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Workbench User's Guide

AD Insights Console

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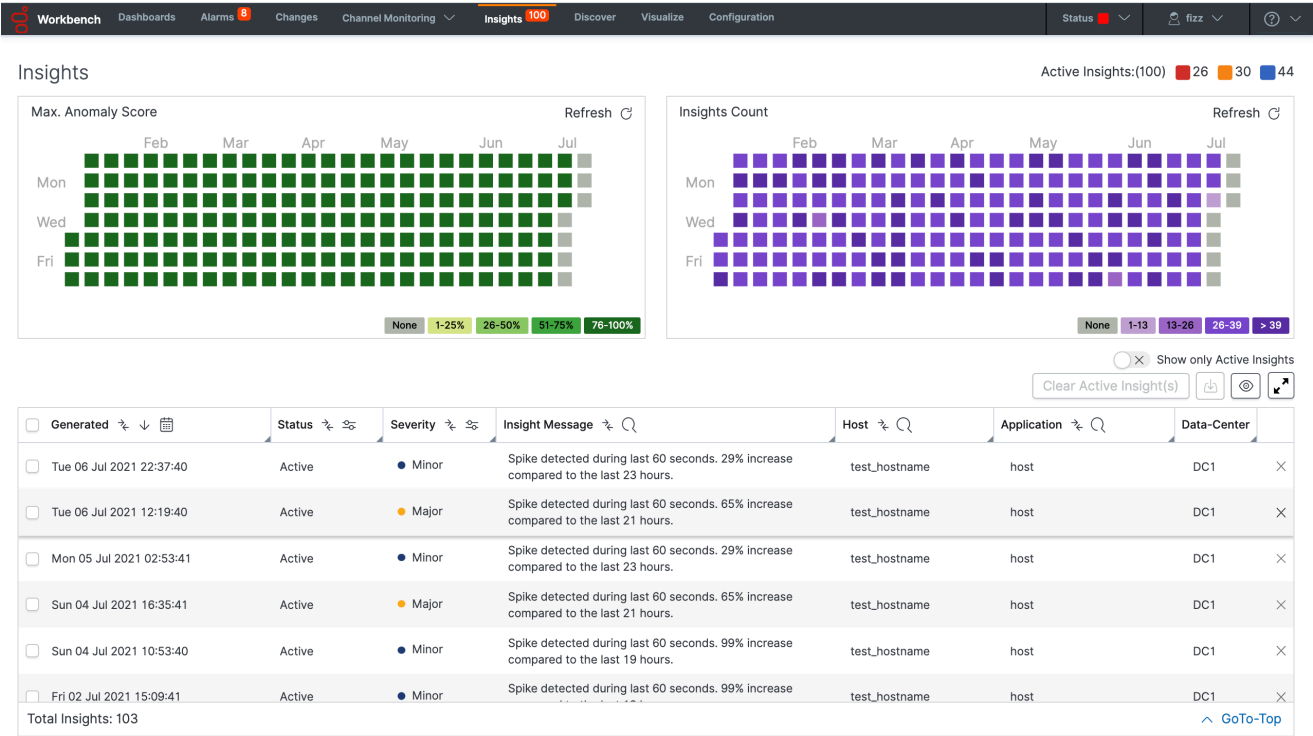
AD Insights Console

The Workbench Insights Console is a dedicated console page that displays:

- a real-time statistics summary of **Active** Insights/anomalies - **Critical, Major, Minor**
- a statistics summary **Heat-map** of historic Insights/anomalies - **Score** and **Count** - not real-time; click **Refresh** to update
- a real-time **Data-table** of **Active** and **Closed** Insights/Anomalies

Important

- Workbench Insights are not necessarily always actionable, they may be merely informational events that the user can review to determine if further investigation/analysis is required
 - i.e. utilize the Workbench Dashboards and Visualizations to dig deeper and determine if the Workbench Insights are truly business impacting issues
- Insights are not automatically closed and are required to be manually closed. Only closed insights are purged from the system after exceeding the environments configured retention period.
- In case of a **switchover**, where an Additional Anomaly Detection node is elevated to Primary, a period of **1 hour** is reserved to ensure all models are accurately updated across nodes to reflect current state. During this period, new Workbench Insights will **not** be available.



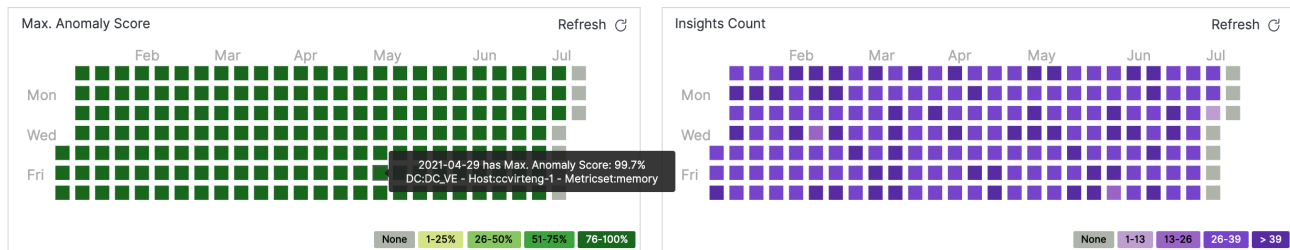
Statistics Summary

The statistics summary of Active Insights, displays Active total Critical (■), Major(■), and Minor(■)

Active Insights:(41) ■10 ■17 ■14

Historic Heat-maps Summary

The statistics summary of historic Insights displays the last 6 months of summary data in the following graphical representation:



Max. Anomaly Score

The **Max. Anomaly Score** heat-map panel displays the *maximum* anomaly score detected by AD for each day.

Each square shows the specific source with the highest anomaly score that day: date, anomaly score value, data center name, host name and metric name. In this graph, the ranges are set as follows:

- 1% - 25%: Normal Behavior
- 25% - 50%: Minor Insights
- 51% - 75%: Major Insights
- 76% - 100%: Critical Insights

Insights Count

The **Insights Count** heat-map panel displays the number of anomalies detected with an anomaly score greater than 25% for each day.

Each square shows the date and the number of Insights detected that day; the ranges are calculated based on the maximum value detected during the last 6 months.

Important

- The AD Heat-maps display data based on the Workbench data Retention Period parameter
- The Workbench Retention Period is 30 days by default; therefore, by default the AD Heat-maps will show the last 30 days of AD Insights
- If/when the Workbench Retention Period is changed, the AD Heat-map display will be reflected accordingly; up to a maximum of the last 6 months of AD Insights
- Details of the Workbench Retention Period setting can be found [here](#)

Data-Table

The real-time Insights Console data-table displays Workbench Insights - Machine Learning Anomalies raised with an anomaly score greater than 25%.

☐ Show only Active Insights

<input type="checkbox"/> Generated	Status	Severity	Insight Message	Host	Application	Data-Center	
<input type="checkbox"/> Mon 28 Jun 2021 12:12:39	Active	Minor	Spike detected during last 60 seconds. 6.0% increase compared to the last 2.0 hours.	CC-CHE-CTIDB1	host	APAC	×
<input type="checkbox"/> Mon 28 Jun 2021 07:38:33	Active	Major	Spike detected during last 51 seconds. 14.0% increase compared to the last 0.0 hours.	cc-dev-chn-w-2	host	IND	×
<input type="checkbox"/> Mon 28 Jun 2021 07:31:41	Active	Minor	Spike detected during last 60 seconds. 72.0% increase compared to the last 18.0 hours.	cc-dev-chn-w-2	host	IND	×
<input type="checkbox"/> Mon 28 Jun 2021 03:45:21	Active	Major	Drop detected during last 60 seconds. 7.0% decrease compared to the last 24.0 hours.	cc-tools-chn-dev-1	host	IND	×
<input type="checkbox"/> Mon 28 Jun 2021 02:30:28	Active	Critical	Spike detected during last 60 seconds. 16.0% increase compared to the last 24.0 hours.	cc-tools-chn-dev-1	host	IND	×
<input type="checkbox"/> Mon 28 Jun 2021 02:30:28	Active	Critical	Spike detected during last 60 seconds. 1.0% increase compared to the last 24.0 hours.	cc-tools-chn-dev-1	host	IND	×

Data-Table Default Columns

- **Generated** - The date and time of an insight anomaly generation. (Note: Timestamps are stored in UTC and translated to local time based on the Users Browser Time-Zone)
- **Status** - Indicates insight status is Active or Closed.
- **Severity** - Denotes the severity of the anomaly . It can be Critical , Major, and Minor.
- **Insight Message** - The message about the anomaly event in text format.
- **Host** - The name of the Host/Server associated to the anomaly event.
- **Application** - The name of the application associated to the anomaly event.
- **Data-Center** - The name of the Data-Center associated to the anomaly event.

Data-Table Additional Columns

Note: Additional column able to select using show/hide column option.

- **ID** - The internal ID of the anomaly event.
- **Cleared** - The date and time at when the anomaly event was cleared.
- **IP** - The name of the IP associated to the anomaly event.
- **Metric Name** - it's the specific metric monitored by a host or application. Can be CPU, Memory, Disk, Network .
- **Anomaly Score** - core value assigned by AD, which determines how unusual the detected behavior in the metric is compared to its history

Insights Table Options

- **Show Only Active Insights**: a toggle filter to show only the active Insights

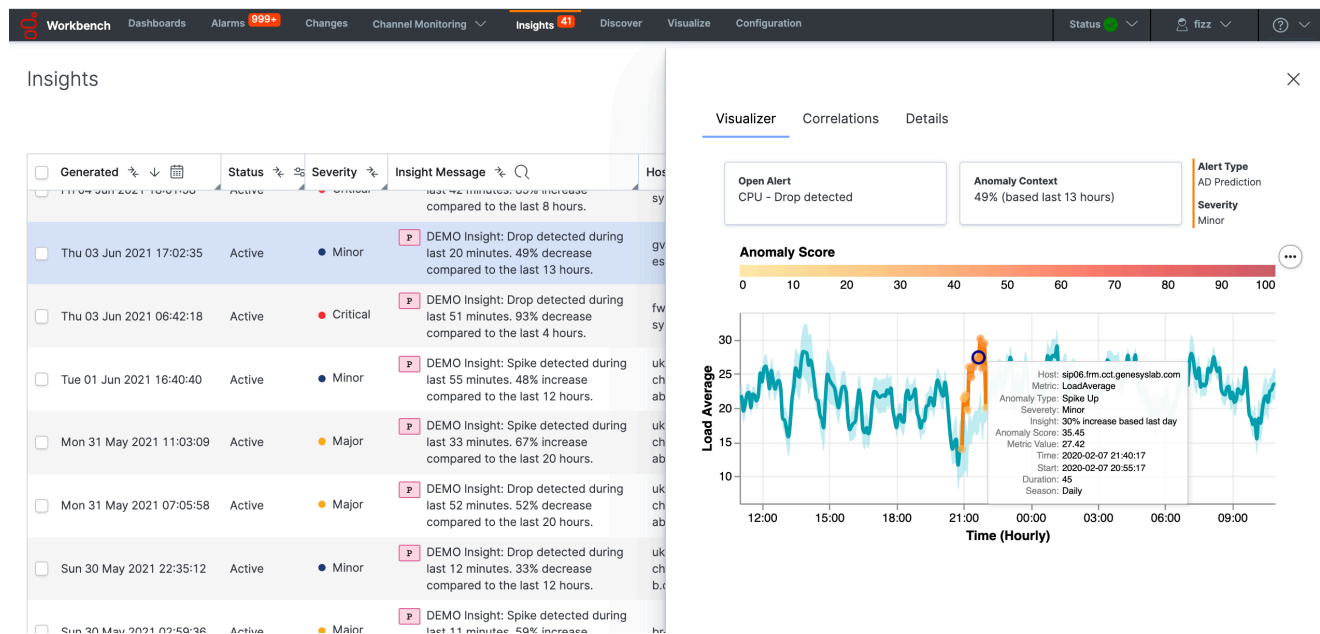
- Clear Active Insight: a DataTable row icon to Close/Clear a single Insight
- Clear Active Insight(s): a button to Close/Clear multiple/selected (max 200 at a time) active Insights
- Show/Hide Column: an option to Show/Hide specific DataTable columns
- Export As XLS/PDF: export selected DataTable rows as PDF or Excel document
- Normal/Full-Screen - To toggle between the normal and full screen mode for data table
- GoTo-Top: an option link to navigate to top of the Insights table

Important

- Post a Workbench Data-Center sync, **only Active insights** will be synced.

Insights Detail View

By clicking a particular Insight row in the Data-Table an Insight detail dialog will be presented with Visualizer, Correlations, and Detail tabs.



Visualizer

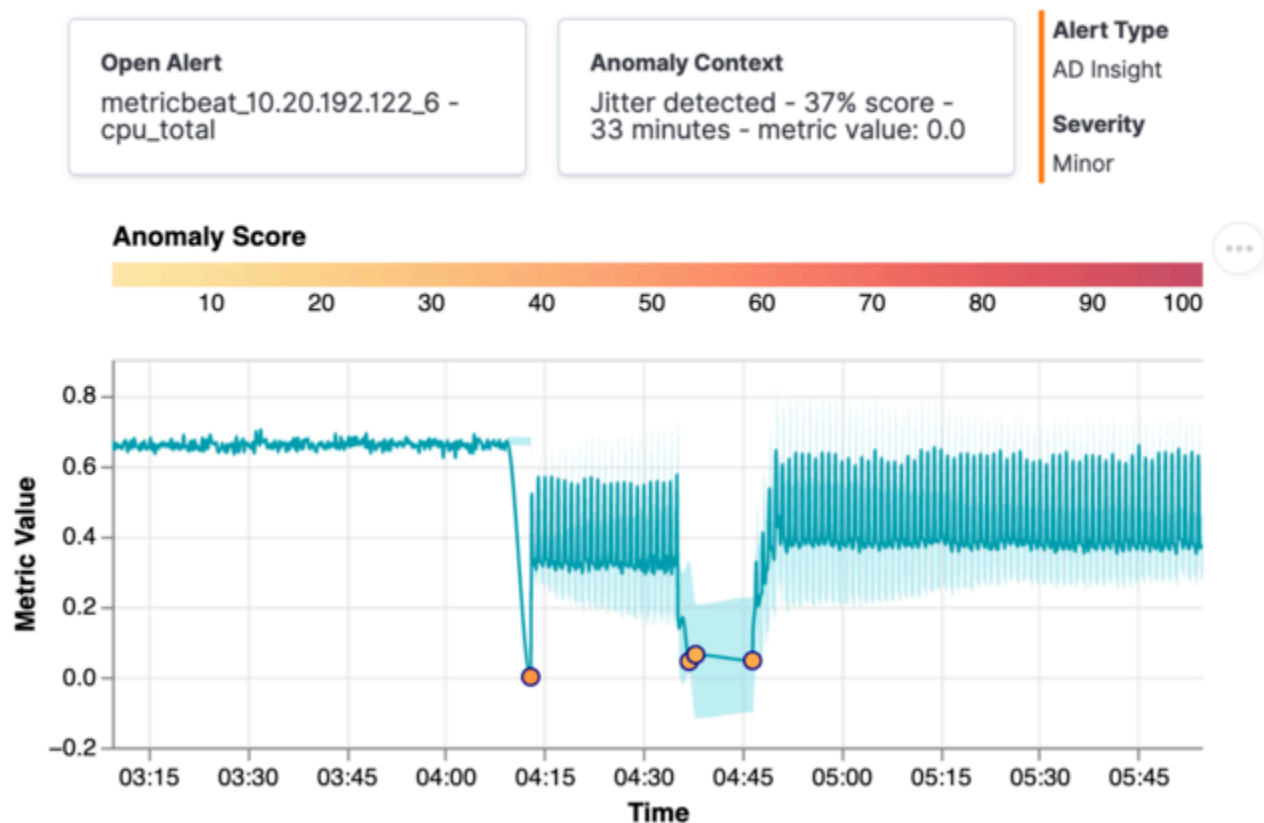
Display Insights context in graphical view. Main Sections:

- Insight Source: Hostname - metric name
- Insight Context: {anomaly_type} - {anomaly_score} - {duration_time} - {metric_value}
 - In case where the Insights have many Anomaly Points; the Anomaly Score is the maximum score for

each Anomaly Point.

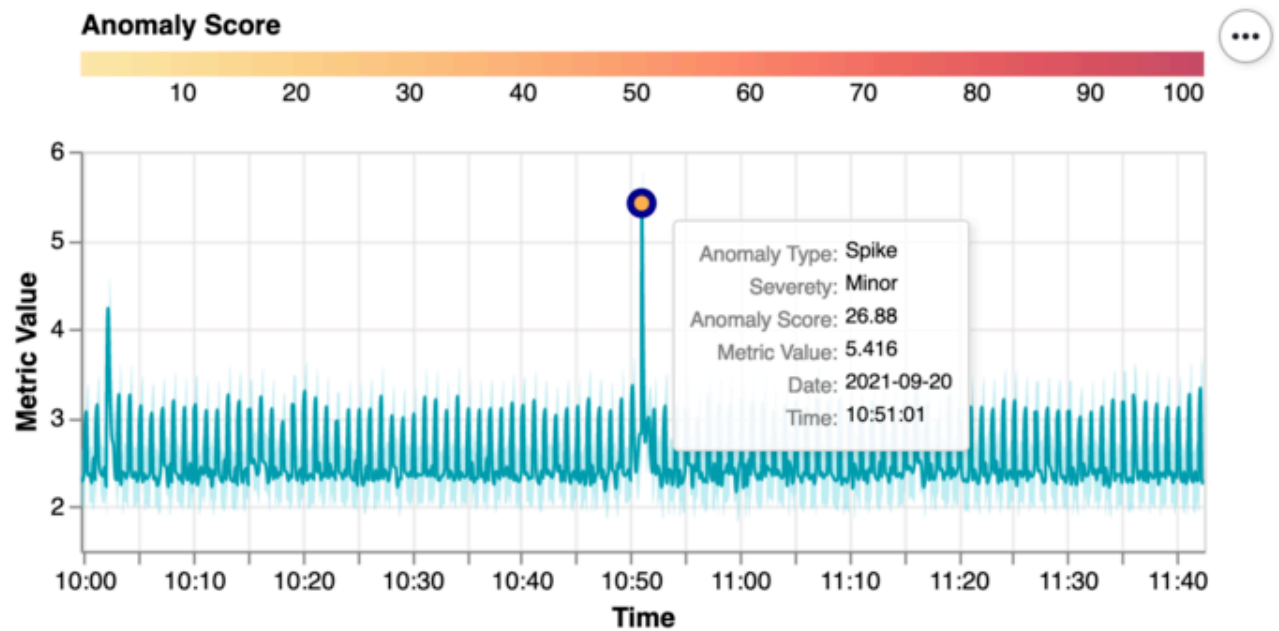
- Insight duration is defined as the time between the first and last anomaly point in the same hour; when this time is smaller than 15 minutes it will be displayed in seconds.
- Alert Type: AD Insight or AD Prediction
- Severity: Minor, Major or Critical
- Anomaly Graph: detailed zoom on anomalies detected.
 - Metric Value with information from one hour before and one hour after.
 - Normal regions to show commons ranges and variability.
 - Anomaly points (circles): anomaly type, severity, anomaly score, metric value, date and time.
 - Anomaly Score Legend

Visualizer Correlations Details

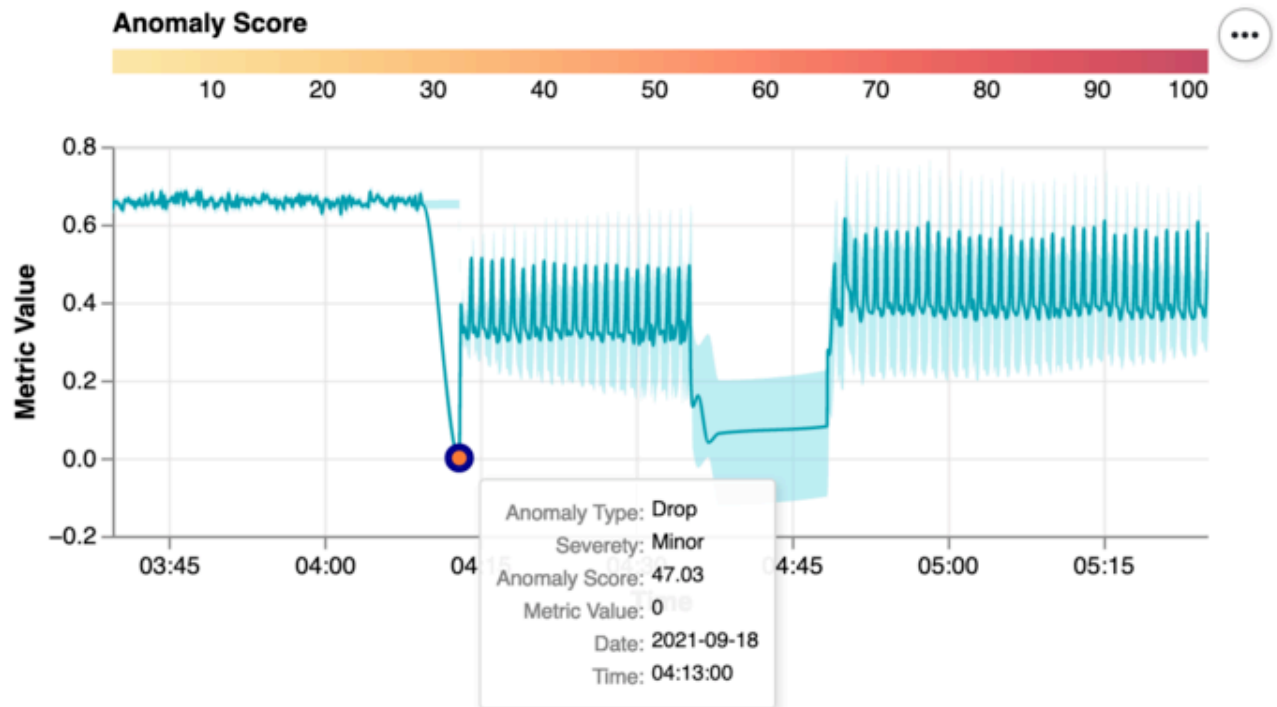


AD is able to detect four types of anomalies:

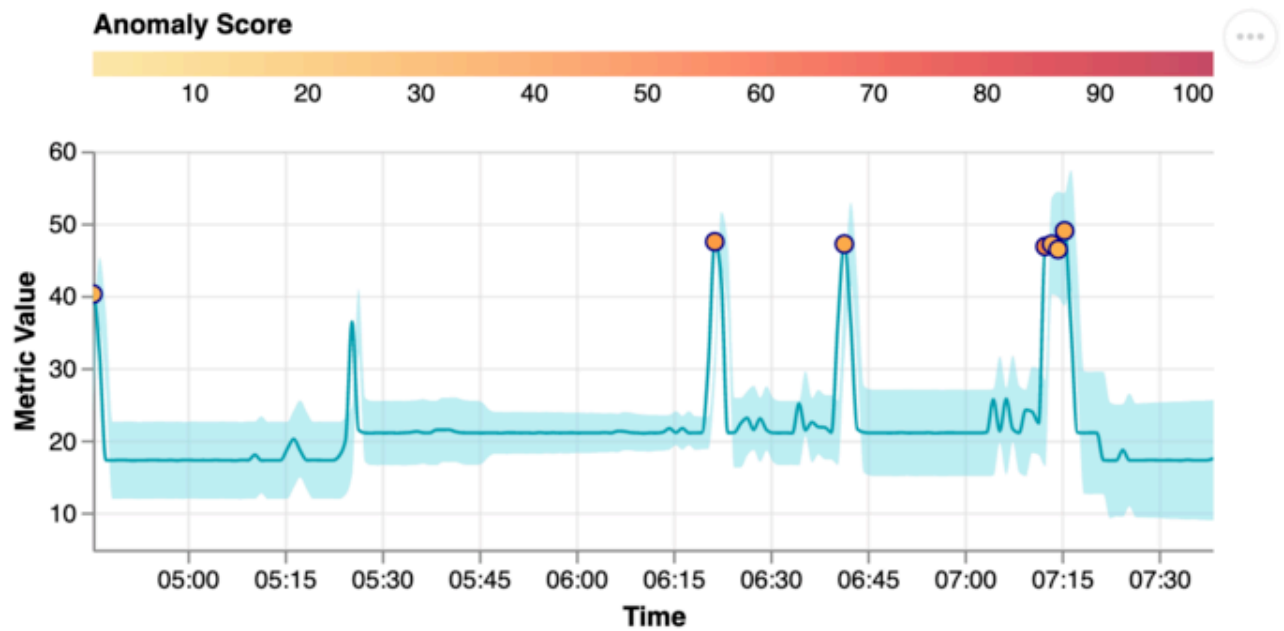
- Spike: is considered as an acute increase in the metric value followed by an immediate return to the underlying level.



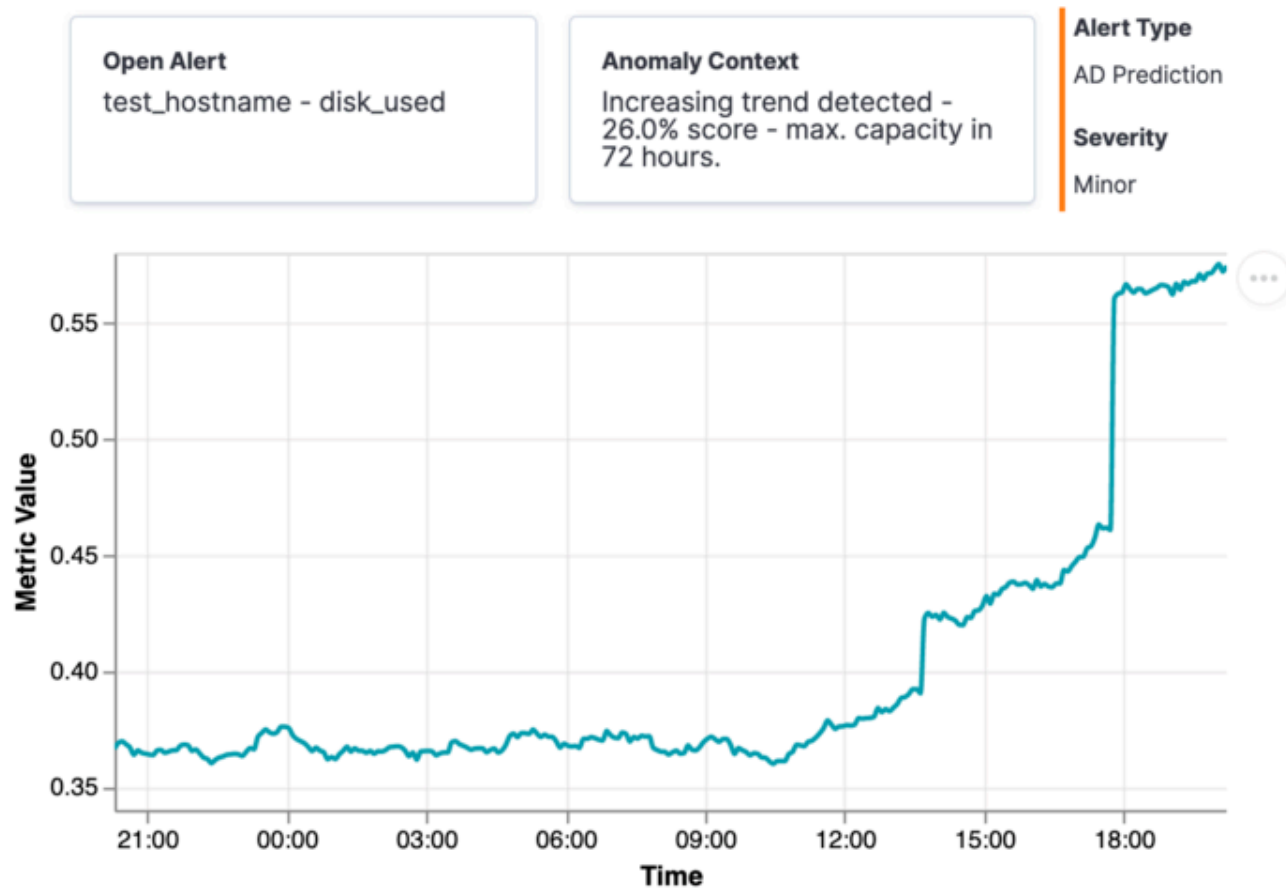
- Drop: is considered as an acute decrease in the metric value followed by an immediate return to the underlying level.



- Jitter: is a set of drops and spikes with a duration greater than 15 minutes.



- Trend Prediction: Insights generated based on hourly trend predictions.
 - A new insight is generated when high values are ($> 95\%$) predicted in the next hours [0 - 72 hours]
 - Score give an indication of the metric rate of change.
 - Because these insights are based on predictions, these don't have time correlations with other insights.
 - Alert Type: AD Prediction
 - A P icon is used in Insights Table to easily identify.



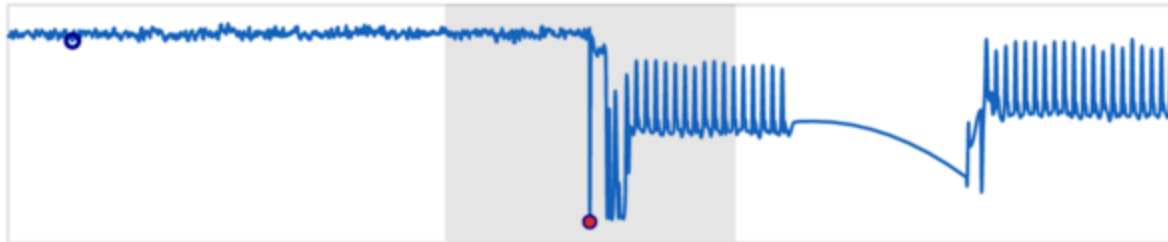
Correlations

Help to analyze time correlation details between insights:

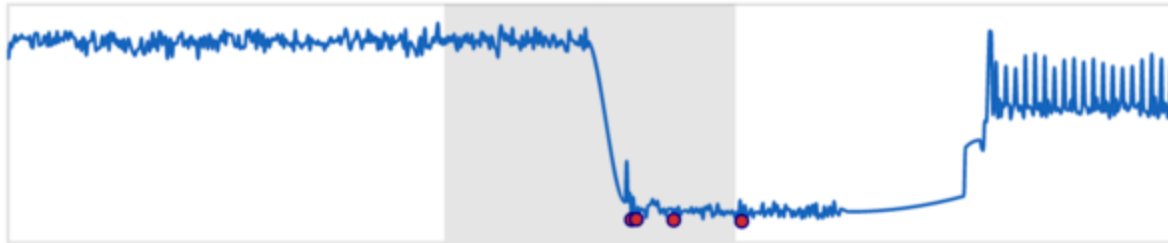
- Different insights are correlated in a time frame of 30 minutes (gray region).
- A maximum of 5 correlated metrics are visualized.
- Each graphic as a title has the source: host name and metric name.
- For each metric are visualized the anomaly points as red circles.
- All graphics extends between one hour before the correlation region and one hour after.

Visualizer Correlations Details

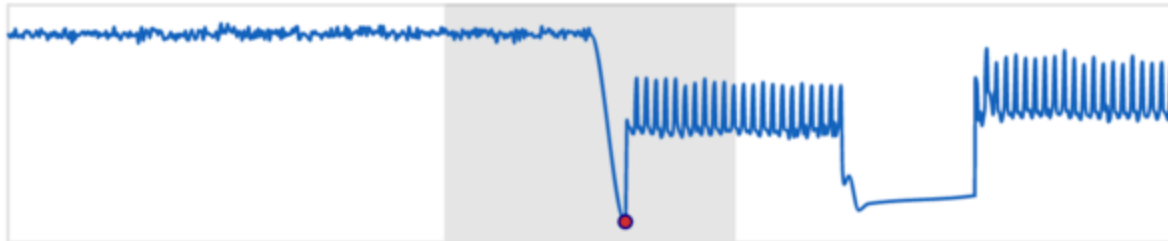
1. ccdev-st-adtst3 cpu_total



2. metricbeat_10.20.192.122_25 ens192 network_in_kBps



3. metricbeat_10.20.192.122_46 cpu_total

**Details**

Display table row information in vertical order:

- ID
- Generated date: Fri 24 Sep 2021 16:17:54
- Cleared date (empty for active insights)
- Status
- Severity
- Insight Message

- Host
- Application
- Data-Center
- IP
- Metric Name
- Anomaly Score

Visualizer	Correlations	Details
ID	59b3d798-4872-4a60-9abe-a2a56290260e	
Generated	Sat 18 Sep 2021 04:12:58	
Cleared		
Status	Active	
Severity	● Minor	
Insight Message	Jitter detected in metricbeat_10.20.192.122_6 - cpu_total during 33 minutes; 37% score on metric value: 0.0	
Host		
Application	host	
Data-Center	DC_124	
IP		
Metric Name	cpu_total	
Anomaly Score	37.2	

AD Insight Alarms

AD Alarms are part of Workbench Alarms in WD UI. AD automatically control the status for each alarm generated: continuously each alarm is monitored to be closed. These alarms have an hierarchical behavior: when an alarm is generated, automatically all below that are closed. AD can generate four types of alarms:

1. AD is not able to connect with Workbench Logstash.

- Severity: Critical
- Structure: {ad_appliance} is not able to connect with Logstash {logstash_host}
- Suggested Actions: validate if Logstash configuration in both, AD and Logstash are properly. Check if Logstash Node is down or is restarting.

2. AD is connected to Workbench Logstash but is not receiving metric data.

- Severity: Critical
- Structure: {ad_appname} is not receiving metric data from Logstash
- Suggested Actions: validate if Logstash is receiving data from Metricbeats or all Metricbeats are down.

3. AD is not receiving data from a particular workbench host

- Severity: Major
- Structure: {ad_appname} is not receiving metric data from host {hostname}
- Suggested Actions: validate if that specific host is down.

4. There is an additional type of Alarm generated when an AD node is down.

- Severity: Critical
- Structure: AD Node {ad_node_name} is down
- Suggested Actions: validate if that specific host is down.

The screenshot displays the AD Insights Console interface. On the left, a 'Workbench Active Alarms' summary shows zero counts for Total, Critical, Major, and Minor alarms. Below this is a table of active alarms. The first alarm is highlighted, showing a Major severity and a message indicating that 'WB_AD_ccdev-st-adtst5' is not receiving metric data from host 'metricbeat_10.20.192.125_25'. To the right, a 'Details' panel for this alarm provides further information.

Severity	Alarm Message	Host
Major	WB_AD_ccdev-st-adtst5 is not receiving metric data from host metricbeat_10.20.192.125_25	metricbeat_25_25
Major	WB_AD_ccdev-st-adtst5 is not receiving metric data from host metricbeat_10.20.192.125_28	metricbeat_25_28
Major	WB_AD_ccdev-st-adtst5 is not receiving metric data from host metricbeat_10.20.192.125_44	metricbeat_25_44

Field	Value
ID	e8ce5e57-9eef-43c5-8ac3-b1db6bf70185
Generated	Sat 18 Sep 2021 04:47:45
Cleared	Sat 18 Sep 2021 04:53:01
Status	Closed
Severity	Major
Alarm Message	WB_AD_ccdev-st-adtst5 is not receiving metric data from host metricbeat_10.20.192.125_25
Host	metricbeat_10.20.192.125_25
Application	
Sent to RAM Service	
Expiration	172800
Data-Center	