Cisco IOx Local Manager Pages and Options

This chapter provides detailed reference information about the pages and options that are available in Cisco IOx Local Manager.

This chapter includes these sections:

Cisco IOx Local Manager Tabs

Cisco IOx Local Manager includes the following main tabs in its menu bar. You use these tabs to access the Cisco IOx Local Manager pages:

- **Applications** tab—Displays the Applications page, displays general information about the Cisco IOx apps that have been uploaded to the host system, provides options for managing and administering them, and provides an option for adding a new app.

- **App Groups** tab—Displays the App Groups page, which provides options for creating and managing app groups. An app group is a set of apps with different Docker images that is defined in a Docker Compose yaml file.

- **Remote Docker Workflow** tab—Displays the Remote Docker Workflow page. This page provides access from your local PC to Docker apps on the host system so that you can develop, test, and troubleshooting these apps. It also lets you create Docker app profiles and perform related activities.

- **Docker Layers** tab—Displays the Docker Layers page. For host systems that are running Cisco IOx 1.x, this page lists the Cisco cartridges that have been installed on the host system, displays general information about these cartridges, and provides options for installing, deleting, and obtaining additional information about them. For host systems that support Docker type apps, this page also displays information about

the Docker layers that are used by all applications that are installed on the host system, and provides an option for deleting unused layers.

- **System Info** tab—Displays the System Info page, which provides hardware, software, network, and resource information that relates to the host system.

- **System Troubleshoot** tab—Displays the System Troubleshoot page, which provides options for reviewing events, errors, and diagnostic information on the host system, and managing and obtaining log files and related information for troubleshooting.

- **IOx Tools** tab—Displays the IOx Tools page provides, which provides options for converting an app that is in OVA file format to a Cisco IOx package that can be deployed on a device via Cisco Local Manager.

- **System Setting** tab—Displays the System Settings page, which provides information about the range of NAT IP addresses that are reserved for app, and provides options for managing SSL connections and app signature validation.

- *App-ID* tab—When you click the **manage** option on the Applications tab for an app, a tab with the ID of that app is added to the menu bar. The *App-ID* tab displays the *App-ID* page, which provides access to pages for viewing information and performing other activities that relate to a specific app.

  To remove an *App-ID* tab from the menu bar, hover your mouse over the tab and click its Close button, which appears as an X in the tab.

On Cisco IOx Local Manager pages:

- You can click any field title in a table that displays rows of information to toggle the information in that table in ascending or descending alphabetical order by that field.

- On most pages that display information in multiple areas, you can click an area title to expand or collapse the information in that area.

Applications Page

The Applications page lists the Cisco IOx apps that have been uploaded to the host system, displays general information about these apps, and provides options for managing and administering them.

It also provides buttons for adding an app and refreshing the page.

To access the Applications page, choose **Applications** from the Cisco IOx Local Manager menu bar. The following table describes the fields and options that are available on this page.

Table 1: Applications Page Fields and Options

Item	Description
Uploaded App areas Each app that has been uploaded to the host system displays in an area that includes the following items.	
Name of the app	Displays at the top left of an app area
Description of the app	Displays under the name of the app

Item	Description
Status of the app	Status of the app: • **DEPLOYED**—App is uploaded to the host system. System CPU and RAM resources are not committed to the app. An app with this status can be activated, upgraded, or deleted. • **ACTIVATED**—App is on the host system and ready to run. System CPU and RAM resources have been reserved for the app but are not yet in use. An app with this status can be started or deactivated. • **RUNNING**—App is operating on the host system. System CPU and RAM resources are in use for the app. An app with this status can be stopped. • **STOPPED**—App has been running on the host system but its operation has been stopped. System CPU and RAM resources remain reserved for the app. An app with this state can be started or deactivated.
TYPE	Type of the app (**paas**, **kvm**, **lxc**, or **docker**).
VERSION	Version of the app
PROFILE	Resources profile that is assigned to the app (**default**, **c1.tiny**, **c1.small**, **c1.medium**, **c1.large**, **c1.xlarge**, **custom**, or **exclusive**).
Memory bar	For an app that is in DEPLOYED state, blue shading indicates the relative amount of total memory (RAM) resources on a host system that the app requests. For an app that is in ACTIVATED, RUNNING, or STOPPED, state, green shading indicates the relative amount of total memory resources on a host system that is allocated to the app. The percentage value at the right of the bar indicates the percentage of total memory on the host system that is requested by or allocated to the app.

Item	Description
CPU bar	For an app that is in DEPLOYED state, blue shading indicates the relative amount of CPU resources on a host system that the app requests. For an app that is in ACTIVATED, RUNNING, or STOPPED, state, green shading indicates the relative amount of CPU resources on a host system that is allocated to the app. The percentage value at the right of the bar indicates the percentage of total CPU resources on the host system that is requested by or allocated to the app.
Start button	Appears for an app that has a status of ACTIVATED or STOPPED. Click to start the app. See the Starting an App section.
Stop button	Appears for an app that has a status of RUNNING. Click to stop the app. See the Stopping an App section.
Activate button	Appears for an app that has a status of DEPLOYED. Click to activate the app. See the Activating an App section.
Deactivate button	Appears for an app that has a status of ACTIVATED or STOPPED. Click to deactivate the app See the Deactivating an App section.
Delete button	Appears for an app that has a status of DEPLOYED. Click to remove the app from the host system. See the Deleting an App section.
Manage button	Appears when the app that has any status except DEPLOYED. Click to display the *App-ID* page for the app. See the App-ID Page, on page 23 section.
Upgrade button	Appears for an app that has a status of DEPLOYED. Click to upgrade the app. See the Upgrading an App section.
Visualization button	Appears for an app is in running state if its descriptor file (package.yaml) file asks for visualization. Click to open a new tab that can show graphs and tables of data that relates to the app. The information that displays depends on what visualization information the app asks for.
General buttons The first app that does not include information for an installed app displays the following buttons.	
Add New button	Uploads the app to the host system and puts the app in DEPLOYED state. See the Adding/Deploying an App section.

Item	Description
Refresh button	Click to update the page with current information.

App Groups Page

The App Groups page lets you add and manage app groups. An app group is a set of apps with different Docker images that is defined in a Docker Compose YAML file. Most operations that you perform from this page affect all apps in the group, so this page provides a convenient way to manage a set of related or interdependent apps.

To access the App Groups page, choose **App Groups** from the Cisco IOx Local Manager menu bar. The following table describes the fields and options that are available on this page.

Table 2: App Groups Page Fields and Options

Item	Description
Add New button	Click to add a new app group. See the Adding an App Group section.
Refresh button	Click to update the page with current information.
App Group boxes	
App group name	The name of the app group displays at the top left of an app group box.
App group state	The state of the app group displays at the top left of an app group box. This state can be any of the following: • **DEPLOYED**—The app group has been added but some or all apps in the app group have not been uploaded. • **ACTIVATED**—ACTIVATED—Each app in the group is on the host system and ready to run. System CPU and RAM resources have been reserved for the apps but are not yet in use. • **RUNNING**—Each app in the group is operating on the host system. System CPU and RAM resources are in use for the apps. • **STOPPED**—Each the app group has been running on the host system but its operation has been stopped. System CPU and RAM resources remain reserved for the group.

Item	Description
App table	Displays the following information and buttons for each app in the app group: • App Name—Name of the app. • App Image—Name of the app image. • App State—Status of the app, which can be DEPLOYED, ACTIVATED, RUNNING, STOPPED, or IMAGE UNAVAILABLE. The IMAGE UNAVAILABLE state means that the image for the app has not been uploaded to the device. • **Upload** button—If the app has not been uploaded to a device, click to upload the app. If the app is in DEPLOYED state, click to upgrade the app. See the Uploading an App in an App Group section. • **Manage** button—Displays if the image for the app has been uploaded to the device. Click to access pages for viewing information about and managing the app. See the Managing an App Group section.
Up button	Activates and optionally starts all apps in an app group. See the Bringing Up and Starting an App Group section.
Down button	Stops and optionally deactivates all apps in an app group. See the Bringing Down and Destroying an App Group section.
Manager button	Lets you view and optionally edit the Docker compose YAML file for an app group, and lets you view information about the app group and the apps that it contains. See the Managing an App Group section.
Delete button	Click to delete an app group. See the Deleting an App Group section.

Remote Docker Workflow Page

The Remote Docker Workflow page provides access from your local PC to Docker apps on the host system so that you can develop, test, and troubleshooting these apps. If an app is deployed, you can enable access to the app from this page. If an app is not deployed, you can create a Docker app profile from this page. You also can generate and download a package.yaml file for an app from this page, and view information about Docker artifacts (containers, images, and volumes) that are on the host system.

Remote Docker access is intended for use by developers. Operators do not need to use this feature.

To access the Remote Docker Workflow page, choose **Remote Docker Workflow** from the Cisco IOx Local Manager menu bar. If the options on this page are hidden, click **Remote Docker Workflow** at the top of the page.

The following table describes the fields and options that are available on this page. If Remote Docker Access is disabled on this page, only the **Remote Docker Access** field and the **Enable Remote Docker Access** buttons are available. The options that display on this page depend on the procedure you are performing. For

example, the Docker Runtime options and the Usage options do not display when you are adding a Docker app profile.

Using the options on this page requires that the host system supports the native Docker engine.

For more detailed information about how to use the options on this page, see the Remote Docker App Workflow section.

Table 3: Remote Docker Workflow Page Fields and Options

Item	Description
Step 1: Enable Remote Docker Access area	
Click the area name to expand or hide the information in this area.	
Enable Remote Docker Access / Disable Remote Docker Access toggle button	Click to enable or disable remote Docker access.
	Enable this feature to access the other options on the Remote Docker Workflow page.
	When you enable this feature, the host system generates TLS certificates.
	Enabling remote Docker access opens the Docker web server port on the host system for external access. For the security of that system, we recommend that you disable this feature when you are not using it.
Download button	Click to download the TLS certificates package that the host system created to your local machine.
	The package is a file named tlscerts.tar. After you download and extract this file and set environment as described in the Remote Docker App Workflow section, you can access Docker from your local machine.
Step 2: Setup Docker App Profiles area	
Click the area name to expand or hide the information in this area. Click the area name of an options set to expand or hide the information in the set.	
Refresh button	Click to update information in the Step 2: Enable Remote Docker Access area with current information.
App Profile options	• **Docker App Profiles** drop-down list—Choose an existing Docker app profile to use with the app.
	• **Add New** button—Click to add a Docker app profile.
	• **Delete** button—Click to delete a Docker app profile. This button does not display if you are adding a new Docker app profile.
	• **Profile Name** field—If you are adding a Docker app profile, you can enter the name of the profile in this field. Otherwise, this field displays the name of the current Docker app profile.

Item	Description
App Resource options	The options in this area are display-only unless you are adding a Docker app profile. If you are adding a Docker app profile, options become available for data entry as appropriate for the type of resource profile you choose. • **Profile** drop-down list—Choose a profile for the app (**default**, **c1.tiny**, **c1.small**, **c1.medium**, **c1.large**, **c1.xlarge**, **custom**, or **exclusive**) • **CPU** field—Number of CPU units that the app requires on the host system when the app runs • **Memory** field—RAM, in MB, that the app requires on the host system when the app runs • **Disk** field—Disk space, in MB, that the app requires on the host system when the app runs • Resource display—Shows the number of CPU units, memory (in MB), and disk space (in MB) that is available on the host system

Item	Description
App Network Interfaces options	• Interface table—Displays the following for each app network interface that has been configured for the app: • **Name**—Name of the interface. • **Network Config**—Name of the network. • **Description**—Description of the interface. • **Action**—The following links can appear in this field: • **Details**—Displays when you are not performing an add Docker app profile procedure. Click to display detailed information about the interface. • **Edit**—Displays after you have added an app network interface but have not yet clicked the **Submit** button to save the new Docker app profile. Click to update information that you have configured for the interface. • **Delete**—Displays after you have added an app network interface but have not yet clicked the **Submit** button to save the new Docker app profile. Click to delete the interface. • **Add App Network Interface** button—Displays when you are performing an add Docker app profile procedure. Click to access options for adding and configuring an interface for the app. The following options display after you click the **Add App Network Interface** button: • **Interface Name** field—Enter a name for the interface. • **OK** button—Click to save the interface name that you entered. • Network name drop-down list—Networks the are available for the corresponding interface. • **Port Mapping** or **Interface Setting** link—Link name depends on the interface type that you choose. Click to access options for mapping ports or configuring interface settings. • **Description** field—Displays after you click the **Add App Network Interface** button. Optionally enter a description for the interface. • **Add** button—Click to save the interface that you are configuring. • **Cancel** button—Click to discard the interface that you are configuring.

Item	Description
Add Peripherals options	

Item	Description
	• Peripherals table—Displays the following for each peripheral device that the app requires:
	• **Device Type**—Type of the peripheral device.
	• **Name**—Name of the peripheral device.
	• **Label**—ID that the app uses to identify the peripheral device.
	• **Status**—Displays one of the following strings to indicate the state of the peripheral device. If the state of a peripheral device changes, this field updates only when you refresh the Remote Docker Workflow page.
	• **Present**—The peripheral device is plugged in to the host device and available for use. Each device in Peripherals table must be in this state for you to be able to create the Docker app profile.
	• **Not Present**—The peripheral device is not plugged in to the host device.
	• **Used by** *name*—The peripheral device is being used by the app that *name* indicates. While a device is in this state, it is unavailable for use by any other app.
	• **Action**—The following links can appear in this field:
	• **details**—Displays when you are not performing an add Docker app profile procedure. Click to display detailed information about the peripheral device.
	• **edit**—Displays after you have added a peripheral device interface but have not yet clicked the **Submit** button to save the new Docker app profile. Click to update information that you have configured for the device.
	• **delete**—Displays after you have added a peripheral device interface but have not yet clicked the **Submit** button to save the new Docker app profile. Click to delete the information that you have configured for the device.
	• **Add Peripheral** button—Displays when you are performing an add Docker app profile procedure. Click to access options for adding and configuring a peripheral device.
	The following options display after you click the **Add Peripheral** button:
	• **Device Type** drop-down list—Choose the type of peripheral device you are adding (**serial**, **USB-storage**, or **USB-serial**). Options that display depend on ports or devices that are available on the host system for the app to use.
	• **Device Name** drop-down list—Displays only if you choose **serial** from

Item	Description
	the **Device Type** drop-down list and contains options based on the device.
	• Device radio buttons—Display if you choose **USB-storage** or **USB-serial** from the **Device Type** drop-down list and vary depend on the device.
	• **pid** and **vid** fields—Display if you choose **USB-storage** or **USB-serial** from the **Device Type** drop-down list and show the Product ID and the Vendor ID, respectively, of the device.
	• **fs-uuid** field—Displays only if you choose **USB-storage** from the **Device Type** drop-down list and shows the universally unique ID of the device.
	• **Label** field—Enter a unique ID that the app uses to identify the peripheral device.
	• **Add** button—Click to save the peripheral device that you are configuring.
	• **Cancel** button—Click to discard the peripheral configuring information that you entered for the device.
App Persistent Data option	**Upload File** button—Click to upload a data file to the profile. This file contains data that you can access from the app when the app is running and that is used when the Docker container runs.
Submit option	Displays when you are adding an app resource profile. Click to save the new profile.
Cancel option	Displays when you are adding an app resource profile. Click to exit the add profile operation without saving configuration updates or the profile.
Docker Runtime Options option	• **Options** field—Display only. Shows runtime options that the system generates for the app based on the Docker app profile configuration information that you entered.
	• **General IOx pgk descriptor (package.yaml)** button—Click to generate a package.yaml file for the app based on the Docker app profile information that you entered.
Usage option	Usage—Display only. Shows the command that you enter on your local machine to run the app Docker container.
Docker Containers, Images, and Volumes Area	
Refresh button	Click to update the fields in the Docker Containers, Images, and Volumes area with current information about Docker artifacts that are on the host system. These fields include nformation about volumes, Docker container run status, and Docker pool images.

Item	Description
Docker Containers	Shows the following information for each Docker container: • CONTAINER ID—ID of the container • IMAGE—Name of the Docker image • COMMAND—Comm that executes the Docker container • CREATED—Date and time that the container was created • STATUS—How long the container has been operating • PORTS—Port mappings that have been configured for the container • NAMES—Name of the container
Docker Images	Shows the following information for each Docker image: • REPOSITORY—Name of the repository that serves the image • TAG—Tag that refers to the Docker image • IMAGE ID—ID of the image • CREATED—Date and time that the image was created • SIZE—Size of the image in bytes
Docker Volumes	Shows the following information for each Docker image: • DRIVER—Name of the Docker volume driver • VOLUME NAME—Name of the Docker volume

Docker Layers Page

The Docker Layers page displays information about the layers that have been installed on the host system, displays general information about these cartridges, and provides options for installing, deleting, and obtaining additional information about them. This page also displays information about the layers that are used by all applications that are installed on the host system, and provides an option for deleting unused layers.

Cartridges are used by PAAS apps, but not for KVM, LXC, or Docker apps. The packages for these apps include only the app logic (such as Python or Java files), but not the Linux operating system files or the root file system that the app requires. Cartridges provide the root file system and Python or Java files that an app requires to run. See the Cartridge Management Workflows section for additional information.

A layer is a component of a Docker image from which an app package has been created.

To access the Docker Layers page, choose **Docker Layers** from the Cisco IOx Local Manager menu bar. The following table describes the fields and options that are available on this page.

Table 4: Docker Layers Page Fields and Options

Item	Description
Cartridges Area This area is available only for host systems that are running Cisco IOx 1.x. Click the area name to expand or hide the information in this area.	
Total field	Total number of megabytes that cartridges consume on the disk of the host system.
Name field	Name of the cartridge.
Actions field	Provides options that you can click to execute operations for the cartridge: • **Info**—Displays a pop-up window that provides detailed information about the cartridge. See the Viewing Detailed Information about a Cartridge section. • **Delete**—Removes the cartridge from the host system. See the Deleting a Cartridge section.
Description field	Brief description of the cartridge.
Version field	Version of the cartridge.
Size field	Number of megabytes that the cartridge consumes on the disk of the host system.
Install button	Installs the cartridge on the host system. See the Installing a Cartridge section.
DockerLayers Area This area is available only for host systems that support Docker type apps. Click the area name to expand or hide the information in this area.	
Total Id field	Total number of megabytes that layers consume on the disk of the host system.
Layer Id field	Unique identifier of the layer.
Size field	Number of megabytes that layer consumes on the disk of the host system
Used By field	Name of the app that uses the layer.
Delete Unused Layer button	Deletes layers that are not used by installed apps on the host system. See the Layer Management Workflow section.

System Info Page

The System Info page provides hardware, software, network, and resource information that relates to the host system and to the Cisco IOx infrastructure and framework. The information that this page displays is not specific to any particular app.

To access the System Info page, choose **System Info** from the Cisco IOx Local Manager menu bar. The following table describes the fields and options that are available on this page.

Table 5: System Info Page Fields and Options

Item	Description
Refresh Stats button	Click to update the page with current information.
Host Info area	
Information fields	Provides general information about the host system.
Memory area	
Information fields	Provides information about memory use on the host system.
CPU & Processes area	
Information fields	Provides information about CPU and processes that are used on the host system.
Inspect Process button	Click to display a pop-up window that provides additional information about processes that are running on the host system.
Monitoring area	
Corrupted Apps field	If any apps are corrupted on the host system, this field shows the name of each app.
Disk Status field	Displays the status of the hard disk on the host system, if the host system provides this information. This information can indicate that disk status is not available, that the last file system consistency check identified errors, or that the file system consistency check cannot recover from disk errors.
IP v4 Routing area	
Information fields	Provides IP v4 routing information that relates to the host system.
DNS and NTP Settings area	

Item	Description
Information fields	Provides domain information for any DNS and NTP servers that the host system is using.
Storage area	
SSD Lifetime Information	Displays the expected remaining lifetime of the SSD on the host system, as a percentage of the total expected lifetime, if the host system provides this information. If Cisco Local Manager cannot display this information, a message in this field explains why the information is not available. SSD lifetime information is supported only on Cisco 829 Industrial Integrated Services Routers.
Information fields	Provides information about storage devices that host system is using.
Serial Interfaces area	
Information fields	Provides information about serial interface devices that are available on the host system.
Interfaces area	
Information fields	Provides information about general interfaces that host system is using.

System Setting Page

The System Setting page provides options for managing internal Cisco IOx networks for apps and managing SSL connections and app signature validation.

Internal Cisco IOx networks allow apps on host systems to communicate with other systems. The network named svcbr_0 is provided by default, and cannot be deleted. Some host systems allow other networks to be added.

If needed, refer to the app documentation or developer for information network configuration that an app requires when it runs.

To access the System Setting page, choose **System Setting** from the Cisco IOx Local Manager menu bar. The following table describes the fields and options that are available on this page.

Table 6: System Setting Page Fields and Options

Item	Description
Additional Networks area	

Item	Description
Add Network button	Click to add an internal network on host systems that support adding internal networks. See the Adding an Internal Network section.
Interface field	Name of the internal Cisco IOx bridge that provides connectivity for this internal network.
Description field	Brief description of the internal network.
Physical Interface field	Physical interface that the internal network uses for connectivity.
Logical Network field	Logical networks that provide bridge and NAT networking modes for the internal network. Click a logical network name to display a dialog box that provides detailed information about that logical network.
Vlan ID field	Identifier of the VLAN on which this internal network operates, if applicable.
IP Mode field	IP mode of the internal Cisco IOx bridge that provides connectivity for this internal network (**dhcp**, **static**, or **no_ip_address**).
IP Address field	IP address and subnet mask of the internal Cisco IOx bridge that provides connectivity for this internal network.
Actions field	Provides these options: • **edit**—Click to edit information that is configured for the network. See the Editing Information for an Internal Network section. • **delete**—Click to remove the network. See the Deleting an Internal Network section. • **view**—Click to display information that is configured for the network. See the Viewing Information about an Internal Network section.
SSL/TLS area	
Import Certificates button	Click to import an externally signed SSL certificate to the host system. See the Configuring an SSL Connection section.
Application Signature Validation area	Appears only if the host system supports app signing.

Item	Description
Enable Application Signature / **Disable Application Signature** toggle button	Click the **Enable Application Signature** button to enable App Package Signature Verification on the host system. When this option is enabled, the Cisco application-hosting framework verifies the signature of an app when the app is installed on the host system. If the app signature is not verified, the installation fails. Click the **Disable Application Signature** button to disable App Package Signature Verification on the host system. When this option is disabled, the Cisco application-hosting framework does not verify the signature of an app when the app is installed on the host system. See the Configuring App Signature Validation section.
Application Exec Console area	
Enable Application Exec Console Service / **Disable Application Exec Console Service** button	Click the **Enable Application Exec Console Service** button to enable accessing a terminal shell or a terminal console for an app from Cisco Local Manager. This feature requires the app to be in RUNNING state. Click the **Disable Application Exec Console Service** button to disable this option. After you enable this feature, a note displays that prompts you to accept the certificate that console access requires. Click the link in the note and accept the certificate in the page that displays. Then use the refresh function in your browser to refresh Cisco Local Manager. If you click either of these buttons when an *App-ID* page is open, Cisco Local Manager prompts you for permission to close the page. Some host systems may require configuration for port 8445 before you can access the app container or VM. In this case, Cisco Local Manager displays a prompt with additional information. See the Accessing a Terminal Shell or a Terminal Console for an App from Cisco Local Manager section.
Trust Anchor area	
Appears if the host system supports managing trust anchors.	

Item	Description
Import Trust Anchor button	Click to import a trust anchor (a .tar or .tar.gz certificate file) to the host system. Use the Import Trust Anchor dialog box that displays to locate and select the trust anchor that you want, and then click **OK**.
	If you enabled application signature verification, apps are validated against this certificate when they are added to the host system. If the validation fails, an app does not install.
	See the Configuring App Signature Validation section.
Refresh button	If a certificate already exists on the host system, click to display the certificate. If this certificate is the one that you want to use, you do not need to import a certificate. If you import a certificate, it replaces the one that exists on the host system.
List of trust anchors	Displays the checksum value and metadata for each certificate that you imported.

System Troubleshoot Page

The System Troubleshoot page provides options for reviewing events, errors, and diagnostic information on the host system, and managing and obtaining log files and related information for troubleshooting.

The options on this page are useful for troubleshooting the Cisco IOx framework. For related information, see the following sections.

To access the System Troubleshoot page, choose **System Troubleshoot** from the Cisco IOx Local Manager menu bar. The following table describes the fields and options that are available on this page.

Table 7: System Troubleshoot Page Fields and Options

Item	Description
Events area	
Refresh button	Click to update the fields in the Events area with current information.
	The information in these fields does not update automatically while the System Troubleshoot page is displayed.
Device Uptime field	The amount of time that has passed since the host system last started, shown as days, hours, minutes, and seconds.

Item	Description
CAF Uptime field	The amount of time that has passed since the Cisco application-hosting framework last started on the host system, shown as days, hours, minutes, and seconds.
System Time field	The current date and time on the host system.
Current CAF Stats fields	The following fields provide information about the number of items that have been written to the Cisco application-hosting framework log files since the Cisco application-hosting framework last started on the host system: • **Warning** field—Number of warnings. • **Error** field—Number of errors. • **Critical** field—Number of errors that have a severity of critical. • **Events** field—Number of events. An event typically relates to a successful Cisco application-hosting framework operation.
Search field and button	Lets you display specific Events or Errors in the Events list or Errors list. See the Viewing Events section or the Viewing Errors section.
Events button	Click to display the Events list. See the Viewing Events section.
Errors button	Click to display the Errors list. See the Viewing Events section.
Events list	Appears when you click the **Events** button. Displays information about events that have occurred on the host system. An event typically relates to a successful Cisco application-hosting framework operation. See the Viewing Events section.
Errors list	Appears by default or when you click the **Errors** button. Displays information about errors that have occurred on the host system and lets you view detailed information about an error. See the Viewing Errors section.
Pagination controls	Let you navigate the Events list or Errors list. See the Viewing Events section or the Viewing Errors section.
Logs area	

Item	Description
Refresh button	Click to update the fields in the Logs area with current information. The information in these fields does not update automatically while the System Troubleshoot page is displayed.
Logging Management button	Click to configure the type and level of information that the host system captures in its log files. See the Configuring Log Files section.
Select Log Type drop-down list	Choose the type of log files that appear in the Log File list. See the Downloading Log Files section.
Log File list	Displays information for each log file, according to the log type option that you choose. See the Downloading Log Files section. You can drag a border between column headings to resize a column.
Diagnostics area	
Diagnostic Typr field	Choose the type of diagnostic information to obtain and display. See the Diagnostic Information Workflow section.
Detailed Information check box	Check this check box to display detailed diagnostic information in the Display field. See the Diagnostic Information Workflow section.
Display field	Displays diagnostic information according to the Diagnostic Type option that you chose. See the Diagnostic Information Workflow section.
TechSupport Information area	
Tech Support snapshot file name field	Lists the names of snapshot files that you have generated. A file name has the format tech_support_*timestamp*, where *timestamp* is the host system date and time that the file was generated. See the Generating a Snapshot File section.
File Size field	Size of the snapshot file, in bytes.
field	Click **download** to download the corresponding snapshot file to the location of your choice. See the Downloading a Snapshot File section.
Delete field	Click the **Delete** icon to delete the corresponding snapshot file from the host system. See the section.

Item	Description
Generate snapshot file button	Click to generate a snapshot file. See the Generating a Snapshot File section.
Refresh button	Click to update the list of snapshot files with current information.
Core file name field	Lists the name of core dump files that the system generated.
File Size field	Size of the core dump file, in bytes.
Download field	Click **download** to download the corresponding core dump file to the location of your choice. See the Downloading a Core Dump File section.
Delete field	Click the **Delete** icon to delete the corresponding core dump file from the host system. See the Deleting a Core Dump File section.
Refresh button	Click to update the list of core dump files with current information.

IOx Tools Page

The IOx Tools page provides options for converting an app that is in OVA file format to a Cisco IOx package that can be deployed on a device via Cisco Local Manager. This page also provides information about OVA files that you recently converted.

To access the App Groups page, choose **IOx Tools** from the Cisco IOx Local Manager menu bar. The following table describes the fields and options that are available on this page.

Table 8: App Groups Page Fields and Options

Item	Description
OVA Converter area	
OVA file location in System USB field	Enter the path and base name of the OVA file to convert. The file must be on a USB storage device that is plugged into port 2 on the host system.
IOx Package Name field	Enter the base name to be given to the IOx package tar file.
OVA includes qemu-guest-agent package check box	Check this check box if the OVA file includes a QEMU guest agent package, which provides support for monitoring.
Deploy IOx Package app onthis device check box	Check this check box if you want Cisco Local Manager to deploy the app automatically after you convert the OVA file to an IOx package.

Item	Description
OS Type drop-down list	Choose the operating system in which you will run the IOx package on the device (**Linux** or **Windows**).
Convert button	Click to convert the specified OVA file to the specified IOx package. See the OVA File Conversion Workflow section.
Recently Converted OVA Files area	
Recently Converted OVA Files table	Displays the following information for files that you converted during the current Cisco Local Manage session: • OVA Path—Path to the OVA file that was converted • Ox Package—Path and name of the IOx package that the OVA file was converted to

App-ID Page

The *App-ID* page, where *App-ID* is the ID of an app, includes the following tabs. These tabs provide access to pages for viewing information and performing other activities that relate to a specific app.

- **Resources** tab—Displays the Resources page, from which you can assign various resources to an app, activate an app, and deactivate an app. See the App-ID > Resources Page, on page 24 section.

- **App-Console** tab—Displays the App Console page, from which you can access a container (for a PAAS app) or a VM (for a KVM app). See the App-ID > App-Console Page, on page 30 section.

- **App-info** tab—Displays the App-info page, from which you can view system and network information that relates to an app. See the App-ID > App-info Page, on page 30 section.

- **App-Config** tab—Displays the App-Config page, from which you can update configuration information for an app. See the App-ID > App-Config Page, on page 33 section.

- **App-DataDir** tab—Displays the App-DataDir page, from which you can see the contents of the /data directory in an app container, upload files to the /data directory or subdirectory, download files to your local system, and delete files or subdirectories from the /data directory. The files can be configuration files or other files that the app needs when it runs. See the App-ID > App-DataDir Page, on page 34 section.

- **Logs** tab—Displays the Logs page, from which you can view information about and download app log files. See the App-ID > Logs Page, on page 35 section.

To access the *App-ID* page, choose the *App-ID* tab for the app from the Cisco IOx Local Manager menu bar.

If you do not see the tab for an app, choose the **Applications** tab, and then click the **manage** option for the app that you want.

To remove an App-ID tab from the menu bar by, hover your mouse over the tab and click its **Close** button

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App-ID > Resources Page

The *App-ID* > Resources page lets you assign a resource profile (host system CPU and memory resources) to an app, designate the network from which the app obtains its IP address, and activate or deactivate an app. This page also shows CPU and memory resources that are available on the host system.

If needed, refer to the app documentation or developer for information regarding resources that an app requires when it runs.

To access the *App-ID* > Resources page, choose an *App-ID* tab from the Cisco IOx Local Manager menu bar, and then choose **Resources**. The following table describes the fields and options that are available on this page.

Table 9: App-ID > Resources Page Fields and Options

Item	Description
Resources title	Click to expand or collapse this page.
ActivateApp / **DeactivateApp** toggle button	Click to activate an app using the configuration settings on this page, or to deactivate an app. See the Activating an App section and the Deactivating an App section.
Activate using resource payload link	Displays for an app that has the status of DEPLOYED. Click to activate the app using a resource payload instead of the configuration settings on this page. See the Activating an App section.
	A resource payload is a JSON file that designates resource, network, and related information for the app.
	Here is a sample resource payload file:

	<pre>{
	  "resources": {
	   "network": [{
	    "intf-matched": true,
	    "network-name": "iox-bridge0",
	    "default_net_required": true,
	    "interface-name": "eth0"
	   }],
	   "auto_remove": false,
	   "disk": 10,
	   "profile": "c1.small"
	  }
	}</pre>

Download activation resource payload link	Displays for an app that is not in the DEPLOYED state. Click to save the settings on this page in a resource payload JSON file.
	Download a resource payload file if you want to use it when activating an app after upgrading the app, or if you want to use it when activating another app.
	Cisco Local Manager saves the file in the default download directory on your local computer. The file is named *App-Name*_activation_rescources.json, where *App-Name* is the name of this app. You can rename this file after you download it.

Item	Description
debug mode check box	Available before you click the **Activate App** button and only for Docker type apps when the host system does not support native Docker, and for PAAS type apps. Check this check box to activate the app in debug mode.
	If an app that is running in debug mode shuts down unexpectedly, the app does not go to STOPPED state. Instead, the app remains in RUNNING state so that you can use an SSH client to access the app and troubleshoot.
	If you want to enable or disable the debug mode of an app that has been activated, you must first deactivate the app.
Resource Profile area	
Profile drop-down list	Provides options for designating the *resource profile* for an app. A resource profile designates the amount of host system CPU and memory (RAM) resources that the app requires to run, as follows.
	• **c1.tiny**, **c1.small**, **c1.medium**, **c1.large**, or **c1.xlarge**—Assigns the CPU and memory resources that the options display. These values are based on the host system hardware.
	• **default**—Assigns CPU and memory resources based on the requirement that is specified in the metadata for the app.
	• **Custom**—Lets you enter your own CPU, RAM, and disk space values in the CPU, Memory, and Disk fields.
	• **Exclusive**—Allocates all resources on the host system to the apps.
	See the Activating an App section for more information.
CPU field	CPU units that the app requires on the host system.
	If you choose **Custom** from the **Profile** drop-down list, enter a value in this field. To enter a value, click the **cpu-unit** radio button and enter the number of CPU units required, or click the **%** button and enter the percentage of total host system CPU units required.
	If you choose an option other than **Custom**, the system enters a value in the CPU field for you.
Memory field	Amount of RAM, in MB, that the app requires on the host system.
	If you choose **Custom** from the **Profile** drop-down list, enter a value in this field. If you choose another option, the system enters a value in this field for you.
Disk field	Amount of disk space, in MB, that the app requires on the host system.
	You can enter a value in this field for any option that you choose from the **Profile** drop-down list. The value that you enter must be greater than the existing value; you cannot decrease the disk space value.

Item	Description
Vcpu field	Appears only for VM-based apps. Enter the number of virtual CPUs that the app requires on the system.
	If you choose **Custom** from the **Profile** drop-down list, enter a value in this field. If you choose another option, the system enters a value in this field for you.
Avail. CPU field	Number of available CPU units on the host system.
	The system does not allow you to activate an app if the value in the **CPU** field exceeds this available CPU value.
Avail. Memory field	Amount of available RAM, in MB, on the host system.
	The system does not allow you to activate an app if the value in the **Memory** field exceeds this available memory value.
Max VCPU/App field	Appears only for VM-based apps. Number of virtual CPUs that are available on the host system.
Advanced Settings area	
Appears only if the app type is Docker and the host system supports native Docker.	
Docker options	Enter one or more Docker run options to be used when you activate the app.
	This field includes the --rm option by default. For related information, see the following row in this table.
Auto delete container instance	Check this check box to add the --rm run option to the Docker Options field and to use this option when you activate the app.
	When you stop an app that you activated and started with the --rm option, the app container instance is deleted automatically and the app goes to DEPLOYED state (rather than STOPPED state).
	This check box is checked by default.
Network Configuration area	

Item	Description
Network Configuration table	Displays the following for each app network interface that has been configured for the app: • **Name**—Name of the interface • **Network Config**—Name of the network • **Description**—Description of the interface • **Action**—The following links can appear in this field: • **details**—Displays after you click the **Activate App** button for an app. Click to display detailed information about the interface. • **edit**—Displays before you click the **Activate App** button for an app. Click to update information that you have configured for the interface. • **delete**—Displays before you click the **Activate App** button for an app. Click to delete the interface.
Add App Network Interface button	Click to access options for adding and configuring an interface for the app. See the Activating an App section. The following options display after you click the **Add App Network Interface** button: • **Interface name** field—Enter a name for the interface. • **OK** button—Click to save the interface name that you entered. The following options display after enter a name in the Interface Name field and click **OK**: • Network name drop-down list—Networks the are available for the corresponding interface. • **Port Mapping** link or **Interface Setting** link—Link name depends on the interface type that you choose. Click to access options for mapping ports or configuring interface settings. • **Description** field—Displays after you click the **Add App Network Interface** button. Optionally enter a description for the interface. • **Add** button—Click to save the interface that you are configuring. • **Cancel** button—Click to discard the interface that you are configuring.
Peripheral Configuration area	

Peripheral Configuration area

Appears only if the host system can provide this information and if the app metadata requests that a serial port, USB device, or USB port on the host system be assigned for use by the app.

Item	Description

Peripheral table	Displays the following for each peripheral device that the app requires:
	
	• **Device Type**—Type of the peripheral device.
	
	• **Name**—Name of the peripheral device.
	
	• **Label**—ID that the app uses to identify the peripheral device
	
	• **Status**—Displays one of the one of the following strings to indicate the state of the peripheral device. If the state of a peripheral device changes, this field updates only if you close and then reopen the App Resources page.
	
	    • **Present**—The peripheral device is plugged in to the host device and available for use. Each device in Peripherals table must be in this state for you to be able to activate the app.
	
	    • **Not Present**—The peripheral device is not plugged in to the host device.
	
	    • **Used by** *name*—The peripheral device is being used by the app that *name* indicates. While a device is in this state, it is unavailable for use by any other app.
	
	• **Action**—The following links can appear in this field:
	
	    • **details**—Displays after you click the **Activate App** button for an app. Click to display detailed information about the peripheral device.
	
	    • **edit**—Displays before you click the **Activate App** button for an app. Click to update information that you have configured for the device.
	
	    • **delete**—Displays before you click the **Activate App** button for an app. Click to delete device.

Item	Description
Add Peripherals button	Click to access options for adding and configuring a peripheral device.
	The following options display after you click the **Add Peripherals** button, depending on what the host system supports:
	• **Device Type** drop-down list—Choose the type of peripheral device you are adding (**serial**, **USB_storage**, **USB_serial**, or **USB_port**). Options that display depend on ports or devices that are available on the host system for the app to use.
	• **Device Name** drop-down list—Displays only if you choose **serial** from the **Device Type** drop-down list and contains options based on the device
	• **Device** radio buttons—Display if you choose **USB_storage**, **USB_serial**, or **USB_port** from the **Device Type** drop-down list and vary depend on the device
	• **pid** and **vid** fields—Display if you choose **USB_storage**, **USB_serial**, or **USB_port** from the **Device Type** drop-down list and show the Product ID and the Vendor ID, respectively, of the device
	• **fs-uuid** field—Displays if you choose **USB_storage** from the **Device Type** drop-down list and shows the Universally unique ID of the device
	• **label** field—Enter a unique ID that the app uses to identify the peripheral device
	• **Add** button—Click to save the peripheral device that you are configuring
	• **cancel** button—Click to discard the peripheral configuring information that you entered for the device
VNC Options area Appears only if the host system supports this functionality.	
Password field	Enter a password for accessing an app via a VNC session. Use this password in the VNC client that you use to access the app.
Port field	Enter a port number to be used for accessing the app via a VNC session. If you do not enter a port number, the system assigns a value. Valid port numbers are 5900 through 65535.

App-ID > App-Console Page

The *App-ID* > App-Console page lets you access an app by opening a terminal shell for a container app or a terminal console for a VM app. This page is available only when the Enable Application Exec Console Service option is enabled on the System Setting page and the the app is in the RUNNING state.

To access a container app by using this feature, the app must have the /bin/sh, /bin/bash/, or /bin/ash shell in its root filesystem. A VM app must have the getty service configured for serial port access.

To access the *App-ID* > App-Console page, choose an *App-ID* tab from the Cisco IOx Local Manager menu bar, and then choose **App-Console**. The following table describes the fields and options that are available on this page.

See the Accessing an App Container or VM from a Console System section for related information.

Table 10: App-ID > App-DataDir Page Fields and Options

Item	Description
Command drop-down list	Choose the command for connecting to a container or VM for an app: • For an PASS app, options are **/bin/sh** , **/bin/bash** , and **/bin/ash** • For a KVM app, the option is **Attach Console**
Connect /**Disconnect**/**Reconnect** toggle button	Click **Connect** to open a terminal shell for a container app or a terminal console for a VM app. Click **Disconnect** to exit the terminal shell or terminal console session. Click **Reconnect** to reconnect to a terminal shell or terminal console session. For security, the session also disconnects if you exit the App-Console page, refresh this page, or exit your browser.

App-ID > App-info Page

The *App-ID* > App-info page displays system, resource, and network information that relates to an app. It also provides information that you can use to access an app via a console. Much of the information on this page comes from the app metadata.

To access the *App-ID* > App-info page, choose an *App-ID* tab from the Cisco IOx Local Manager menu bar, and then choose **App-info**. The following table describes the fields and options that are available on this page. Some of the fields on this page appear only when an app is in a specific state or has a specific configuration.

Table 11: App-ID > App-info Page Fields and Options

Item	Description
Application Information area	

Item	Description
ID field	ID of the app
State field	Current state of the app (for example, DEPLOYED).
Name field	Name of the app.
Cartridge Required field	For PAAS applications, the name of each cartridge that the app requires. See the Cartridge Management Workflows section.
Version field	Version of the app.
Author field	Author of the app (for example, the company that provided the app).
Author link field	Link to an external page for the author (for example, the website of the author).
Application Type field	Type of the app (PAAS or MV).
Description field	Brief description of the app.
Toolkit service field	Not used.
Debug mode field	If the app was activated in debug mode, this field shows **true**. Otherwise, this field shows **false**.
App Access area	
Console Access	For an app that has a status of RUNNING, displays the command that you can use to access the app via a console. See the Accessing an App Container or VM from a Console System section.
VNC Access field	For a VM-based app that has a status of RUNNING, displays the password and port number that you entered in the VNC Options area in the *App-id >* Resources page. You use this password and port number when you access an app via a VNC session.
Requested Resource area	
CPU field	Number of CPU units that the app consumes on the host system.
Memory field	RAM, in MB, that the app consumes on the host system.
Profile field	Resource profile that you assigned to the app. See the Activating an App section.
Disk field	Disk space, in MB, that the app consumes on the host system.

Item	Description
Vcpu field	Number of virtual CPUs that are available on the host system for a VM-based app.
Network Information area	
interface-name field	Name of the network interfaces that the app uses for network access. Click an interface name to display a dialog box that shows the following information, as available:
	• interface-name—Name of the network interface that the app uses for network access.
	• TCP—If the app metadata requests that TCP ports be open on the host system, displays the TCP port number or numbers that the app requests be open for its use. If **info** appears in this field, click **info** to display a dialog box that provides port mapping information for this network interface.
	• UDP—If the app metadata requests that UDP ports be open on the host system, displays the TCP port number or numbers that the app requests be open for its use. If **info** appears in this field, click **info** to display a dialog box that provides port mapping information for this network interface.
	• mac_address—MAC address of the network interface that the app uses for network access.
	• network_name—Name of the network on which the app is activated.
	• ipv4—IPv4 address that is assigned to the internal interface of the app.
	• ipv6—IPv6 address that is assigned to the internal interface of the app.
	• mirroring—This field displays with a value of **true** if port mirroring is enabled for the app. You can enable port mirroring for an app that supports this feature when you activate the app. See the Activating an App section.
Device Information area	
Sl.No field	Row number in this area number for the corresponding information.

Item	Description
usage field	Description of the USB or serial device that the app uses on the host system.
device-id field	Unique ID used by the host system to identify the USB or serial device that the app uses.
type field	Indicates the type of device (**serial** or **usbport**).
label field	ID used by the app to identify the USB or serial device that the app uses on the host system.
App Health area	
App Health field	Description of the health of the app. "Healthy" means that the app has no errors and is operating normally. "Unhealthy" means that the app has errors. Click a description to see more detailed information, if available.
Reconcile Attempted field	If Cisco IOx determined that the app was corrupted and tried to recover the app, this field shows **true**. Otherwise, this field shows **false**.
Reconcile Failure field	If Cisco IOx tried to recover the app but was not able to, this field shows **true**. Otherwise, this field shows **false**. If this field shows **true**, the app must be recovered manually.
Resource Usage area	
CPU field	Percentage of total CPU units on the host system that the app is currently consuming.
Memory field	Memory, in KB, that the app is currently consuming on the host system.
Disk field	Disk space, in MB, that the app is currently consuming on the host system.
Network field	Data, in bytes, that the app has received from and transferred to the host system.
Refresh button	Click to update the page with current information.

App-ID > App-Config Page

The *App-ID* > App-Config page lets you update the configuration file for an app.

An app configuration file is a text file named package_config.ini, which is stored in the /data directory in the app container for the app. When an app starts, it obtains configuration parameters from this file, if the file exists. The contents and use of this file by its app are defined by the app developer.

To access the *App-ID* > App-Config page, choose an *App-ID* tab from the Cisco IOx Local Manager menu bar, and then choose **App-Config**. The following table describes the fields and options that are available on this page.

Table 12: App-ID > App-Config Page Fields and Options

Item	Description
Text field	Lets you enter configuration information for the app. See the Updating an App Configuration File section.
Save button	Click to save the updates that you made in the **Text** field.

App-ID > **App-DataDir Page**

The *App-ID* > App-DataDir page lets you see the contents of the /data directory in an app container, upload files to the /data directory or subdirectory, download files to your local system, and delete files or subdirectories from the /data directory. The files can be configuration files or other files that the app needs when it runs. log files, and other files that are created while app is running.

To access this page, the app must be in the ACTIVATED, RUNNING, or STOPPED state. This page is not available for use when an app is in the DEPLOYED state.

To access the *App-ID* > App-DataDir page, choose an *App-ID* tab from the Cisco IOx Local Manager menu bar, and then choose **App-DataDir**. The following table describes the fields and options that are available on this page.

Table 13: App-ID > App-DataDir Page Fields and Options

Item	Description
Current Location	Location in the app container /data directory of a folder that you clicked in the Name field.
Name field	Displays the files and subdirectories in the app container /data directory. In this field, you can take the following actions: • If you are viewing a subdirectory, click **../** to display the contents of the directory that is one level up from the directory that you are viewing. • Click the **Home** button to the contents of the top level of the /data directory. • Click a subdirectory name to see its contents. • Click a file name to download the file to your local PC. See the Downloading a File from an App Data Directory section.

Item	Description
Type field	Indicates the type of the corresponding item: • **file**—Item is a file in the /data directory or a subdirectory • **dir**—Item is a subdirectory in the /data directory
Size field	Size of a file, in bytes. For directories, the size displays as 0.
Actions field	Provides the **delete** option for deleting a file or directory. See the Deleting a File or Directory from an App Data Directory section.
Home button	Click to display in the Name field the contents of the top level of the /data directory.

App-ID > Logs Page

The *App-ID* > Logs page provides information about the app log files that the app creates in the /data/logs directory in the app container for the app, and lets you download these log files.

To access the *App-ID* > Logs page, choose an *App-ID* tab from the Cisco IOx Local Manager menu bar, and then choose **Logs**. The following table describes the fields and options that are available on this page.

Table 14: App-ID > Logs Page Fields and Options

Item	Description
Log name field	Name of the log file.
Timestamp field	Host system date and time that the log file was last updated.
Log Size field	Size of the log file, in bytes.
download button	Lets you download a log file. See the Downloading an App Log File section.