100 XP

Analyze alerts to establish a baseline

8 minutes

Alerts proactively notify you when the monitoring system detects important issues. They allow you to identify and address those issues before the users of your system notice them.

Here, you learn about the alert experience in Azure Monitor, which includes Log Analytics and Application Insights.

The meeting

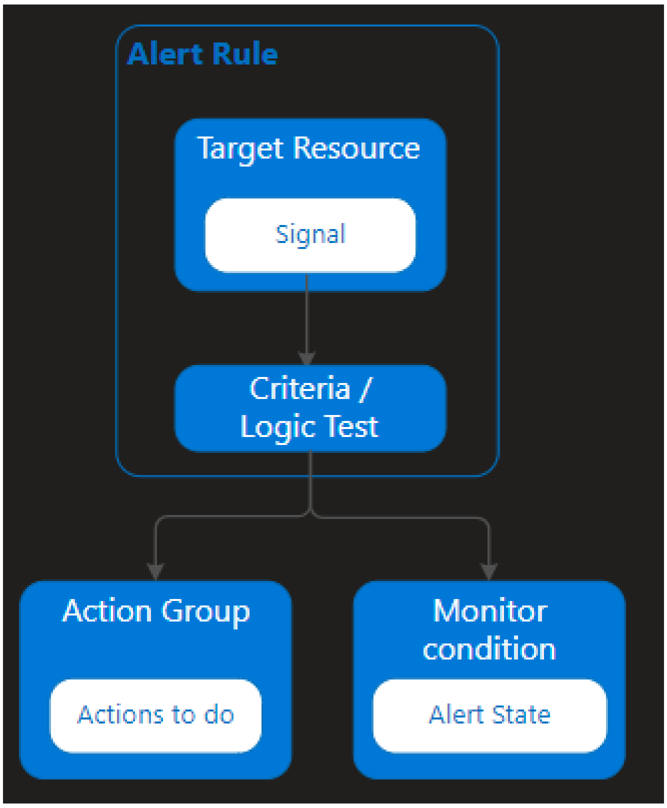
Andy: Mara, you said our SRE will need good analytic skills, which makes sense.

Mara: Maybe we could ask them to walk us through how they analyze an alert and determine the problem. Also, how do they write the alert rules to get the right information and to distinguish between what's normal and what's not.

Tim: They need to know how to establish a baseline.

Analyze alerts to establish a baseline

The team needs to understand how they can establish a baseline with Application Insights. This diagram shows the flow of alerts:



Alert rules are separated from alerts and the actions that are taken when an alert fires.

The alert rule captures the target and criteria for alerting. The alert rule can be in an enabled or a disabled state. Alerts only fire when enabled.

The key attributes of an alert rule are:

- **Target Resource**

  Target Resource defines the scope and signals available for alerting. A target can be any Azure resource. Example targets include virtual machines, storage accounts, virtual machine scale sets, Log Analytics workspaces, or Application Insights resources. For certain resources (like virtual machines), you can specify multiple resources as the target of the alert rule.

- **Signal**

  Signals are emitted by the target resource and can be of several types: Metric, Activity log, Application Insights, and Log.

- **Criteria / Logic Test**

  Criteria is a combination of Signal and Logic applied on a Target resource. Examples include:
  - CPU utilization above 70%.
  - Server response time greater than 4 ms.
  - Log queries that produce more than 100 results.

- **Action Group**

  Action Group is a specific action that's taken when the alert is fired. To learn more, see Create and manage action groups in the Azure portal.

What you can alert on

You can alert on metrics and logs as described in Sources of monitoring data for Azure Monitor. These alerts include, but are not limited to:

- Metric values.
- Log search queries.
- Activity Log events.
- Health of the underlying Azure platform.
- Tests for web site availability.

Manage alerts

You can set the state of an alert to specify where it is in the resolution process. When the criteria specified in the alert rule is met, and an alert is created or fired, it has a status of **New**. You can change the status when you acknowledge an alert and when you close it. All state changes are stored in the alert's history.

The following alert states are supported:

State	Description
New	The issue has been detected and has not yet been reviewed.
Acknowledged	An administrator has reviewed the alert and started working on it.
Closed	The issue has been resolved. After an alert has been closed, you can reopen it by changing it to another state.

Alert state is different and independent of the monitor condition. Alert state is set by the user. Monitor condition is set by the system. When an alert fires, the alert's monitor condition is set to **fired**. When the underlying condition that caused the alert to fire clears, the monitor condition is set to **resolved**. The alert state isn't changed until the user changes it. Learn how to Manage alert and smart group states.

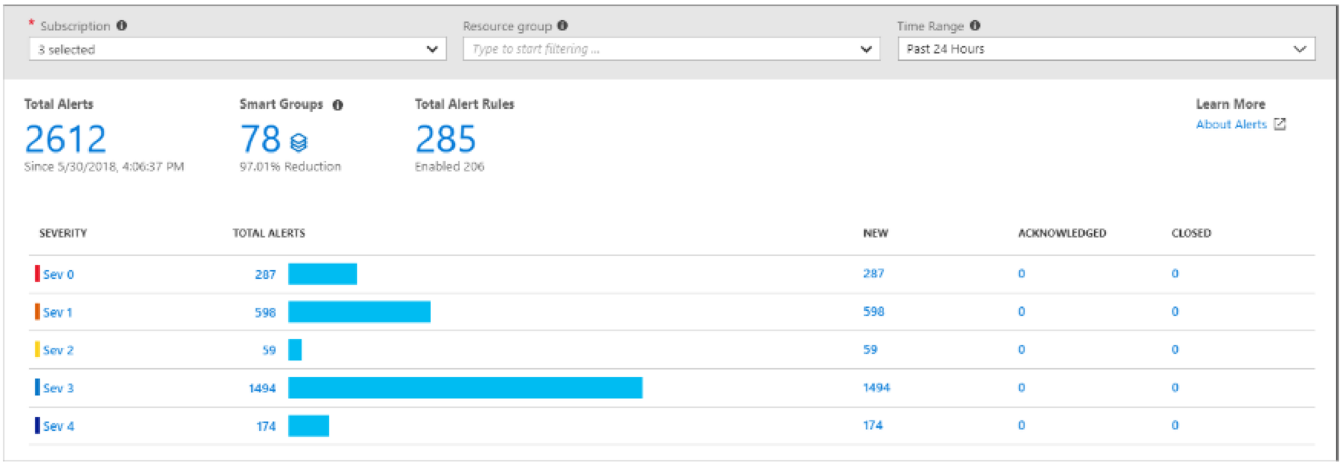
Smart groups

Smart groups are aggregations of alerts, based on machine learning algorithms, which can help reduce alert noise and aid in troubleshooting. Learn more about Smart groups and how to Manage smart groups.

Alerts experience

The default **Alerts** page provides a summary of alerts that are created within a particular time window. It displays the total alerts for each severity with columns that identify the total number of alerts in each state for each severity. Select any of the severities to open the **All Alerts** page filtered by that severity.

Here's an example:



* Subscription: 3 selected

Resource group: Type to start filtering ...

Time Range: Past 24 Hours

Total Alerts: 2612 (Since 5/30/2018, 4:06:37 PM)

Smart Groups: 78 (97.01% Reduction)

Total Alert Rules: 285 (Enabled 206)

Learn More: About Alerts

SEVERITY	TOTAL ALERTS	NEW	ACKNOWLEDGED	CLOSED
Sev 0	287	287	0	0
Sev 1	598	598	0	0
Sev 2	59	59	0	0
Sev 3	1494	1494	0	0
Sev 4	174	174	0	0

You can filter this view by selecting values in the drop-down menus at the top of the page.

Column	Description
Subscription	Select up to five Azure subscriptions. Only alerts in the selected subscriptions are included in the view.
Resource group	Select a single resource group. Only alerts with targets in the selected resource group are included in the view.
Time range	Only alerts fired within the selected time window are included in the view. Supported values are the past hour, the past 24 hours, the past 7 days, and the past 30 days.

Select the following values at the top of the **Alerts** page to open another page.

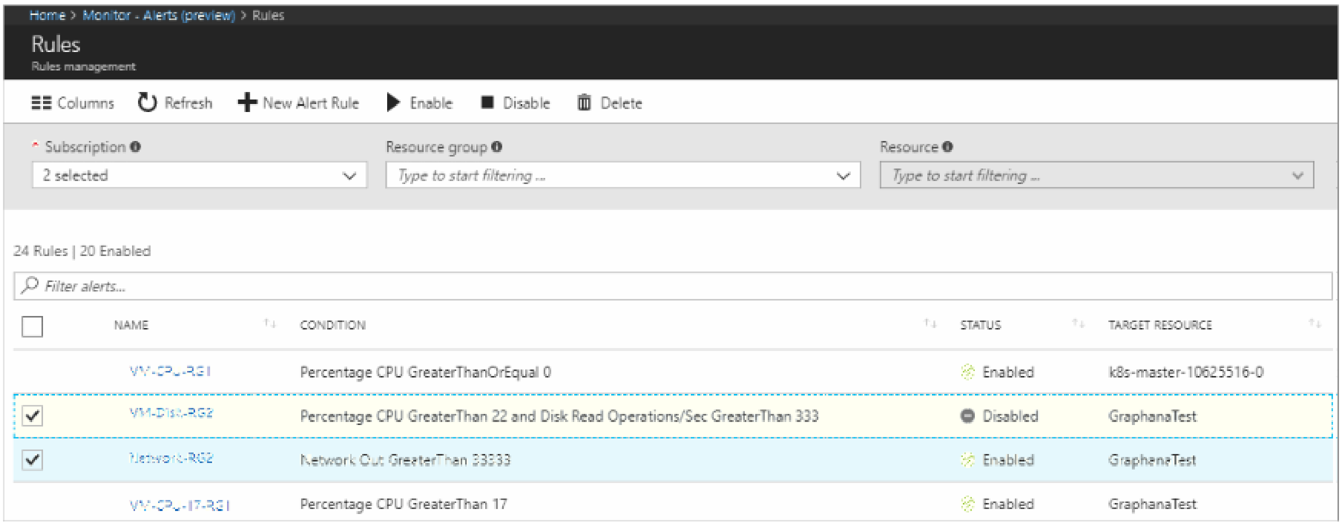
Value	Description
Total alerts	The total number of alerts that match the selected criteria. Select this value to open the **All Alerts** view with no filter.

Value	Description
Smart groups	The total number of smart groups that were created from the alerts that match the selected criteria. Select this value to open the smart groups list in the **All Alerts** view.
Total alert rules	The total number of alert rules in the selected subscription and resource group. Select this value to open the **Rules** view filtered on the selected subscription and resource group.

Manage alert rules

Select **Manage alert rules** to show the **Rules** page. The rules page is a single place for managing all alert rules across your Azure subscriptions. It lists all alert rules and can be sorted based on target resources, resource groups, rule name, or status. Alert rules can also be edited, enabled, or disabled from this page.

Here's an example:



* Subscription: 2 selected

Resource group: Type to start filtering ...

Resource: Type to start filtering ...

24 Rules | 20 Enabled

Filter alerts...

□	NAME	CONDITION	STATUS	TARGET RESOURCE
	VM-CPU-RG1	Percentage CPU GreaterThanOrEqual 0	Enabled	k8s-master-10625516-0
☑	VM-Disk-RG2	Percentage CPU GreaterThan 22 and Disk Read Operations/Sec GreaterThan 333	Disabled	GraphanaTest
☑	Network-RG2	Network Out GreaterThan 33333	Enabled	GraphenaTest
	VM-CPU-17-RG1	Percentage CPU GreaterThan 17	Enabled	GraphanaTest

Create an alert rule

Alerts can be authored in a consistent manner regardless of the monitoring service or signal type. All fired alerts and related details are available from a single page.

You create a new alert rule with the following three steps:

1. Pick the target for the alert.
2. Select the signal from the available signals for the target.
3. Specify the logic to be applied to data from the signal.

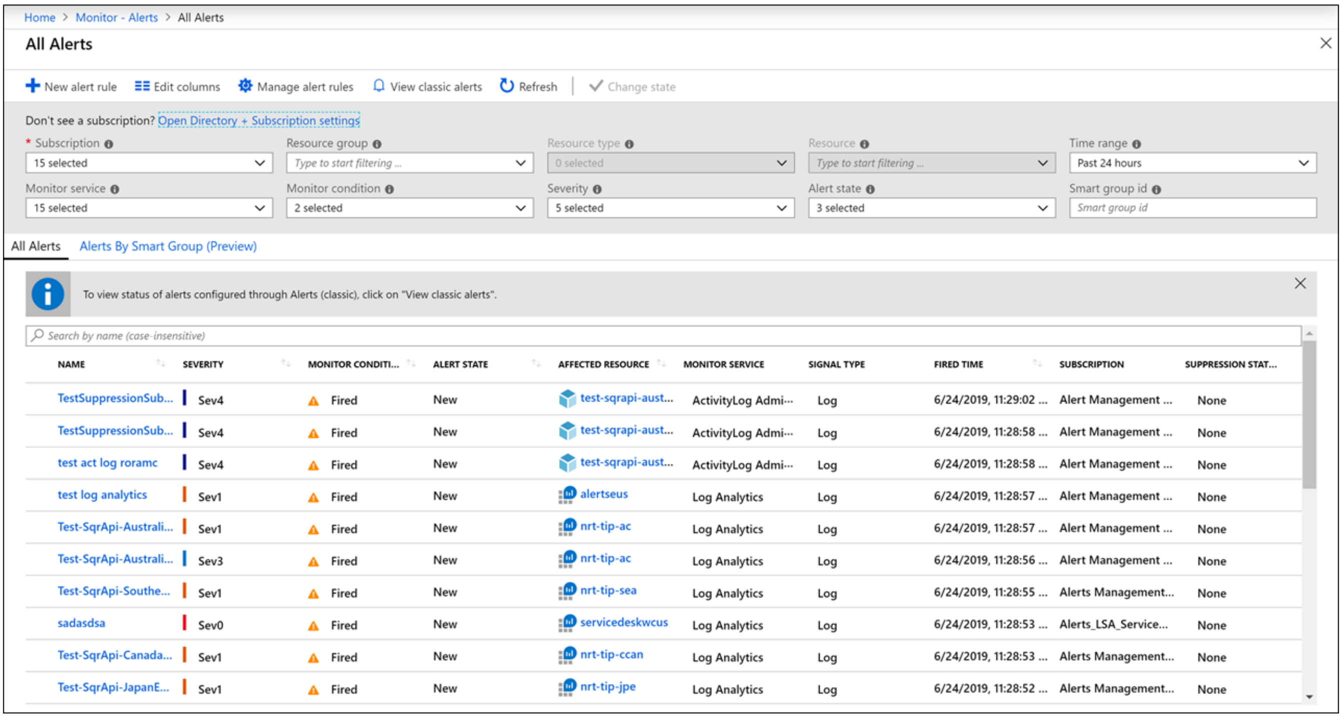
This simplified authoring process no longer requires you to know the monitoring source or signals that are supported before selecting an Azure resource. The list of available signals is automatically filtered based on the target resource that you select. Also, based on that target, you are guided through defining the logic of the alert rule automatically.

You can learn more about how to create alert rules in Create, view, and manage alerts using Azure Monitor.

Alerts are available across several Azure monitoring services. For information about how and when to use each of these services, see Monitoring Azure applications and resources.

The All Alerts page

Click on **Total Alerts** to see the **All Alerts** page. Here, you can view a list of alerts that were created within the selected time window. You can view either a list of the individual alerts or a list of the smart groups that contain the alerts. Select the banner at the top of the page to toggle between views.



Don't see a subscription? Open Directory + Subscription settings

* Subscription	Resource group	Resource type	Resource	Time range
15 selected	Type to start filtering ...	0 selected	Type to start filtering ...	Past 24 hours

Monitor service	Monitor condition	Severity	Alert state	Smart group id
15 selected	2 selected	5 selected	3 selected	Smart group id

To view status of alerts configured through Alerts (classic), click on "View classic alerts".

NAME	SEVERITY	MONITOR CONDITI...	ALERT STATE	AFFECTED RESOURCE	MONITOR SERVICE	SIGNAL TYPE	FIRED TIME	SUBSCRIPTION	SUPPRESSION STAT...
TestSuppressionSub...	Sev4	Fired	New	test-sqrapi-aust...	ActivityLog Admi...	Log	6/24/2019, 11:29:02 ...	Alert Management ...	None
TestSuppressionSub...	Sev4	Fired	New	test-sqrapi-aust...	ActivityLog Admi...	Log	6/24/2019, 11:28:58 ...	Alert Management ...	None
test act log roramc	Sev4	Fired	New	test-sqrapi-aust...	ActivityLog Admi...	Log	6/24/2019, 11:28:58 ...	Alert Management ...	None
test log analytics	Sev1	Fired	New	alertseus	Log Analytics	Log	6/24/2019, 11:28:57 ...	Alert Management ...	None
Test-SqrApi-Australi...	Sev1	Fired	New	nrt-tip-ac	Log Analytics	Log	6/24/2019, 11:28:57 ...	Alert Management ...	None
Test-SqrApi-Australi...	Sev3	Fired	New	nrt-tip-ac	Log Analytics	Log	6/24/2019, 11:28:56 ...	Alert Management ...	None
Test-SqrApi-Southe...	Sev1	Fired	New	nrt-tip-sea	Log Analytics	Log	6/24/2019, 11:28:55 ...	Alerts Management...	None
sadasdsa	Sev0	Fired	New	servicedeskwcus	Log Analytics	Log	6/24/2019, 11:28:53 ...	Alerts_LSA_Service...	None
Test-SqrApi-Canada...	Sev1	Fired	New	nrt-tip-ccan	Log Analytics	Log	6/24/2019, 11:28:53 ...	Alerts Management...	None
Test-SqrApi-JapanE...	Sev1	Fired	New	nrt-tip-jpe	Log Analytics	Log	6/24/2019, 11:28:52 ...	Alerts Management...	None

You can filter the view by selecting the following values in the dropdown menus at the top of the page.

Column	Description
Subscription	Select up to five Azure subscriptions. Only alerts in the selected subscriptions are included in the view.
Resource group	Select a single resource group. Only alerts with targets in the selected resource group are included in the view.

Column	Description	
Resource type	Select one or more resource types. Only alerts with targets of the selected type are included in the view. This column is only available after a resource group has been specified.	
Resource	Select a resource. Only alerts with that resource as a target are included in the view. This column is only available after a resource type has been specified.	
Severity	Select an alert severity, or select **All** to include alerts of all severities.	
Monitor condition	Select a monitor condition, or select **All** to include alerts of conditions.	
Alert state	Select an alert state, or select **All** to include alerts of states.	
Monitor service	Select a service, or select **All** to include all services. Only alerts created by rules that use service as a target are included.	
Time range	Only alerts fired within the selected time window are included in the view.	Supported values are the past hour, the past 24 hours, the past 7 days, and the past 30 days.

Select **Columns** at the top of the page to select which columns to display.

The final step

Andy: OK, that's quite a list of requirements. I'll write it up and we can review it before I take it to Irwin. I think we can make a good case for opening a new position. Our success with the pipeline has given us much credibility.

The last thing I want to bring up affects all of us. Pushing out to production exposes us a lot more. There will inevitably be problems, failures, stress, and mistakes. How do we want to handle that?

Next unit: Blameless postmortems

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