization, especially for interactive tools that often exceed 50% of the software pool.

10. Managing Licenses, Daemons, and Option Files From a Single Cockpit

Monitor greatly simplifies the job of license administration by providing the ability to install licenses, start and stop license daemons, and modify option files through a single common interface, regardless of vendor or license manager. Using one interface or process for RLM daemons and another for ICAD or Greenhills can be confusing and time consuming, leading to mistakes that can cause downtime.

Monitor provides a user-friendly, web-based interface for all supported license managers. You can install new license files, modify option files, and start, stop, or change license managers for both local and remote servers. It also maintains a record of all changes to licenses and option files for future reference or auditing.

Summary

Monitor's capabilities go far beyond the top 10 issues discussed in this paper. It provides an extensive set of tools that address all aspects of software license monitoring and software asset management. It does this for a larger set of license managers than any other tool on the market, at no extra charge.

With Monitor your investment in infrastructure-enabled applications is protected. Monitor combined with Altair Accelerator™ and Altair FlowTracer™ provides an integrated solution for the engineering enterprise, to concurrently manage capacity utilization and process turnaround time.