Technical Brief

Qlik® Sense
Enabling the New Enterprise

Generations of Business Intelligence

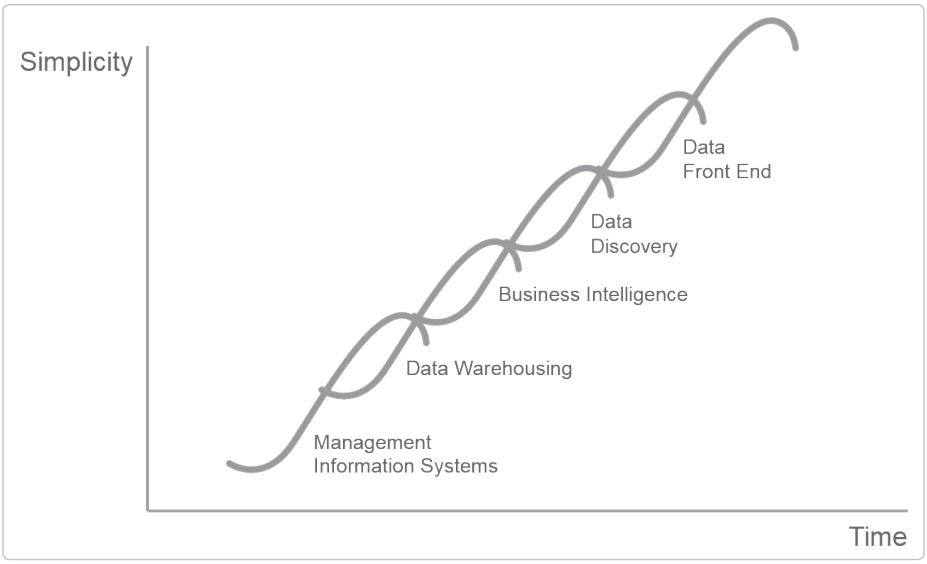
The evolution of the BI market can be described as a series of disruptions. Each change occurred when a technology that was good at solving a certain class of problems was surpassed by new technology that offered greater simplicity and functionality for the user.

Management information systems were the original solution for integrating operational data from mainframes and providing needed information to the business. However, these systems soon became overburdened. Their architectures were not designed to handle the changing demands for information.

The data warehouse was a disruptive technology that offered a 'single version of the truth' – organizing information based on dimensional data models for improved querying and navigation. As this technology developed, data integration tools (ETL) and on-line analytical processing (OLAP) were introduced to extend and advance its capabilities. Unfortunately, they too became overly complex as more and more functionality was introduced.

Business Intelligence created an analytic layer on top of the data warehouse that was again intended to simplify views of information in the form of dashboards, reports, and analyses. However, this technology was slow to develop, static in nature, and entirely IT driven. The time was ripe for Data Discovery to come along.

Today, there is a rising belief that 'all you really need is a pretty picture in front of your data'. And simple visualization tools have been rising in popularity. But is simple self-service visualization really enough? Isn't the true value in analytics the ability to discover what's next? That's why we developed Qlik Sense.



Qlik Sense

Qlik® Sense is a next-generation self-service data visualization application that empowers everyone to easily create a range of flexible, interactive visualizations that drive exploration and discovery through intuition.

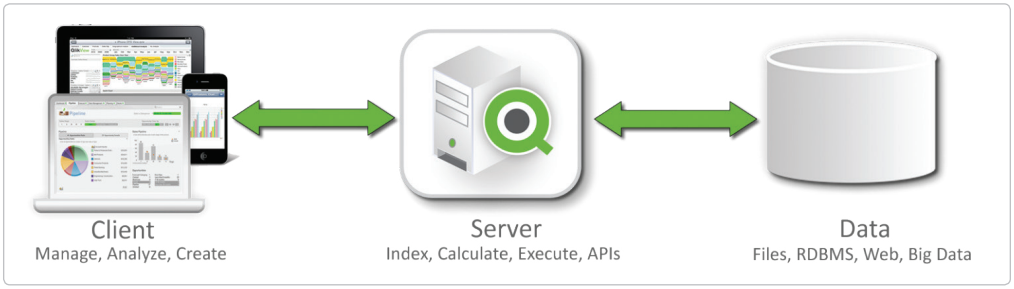
The core technology in Qlik Sense is the patented data association indexing engine in QlikView – which dynamically reveals the hidden associations in data. It enables powerful on-the-fly exploration of large data sets at instant speeds.

The first product in the Qlik Sense family, Qlik Sense Desktop, is a free desktop visualization tool. Qlik Sense Desktop enables anyone in your company to intuitively create personalized reports and dynamic dashboards from multiple data sources with drag-and-drop simplicity.

The full version of Qlik Sense takes the user experience to the next level. It offers the same intuitive experience as the free desktop version, and adds enterprise class management, security, and governance capabilities. Qlik Sense is ready to enable this new enterprise.

Singular, Consistent, Simple

The Qlik Sense architecture leverages the latest web specifications, data exchange formats, and network protocols such as HTML5, CSS3, JSON and WebSockets, resulting in a consistent and efficient design. Users of all types can easily create, manage, and analyze data with Qlik Sense either in the office or on the go, using any HTML5 compliant web browser or mobile device.



Distributed and Resilient

Qlik® Sense services are the cornerstones of the latest Qlik Sense architecture and are configured to support a variety of enterprise-ready deployment scenarios, including those that are geographically disbursed and have multiple data centers. When installed on several machines, they form a collection of nodes and sites that produce a distributed architecture that increases system resilience, reduces maintenance, and improves overall deployment flexibility and scalability.

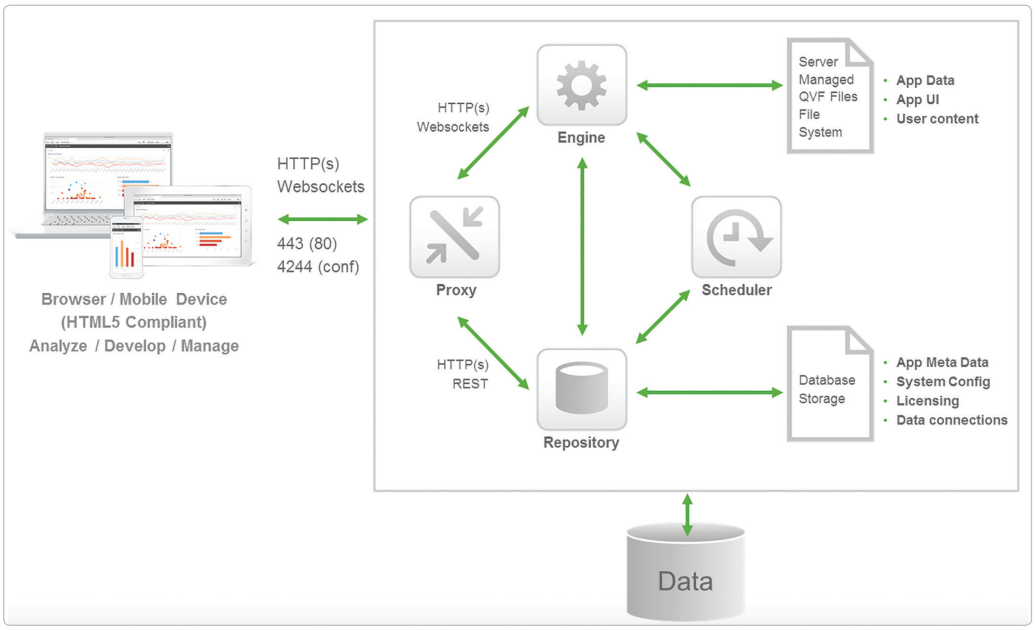
Qlik Sense services consist of:

Repository Service – Stores and coordinates all of the system information and configurations, including security and management of multi-node processes. Works with the Qlik Sense Engine to process app content.

Proxy Service – Manages Qlik Sense authentication, session handling, and load balancing.

Scheduling Service – Manages scheduled reloads of Qlik Sense apps and other tasks.

Engine Service – Handles all app processing, calculations, and client communication. Includes the in-memory data association indexing that provides speed-of-thought analysis.



Protection and Security

Processing and analyzing data are essential parts of doing business. However, it's critical to ensure proper safeguards are in place to protect information systems from unauthorized access, malicious software attacks, and hardware failure. To ensure maximum protection, Qlik® Sense is designed using *Rugged and STRIDE (see Other Resources)* software development practices, threat analysis testing, and works with multiple security layers (Authentication, Authorization, Access Control, Data Reduction) which make up the overall Qlik Sense protection and security strategy.

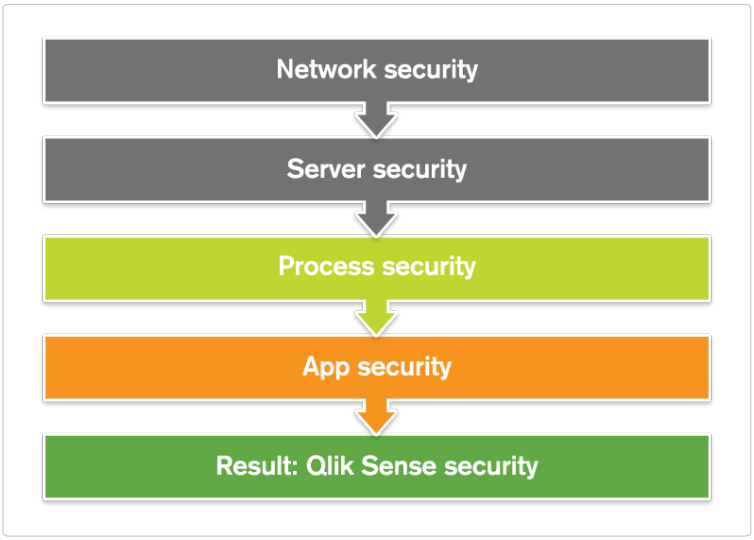
Process Security – This layer of the security model focuses on ensuring that the software is thoroughly analyzed from a security perspective by using Rugged development practices as well as threat analysis and exploratory security testing.

Network Security – All communications that build trust between Qlik Sense services and clients are based on web protocols such as Secure Socket Layer (SSL) and Transport Layer Security (TLS). These protocols handle encryption and exchange of information and keys and authentication certificates.

Server Security – Qlik Sense can use the server's operating system security layer to control and protect Qlik Sense resources (files, memory, processes, and certificates) on the server. Configurable user authentication from Active Directory, LDAP and custom data base tables is also available.

App, Resource and Data Security – Independent of the operating system and implemented using a revolutionary security rules engine, the app and content security layer control access to Qlik Sense resources. Access is based on the user, action, resource, environment and much more, including user defined properties. App security can also include dynamic data reduction to secure data (field and row level) based on a user's properties or custom security data authorization table.

Synchronization – Ensures site resilience, high availability and scalability of the Qlik Sense deployment. Synchronization of nodes includes entities such as apps, users, meta-data, security rules, licensing, and logs as well as their corresponding binary files.

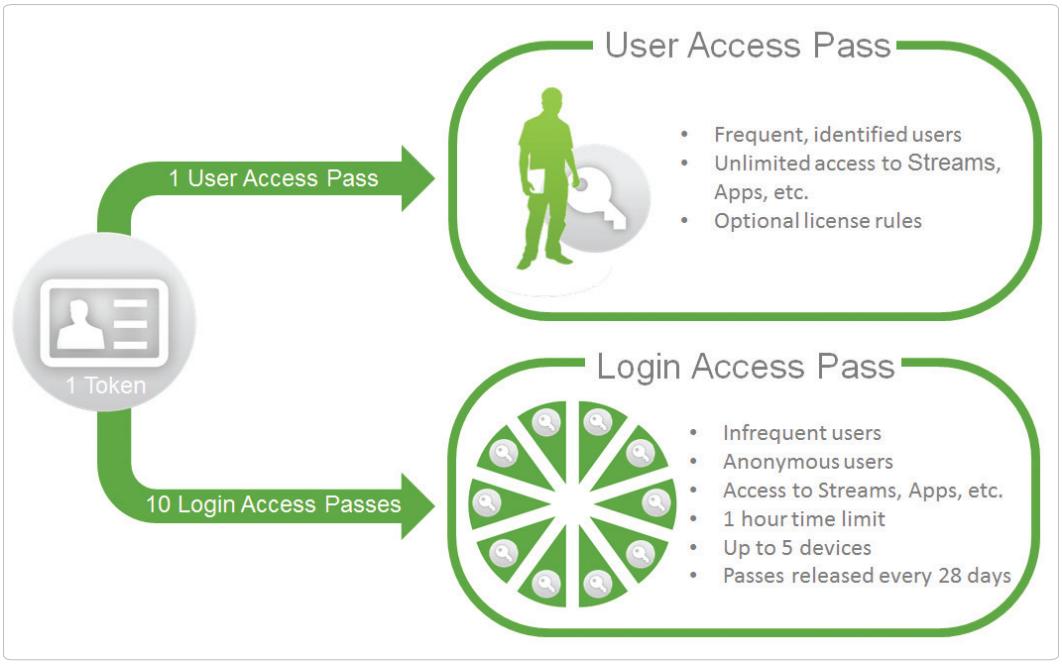


Token Licensing

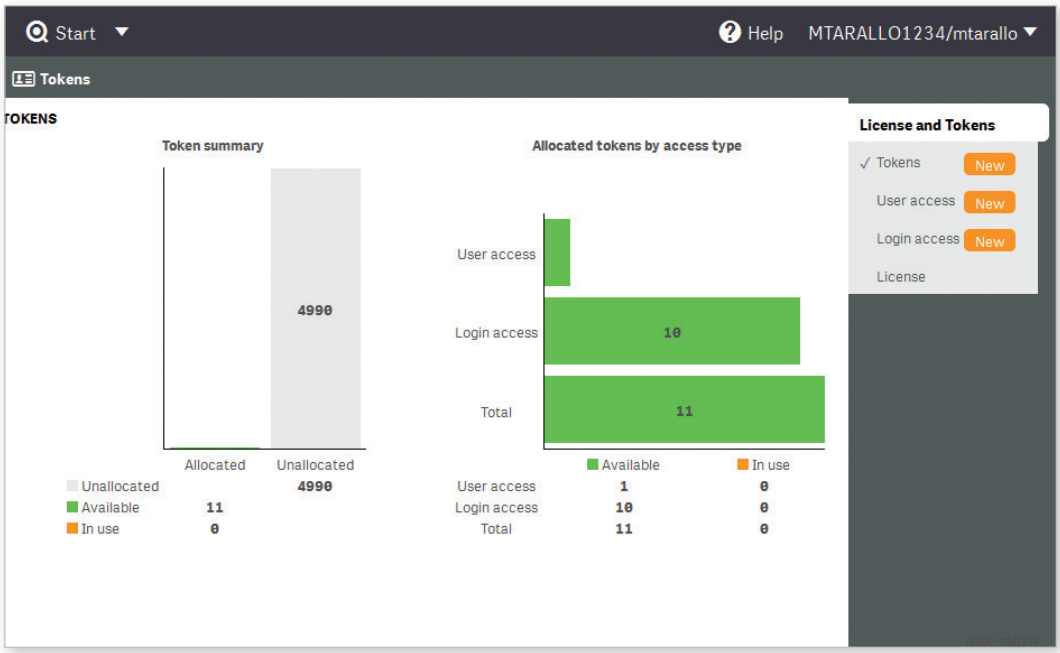
Qlik® Sense implements a flexible and simplified licensing model now based on token Client Access Licenses (CALs). Token licensing has gained traction in the software market and makes it financially feasible for a customer to manage their own software usage. Tokens allow greater flexibility for current product use as well as usage patterns that are difficult to predict. Customers can easily manage and allocate or de-allocate valid access passes from a pool of tokens as they see fit; managed from the Qlik Sense Management Console. Access passes currently include user access and login access.

User Access Pass – Assigned to a unique and identified named user with unlimited use of Qlik Sense apps. It provides access to any Qlik Sense app or resource as authorized by the organization's security policies and rules that have been defined in Qlik Sense.

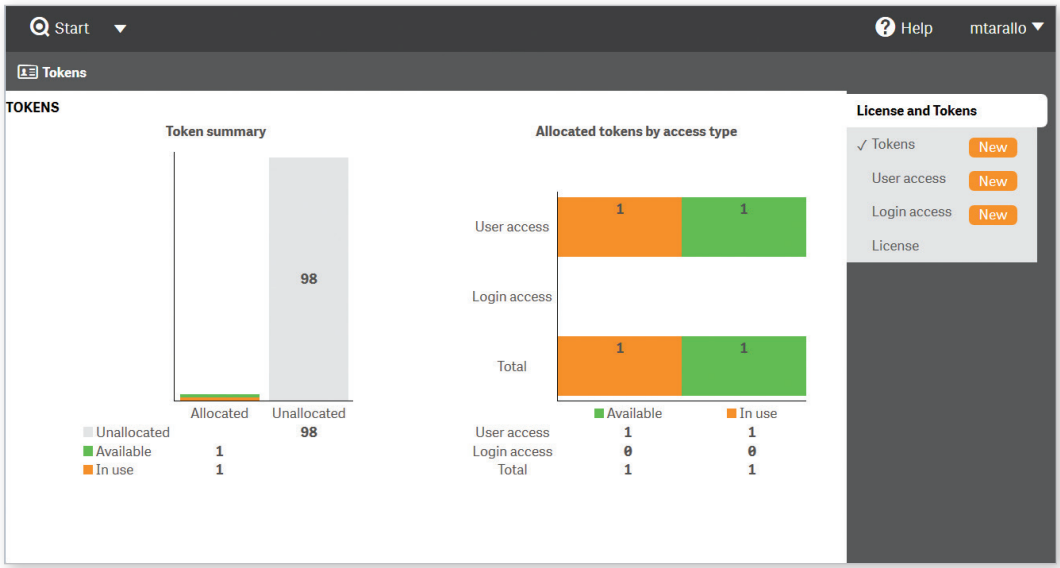
Login Access Pass – Used for general consumption as well as occasional and anonymous access. It provides customized and limited sharing of Qlik Sense with login tracking. Its usage is primarily determined by self-administrating rules once there is an understanding of how the organization will be using Qlik Sense.



Qlik® Sense Management Console: Allocation of token view – available



Qlik Sense Management Console: Allocation of token view – in use



Management Made Easy

The Qlik® Sense Management Console offers a single point of management, monitoring, and governance for the Qlik Sense platform, including multi-node site deployments. It intuitively provides insight, access, and control to all Qlik Sense configuration settings and apps. A host of configurable interface properties, organize and assist with quicker deployments; license, content and resource management; and customizable access controls.

Start Menu – An all-inclusive navigation path that notifies and guides admins to the appropriate task that manages content, resources, configuration settings, and more from anywhere in the console.

Streams – A method for efficiently organizing and securing Qlik Sense apps for others to view. Streams provide groupings of apps to which users have read or publish access. By default Qlik Sense includes a stream named "Everyone."

Tags – Searchable entities that can be attached to apps, access rules, data connectors, nodes, engines, proxies, repositories, and more. Tags make it easy to find what you are looking for.

Security Rules – Attribute-based rules engine that evaluates defined expressions and conditions to grant specific actions to resources such as: Qlik Sense apps, data connections, engine services, streams and sheets. Rules can be created by admins to customize their organization's security needs.

Templates – Stores a predefined set of default properties that are used when creating new authentication resources for a selection of directory providers. Templates make it easy to store and create repeatable configurations.

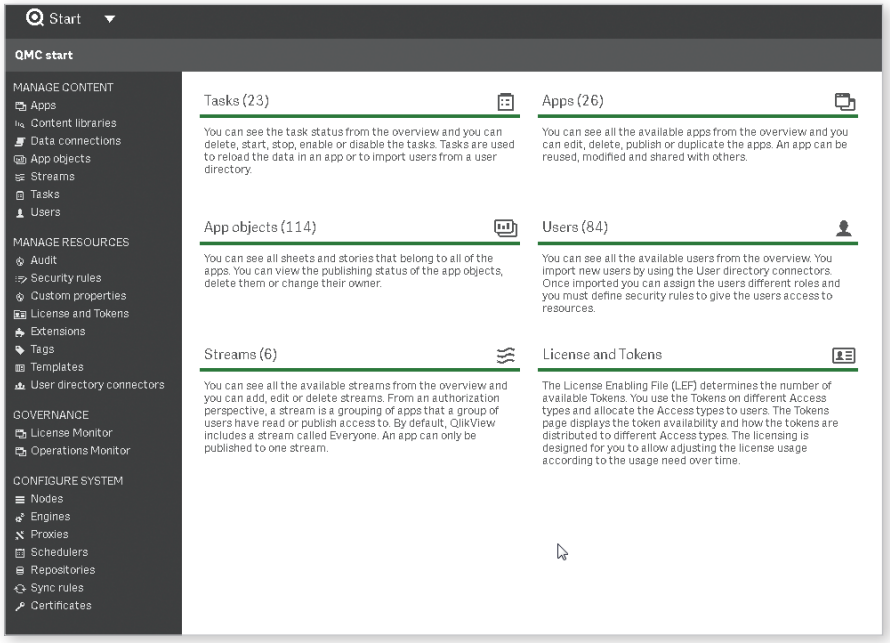
Data Connections – Manages a list of all available data connections defined as part of the Qlik Sense application data access process.

Apps and App Objects – Provides management of all Qlik Sense apps, sheets, and stories that are available in the deployment. Qlik Sense admins can import, export, duplicate, publish, delete and reload apps with a few clicks.

Content Libraries – Enables the creation, storage, and control of static content, such as images to be used in apps and stories.

Tasks – Enables the synchronization of rules and reloading of apps. Tasks can be chained together and execute in a chain or sequence if necessary.

Qlik® Sense Management Console: Home page



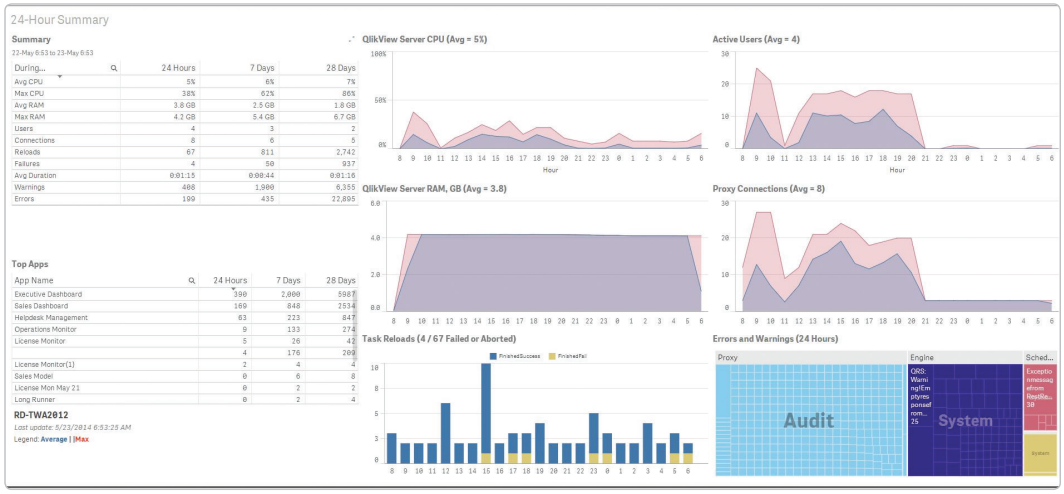
Governed Discovery

Qlik® Sense moves beyond data discovery and paves the way for governed discovery. With Qlik Sense, governed discovery includes more than just people and practices; it includes the tools that add insight, oversight, compliance, and control. BI administrators can monitor and manage various aspects of the deployment; from app usage to server health and resource auditing. It also includes monitoring apps that enable IT administrators to gain an understanding of Qlik Sense operations, system metadata, reload tasks, license usage, and more.

Operations Monitor App

The Qlik Sense Management Console includes governance apps for monitoring system performance and usage on Qlik Sense Server nodes. It provides information about hardware utilization, such as Server memory and CPU usage, active users, and task reloads. It also provides summary and detailed information about errors and warnings in the Qlik Sense environment that can be used for troubleshooting.

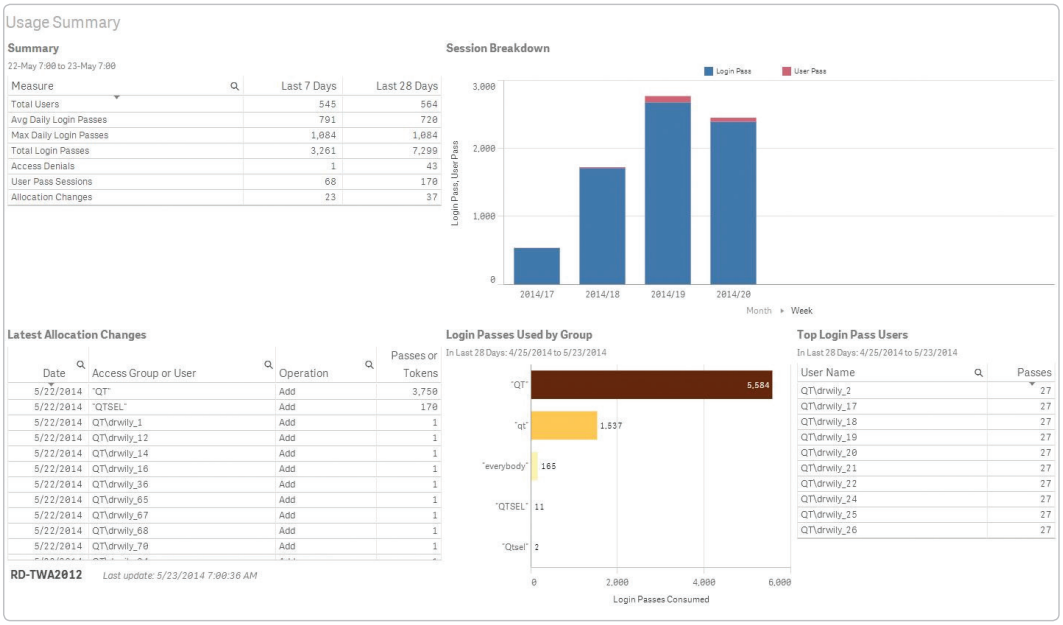
Operations Monitor: 24-hour summary



License Monitor App

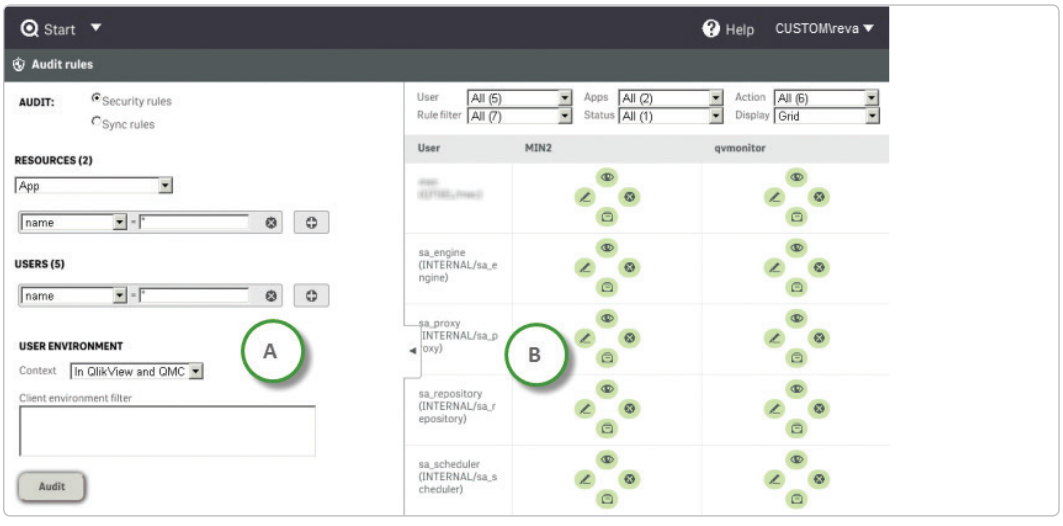
In addition to system performance and usage, the Management Console includes governance apps for monitoring license usage. This app also facilitates monitoring changes to license allocation.

Resource Auditor: Validating app permissions



Resource Auditor - Enables you to query for and audit the security or sync rules that have been assigned to various resources defined in the Qlik® Sense system.

Resource Auditor: Validating app permissions



Additional Resources

Qlik® Sense
http://www.qlik.com/us/explore/products/sense?ga-link=hero

Qlik Sense Community
http://community.qlik.com/community/new-to-qlik-sense

Qlik Sense Platform Videos
http://community.qlik.com/docs/DOC-7144

STRIDE Software Methodology
http://en.wikipedia.org/wiki/STRIDE_%28security%29

Rugged Software Methodology
http://www.infoq.com/news/2010/06/rugged-software-manifesto

Qlik Sense On-line help – keyword “Rugged”

qlik.com