

Application Catalog

Table 1: Feature History

Feature Name	Release Information	Description
Application Catalog	Cisco IOS XE Catalyst SD-WAN Release 17.13.1a Cisco Catalyst SD-WAN Manager Release 20.13.1	The **Application Catalog** feature provides control and visibility for applications running in your network environment. The application catalog is continuously updated as new applications are developed to ensure that your Cisco SD-WAN Manager environment adapts to changes in application use.
Discover and Monitor Kubernetes Clusters	Cisco IOS XE Catalyst SD-WAN Release 17.13.1a Cisco Catalyst SD-WAN Manager Release 20.13.1	The Cisco SD-WAN Manager integrates Kubernetes cluster discovery and monitoring to monitor your network infrastructure and your containerized applications from a single interface. The Kubernetes cluster management streamlines the network and applications while providing a visibility and control on the applications.
Cloud SaaS Feeds	Cisco IOS XE Catalyst SD-WAN Release 17.13.1a Cisco Catalyst SD-WAN Manager Release 20.13.1	Cloud SaaS (Software as a Service) feeds are information or data feed from SaaS applications that are hosted on the cloud. These applications can range from customer relationship management (CRM) tools to financial software, and Cisco SD-WAN Manager provides real-time data and updates as feeds from the SaaS applications.
Cloud-Sourced Applications	Cisco IOS XE Catalyst SD-WAN Release 17.16.1a Cisco Catalyst SD-WAN Manager Release 20.16.1	Cloud-sourced applications, derived from the Cisco SD-AVC component, complement applications from other sources, such as Protocol Packs and custom applications. You can use cloud-sourced applications in security and centralized policies, and in Cloud OnRamp for SaaS.

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Information About Application Catalog

The application catalog in Cisco SD-WAN Manager provides visibility and control of applications running in your Cisco Catalyst SD-WAN environment, powered by the Cisco SD-AVC component. The application catalog includes applications ranging from business productivity apps like Office 365 or Google Workspace to social media platforms, cloud platforms, and customer-created applications.

The application catalog is a central place to take care of all operation tasks related to applications, capabilities like updating applications and cloud SaaS feeds from different sources, creating custom applications, viewing applications in different groups, creating an application list and many more. The feature optimizes network connectivity based on the specific requirements of different Kubernetes services.

Cisco Catalyst SD-WAN support more than 4000 applications, 2500 Cloud Sourced applications through SD-AVC in addition to the existing 1500 applications supported by NBAR2.

Note You can use custom applications in the same way as any other protocol when configuring policies using policy groups or using centralized policies. For more information on configuring policies using Policy Groups, see, Group of Interest - Policy.

The **Application Catalog** tab has the following features:

- Overview
- Applications
- Application Source Settings
- Discovered Application
- Application List
- Configure SD-AVC
- Configure Cloud Connection
- Cloud Sourced Applications

Information About Cloud-Sourced Applications

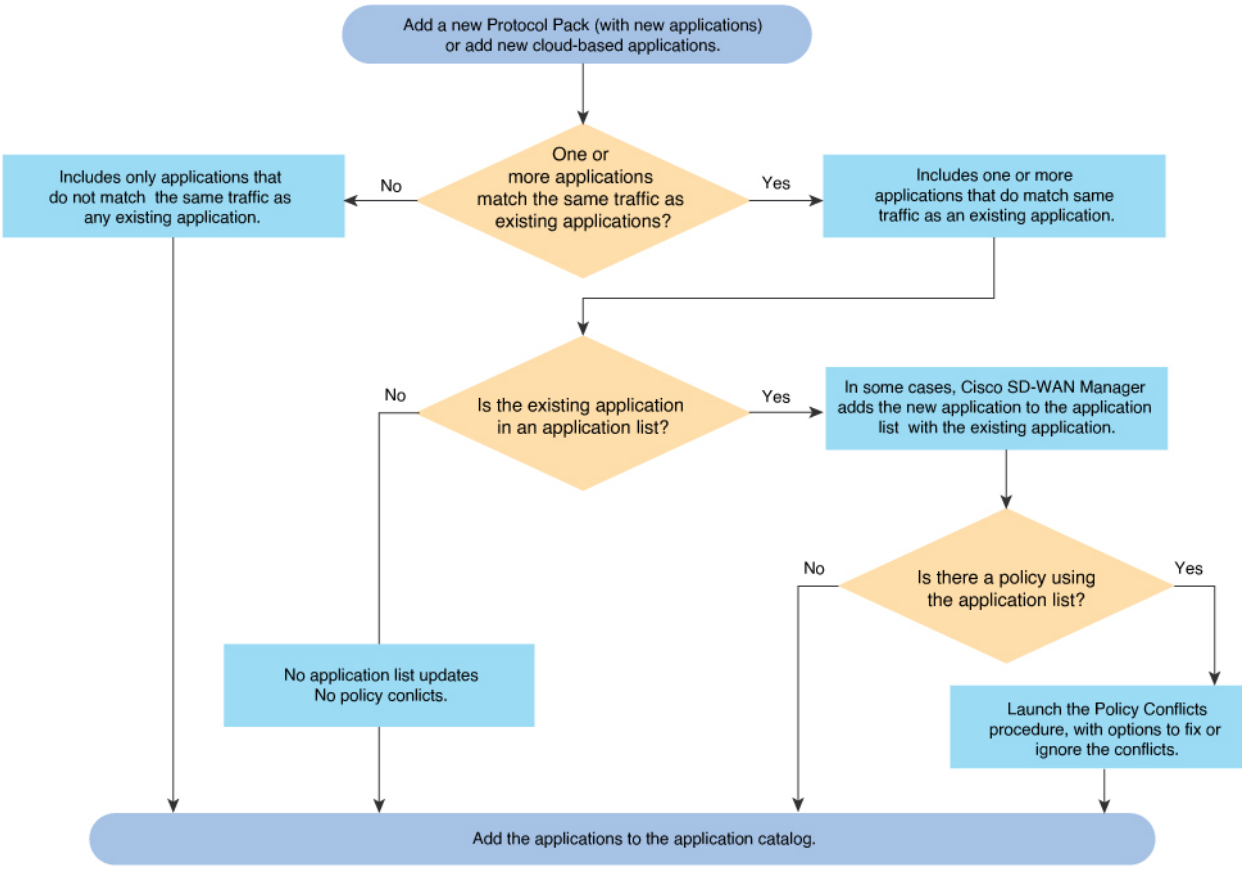
Cloud-sourced applications are applications sourced from the Cisco SD-AVC component of Cisco Catalyst SD-WAN.

Cisco SD-AVC uses cloud-based sources to continuously update its network applications database. The dynamic database adds new applications and updates existing information regularly. These are the cloud-sourced applications available in Cisco SD-WAN Manager. You can use these cloud-sourced applications in security and centralized policies, and in Cloud OnRamp for SaaS.

Adding Applications to the Application Catalog

A cloud-sourced application may match some of the same traffic as an existing application. In some cases, Cisco SD-WAN Manager prompts you to take action to resolve any conflicts.

Figure 1: Logic for Adding an Application to the Catalog



Prerequisites for Application Catalog

Application catalog functionality requires these:

- SD-AVC

In releases earlier than SD-WAN Manager 20.18.1, enable SD-AVC on the **Administration** > **Settings** page.



Note For Cisco Cloud-hosted fabrics using SD-WAN Control Components 20.10.x and later releases, the SD-AVC service and Cloud Connector are enabled by default. For more information see, Cisco SD-AVC.

For all installation types of Cisco Catalyst SD-WAN, from SD-WAN Control Components 20.18.1, SD-AVC is enabled by default.

- SD-AVC Cloud Connector enabled for SaaS feeds

  Enable SD-AVC Cloud Connector to use SaaS feeds for enhanced application classification (Optional, but recommended).

Configure SD-AVC

1. Click **SD-AVC**.

   The **Cluster Management** page appears. The default tab is **Service Configuration**.
2. Click **Add Manager**.
3. In the **Add Manager** page, choose **Node Persona** from the following options:
   - Compute + Data (Up to 5 nodes each)
   - Compute (Up to 5 nodes)
   - Data (Up to 10s of nodes)
4. Enter the **Manager IP Address**, **Username** and **Password**.
5. In releases earlier than SD-WAN Manager 20.18.1, select **Enable SD-AVC**.

   From SD-WAN Manager 20.18.1, SD-AVC is enabled by default.
6. Click **Add**.

Configure Cloud Connection

1. Click Configure Cloud Connection.

   The Administration Settings page appears.
2. Click SD-AVC.
3. Enable Cloud Connector in the Settings / System SD-AVC page.
4. Enter the OTP and the Cloud Gateway URL.
5. Click Save.

Note For more information on SD-AVC Connector, see Enable Cisco SD-AVC Cloud Connector.

Restrictions for Application Catalog

Restrictions for Cloud Sourced Applications

When you add a cloud-sourced application to the application catalog with Cloud Connector enabled, Cisco SD-WAN Manager restricts you from disabling Cloud Connector.

Restrictions for Kubernetes Clusters and Kubernetes Services

- Only Google Cloud and Amazon Web Services are supported as cloud providers.

Note AWS GovCloud is not supported.

Other cloud providers can utilize Kubernetes Clusters and Kubernetes Services feature using the manual upload option.

- Maximum number of custom applications: 1100
- Maximum number of L3/L4 rules: 20000
- Maximum number of server names: 50000

Application Catalog Overview

Applications in Registry

The Applications in Registry provide a visual representation of different types of applications in the system. It helps to understand the distribution and proportions of the applications based on their categories.

- Built in: Applications that are built-in or pre-installed in the system.
- Discovered: Applications that are discovered or detected by the system.
- Custom: Custom-built applications specifically developed for the system.

The chart segments represent the application categories, and the size of each segment indicates the relative proportion of applications in that category. Use this chart to gain insights into the application landscape and understand the composition of applications in the system. This chart illustrates the applications in the Cisco SD-WAN Manager Application registry. The device application registry is updated after pushing a configuration to the devices. For example, when a new custom application is created, it is not updated in the device application registry until a policy with that custom application is pushed to the device, however, it will be counted in the custom application on this chart since Cisco SD-WAN Manager already has the definition in its registry. All the custom applications created are seen in the Applications tab and in the chart as custom apps.

Top Applications Observed in Network

The **Applications Observed in Network** doughnut chart provides insights into the types of top applications observed within the network traffic. It displays the distribution and prevalence of different application categories.

Each segment in the chart represents a specific application category, and the size of the segment indicates the relative presence or frequency of that category within the observed network traffic. Use this chart to gain insights into the types of applications that are prominent within the network and understand the traffic composition. You can view the application details based on the timestamp. For example, Last 1 Hour, Last 3 Hours and so on. The maximum time period you can select is 24 hours.

View Applications

View the applications associated with your cloud account including the applications you create and the default applications on Cisco SD-WAN Manager.

1. From the Cisco SD-WAN Manager menu, choose **Configuration** > **Application Catalog** > **Applications**.

   A list of applications associated with your Cisco SD-WAN Manager appears.

2. Choose an application attribute from the **Select Application Attributes** drop-down box. For example, **Application Source**.

   From the **Choose Filter** drop-down choose a filter to view only the relevant applications.

Configure Custom Applications

1. From the Cisco SD-WAN Manager menu, choose **Configuration** > **Application Catalog** > **Applications** > **Custom Application**
2. Enter **Application name**.

   Configure the following:

Field	Description
Application Name	Enter a name for the application list.
Server Names	Enter the server names. The names specify the fully qualified domain names or regex starting with '*' but not ending with '*', or both separated by commas. For example, *.customapp.com, customapptest.com, *appcustom.
Application Family	Choose the application family. The options include instant messaging, game, mail, routing, and so on.
Application Group	Choose the application group. The options include flash-group, ipsec-group, concur-group, and so on.

Field	Description
Traffic Class	Choose the traffic class. The options include multimedia-conferencing, network-control, real-time-interactive, and so on. **Note** This attribute is used to categorize network traffic into different classes based on specific criteria like source and destination IP addresses, port numbers, etc. Traffic classes are crucial in the traffic matching process because they enable the Cisco Catalyst SD-WAN to identify and sort traffic, which helps in efficiently managing bandwidth and resources. When setting up the policy group workflow, different traffic classes can be allocated different priorities.
Business Relevance	Choose the business relevance from the drop-down list. The options are: • **Bronze** • **Gold** • **Silver** **Note** This attribute is used to specify the priority of network traffic based on its relevance to business operations. For example, traffic related to critical business applications can be assigned a higher relevance, and therefore, a higher priority. This ensures that important traffic gets the resources it needs for optimal performance.
IPv4 Address	Enter the IPv4 addresses separated by commas. Subnet prefix length is 24 to 32.
Ports	Enter the port number or range or both separated by a space. For example, 1 2 10-20.
L4 Protocol	Enter L4 protocol. The options are: • TCP • UDP • TCP-UDP

Field	Description
SaaS probe endpoint type	• Choose **IP Address** and enter IP address. Cloud OnRamp for SaaS probes the server using port 80. • Choose **FQDN** enter a fully qualified domain name of the application server. • Choose **URL** to enter a URL using HTTP or HTTPS. Cloud OnRamp for SaaS probes the server using port 80 or port 443, depending on the URL provided.
SaaS probe endpoint value	Enter an endpoint value, based on the endpoint type that you choose. For example, 192.168.0.1, https://www.example.com, www.google.com

3. Click **Save**.

Export Application List

1. Click Export to export the application list.

   The **Applications.csv** file is downloaded to the local desktop.

   You can use custom applications in the same way as any other protocol when configuring Cisco Catalyst SD-WAN policies using policy groups or using centralized policies. For more information on configuring policies using Policy Groups, see, Group of Interest - Policy.

Configure Application List

Create Application List

1. From the **Configuration** > **Application Catalog** > **Application List**, click **Create Application List**.
2. Choose **Create New** to create a new application list, or choose **Existing** to update an existing application list.
3. Enter the **Application List** or choose an **Application List** from the drop-down list to update an existing application list.
4. Choose an application or application family from the **Application** or **Application Family** drop-down list.
5. Click **Save**.

   The application list is created.

To find application or application set, perform the following steps:

1. On the **Application Lists** page, you can find the existing application or application family by using the **Find Application/ Application Set** field.
2. Choose the **Default Application List** or **Custom Application List** from the **Show** drop-down list.

   The selected application list appears. You can filter the application or application family lists.

   The **Summary** pane displays the total, custom and default application lists.
3. Click **Create Application List** to create or edit an existing application list.



Note Application lists configured in the Application Catalog can only be used in the configuration of policies using Policy Groups.

Add Cloud-Sourced Applications to the Application Catalog

1. From the Cisco SD-WAN Manager menu, choose **Configuration** > **Application Catalog**.
2. Click **Cloud-sourced Application**.
3. Choose one or more cloud-sourced applications by clicking the check box adjacent to the applications.
4. Click **Apply Application(s)** and choose **Apply Selected Application(s)**.

   A cloud-sourced application may match some of the same traffic as an existing application. If this creates a conflict, Cisco SD-WAN Manager prompts you to take action to resolve any conflicts. For information about the logic, see Information About Cloud-Sourced Applications.
5. If the policy conflict pop-up window opens, choose one of the following:
   - **Fix Conflicts**: Opens the **Conflicts** tab to enable you to update the policy.
   - Click **Manage Cloud-Sourced Application Conflicts** to add cloud-sourced applications after fixing the policy conflicts.
   - **Ignore and Apply**: Defer resolving conflicts that affect policies and add cloud-sourced applications to application catalog.



Note To remove cloud-sourced applications from the application catalog, contact Cisco technical support.

Benefits of Kubernetes Clusters and Kubernetes Services

- Unified Network Management: Cisco SD-WAN Manager gives the ability to add Kubernetes clusters and it discovers any applications running on them.
- Enhanced Visibility: The Cisco SD-WAN Manager and Kubernetes clusters integration provides complete visibility over both network infrastructure and application definitions, making it easier to identify and resolve issues.

- Improved Performance: Cisco Catalyst SD-WAN's ability to optimize network traffic, combined with direct visibility over Kubernetes resources, results in improved application performance.
- Greater Efficiency: The network management based on application requirements and Kubernetes services leads to greater operational efficiency.
- Advanced Security: The Cisco SD-WAN Manager and Kubernetes clusters integration provides more robust security for both network and application layers.

Benefits of Cloud SaaS Feeds

- Cloud SaaS feeds provide real-time data on cloud application classification. Cisco SD-WAN Manager uses this information to make intelligent decisions about routing and optimizing traffic to ensure the best possible performance for these applications.
- The Application classification is enhanced and up-to-date with latest Cloud SaaS feeds.

Configure, Discover Kubernetes Clusters and Kubernetes Services

Enable Kubernetes Clusters for Cloud-based Deployment

1. From the Cisco SD-WAN Manager menu, click **Configuration** > **Application Catalog**.
2. Click the **Application Source Setttings** tab.
3. In the **Kubernetes Cluster** section, click **Cloud Account**.
4. Click **Add Account**.
5. Select a cloud account and click **Enable**.

   The **Kubernetes Cluster** table displays the cloud accounts with the Kubernetes discovery status in the **Status** column.



Note You'll see a list of cloud accounts appearing already in the **Kubernetes Cluster** cluster table if you've configured the cloud accounts using the Cloud OnRamp for Multicloud feature.

Enable Manual Discovery of Kubernetes Clusters

1. In the Cisco SD-WAN Manager menu, click **Configuration** > **Application Catalog**
2. Navigate to the **Application Source Setttings** tab.
3. In the **Kubernetes Cluster** section, click **Manually Upload**.
4. Choose or drag and drop a kubeconfig file and click **Add**.

Note Maximum file size: 10 MB

The **Kubernetes Cluster** table displays the cloud accounts, with the Kubernetes discovery status in the **Status** column.

Once you configured the Kubernetes cluster, navigate to the **Discovered Application** tab to view the services and applications discovered on those Kubernetes clusters and create custom applications if needed.

Configure Cloud SaaS Feed Using Cisco SD-WAN Manager

1. From the Cisco SD-WAN Manager menu, choose **Configuration** > **Application Catalog** > **Application Source Settings**.
2. In the **Cloud SaaS Feeds** table, you see a list of cloud application feeds.

Note Only if you've enabled SD-AVC and Cloud connections, you'll see the list of cloud SaaS feeds.

3. In the **Actions** column, click the **...** icon adjacent to the respective cloud SaaS feed row.
4. Click **Enable** to view cloud SaaS feeds for the application of your choice.

Note Choose **Disable** so that the application classification doesn't use the Cloud SaaS feeds and instead uses NBAR classification logic.

Monitor Kubernetes Clusters and Kubernetes Services

Monitor Kubernetes Clusters

1. From the Cisco SD-WAN Manager menu, choose **Configuration** > **Application Catalog**.
2. Navigate to the **Application Source Settings** tab in the **Application Catalog** page.
3. The **Kubernetes Cluster** table displays the cluster details along with the Kubernetes cluster discovery status.

Monitor Applications

1. Navigate to the **Discovered application** tab in the **Application Catalog** page.
2. The **Kubernetes Services** table displays the discovered applications and the details to monitor the application status.

Monitor Cloud SaaS Feed

1. From the Cisco SD-WAN Manager menu, choose **Configuration** > **Application Catalog** > **Application Source Settings**.
2. In the **Action** column, click **...** icon and choose **View Feeds**.
3. In the the **View Feeds** page, you see detailed information regarding the particular cloud SaaS feeds.