



Getting Started with Insight

OnCommand Insight

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Getting Started with Insight

After OnCommand Insight has been installed and properly licensed, there are a number of tasks you should do to begin preparing your environment to showcase the data that is important to you.

Some of the tasks performed in a typical environment include the following:

1. **Annotating your assets** to prepare them for querying and reporting. Useful initial annotations typically include data Center, Tier, and Service Level.
2. **Creating queries** to show important data and help troubleshooting
3. **Assigning applications and business entities** to assets
4. **Creating performance policies** and **alerts** for violations against those policies
5. **Creating custom dashboards** to highlight data according to need or user role

Setting up notifications

You can configure Insight to send notifications on trigger events such as performance policy, global path, or capacity violations via email, SNMP, or Syslog. You can also configure Insight to send email notifications on system-level events such as data source errors or acquisition unit failures.

These are basic instructions. For more detail on notifications, see Configuration and administration > Insight configuration and administration > Setting up Insight.

Setting up email for notifications

Insight can send email notifications on trigger events, such as performance policy violations.

About this task

Follow these basic steps to configure email notifications:

Steps

1. Click **Admin > Notifications** and go to the **Email** section.
2. In the **Server** box, enter the name of your SMTP server. You can enter either a fully-qualified domain name or an IP address.
3. Enter your SMTP user name and (if required by your SMTP server) password.
4. In the **Sender email** box, enter the sender email account that will be identified as the sender on the notifications.

This account must be a valid email account within your organization.

5. In the **Email signature** box, enter any text that you want to be inserted in every email that is sent.
6. In the **Recipients** box, click  to enter an email address, and click **OK**.

7. Click **Save**.

To edit or remove an email address, or to send a test email, select the address and click the appropriate button that appears.

Note that you can configure Insight to send email notifications for specified performance policy violations to specific individuals or groups. For example, you might send cloud asset violations to one group, and physical host events to another. Go to **Manage > Performance policies** to configure individual policy notifications.

Setting up Syslog for logging

Insight can send syslog events for capacity or path violations and performance alerts.

About this task

Follow these basic steps to configure syslog notification in Insight:

Steps

1. Click **Admin > Notifications** and go to the **Syslog** section.
2. Place a check in the **Syslog enabled** checkbox..
3. In the **Server** field, enter the IP address of the log server.
4. In the **Facility** field, select the facility level that corresponds to the type of program that is logging the message.
5. Click **Save**.

Setting up SNMP for notifications

Insight can send SNMP notifications on trigger events, such as violations or when data source thresholds are exceeded.

About this task

Follow these basic steps to configure SNMP in Insight:

Steps

1. Click **Admin > Notifications** and go to the **SNMP** section.
2. Click **Actions** and select **Add trap source**.
3. In the **Add SNMP trap recipients** dialog box, enter the **IP** address and **Port** to which you want SNMP trap messages sent. For **Community String**, use “public” for SNMP trap messages.
4. Click **Save**.

Preparing assets: Annotating

Annotating allows you to associate specific tags or labels to the assets you choose, which aids in managing and reporting on those assets.

Creating annotations for your enterprise

This guide describes how to create and customize annotations for your environment that can be used for querying, filtering, alert notifications and reporting.

An annotation is a note or tag that you associate with specific assets in your environment. OnCommand Insight provides several annotations that you can configure for your assets as needed, or you can create your own custom annotations based on your business needs.

The examples that follow are those that are typically configured first in new customer environments, to serve as a baseline for additional actions. Your own annotation needs may vary, but the steps described herein can be used as a guide to configuring any annotations you may need on the assets you desire.

This guide is based on the following assumptions:

- You have OnCommand Insight Server installed and properly licensed.
- You want to explore best practices, not every available option.
- You understand that these are examples only and that your specific needs may vary.

This guide walks you through modifying existing annotations as well as creating custom ones

In our example environment, we wish to be able to list assets according to Data Center, Tier, Service Level and Environment.

Configuring Data Center annotations

The Data Center annotation is typically used to associate a storage array, switch, or physical host asset with a data center location. You may choose to associate the Data Center annotation with other assets in your environment as well.

Steps:

- Log in to Insight as a user with administrative permissions.
- Select **Manage > Annotations**.
- Choose the **Data Center** annotation and click on the **Edit** icon.
- Click **+Add** and add the Name and Description of your first data center to the annotation list.
- Do the same for your other data centers.
- When finished, click **Save**.

Example Data Center annotations:

Name	Description
DC1_SVL	Sunnyvale Bldg 1
DC2_SVLb3	SVL Bldg3 ENG
DC3_NY	New York

DC4_London	London
...	

Insight comes with several out-of-the-box annotation types that allow users to define or modify values to fit their needs. These default annotation types will always be available to the Insight web UI as well as reporting. Newly-created custom annotations are visible in the Insight web UI but require additional measures to make them available to reporting. For information on including custom annotations in reports, contact your NetApp Customer Support representative.



Some users may be inclined to use the Country annotation to set asset locations, as opposed to, or in conjunction with, the Data Center annotation. However, you should bear in mind that the Country annotation is treated as a custom annotation type in the Insight data warehouse and therefore may not show up in reporting at the same granularity as Data Center.

Configure Tier annotations

The Tier annotation is used to associate assets with their respective Tiers, for use in cost accounting, for example. Insight comes with a number of default Tier annotations; you may modify these according to your tiering naming conventions or create your own Tiers as needed.

When setting Tier annotations, keep the following in mind:

- Cost is per gigabyte.
- Tier 1, 2, 3 are default tiers configured at a storage array level, by disk type. However, many customers will have multiple disk types within an array, or across arrays of the same type.
- Best practice is to create Tier annotations based on disk type and/or disk speed. This is a typical Tier methodology; your own needs may vary.

Steps:

- Choose the **Tier** annotation and click on the **Edit** icon.
- If desired, click **+Add** and add the Name and Description of your first tier to the annotation list.
- Do the same for your other tiers.
- When finished, click **Save**.

Example Tier annotations:

Name	Description	Cost per Gb
Auto Tier	Automatic Storage Tiering Tier	0.5
Tier 1 SSD	All Flash Array	0.5
Tier 2 SAS	SAS	0.25

Tier 3 SATA	SATA	0.1
...		

Configure Service Level annotations

The Service Level annotation is used to associate assets with their respective service levels.

Service Level annotations are typically only set in customer environments that use auto-tiering. In the Insight data warehouse, Tier is preferred. However, best practice is to use Service Level when you want to detail Provisioned Cost vs. Customer Cost. When both are present in Data Warehouse, Service Level will supersede Tier.

Steps:

- Choose the **Service Level** annotation and click on the **Edit** icon.
- Click **+Add** and add the Name and Description of your first service level to the annotation list.
- Do the same for your other service levels.
- When finished, click **Save**.

Example Service Level annotations:

Name	Description	Cost per Gb
Service Level 1	FAS controllers with FC or SAS, local & remote mirror and tape	0.93
Service Level 2	FAS controllers with FC or SAS, local & remote mirrors	0.85
Service Level 3	FAS controllers with SATA and local mirror	0.48
...		

Configure custom Environment annotations

The Environment annotation is a custom annotation for associating assets with their respective environmental location or use, for example, Lab, R&D, Production, etc. By creating the Environment annotation and setting it onto these assets, you can easily find, filter and report on your Lab assets separately from your Production assets, for example.

Steps:

- Select **Manage > Annotations**.
- Click the **+Add** button at the top of the page.

- For **Name**, enter ‘**Environment**’.
- For **Description**, enter ‘**Asset environment type**’.
- For **Type**, select **List**. New fields are displayed for you to create your list.
- For now, leave **Add new assets on the fly** unchecked. You will check this on if you want to be able to add new Environments to the list of choices at the same time you are associating them with assets.
- Enter the Name and Description of your first environment.
- Click **+Add** and do the same for your other environments.
- When finished, click **Save**.

Example Environment annotations:

Name	Description
Lab	Lab
Dev	Development
Prd	Production
...	

Finding assets: Querying

You can easily find and display assets in your environment using powerful queries.

Using queries to annotate your assets

Now that you have created your initial annotations, let’s take a look at how to associate those annotations with specific assets.

In the examples that follow, we will apply these annotations to specific assets. For example, we will create a query to list all the storage arrays that reside in a specific data center, and mark those with the appropriate annotation. Then we’ll do the same for assets belonging to a specific tier and service level.

Querying and annotating data centers

You use queries to associate your annotations with the appropriate assets in your environment. In this example, we will associate Data Center annotations with selected assets.

During data source acquisition, Insight gathers (among other information) the names of each asset it discovers. For this example, we will assume that all of your storage arrays have been named according to the data center in which they reside, such as “SVL_NN_<label>” for arrays residing in Sunnyvale. Insight queries make annotating these assets simple.

- Log in to Insight as a user with administrative permissions

- Select **Queries > +New Query**
- Drop down the **Search for...** field and select **Storage**. A list of all of your storage arrays is displayed.
- In the **Name** filter field, type “SVL” and click the  button (or press Enter). The query results list is now updated to show only those arrays that contain the string “SVL”.
- When filtering, you can use any of the following characters alone or combined to refine your search in any text box on the Query page:
 - An asterisk enables you to search for everything. For example, “vol*rhel” displays assets that start with “vol” and end with “rhel”.
 - The question mark enables you to search for a specific number of characters. For example, filtering for “SVL-PRD??-S12” displays SVL-PRD12-S12, SVL-PRD13-S12, and so on.
 - The OR operator enables you to specify multiple entities. For example, “FAS2240 OR CX600 OR FAS3270” finds multiple storage models.
- Select the storage arrays you wish to associate with this data center. When all of your desired arrays are selected, click the **Actions** button and select **Edit annotation**.
- In the **Add Annotation** dialog, select the **Data Center** annotation.
- Choose the desired **Value**, for example, “DC1_SVL”.
- Click **Save**.
- If the Data Center column is not visible on the Query results page, select it by dropping down the **Columns** button and choosing **Data Center**.
- If desired, you can save the query for future use by clicking the **Save** button in the upper right corner of the Query page and giving it a unique and explicit name. For example, “Storage Arrays - SVL data center”.

If you wish to associate the “SVL” annotation with other assets, create a new query and follow these steps for each asset type you desire.

Repeat these steps for assets in each of your data centers.

Querying and annotating tiers

You use queries to associate your annotations with the appropriate assets in your environment. Here, we will associate those tiers with the appropriate assets.

Earlier, we set up annotations for your Tiers. For this example, we will associate tiers with storage pools, and will assume your tier annotations are configured as follows:

Value	Description	Cost per Gb
Tier 1 SSD	All Flash Array	0.5
Tier 2 SAS	SAS	0.25
Tier 3 SATA	SATA	0.1

Let’s search for all SSD disks in your environment, and associate the “Tier 1 SSD” annotation with them.

- Log in to Insight as a user with administrative permissions

- Select **Queries > +New Query**
- Drop down the **Search for...** field and select **Storage Pool**. A list of all of your storage pools is displayed.
- The **Name** field may not be helpful this time, so let's use another field. Click the **More** drop-down and select "Least performing disk type". This field lists the disk types that we are interested in. Enter "SSD" in the field and click the  button. The query results list shows only your SSD storage pools.
- You may filter further by clicking the **More** drop-down and selecting additional fields.
- Select the storage pools you wish to associate with this tier. When all of your desired storage pools are selected, click the **Actions** button and select **Edit annotation**.
- In the **Add Annotation** dialog, select the **Tier** annotation.
- Choose the desired **Value** from the list. For this example, choose "Tier 1 SSD".
- Click **Save**.
- If the **Tier** column is not visible on the Query results page, select it by dropping down the **Columns** button and choosing **Tier**. You should see the appropriate annotation now associated with your assets.
- Save the query by clicking the **Save** button in the upper right corner of the Query page and giving it a unique and explicit name. For example, "Storage Pools - Tier 1 SSD".

If you wish to associate the "Tier 1 SSD" annotation with other assets, create a new query and follow these steps for each asset type you desire.

Repeat these steps for the assets in each of your remaining tiers.

Service Level and Environment annotations

Add Service Level and Environment annotations to the appropriate assets using the steps and concepts you've learned.

To add Service Level and Environment annotations to the appropriate assets in your environment, follow the steps noted above, choosing the desired assets and appropriate Service Level or Environment annotations. You can have multiple annotations associated with the same assets, and in fact this practice will allow you greater flexibility in managing your environment through Insight.

Now that you have created queries to annotate your assets, you can use these annotations in many different ways, such as:

- Performance policies to alert you when events occur on desired assets
- Custom dashboards and widgets to monitor activity
- Reporting

Your corporate structure: setting up business entities and applications

Understanding the elements of your corporate structure helps you to keep track of asset usage and report on costs.

Configuring business entities for your company

Understanding the business elements of your corporate structure helps you to keep track of asset usage and report on costs. Here we will configure your company business entities.

About this task

OnCommand Insight allows you to define business entities in a hierarchy that includes up to four levels of granularity.

- **Tenant**

Primarily used by service providers to associate resources with a customer. Tenant level is needed if your company is an ISP and you want to track customer usage of resources.

- **Line of Business (LOB)**

A line of business or product line within a company, for example, Data Storage. Line of Business is needed in the hierarchy if the data for different product lines needs to be tracked.

- **Business Unit**

Represents a traditional business unit such as Legal or Marketing. Business Unit is required if you need to track data for different departments. This level of the hierarchy is often valuable in separating a resource that one department uses that other departments do not.

- **Project**

Often used to identify a specific project within a business unit for which you want capacity chargeback. For example, "Patents" might be a project name for the Legal business unit and "Sales Events" might be a project name for the Marketing business unit. Note that level names may include spaces.

An example of a business entity hierarchy would be:



Best practice: Create a table with each row showing one full business entity in your hierarchy:

Tenant	Line of Business	Business Unit	Project
NetApp Inc.	Data Storage	Legal	Patents
NetApp Inc.	Data storage	Marketing	Sales Events
N/A	N/A	Safety and Security	N/A
...			



You are not required to use all of the levels in the design of your corporate hierarchy. You can choose “N/A” for levels that you do not use.

To create a business entity hierarchy in Insight:

Steps

1. Log in to Insight as a user with administrative permissions.
2. Select **Manage > Business entities**.
3. Click the **+Add** button
4. Click in the **Tenant** box and type your tenant name.

If you have already entered tenants for your environment, a list of existing tenants will appear from which you may choose. You may also choose N/A if tenant does not apply for this business entity.

5. Repeat for **Line of Business**, **Business Unit**, and **Project**.
6. Click **Save**

After you finish

Best Practices:

- Map out your business hierarchy in a table, and check that the names in the hierarchy will be self-explanatory in Insight views and reports.
- Create your business entities in Insight before creating applications.
- Identify and list all applications that will be associated with each business entity.

Configuring applications for your company

Understanding the applications used in your company’s environment helps you to keep track of asset usage and report on costs. Here we will configure your company’s applications and associate them with the appropriate assets.

About this task

In the *Configuring business entities for your company* section, we created some business entities, and recommended that you list out all the applications you associate with each business entity. OnCommand Insight allows us to then track data associated with those applications for things like usage or cost reporting.

Before you can track data associated with the applications running in your environment, you must first define those applications and associate them with the appropriate assets. You can associate applications with the following assets: hosts, virtual machines, volumes, internal volumes, qtrees, shares, and hypervisors.

In this walkthrough, we want to track the usage of virtual machines that the Marketing Team uses for its Exchange email. You will remember the following table we created while defining our business entities. Let's add a column to this worksheet listing the applications used by each business entity. (This table is a worksheet example only. You will not see an "Applications" column in the business entities table in Insight.)

Tenant	Line of Business	Business Unit	Project	Applications
NetApp	Data Storage	Legal	Patents	Oracle Identity Manager, Oracle On Demand, PatentWiz
NetApp	Data storage	Marketing	Sales Events	Exchange, Oracle Shared DataBase, BlastOff Event Planner
N/A	N/A	Safety and Security	N/A	N/A
...				

Creating applications in Insight:

Steps

1. Log in to Insight as a user with administrative permissions.
2. Select **Manage > Applications**
3. Click the **+Add** button
4. Enter the name of the application (for our example, enter "Exchange")
5. Select a priority for the application
6. If you wish to associate the application to a business entity, select one from the **Business Entity** drop-down. Otherwise, you can leave this as "None".
7. If you want to ensure each host has access to the same volumes in a cluster, ensure that the **Validate volume sharing** box is checked. For example, hosts in high-availability clusters often need to be masked to the same volumes to allow for failover; however, hosts in unrelated applications usually have no need to access the same physical volumes. Additionally, regulatory policies might require you to explicitly disallow unrelated applications from accessing the same physical volumes for security reasons. If you do not use volume sharing, clear the **Validate volume sharing** box. This requires the Assure license.
8. Click Save.
9. Repeat for all other Applications in your environment.

After you finish

We see that the Marketing Team uses the Exchange application. We want to see their virtual machine utilization for Exchange, in order to predict when we will need to add more storage. Let's associate the Exchange application with all of Marketing's VM's. The easiest way to accomplish this is through a query.

By following these steps, you can associate each of your applications with their appropriate assets.

Associating Applications to assets:

Now that you have created your applications (and tied them to business entities, as desired), we can now associate those applications with assets in your environment. In this example, we will associate the Exchange application with a number of virtual machines in your company. The easiest way to do this is what a query.

1. Select **Queries > +New query**.
2. In the **Select Resource Type** drop-down, choose *Virtual Machine*
3. We will assume the Marketing team names their assets with the string “_mktg_”. In the Name filter box, enter “`mktg`”(without quotes) and click the apply (checkmark) button.
4. The list of all VM’s with the “`mktg`” string is shown.
5. If desired, click the **More** drop-down and add additional filters.
6. Select the VM’s used for Exchange by clicking in the checkbox beside each desired VM Name, or select all VMs by clicking the checkbox at the top of the column.
7. When the desired VM’s are selected, click the **Actions** button and choose **Add Application**.
8. In the Assign Application dialog, click the **Application** drop-down and select “Exchange”.
9. Click **Save**.
10. Repeat as necessary to associate the Exchange application with other assets (hosts, volumes, etc.)

Creating performance policies for alerting

Performance Policies allow you to monitor and send alerts when specific conditions are met.

About this task

Now that we have annotated our assets, let’s create a Performance Policy that we can use to alert us when latency is higher than 2ms in any storage array at our Sunnyvale (DC1_SVL) data center. When these conditions occur, we will send an email to selected recipients.

Steps

1. Select **Manage > Performance policies**.

The Performance policies page opens. There are several default policies already set, which you can modify to suit your needs. We will create a new policy, however.

2. Click the **+Add** button.

The **Add Policy** dialog opens.

3. In the **Policy name** field, enter “SVL Data Center Latency policy”.

You must use a name that is different from all the other policy names for the object. For example, you cannot have two policies named “Latency” for an internal volume; however, you can have a “Latency” policy for an internal volume and another “Latency” policy for a different volume. The best practice is to always use a unique name for any policy, regardless of the object type.

4. For **Apply to objects of type**, select **Storage**.
5. In the **With annotation** field, select **Data Center** is “DC1_SVL” (or choose the name of your desired data center here).
6. Apply after a window of **First occurrence**.

The First occurrence option triggers an alert when a threshold is exceeded on the first sample of data. All other options trigger an alert when the threshold is crossed once and is continuously crossed for at least the specified amount of time.

7. From the **With severity** list, select **Warning**.
8. Under **Email recipients**, click to override the global recipient list. Click **+to** add the email address of your first desired alert recipient, and click **OK**. Repeat for any additional desired email recipients.
9. Leave the default choice to Create alert if **any** of the following are true. This will send an alert if any one of the set thresholds is met. You can also choose to alert only if **all** of the set thresholds are met.
10. To set your first threshold, select **Latency - Total** in the drop-down and set it to greater than 2 ms.
11. If desired, add additional thresholds to alert on by clicking the **Add threshold** button. When the policy is customized the way you want it, click **Save**.
12. You can also choose to **Stop processing further policies if alert is generated**. This will halt additional policy alerting if this policy's conditions are met.
13. You may add as many new policies as you like, setting alerts for other recipients based on different conditions, according to business need. Any policies configured without specific recipients will send alerts to the global recipient list set in the **Admin > Notifications** page

After you finish

Each new policy is automatically activated when it is saved, and recipients will start receiving alerts when the policy's conditions are met (known as a *violation*). You can also monitor these violations in the **Dashboards > Violations Dashboard**.

Highlighting data using dashboards

Now that you have your assets annotated and have configured performance policies to alert for violations, you can create dashboards to highlight specific data that you want to target.

About this task

In this example we will provide a high-level view of dashboard creation by creating a dashboard with a single widget highlighting VM Performance data. You can add as many widgets as you need on a single dashboard, and you can create as many dashboards as you need. Widgets can be resized and moved as desired.

More information on Dashboards and Widgets can be found throughout the OnCommand Insight documentation.

Steps

1. Log in to Insight as a user with administrative permissions.
2. From the **Dashboards** menu, select **+New dashboard**.

The New dashboard page opens.

3. Best practice: Name and save your dashboard as soon as you create it. Click the **Save** button and enter a unique name for the dashboard in the **Name** field. For example “VM Performance Dashboard”. Click **Save**.
4. If necessary, slide the **Edit** switch to “On” to enable Edit mode. This allows you to begin adding widgets to your dashboard.
5. Click the **+Widgets** button and select **Table** to add a new table widget to the dashboard.

The Edit Widget dialog opens.

6. In the Name field, delete “Widget 1” and enter “Virtual Machine Performance table”.
7. Click the asset type drop-down and change **Storage** to **Virtual Machine**.

The table data changes to show all virtual machines in your environment.

8. To add additional columns to the table, click the **Columns***  button and select the desired columns, for example *Data Center*, *Storage name*, and *Tier*. You can sort the table by any of these columns.
9. You can set filters as needed to highlight the data that is important to you for this dashboard, for example, you might choose to only show only virtual machines with “Tier 1 - SSD” annotation. Click the “+” button next to **Filter by** and select *Tier*. Click on **Any** and enter “Tier 1 - SSD”. Click the  button to save the filter.

The table now shows only virtual machines in the “SSD” tier.

10. You can group results by clicking the “+” button next to **Group by** and selecting a field to group by, such as Data Center. Grouping is automatically applied to the table.
11. When you have customized the widget to your satisfaction, click the **Save** button.

The table widget is saved to the dashboard.

12. You can resize the widget on the dashboard by dragging the lower-right corner.
13. To add more widgets, click the **+Widget** button. Each widget is added to the dashboard when it is saved.
14. When you have made all the changes desired, be sure to click **Save** to save the dashboard.
15. You can create additional dashboards to highlight different data.

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