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Diagnostics and Monitoring Tools for Salesforce — Part 2

Identify security risks and monitor your releases

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In Part 1 we covered [illegible]ent and performance relate[illegible]ifecycle Management (ALM) model. Here in Part 2, we review tools available for *security and compliance* and for *release and maintenance* purposes.

Security and compliance use cases

Security is paramount in maintaining your organization. With so many security setting options, how do you know which one is a potential issue and which ones are not conforming to your security policy standards ? Keeping tabs on this can be a daunting task. Wouldn't it be great to have a one-stop shop to show all potential issues, recommendations, and fixes? Salesforce Security Health Check provides exactly that. It doesn't stop there. If you have multiple organizations, then you can pull this information using the Tooling API and display information or take actions on your custom monitoring dashboard. How cool is that?

Another important area to monitor is making sure your customer or partner community is not able to access more information than needed. This is where you can use the Guest User Access Report, which gives you an overview of the objects and permissions guest users can access from your public communities.

Vulnerabilities in your code are equally important and should be monitored throughout your development and build process. Static code analysis should be run manually or automatically to identify security vulnerabilities and other code quality issues. To take it one step further, make it a part of your periodic (either monthly or quarterly) maintenance schedule to run a full static code analysis on your code base. Some popular tools available for this are the Force.com code scanner (offered in partnership with Checkmarx), PMD, and Codescan.io. These tools features hundreds of rules for static code analysis.

Important Security Checks:

- Cross Site Scripting (reflected, stored, and DOM-based)
- SOQL/SOSL Injection
- Access Control Issues (Sharing, FLS)

- Cross site reque
- Arbitrary redire
- Overly permissive postMessage targets

Important Code Quality Checks:

- DML statements inside loops
- SOQL/SOSL inside loops
- Hardcoding Trigger.new[0]
- Hardcoding Trigger.old[0]
- Queries with no Where clause or no LIMIT clause
- Not bulkifying Apex methods

What if you want to monitor these important user, security, and performance metrics in real time and also store them for audibility purposes? Salesforce Shield Event Monitoring provides access to 50+ detailed performance, security, and usage data metrics for your Salesforce apps to help you monitor compliance with your security policies, understand user adoption across your apps, and optimize application performance.

Table 3. Diagnostic tools for security and compliance

Release and maintain use cases

As the application lifecycle transitions to the release and maintain stage, the focus of instrumentation naturally shifts from diagnostics to monitoring. Trust.salesforce.com provides real-time status details on service availability, performance, security, privacy, and compliance. This site includes information for all data centers and is open to the public. You can sign up for email or SMS notifications regarding incidents and maintenance posted to the site. In addition, the My Salesforce Trust Monitor package can help you create a custom list of organizations for monitoring.

A key success metr rate. A good starting point is to i boards. This AppExchange pack tory and adoption of key features. If your organization recently transitioned from Classic to Lightning Experience, the built-in Lightning Usage App includes Lightning usage metrics such as active users in Lightning Experience, number of users switched back to Classic, and most viewed pages.

For Salesforce enterprise customers, it is common to have asynchronous jobs to handle long running tasks. Salesforce provides different monitoring pages for such jobs under the setup section:

- API Usage Notifications — receive email notifications when the number of API requests exceed a threshold
- Apex Flex Queue — view and reorder all batch jobs that have a *holding* status
- Apex Job Queue — monitor the status of all Apex jobs, and optionally abort jobs that are in progress
- Background Jobs — monitor system background jobs in your organization, such as record sharing access recalculation after changes are made to groups, roles, or territories
- Bulk Data Load Jobs — monitor the progress of current bulk data load jobs and the results of recent jobs
- Outbound Message — track status of outbound messages
- Scheduled Jobs — lists all reporting snapshots, scheduled Apex jobs, and dashboards scheduled to refresh
- Time-based Workflow — view and manage pending time-based workflow actions

Over time, with multiple teams working on your organization, it can accumulate a lot of technical debt, especially if there is a lack of governance. In Salesforce terms, it is the combination of inefficient customizations, integrations, and processes that grow unchecked over time, that lead to a system that lacks scalability, maintainability,

usability, and agility ging. That's where
the Salesforce Opti ple tool that takes
a snapshot of your Salesforce organization and looks for potential problems in your implementation. Salesforce Optimizer gives you detailed data on more than 50 metrics covering everything from storage, fields, custom code, custom layouts for objects, reports and dashboards, and much more. For each metric it provides:

- What it found in your organization
- What you should do about it
- Resources to learn more

Here's an example. Imagine that your Opportunity object has 40+ workflow rules. Many of these may have complex entry criteria. This is where the optimizer report will come to the rescue and show you the issue and a recommendation on how to fix it. In this case, there might be too many workflow rules on objects, which can increase the time to save and load records. The recommendation is to consolidate the workflow rules on an object into a single process with Lightning Process Builder. More than 50 similar metrics can help an administrator to maintain the organization and keep performance high.

Scenario	How Optimizer Helps
My users are complaining about slow performance and busy page layouts	Optimizer combs through all your custom fields and page layouts and identifies potential candidates for cleanup.
What Salesforce governor limits am I approaching	Get details on common governor limits, so you can avoid them before things start breaking.
I can barely keep up with Salesforce's releases. What new features am I missing out on?	Optimizer recommends new features that provide real value to users
Planning the move from Classic to Lightning Experience	Optimizer shows you which fields, layouts, automation, Apex code, and other configurations you're not using. Then reboot before the move, and only transition the stuff you need

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We know what you are thinking now: “Wouldn’t it be great to have a tool that monitors the performance of the organization and many of these metrics in real time, so that I can act and prevent issues before they occur?” Yes, we do have a solution. As touched upon in the previous section, Salesforce Real-Time Event Monitoring, built upon the Event Monitoring logs provides near real-time access to key performance, security, and usage data via platform events.

Tool	Features
Apex Flex Queue	Use the Apex Flex Queue page to view and reorder all batch jobs that have a status of Holding. Or reorder your batch jobs programmatically using Apex code.
Apex Job Queue	Lists all Apex jobs (e.g. batch, queueable, future) that have been submitted for execution
Background Jobs	Monitor system background jobs in your organization
Bulk Data Load Jobs	Track the status of bulk data load jobs (from dataloader.io or custom program using bulk API)
Case Escalation Queue	Monitor the time-based action placed on the Case Escalation Queue
FieldTrip, FieldFootPrint	Analyze field usage data to help in data governance and field cleanup activity
Inbound Email Snapshots	Inbound email snapshots capture a copy of inbound email messages, helping you diagnose issues with email services such as Email to Salesforce, Email-to-Case, and Apex email services.
My Salesforce Trust Monitor	Easy way to see trust status for your many Orgs in one place!!
Outbound Message	Track the status of an outbound message
Salesforce Adoption	This appExchange package focus on identifying whether

Salesforce Adoption Dashboard	eatures in
Salesforce API Usage Notification	Sign up to receive email notification when your org exceeed the API usage in a span of time.
Salesforce Lightning Usage App	Monitor adoption metrics, like daily active Lightning Experience users, the number of users switching back to Salesforce Classic, and the most visited pages in Lightning Experience. Trailhead: Lightning Experience Performance Optimization. Help Article: Improve Performance and Speed in Lightning Experience
Salesforce Optimizer App	Salesforce Optimizer provides recommendations for feature improvement, clean up customizations, reduce complexity, and drive feature adoption. Receive a personalized report with advice and recommendations about how you can improve your implementation.
Salesforce Shield Event Monitoring	Real-Time Event Monitoring gives you access to detailed performance, security, and usage data on all your Salesforce apps. See who is accessing critical business data when, and from where.
Scheduled Jobs	Lists all reporting snapshots, scheduled Apex jobs, and dashboards scheduled to refresh
Time-based Workflow	Use the workflow queue to view pending actions and cancel them if necessary.
Trust.salesforce.com	Salesforce community's home for real-time information on system performance and security

Table 4. Monitoring tools for release and maintenance

Conclusion

Monitoring and diagnostic tools help you to identify issues before they snowball into bigger problems. Keep this list of tools handy and make them part of your ALM processes. Proactively diagnosing and acting on issues can save you a lot of time, effort, and cost later. Be sure to bookmark the Salesforce Diagnostics and Monitoring

Tools Checklist , wh and Part 2 of this series.

About the Authors

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