

INTEGRATION PACK FOR VMWARE ARIA OPERATIONS

For Microsoft System Center Orchestrator

User Guide

Version 1.1

Kelverion Integration Pack for VMware Aria Operations

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Installation and Configuration

The **Integration Pack for VMware Aria Operations** is an add-on for System Center Orchestrator that enables you to integrate with VMware Aria Operations and automate alert management processes.

System Requirements

The Integration Pack for VMware Aria Operations has the following requirements.

Kelverion Integration Pack for VMware Aria Operations (64-bit)

- VMware Aria Operations 8.18.6
- Microsoft System Center Orchestrator 2022, 2025
- Microsoft .NET Framework 4.7.2

Registering and Deploying the Integration Pack

After you download the integration pack file, you must register it with the Orchestrator management server and then deploy it to Runbook Servers and Runbook Designers. For more information about how to install integration packs, see the How to Install an Integration Pack (https://technet.microsoft.com/en-us/library/hh420346.aspx).

To register the integration pack:

1. On the management server, copy the **.OIP** file for the integration pack to a local hard drive or network share. Confirm that the file is not set to **Read Only.**
2. Start the **Deployment Manager**.
3. In the navigation pane of the Deployment Manager, expand **Orchestrator Management Server**, right-click **Integration Packs** to select **Register IP with the Orchestrator Management Server**. The **Integration Pack Registration Wizard** opens.
4. Click **Next**.
5. In the **Select Integration Packs or Hotfixes** dialog box, click **Add**.
6. Locate the **.OIP** file that you copied locally from step 1, click **Open** and then click **Next**.
7. In the **Completing the Integration Pack Wizard** dialog box, click **Finish**.
8. On the **End User Agreement** dialog box, read the Kelverion License Terms**,** and then click **Accept**.
9. The **Log Entries** pane displays a confirmation message when the integration pack is successfully registered.

To deploy the integration pack:

1. In the navigation pane of the **Deployment Manager**, right-click **Integration Packs**, click **Deploy IP to Runbook Server or Runbook Designer**.
2. Select the integration pack that you want to deploy, and then click **Next**.
3. Enter the name of the runbook server or computers with the Runbook Designer installed, on which you want to deploy the integration pack, click **Add**, and then click **Next**.

4. Continue to add additional runbook servers and computers running the Runbook Designer, on which you want to deploy the integration pack. Click **Next**.
5. In the **Installation Options** dialog box configure the following settings.
6. To choose a time to deploy the integration pack, select the **Schedule installation** check box, and then select the time and date from the **Perform installation** list.
7. Click one of the following:
    a. **Stop all running runbooks before installing the integration pack** to stop all running runbooks before deploying the integration pack.
    b. **Install the Integration Packs without stopping the running Runbooks** to install the integration pack without stopping any running runbooks.
8. Click **Next**.
9. In the **Completing Integration Pack Deployment Wizard** dialog box, Click **Finish**.
10. When the integration pack is deployed, the **Log Entries** pane displays a confirmation message.

Licensing the Integration Pack

After you register and deploy the integration pack you must provide a valid Kelverion license before running any runbooks that contain activities from the integration pack.

To deploy the integration pack license file to System Center Orchestrator 2022 or later:

1. Copy the .KAL license file to %PROGRAMFILES%\Kelverion Automation\Licenses
2. Repeat for each Orchestrator Runbook Server and Runbook Designer host system.

Connecting to VMware Aria Operations

The Kelverion Integration Pack for VMware Aria Operations requires an Aria Operations user to authenticate with the Aria Operations server for REST operations. Following best practices, it is advisable to create a new user specifically for use with the Integration Pack.

Prerequisite Configuration

Prerequisite Configurations establish reusable links between Orchestrator and an Aria Operations server. You can create as many configurations as you require. You can also create multiple configurations to allow for different users and/or roles.

To set up a prerequisite configuration in Runbook Designer

1. On the **Options** menu, click **KA VMware Aria Operations**.
2. In the **KA VMware Aria Operations** dialog box, click the **Configuration** tab and then click **Add.**
3. On the **Configuration** tab, click **Add**.
4. In the **Add Configuration dialog** box, click the browser next to the **Type** box**.** Select **VMware Aria Operations Configuration** and then click **OK**.

5. In the **Server URL** box, enter the URL of the VMware Aria Operations server, in the format **https://<server FQDN>**. For example, https://vrops-818.domain.com.
6. In the **Username** box, enter the Aria Operation username.
7. In the **Password** box, enter the Aria Operations password.

   Note: If the password is changed, you must restart Orchestrator Runbook Designer and running monitoring runbooks, for the password change to take effect.
8. In the **Skip Certificate Validation** box, specify if you want the integration pack to perform server certificate validation when connecting to the server over HTTPS. When set to True, the IP will not perform certificate validation. This is typically used in secure environments, when working with trusted servers and self-signed certificates. When set to False, the IP will validate the server certificate. The server must be configured with a valid certificate signed by a valid certificate authority, and the server FQDN in the **Server URL** must be listed on the certificate.
9. Click **OK**, and then click **Finish**.

VMware Aria Operations Activities

This integration pack adds the KA VMware Aria Operations category to the Runbook Designer Activities pane. This category contains the following activities:

- Add Alert Note
- Assign Alert
- Cancel Alert
- Get Alert
- Get Resource
- Get User
- Monitor Alert
- Release Alert Ownership
- Suspend Alert

Common Configuration Instructions for All Activities

The following configuration instructions apply to all activities in this integration pack.

Activity Properties

Each activity has a set of required or optional properties that define the configuration of that activity. This includes how it connects to other activities or how the activity performs its actions. You can view or modify activity properties in the Runbook Designer.

To configure the properties for an activity:

1. Double-click the activity. Alternatively, you can right-click the activity, and then click **Properties**.
2. To save your configuration entries, click **Finish**.

In the activity properties dialog box, several tabs along the left side provide access to general and specific settings for the activity. Although the number of available tabs for activity properties differs from activity to activity, all activities will have a **General** tab, **Properties** tab, and a **Run Behavior** tab. Some activities may have additional tabs, such as a **Filters** tab.

General Tab

This tab contains the **Name** and **Description** properties for the activity. By default, the **Name** of the activity is the same as its activity type, and the **Description** is blank. You can modify these properties to create more descriptive names or provide detailed descriptions of the actions of the activity.

Properties Tab

The Properties tabs contain properties that are specific to the activity.

All activities in this integration pack have the **Configuration Name** property at the top of the **Properties** tab. This property is used to specify which prerequisite configuration to use to connect to VMware Aria Operations.

To configure the Configuration Name property:

- Click the ellipsis **(…)** button next to the **Name** field, and then select the applicable connection name. Connections displayed in the list have been previously configured as described in Configuring the VMware Aria Operations Connections.

Filters Tab

The Get Resource activities include a filters tab. You can use the Filters tab to add one or more filters to target a specific subset of resources. Each filter includes **Name**, **Relation,** and **Value** properties, that you must configure.

To add a filter to your runbook activity:

1. Click the **Filters** tab and then click **Add.**
2. In the **Name** box, select the entity field that the filter will target.
3. In the **Relation** box, select the relation used to evaluate the filter value.
4. In the **Value** box, type the value that you want the filter to evaluate.
5. Click **OK**.

The relations that are available when configuring a filter are dependent on the data type of the entity field that the filter is targeting. One or more of the following will be provided.

- **Equals**: the field of the record exactly matches the text or number specified in the filter.
- **Contains**: the field of the record contains the text or number specified in the filter.
- **Is less than**: the field of the record is less than the number specified in the filter.
- **Is less than or equal to**: the field of the record is less than or equal to the number specified in the filter.
- **Is greater than**: the field of the record is greater than the number specified in the filter.
- **Is greater than or equal to**: the field of the record is greater than or equal to the number specified in the filter.

Run Behavior Tab

This tab contains the properties that determine how the activity handles multi-value published data and what notifications will be sent if the activity fails or runs for an excessive period.

Published Data Behavior

By default, Published Data is passed as multiple individual outputs. You can alternatively specify that all values should be flattened into a single comm-delimited value (.csv) file.

When you enable the Flatten feature, you also choose a multi-value formatting option.

- **Separate with line breaks**. Each item is on a new line. This format is useful for creating human-readable text files for the output.
- **Separate with _** . Each item is separated by one or more characters of your choice.
- **Use CSV format**. All items are in CSV (comma-separated value) format. This format is useful for importing data into spreadsheets or other applications.

Note: The Flatten feature does not flatten data across multiple instances of the same activity. It only flattens multiple values returned from a single instance of the activity.

Event Notifications

Some activities are expected to take a limited amount of time to complete. If they do not complete within that time they may be stalled or there may be another issue preventing them from completing. You can define the number of seconds to wait for completion of the action. After this period, a platform event will be sent, and the issue will be reported. You can also choose whether to generate a platform event if the activity fails.

To be notified when the activity takes longer than a specified time to run or fails to run:

1. In the **Event Notifications** box, enter the **number of seconds** of run time before a notification is generated.
2. Select **Report if activity fails to run** to generate run failure notifications.

For more information about Orchestrator events, see the “Event Notifications " topics in the Runbook Properties (https://technet.microsoft.com/en-us/library/hh489610.aspx#Event Notifications).

Published Data

Published data is the foundation of a working runbook. It is the data produced because of the actions of an activity. This data is published on an internal data bus that is unique for each runbook. Subsequent activities in the runbook can subscribe to this data and use it in their configuration. Link conditions also use this information to add decision-making capabilities to runbooks.

An activity can subscribe only to data from the activities that are linked to it in the runbook. You can use published data to automatically populate the property values needed by activities.

To subscribe to Published Data of an earlier activity in the workflow:

1. Right-click the property value box, click **Subscribe**, and then click **Published Data**.
2. Click the **Activity** drop-down box and select the activity from which you want to obtain the data. By default, the dialog box only displays Published Data that is specific to that activity. To include Published Data that is common to all activities, click **Show Common Published Data**.
3. Click the published data item that you want to use, and then click **OK**.

For a list of the data elements published by each activity, see the Published Data tables in the activity topic. For information see Published Data (http://technet.microsoft.com/en-us/library/hh403821.aspx).

Add Alert Note Activity

The **Add Alert Note** activity is used to create a new alert note.

Required Properties

You must configure the following properties.

Alert ID	Specifies the alert for which the note will be created.
Note	Text for the new alert note.

Published Data

The activity publishes the following activity specific data items.

Alert Note ID	The unique ID of the newly created alert note.

Assign Alert Activity

The **Assign Alert** activity is used to assign alert(s) to a user.

Required Properties

You must configure the following properties.

Alert ID	Identifies the alert(s) that will be assigned. To assign multiple alerts, enter a list of comma (,) separated alert IDs.

Optional Properties

You can use the following properties, as necessary, to control the behavior of the activity.

User ID	Specifies the ID of the user that the alert(s) will be assigned to. When not specified, the alert(s) will be assigned to the user configured in the integration pack configuration options.

Cancel Alert Activity

The **Cancel Alert** activity is used to cancel alert(s).

Required Properties

You must configure the following properties.

Alert ID	Identifies the alert(s) that will be canceled. To cancel multiple alerts, enter a list of comma (,) separated alert IDs.

Get Alert Activity

The **Get Alert** activity is used to retrieve and filter alerts. Returned alerts will always be ordered descending by alert create time.

Optional Properties

You can use the following properties, as necessary, to control the behavior of the activity.

Limit	Specifies the maximum number of alerts the activity will return.

Filters

You can combine one or more of the following filters to selectively control which alerts to retrieve. Some filters support comma (,) separated filter values. For these filters, the activity will return all the alerts matching all the values in the list.

Active Only	Filter to return only active alerts, if true. The activity will exclude suspended and cancelled alerts.
Alert Definition	Filter by alert definition.
Alert Definition ID	Filter by alert definition ID. You can specify multiple alert definition IDs as a list of comma (,) separated IDs.
Alert ID	Filter by alert ID. You can specify multiple alert IDs as a list of comma (,) separated IDs.
Alert Impact	Filter by alert impact. You can specify multiple impact values as a list of comma (,) separated values.
Alert Level	Filter by alert level. You can specify multiple impact level values as a list of comma (,) separated values.
Cancel Time UTC	Filter by alert cancel time (UTC).
Control State	Filter by alert control state. You can specify multiple control state values as a list of comma (,) separated values.
Owner ID	Filter by alert owner ID.
Owner Name	Filter by alert owner name.
Start Time UTC	Filter by alert start time (UTC).
Status	Filter by alert status. You can specify multiple status values as a list of comma (,) separated values.
Subtype	Filter by alert subtype. **Type** filter must also be specified. The specified subtype must be a valid subtype for the specified **Type** filter.
Type	Filter by alert type.
Update Time UTC	Filter by alert update time (UTC).

Published Data

The activity publishes the following activity specific data items.

Alert Count	The number of alerts returned by the activity.
Alert ID	Alert unique identifier.
Alert Definition ID	Alert definition identifier.
Alert Definition	Alert definition.
Alert Impact	Alert impact value.
Alert Level	Alert level value.
Cancel Time UTC	Date/time when the alert was canceled.
Control State	Alert control state value.
Owner ID	Alert owner identifier.
Owner Name	Alert owner name.
Resource ID	Alert resource identifier.
Start Time UTC	Date/time when the alert was created.
Status	Alert status.
Subtype	Alert subtype.
Suspend Until Time UTC	Date/time until when the alert has been suspended.
Type	Alert type.
Update Time UTC	Date/time when the alert was last updated.

Get Resource Activity

The **Get Resource** activity is used to retrieve and filter alert resources.

Filters

You can combine one or more of the following filters to selectively control which resources to retrieve. Some filters support comma (,) separated filter values. For these filters, the activity will return all the resources matching all the values in the list.

Resource ID	Filter by resource ID. You can specify multiple resource IDs as a list of comma (,) separated IDs.
Resource Name	Filter by resource name.
Resource Type	Filter by resource type. You can specify multiple resource types as a list of comma (,) separated values.

Published Data

The activity publishes the following activity specific data items.

Adapter	Aria operations adapter kind.

Health	Resource health value.
Health Value	Resource health numeric value.
Resource Count	The number of resources returned by the activity.
Resource ID	Resource unique identifier.
Resource Name	Resource name.
Resource Type	Resource type.
Resource MOR	Resource managed object reference identifier.
Resource Instance UUID	Resource instance unique identifier.
vCenter ID	Resource vCenter identifier.

Get User Activity

The **Get User** activity is used to retrieve and filter users.

Filters

You can combine one or more of the following filters to selectively control which users to retrieve. Some filters support comma (,) separated filter values. For these filters, the activity will return all the users matching all the values in the list.

Role Name	Filter by role name. You can specify multiple roles as a list of comma (,) separated values.
User ID	Filter by user ID. You can specify multiple user IDs as a list of comma (,) separated IDs.
Username	Filter by username. You can specify multiple usernames as a list of comma (,) separated values.

Published Data

The activity publishes the following activity specific data items.

Distinguished Name	User distinguished name.
Email Address	User email address.
First Name	User first name.
Last Name	User last name.
Role Names	Roles assigned to the user.
User Count	Number of user records returned by the activity.
User ID	User unique identifier.
Username	Username.

Monitor Alert Activity

The **Monitor Alert** activity is used to detect when new alerts are raised in VMware Aria Operations. Returned alerts will always be ordered descending by alert create time.

Required Properties

You must configure the following properties.

Monitor Interval (sec)	Specifies the polling interval for the alert monitor, in seconds.

Filters

You can combine one or more of the following filters to selectively control which alerts to retrieve. Some filters support comma (,) separated filter values. For these filters, the activity will return all the alerts matching all the values in the list.

Active Only	Filter to return only active alerts, if true. The activity will exclude suspended and cancelled alerts.
Alert Definition	Filter by alert definition.
Alert Definition ID	Filter by alert definition ID. You can specify multiple alert definition IDs as a list of comma (,) separated IDs.
Alert ID	Filter by alert ID. You can specify multiple alert IDs as a list of comma (,) separated IDs.
Alert Impact	Filter by alert impact. You can specify multiple impact values as a list of comma (,) separated values.
Alert Level	Filter by alert level. You can specify multiple impact level values as a list of comma (,) separated values.
Cancel Time UTC	Filter by alert cancel time (UTC).
Control State	Filter by alert control state. You can specify multiple control state values as a list of comma (,) separated values.
Owner ID	Filter by alert owner ID.
Owner Name	Filter by alert owner name.
Status	Filter by alert status. You can specify multiple status values as a list of comma (,) separated values.
Subtype	Filter by alert subtype. **Type** filter must also be specified. The specified subtype must be a valid subtype for the specified **Type** filter.
Type	Filter by alert type.
Update Time UTC	Filter by alert update time (UTC).

Published Data

The activity publishes the following activity specific data items.

Alert Count	The number of alerts returned by the activity.
Alert ID	Alert unique identifier.
Alert Definition ID	Alert definition identifier.
Alert Definition	Alert definition.
Alert Impact	Alert impact value.
Alert Level	Alert level value.
Cancel Time UTC	Date/time when the alert was canceled.
Control State	Alert control state value.
Owner ID	Alert owner identifier.
Owner Name	Alert owner name.
Resource ID	Alert resource identifier.
Start Time UTC	Date/time when the alert was created.
Status	Alert status.
Subtype	Alert subtype.
Suspend Until Time UTC	Date/time until when the alert has been suspended.
Type	Alert type.
Update Time UTC	Date/time when the alert was last updated.

Release Alert Ownership

The **Release Alert Ownership** activity is used release ownership for previously assigned alerts.

Required Properties

You must configure the following properties.

Alert ID	Identifies the alert(s) that will be released. To release multiple alerts, enter a list of comma (,) separated alert IDs.

Suspend Alert

The **Suspend Alert** activity is used to temporarily suspend alerts. Note that when the alert is suspended, alert ownership will be assigned to the user configured in the integration pack configuration options.

Required Properties

You must configure the following properties.

Alert ID	Identifies the alert(s) that will be suspended. To suspend multiple alerts, enter a list of comma (,) separated alert IDs.
Minutes	Specifies the number of minutes that the alert(s) will be suspended for.