



Cisco Workload Automation Amazon EC2 Adapter Guide

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Preface

This guide describes the installation, configuration, and usage of the Amazon EC2 Adapter with Cisco Workload Automation (CWA).

Audience

This guide is for administrators who install and configure the Amazon EC2 Adapter for use with Cisco Workload Automation, and who troubleshoot CWA installation and requirements issues.

Related Documentation

See the *Cisco Workload Automation Documentation Overview* for your release on cisco.com at:

<http://www.cisco.com/c/en/us/support/cloud-systems-management/tidal-enterprise-scheduler/products-documentation-roadmaps-list.html>

...for a list of all Cisco Workload Automation guides.

Note: We sometimes update the documentation after original publication. Therefore, you should also review the documentation on Cisco.com for any updates.

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For information on obtaining documentation, submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

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Document Change History

The table below provides the revision history for the Amazon EC2 Adapter Guide.

Version Number	Issue Date	Reason for Change
6.1.0	October 2012	New Cisco version.
6.2.1	June 2014	Available in online Help only.
6.2.1 SP2	June 2015	Configuration provided in the <i>Cisco Tidal Enterprise Scheduler Installation Guide</i> ; usage provided in online Help only.
6.2.1 SP3	May 2016	Consolidated all Amazon EC2 Adapter documentation into one document.
6.3	August 2016	Rebranded “Cisco Tidal Enterprise Scheduler (TES)” to “Cisco Workload Automation (CWA)”. Miscellaneous edits for the 6.3 release.



1

Introducing the Amazon EC2 Adapter

This chapter provides an overview of the Cisco Workload Automation Amazon EC2 (Elastic Compute Cloud) Adapter and its requirements:

- [Overview, page 7](#)
- [Instance Types, page 7](#)
- [Instance Storage, page 8](#)
- [Amazon Machine Image \(AMI\), page 8](#)
- [Regions and Availability Zones, page 8](#)
- [Amazon Elastic Block Store \(EBS\), page 8](#)
- [Amazon Simple Storage Service \(S3\), page 8](#)

Overview

Amazon EC2 is an Amazon Web service that provides scalable compute-capacity in the cloud. Specifically, EC2 provides the ability to run virtual machine (VM) instances on Amazon's cloud infrastructure. EC2 is elastic, which means instances can be spun up or down on the fly. EC2 is also configurable. You can choose from a large set of VM images that come pre-installed with the latest operating systems and applications. Or, you can upload your own custom VM images to EC2. You can also choose the exact CPU, memory, and storage configurations to suit your computing needs.

The Amazon EC2 Adapter, in conjunction with Cisco Workload Automation, can be used to define, launch, control, and monitor jobs submitted to EC2 on a scheduled basis. The Adapter integrates seamlessly in an enterprise scheduling environment.

The Amazon EC2 Adapter includes the following features:

- Connection management to monitor system status with a live connection to the EC2 Server.
- EC2 job management includes the following:
 - Scheduling and monitoring of jobs from a centralized work console with Cisco Workload Automation.
 - Defined dependencies and events with Cisco Workload Automation for scheduling control.

Instance Types

There are several instance types to choose from, each with different configurations of memory and CPU capacity.

- **Standard Instances** – Well suited for most applications.

Instance Storage

- **Micro Instances** – Provide a small amount of consistent CPU resources and allows applications to increase CPU capacity in short bursts when additional cycles are available.
- **High-memory Instances** – Offer large memory sizes for high throughput applications, including database and memory caching applications.
- **High-CPU Instances** – Has more CPU capacity than memory and well suited for compute-intensive instances.
- **Cluster Compute Instances** – Provides proportionally high CPU resources with increased network performance and are well suited for High Performance Compute (HPC) applications and other demanding network-bound applications.
- **Cluster GPU Instances** – Provide general-purpose graphics processing units (GPUs) with proportionally high CPU and increased network performance for applications benefitting from highly parallelized processing, including HPC, rendering and media processing applications.

Instance Storage

There are two types of instance storage:

- **Instance storage** – keeps the instance boot partition on a temporary store that is destroyed when the instance lifecycle ends.
- **EBS storage** – keeps the instance's boot partition on an EBS volume and can be persisted beyond the lifecycle of the instance.

Amazon Machine Image (AMI)

Amazon Machine Images (AMIs) are VM images from which instances are launched. They can be installed with a number of popular operating systems and applications. EC2 has a large number of existing AMIs to choose from. Or, customers can create their own AMIs from a VM image they upload themselves into EC2.

Regions and Availability Zones

Amazon segments cloud infrastructure into regions and availability zones. Regions are segmented geographically. There are major regions for both coasts of the United States for example. Regions are further segmented into availability zones. Each availability zone is a logically distinct “data center” that is insulated from other availability zones. By keeping instances in separate availability zones, customers can protect their applications from failures in other zones. EC2 provides inexpensive, low latency network connectivity between availability zones in the same region.

Amazon Elastic Block Store (EBS)

Amazon Elastic Block Store (EBS) is one of the persistent storage types for EC2. The other is Amazon Simple Storage Service (S3). EBS stores or volumes act as raw unformatted external hard drives that can be formatted using a file system such as ext3 (Linux) or NTFS (Windows) and mounted on an EC2 instance.

If an EBS volume is used as the boot partition of an instance, that instance can be stopped and restarted. In contrast, instances cannot be restarted after being stopped if their boot partition is stored in instance storage.

Snapshots can be created of EBS volumes and backed up into S3. These snapshots can be restored back into an EBS volume at any time.

Amazon Simple Storage Service (S3)

S3 is the other persistent storage type for EC2. It provides a simple web service interface that customers use to store and retrieve any amount of data. Like a file system, S3 data is conceptualized into buckets (folders) and objects (files).



2

Configuring the Amazon EC2 Adapter

Overview

The Amazon EC2 Adapter software is installed as part of a standard installation of Cisco Workload Automation. However, you must perform the following steps to license and configure the Adapter before you can schedule and run EC2 jobs:

- [Licensing an Adapter, page 9](#) – Apply the license to the Amazon EC2 Adapter. You cannot define a EC2 connection until you have applied the EC2 license.
- [Securing the Adapter, page 10](#) – Define EC2 users that the Adapter can use to establish authenticated sessions with the EC2 server and permit requests to be made on behalf of the authenticated account.
- [Defining a Connection, page 14](#) – Define an EC2 connection so the master can communicate with the EC2 server.

See [Configuring service.props, page 27](#) for details about configuring service.props to control such things as polling, output, and log gathering.

Licensing an Adapter

Each CWA Adapter must be separately licensed. You cannot use an Adapter until you apply the license file. If you purchase the Adapter after the original installation of CWA, you will receive a new license file authorizing the use of the Adapter.

You might have a Demo license which is good for 30 days, or you might have a Permanent license. The procedures to install these license files are described below.

To license an Adapter:

1. Stop the master:

Windows:

- a. Click on **Start** and select **All Programs>Cisco Workload Automation>Scheduler>Service Control Manager**.
- b. Verify that the master is displayed in the **Service** list and click on the **Stop** button to stop the master.

UNIX:

Enter **tesm stop**

2. Create the license file:

- For a Permanent license, rename your Permanent license file to *master.lic*.
- For a Demo license, create a file called *demo.lic*, then type the demo code into the *demo.lic* file.

3. Place the file in the **C:\Program Files\TIDAL\Scheduler\Master\config** directory.

4. Restart the master:

Windows:

Click **Start** in the Service Control Manager.

UNIX:

Enter **tesm start**

The master will read and apply the license when it starts.

5. To validate that the license was applied, select **Registered License** from **Activities** main menu.

Securing the Adapter

There are two types of users associated with the Amazon EC2 Adapter, **Runtime Users** and **Schedulers**. You maintain definitions for both types of users from the **Users** pane.

■ Runtime Users

Runtime users in the context of EC2 jobs represent those users and passwords required for authentication. EC2 operations require authentication against a valid EC2 user as defined by a EC2 administrator.

■ Schedulers

Schedulers are those users who will define and/or manage EC2 jobs. There are three aspects of a user profile that grant and/or limit access to scheduling jobs that affect EC2:

- Security policy that grants or denies add, edit, delete and view capabilities for EC2 jobs.
- Authorized runtime user list that grants or denies access to specific authentication accounts for use with EC2 jobs.
- Authorized agent list that grants or denies access to specific Amazon EC2 Adapter connections for use when defining EC2 jobs.

About Amazon EC2 Credentials

Access to Amazon EC2 is granted using a certificate and access/secret key pair.

The access and secret keys are unique strings assigned to each customer where their account is created. Both are needed to authenticate into the EC2 system. The access key is considered public, while only the customer should know the secret key.

The Amazon EC2 adapter needs both keys to make a connection to EC2. Since each key-pair uniquely identifies a particular customer, they can be treated as a user name and password. As such, Cisco Workload Automation users can be used to store the access and private keys. When defining an EC2 connection, the user must select an existing EC2 user with the desired keys.

Defining Runtime Users

To define a runtime user:

1. From the **Navigator** pane, expand the **Administration** node and select **Runtime Users** to display the defined users.
2. Right-click **Runtime Users** and select **Add Runtime User** from the context menu (*Insert mode*).

Securing the Adapter

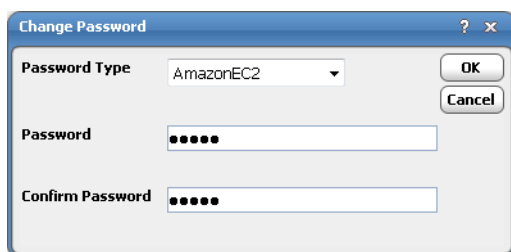
-or-

Click the **Add** button on the menu bar.

The **User Definition** dialog displays.

3. Enter the AWS access key ID in the **User Name** field.
4. For documentation, enter the **Full Name** or description associated with this user.
5. To define this user as a runtime user for EC2 jobs, click **Add** on the **Passwords** tab.

The **Change Password** dialog displays.



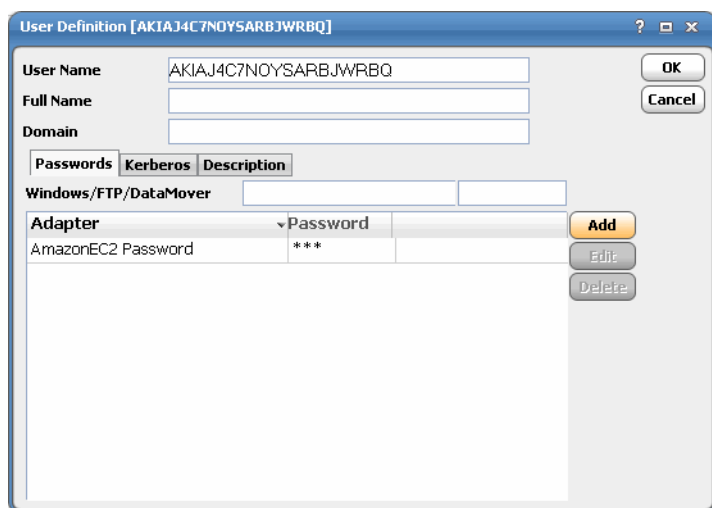
The **Change Password** dialog box has a title bar with a question mark and a close button. It contains three fields: **Password Type** (a dropdown menu set to 'AmazonEC2'), **Password** (a text box with five dots), and **Confirm Password** (a text box with five dots). There are **OK** and **Cancel** buttons in the top right corner.

6. Select **AmazonEC2** from the **Password Type** list.
7. Enter a password (along with confirmation) in the **Password/Confirm Password** fields.

Only those users with a password specified for EC2 will be available for use with EC2 jobs. The password might be the same as the one specified for Windows/FTP jobs.

8. Click **OK** to return to the **User Definition** dialog.

The new password record displays on the **Passwords** tab.



The **User Definition** dialog box has a title bar with a question mark, a maximize button, and a close button. It contains several fields: **User Name** (text box with 'AKIAJ4C7NOYSARBJWRBQ'), **Full Name** (text box), and **Domain** (text box). There are **OK** and **Cancel** buttons in the top right corner. Below these fields are three tabs: **Passwords** (selected), **Kerberos**, and **Description**. Under the **Passwords** tab, there is a **Windows/FTP/DataMover** section with a text box. Below that is a table with two columns: **Adapter** and **Password**. The table has one row with 'AmazonEC2 Password' and '***'. To the right of the table are **Add**, **Edit**, and **Delete** buttons.

9. Click **OK** to add or save the user record in the Cisco Workload Automation database.

For further information about the **User Definition** dialog, see the “Users” chapter in your *Cisco Workload Automation User Guide*.

Authorizing Schedulers to Work With EC2 Jobs

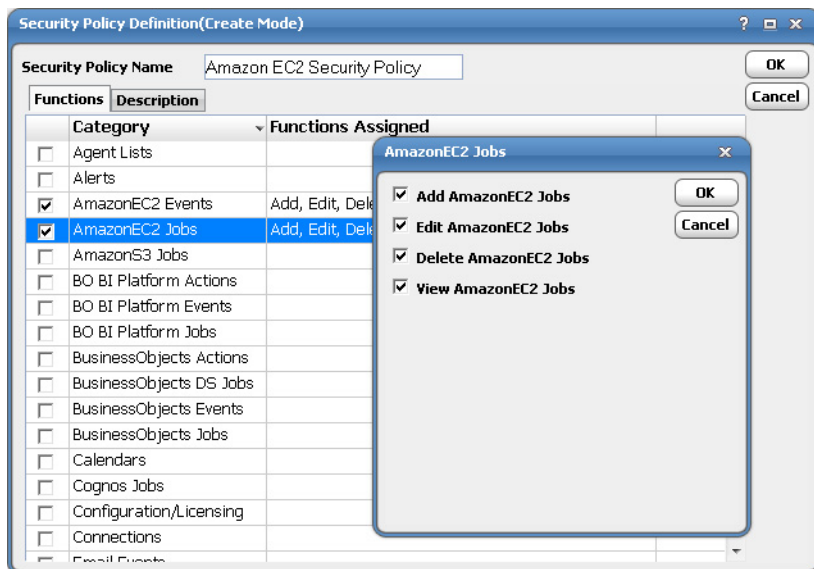
There are two steps for authorizing schedulers to work with Amazon EC2 jobs:

- [Defining a Security Policy for Amazon EC2, page 12](#)
- [Defining a Scheduler User, page 12](#)

Defining a Security Policy for Amazon EC2

To define a security policy for Amazon EC2:

1. From the **Navigators** pane, select **Administration>Security Policies** to display the **Security Policies** pane.
2. Right-click **Security Policies** and select **Add Security Policy** from the context menu. You can also right-click to select an existing security policy in the **Security Policies** pane and select **Edit Security Policy**.



3. In the **Security Policy Name** field, enter a name for the policy.
4. On the **Functions** page, scroll to the **EC2 Jobs** category, click the ellipses on the right-hand side of the dialog and select the check boxes next to the functions that are to be authorized under this policy (**Add**, **Edit**, **Delete** and **View EC2s Jobs**).
5. Click **Close** on the **Function** drop-down list.
6. Click **OK** to save the policy.

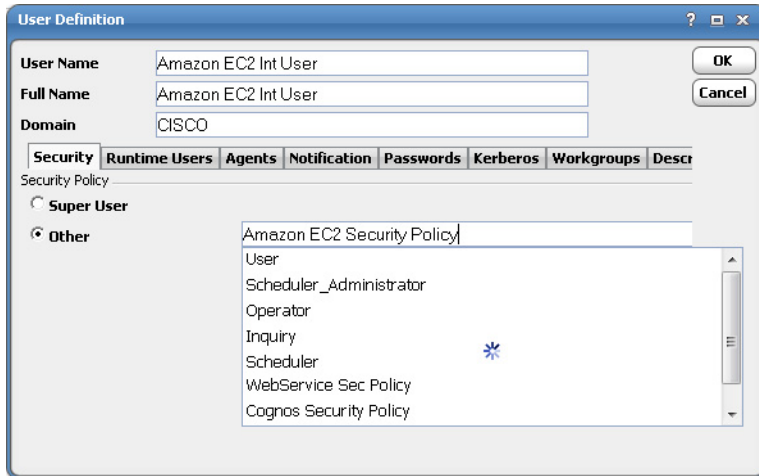
For further information about setting up security policies, see your *Cisco Workload Automation User Guide*.

Defining a Scheduler User

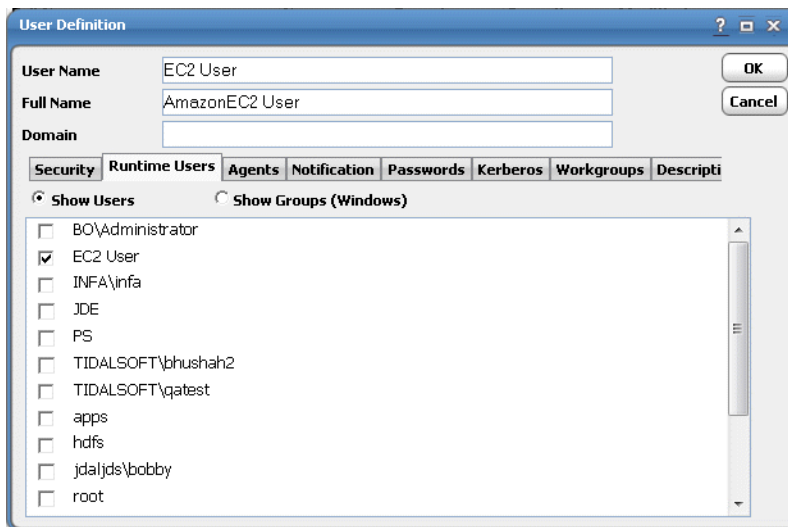
To define a Scheduler user to work with EC2 jobs:

1. From the **Navigators** pane, expand the **Administrative** node and select **Interactive Users** to display the defined users.
2. Right-click **Interactive Users** and select **Add Interactive User** from the context menu (*Insert mode*). You can also right-click a user in the **Interactive Users** pane and select **Edit Interactive User** from the shortcut menu (*Edit mode*).

The **User Definition** dialog displays.



3. If this is a new user definition, enter the new user name in the **User/Group Name** field.
4. For documentation, enter the **Full Name** or description associated with this user.
5. In the **Domain** field, select a Windows domain associated with the user account required for authentication, if necessary.
6. On the **Security** page, select the **Other** option and then select the security policy that includes authorization for EC2 jobs.
7. Click the **Runtime Users** tab.



8. Select the Amazon EC2 users that this scheduling user may use for AmazonEC2 authentication in AmazonEC2 jobs.
9. Click the **Agents** tab.
10. Select the check boxes for the EC2 connections that this scheduling user can access when scheduling jobs.
11. Click **OK** to save the user definition.

Defining a Connection

You must create one or more EC2 connections before Cisco Workload Automation can run your EC2 jobs. These connections also must be licensed before Cisco Workload Automation can use them. A connection is created using the **Connection Definition** dialog.

An EC2 connection represents a connection to an EC2 availability zone. All jobs executing under an EC2 connection would thus operate only on the instances in the connection's availability zone.

An EC2 connection needs three pieces of information: the availability zone (endpoint), the access key and the secret key. The zone can be selected from a dropdown list of zones. The dropdown list will be populated via a query to EC2. The access key and secret key can be selected indirectly by a dropdown list of EC2 users. As mentioned each the EC2 user's user name and password map to the access and secret keys, respectively.

Adding a Connection

To add a connection:

1. From the **Navigators** pane, navigate to **Administration>Connections** to display the **Connections** pane.
2. Right-click **Connections** and select **Add Connection>AmazonEC2 Adapter** from the context menu.

The **Amazon EC2 Adapter Connection Definition** dialog displays.

3. On the **General** page, enter a name for the new connection in the **Name** field.
4. In the **Job Limit** field, select the maximum number of concurrent active processes that Cisco Workload Automation should submit to the Amazon EC2 server at one time.
5. From the **Default Runtime User** drop-down list, you have the option to select the name of a default user for AmazonEC2 jobs.

Only authorized users that have been defined with Amazon EC2 passwords display in this list. The selected user is automatically supplied as the default runtime user in a new Cisco Workload Automation Amazon EC2 job definition.

6. Click the AmazonEC2 tab.

Connection Definition (Edit Mode) [EC2-DEMO[AmazonEC2]]

AmazonEC2 Adapter

Name: EC2-DEMO

General AmazonEC2 Service Health Option Outages Description

Connect User: AKIAI23M5NNT5NMUW3YQ

Region: us-east-1

Test

☐ Override EC2 Endpoint String

http://ec2.us-east-1.amazonaws.com

☒ Enabled ☐ Use as default for AmazonEC2 Jobs

OK Cancel

7. From the Connect User list, select the associated Runtime User for Amazon EC2 to be used for connecting to Amazon EC2.

This is a persistent user connection to AmazonEC2 that is only used for administration and monitoring and for jobs with a matching runtime user. Jobs with a different runtime user specified will create additional temporary connections.

8. From the Region list, enter the name of your Amazon EC2 server.**9. In the Override EC2 Endpoint String field, enter the URL of the EC2 server in the format specified above.****10. Click the Test button to test connectivity using the specified EC2 Server URL.**

If the test is successful, the following information dialog box displays:

Information

Successfully connected to http://ec2.us-east-1.amazonaws.com

Ok

11. Click the **Service Health** tab to display the status and additional information of the for the selected availability zone.

Connection Definition (Edit Mode) [EC2-DEMO[AmazonEC2]]

AmazonEC2 Adapter

Name: EC2-DEMO

General AmazonEC2 **Service Health** Option Outages Description

Service Status

Availability Zone Status

Current Status	Details
us-east-1a	available
us-east-1b	available
us-east-1c	available
us-east-1d	available

Refresh

Service Health

☒ Enabled ☐ Use as default for AmazonEC2 Jobs

12. Click the **Options** tab to specify additional connection parameters. Setting these parameter values at the connection level will globally set the Job Server for every job that is run on this connection. This configuration may be overridden at the job level by defining the corresponding configuration for the job options during job definition.

Note: As of Cisco Workload Automation (Tidal Enterprise Scheduler) version 6.1, connection parameters for the Amazon EC2 Adapter is not supported.

13. Click **OK** to save the new EC2 connection.

The status light next to the connection indicates whether the Cisco Workload Automation Master is connected to the EC2 server. If the light is green, the EC2 server is connected.

A red light indicates that the master cannot connect to the EC2 server. EC2 jobs will not be submitted without a connection to the EC2 server. You can only define jobs from the Client if the connection light is green.

If the light is red, you can test the connection to determine the problem. Right-click the connection and select **Test** from the shortcut menu. A message displays on the **Test EC2 Connection** dialog describing the problem. Or, go to **Operator>Logs** to look for error messages associated with this connection.



3

Using the Amazon EC2 Adapter

This chapter covers these topics:

- [Defining Amazon EC2 Jobs, page 17](#)
- [Monitoring Amazon EC2 Job Activity, page 22](#)
- [Controlling Adapter and Agent Jobs, page 24](#)

Defining Amazon EC2 Jobs

EC2 Adapter jobs perform several useful tasks that would otherwise have to be manually initiated through the EC2 Web console or a command line tool. As with other Cisco Workload Automation adapters, Cisco Workload Automation EC2 jobs can be scheduled, controlled and coordinated within the Cisco Workload Automation ecosystem. The EC2 Adapter currently supports 5 job types, including three for starting, stopping and terminating EC2 instances and two for snapshotting EBS volumes and moving user-owned AMIs between different EC2 regions.

Defining an Amazon EC2 Job

To define a Amazon EC2 job:

1. In the **Navigator** pane, select **Definitions>Jobs** to display the **Jobs** pane.
2. Right-click **Jobs** and select **Add>Amazon EC2 Job** from the context menu.

The **Amazon EC2 Job Definition** dialog displays.

The **Run** tab is selected by default. You must first specify a name for the job, the Amazon EC2 Adapter connection that will be used for the job and a valid runtime user who has the appropriate authority for the batch job being scheduled.

3. In the upper portion of the dialog, specify the following information to describe the job:

- **Job Name** – Enter a name that describes the job.
- **Job Class** – If you want to assign a defined job class to this job, select it from the drop-down list. This field is optional.
- **Owner** – Select the Amazon EC2 job owner.
- **Parent Group** – If this job exists under a parent group, select the name of the parent group from the drop-down list. All properties in the Agent Information section are inherited from its parent job group.

4. Specify the following connection information in the **Agent/Adapter Information** section:

- **Agent/Adapter Name** – Select the Amazon EC2 Adapter connection to be used for this job from the drop-down list.
- **Agent List Name** – Select a list for broadcasting the job to multiple Amazon EC2 servers rather than a specific agent/adapter.
- **Runtime User** – Select a valid runtime user with the appropriate authority for the job from the drop-down list.

5. Specify the appropriate **Tracking** and **Duration** information for the job. Refer to the *Cisco Workload Automation User Guide* for information on these options.

6. Click the **AmazonEC2** tab.

AmazonEC2 Job Definition [EC2-START-INSTANCE[\EC2 Job Group]]

AmazonEC2 Job Name: EC2-START-INSTANCE

Job Class: Start Instance

Parent Group: \EC2 Job Group

Owner: Schedulers

AmazonEC2 Schedule Run Dependencies Resources Job Events Options Run Book Notes History Images

Job Type: Start Instance

Instance ID: i-adb30ed6

Retrieve Instance Instance Search

Instance	AMI ID	Root Device	Zone	Type	State	Select
i-3d204646	ami-cc5af9a5	ebs	us-east-1a	t1.micro	running	
i-adb30ed6	ami-aecd60c7	ebs	us-east-1d	t1.micro	stopped	

Variables

☒ Enabled

Last Modified : 08/09/2012 17:42:49

7. From the **Job Type** list, select the job type. The following types are available:

- **EC2-START-INSTANCE** – Select this type to start an EC2 instance. Only one instance can be started at a time. Click **Retrieve Instance** to retrieve all EC2 instances. Select one of the retrieved instances and click **Select Instance**. Additionally, you can search for an instance via the **Amazon EC2 Instance Search Filter** dialog by clicking **Instance Search**.

Amazon EC2 Instance Search Filter

Instance ID: i-3d204646

AMI ID: ami-cc5af985

Root Device: ebs

Zone: us-east-1a

Type: t1.micro

State: running

OK Cancel

Defining Amazon EC2 Jobs

- **EC2-STOP-INSTANCE** – Select this type to stop a EC2 instance. Only one instance can be stopped at a time. If the instance is store backed, the instance lifecycle ends. If the instance is an EBS-stored backed instance, the instance can be restarted later. Click **Retrieve Instance** to retrieve all EC2 instances. Select on of the retrieved instances and click **Select Instance**. Additionally, you can search for an instance via the **Amazon EC2 Instance Search Filter** dialog by clicking **Instance Search**.

AmazonEC2 Job Definition [EC2-STOP-INSTANCE[EC2 Job Group]]

AmazonEC2 Job Name: EC2-STOP-INSTANCE

Job Class: [dropdown]

Parent Group: EC2 Job Group

Owner: Schedulers

Buttons: OK, Cancel

Tabs: AmazonEC2, Schedule, Run, Dependencies, Resources, Job Events, Options, Run Book, Notes, History, Images

Job Type: Stop Instance

Instance ID: i-adb30ed6

Buttons: Retrieve Instance, Instance Search

Instance	AMI ID	Root Device	Zone	Type	State	Select
i-3d204646	ami-cc5af9a5	ebs	us-east-1a	t1.micro	running	
i-adb30ed6	ami-aecd60c7	ebs	us-east-1d	t1.micro	stopped	

Buttons: Variables

Enabled

Last Modified : 08/09/2012 17:40:30

- **EC2-TERMINATE-INSTANCE** – Select this type to terminate a EC2 instance that is running. Only one instance can be terminated at a time. Click **Retrieve Instance** to retrieve all EC2 instances. Select on of the retrieved instances and click **Select Instance**. Additionally, you can search for an instance via the **Amazon EC2 Instance Search Filter** dialog by clicking **Instance Search**.

AmazonEC2 Job Definition [EC2-TERMINATE-INSTANCE[EC2 Job Group]]

AmazonEC2 Job Name: EC2-TERMINATE-INSTANCE

Job Class: [dropdown]

Parent Group: EC2 Job Group

Owner: qatest

Buttons: OK, Cancel

Tabs: AmazonEC2, Schedule, Run, Dependencies, Resources, Job Events, Options, Run Book, Notes, History, Images

Job Type: Terminate Instance

Instance ID: i-2667555e

Buttons: Retrieve Instance, Instance Search

Instance	AMI ID	Root Device	Zone	Type	State	Select
i-42335e38	ami-aecd60c7	ebs	us-east-1a	t1.micro	stopped	
i-e6335e9c	ami-aecd60c7	ebs	us-east-1a	t1.micro	running	

Buttons: Variables

Enabled

Last Modified : 07/24/2012 16:53:48

- **EC2-SNAPSHOT-EBS-VOLUMES** – Select this type to snapshot an existing EBS volume into S3. Only one EBS volume can be snapshot at a time. Click **Retrieve Volume** to retrieve all EC2 EBS volumes and click **Select**.

The screenshot shows the 'AmazonEC2 Job Definition' dialog box for the job type 'EC2-SNAPSHOT-EBS-VOLUMES'. The 'Job Name' is 'EC2-SNAPSHOT-EBS-VOLUMES', 'Job Class' is 'Snapshot EBS Volumes', and 'Parent Group' is '\EC2 Job Group'. The 'Owner' is 'Schedulers'. The 'Volume ID' is 'vol-28022d49'. The 'Retrieve Volume' button is highlighted. Below the table, the 'Variables' button is visible. The 'Enabled' checkbox is checked. The 'Last Modified' timestamp is '07/24/2012 16:53:09'.

Volume ID	Capacity	Snapshot	Zone	Created	State
vol-31d01051	8GiB	snap-b4f064c	us-east-1d	Thu Aug 09 1	in-use
vol-fb63c49b	7GiB	snap-6eaab2	us-east-1a	Tue Aug 14 1	in-use

Additionally, you can search for an instance via the **Amazon EC2 Volume Search Filter** dialog by clicking **Volume Search**.

The screenshot shows the 'Amazon EC2 Volume Search Filter' dialog box. The 'Volume ID' is 'vol-31d01051', 'Zone' is 'us-east-1d', 'Snapshot ID' is 'snap-b4f064c', and 'State' is 'in-use'. The 'OK' and 'Cancel' buttons are visible.

- **EC2-COPYAMI** – Copies an existing AMI in one EC2 region to another EC2 region. The connection user must own the AMI. Only one copy operation can be performed at a time. The next two steps describe how to define a Copy AMI job.

8. Copy AMI from one region to another by following the steps below.

Note: Before you can define a Copy AMI job type in Cisco Workload Automation (the next step), you must complete these prerequisite steps to copy AMI from one region to another.

a. Upload your Amazon EC2 key.

```
$scp -I <keypair_name> <private_keyfile> <certificate_file> <username>@<dns_location> <instance store directory>
```

b. Bundle a customized image (requires root privileges).

```
# ec2-bundle-vol -k <private_keyfile> -c <certificate_file> -u <user_id>
```

c. Migrate the manifest file to the destination region to verify usage in the destination.

Monitoring Amazon EC2 Job Activity

```
ec2-migrate-manifest -m <manifest file> -c <certificate_file> -k <private_keyfile> -a <access_key>
-s <secret key> --region <destination region>
```

d. Create a bucket in the source region.

e. Upload a bundled AMI to the source bucket in the source region.

```
ec2-upload-bundle -b <bucket_path> -m <manifest_path> -a <access_key> -s <secret_key>
```

9. Define a Copy AMI job type in Cisco Workload Automation:

a. From the **Job Type** list, select **Copy AMI**.

The screenshot shows the 'AmazonEC2 Job Definition' dialog box for the job type 'EC2-COPYAMI'. The dialog has a title bar 'AmazonEC2 Job Definition [EC2-COPYAMI[\EC2 Job Group]]'. It contains several fields and tabs. The 'Job Name' is 'EC2-COPYAMI'. The 'Job Class' is a dropdown menu. The 'Owner' is 'qatest'. The 'Parent Group' is '\EC2 Job Group'. There are tabs for 'AmazonEC2', 'Schedule', 'Run', 'Dependencies', 'Resources', 'Job Events', 'Options', 'Run Book', 'Notes', 'History', and 'Images'. The 'Job Type' is 'Copy AMI'. The 'Destination Region' is 'Asia Pacific (Singapore)'. The 'AMI ID' is 'ami-aecd60c7'. The 'Source Bucket' is 'TEST-US'. The 'Destination Bucket' is 'TEST_ASIA'. The 'Source Manifest Path' is 'myamis2/image.manifest.xml'. There is a 'Variables' button at the bottom. The 'Enabled' checkbox is checked. The 'Last Modified' time is '07/24/2012 17:26:19'.

b. From the **Destination Region** list, specify the region you want to copy the AMI to.

c. In the **AMI ID** field, enter the unique ID assigned to the AMI.

d. In the **Source Bucket** field, enter the source bucket name you want to copy the AMI from.

e. In the **Destination Bucket** field, enter the destination bucket name you want to copy the AMI to.

f. In the **Source Manifest File** field, enter the path for the source AMI manifest.

10. Click **OK** to save the job.

Monitoring Amazon EC2 Job Activity

As Amazon EC2 job types run as pre-scheduled jobs, you can monitor the jobs as you would any other type of job in Cisco Workload Automation using the **Job Details** dialog. You can also use Business Views to monitor job activity and view when the jobs are active (see your *Cisco Workload Automation User Guide* for instructions on using Business Views).

To monitor job activity:

1. In the **Navigator** pane, select **Operations>Job Activity** to display the **Job Activity** pane.

2. Right-click to select a job and choose **Details** from the context menu.

The **Job Details** dialog displays. On the **Status** page, you can view the status of the job, the start and end time, how long it ran, and how it was scheduled. The external ID is the run ID associated with the specific execution of the job.

3. Click the **Output** tab to view the job output.

Cisco Workload Automation can be configured to save or discard job output by default from the **Defaults** tab of the **System Configuration** dialog. Regardless of the system default, any individual job instance can be configured from its job definition to override the system default. Each time a job is rerun, that run's output is separated by a block of number signs.

4. Click the **AmazonEC3** tab to view the original request along with variables used when this job was submitted. This tab allows you to override the output format and parameter values prior to run or rerun. Overrides are not permitted when the job is running.

Job Details [EC2-START-INSTANCE (2)]

Job Name: EC2-START-INSTANCE (2) Job No. 31276 OK

Status Audit Log Output Dependencies Resources Override Runbook Notes History AmazonEC2 Run Info Cancel

Job Type: Start Instance

Instance ID: i-adb30ed6 Retrieve Instance Instance Search

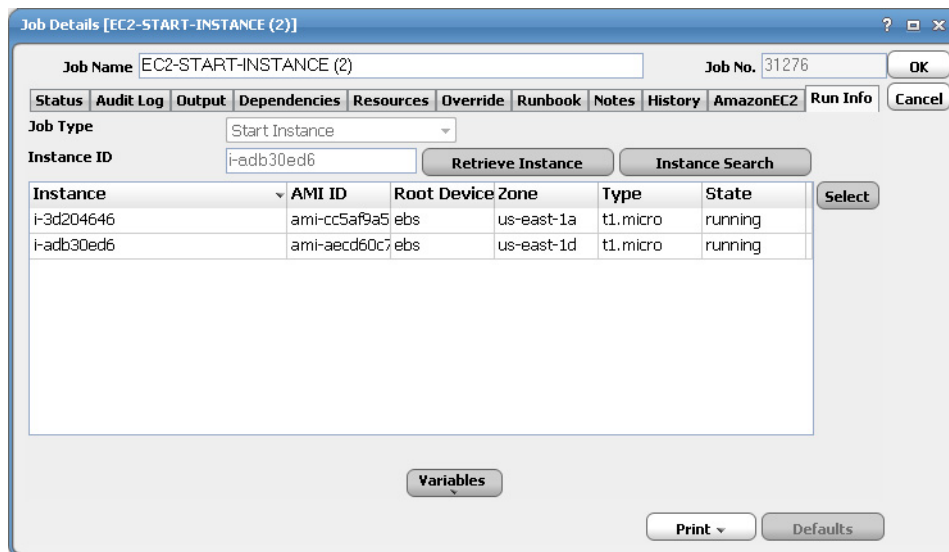
Instance	AMI ID	Root Device	Zone	Type	State	Select
i-3d204646	ami-cc5af9a5	ebs	us-east-1a	t1.micro	running	
i-adb30ed6	ami-aecd60c7	ebs	us-east-1d	t1.micro	running	

Variables

Print Defaults

While the job is running, the fields are disabled; however, prior to running or rerunning the job, you can override any value on this screen. Your changes here only apply to this instance of the job (the original job definition is not affected).

5. Click the **Run Info** tab to view the run status, start, and end time for each instance in the Amazon EC2 job. This tab is read-only.



6. When you have finished viewing the job activity details, click **OK** to close the dialog.

Controlling Adapter and Agent Jobs

Scheduler provides the following job control capabilities for either the process currently running or the job as a whole:

- **Holding a Job**—Hold a job waiting to run.
- **Aborting a Job**—Abort an active job.
- **Rerunning a Job**—Rerun a job that completed.
- **Making One Time Changes to an Adapter or Agent Job Instance**—Make last minute changes to a job.
- **Deleting a Job Instance before It Has Run**—Delete a job instance before it has run.

Holding a Job

Adapter/agent jobs are held in the same way as any other Scheduler jobs.

Adapter/agent jobs can only be held before they are launched. Once a job reaches the Adapter/Agent system, it cannot be held or suspended.

To hold a job:

1. From the **Job Activity** pane, right-click on the job.
2. Select **Job Control>Hold/Stop**.

Aborting a Job

Adapter/agent jobs are aborted in the same way as any other Scheduler jobs.

To abort a job:

1. From the **Job Activity** pane, right-click on the job.

2. Select **Job Control>Cancel/Abort**.

Rerunning a Job

On occasion, you may need to rerun an Adapter/Agent job. You can override parameter values first, if necessary, from the Adapter/Agent tab.

To rerun a job:

1. From the **Job Activity** pane, right-click the Adapter/Agent job you need to rerun.
2. Select **Job Control>Rerun** option from the context menu.

Making One Time Changes to an Adapter or Agent Job Instance

Prior to a run or rerun, you can edit data on the specific **Adapter/Agent** tab. To ensure that there is an opportunity to edit the job prior to its run, you can set the **Require operator release** option on the **Options** tab in the Adapter **Job Definition** dialog. Use this function to make changes to an Adapter job after it enters Waiting on Operator status as described in the following procedure.

To make last minute changes:

1. From the **Job Activity** pane, double-click the Adapter/Agent job to display the **Job Details** dialog.
2. Click the Adapter tab.
3. Make the desired changes to the job and click **OK** to close the **Job Details** dialog.
4. If this job is Waiting on Operator, perform one of the following tasks:
 - To release the job, select **Job Control->Release**.
 - To rerun the job with changes, select **Job Control->Rerun**.

Deleting a Job Instance before It Has Run

Adapter/Agent job instances are deleted in the same way as any other Scheduler job.

Deleting a job from the **Job Activity** pane removes the job from the Scheduler job activity only. The original definition is left in tact.

To delete a job instance:

1. From the **Job Activity** pane, right-click the Adapter/Agent job to be deleted.
2. Select **Remove Job(s) From Schedule**.



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Configuring service.props

About Configuring service.props

The **service.props** file is used to configure adapter behavior. **service.props** is located in the \config directory located under the Adapter's GUID directory. You can create both the directory and file if it does not yet exist. Properties that can be specified in service.props control things like logging and connection configuration. Many of the properties are specific to certain adapters; others are common across all adapters.

service.props Properties

The table below lists many of the parameters that can be specified in service.props. Some properties apply to all adapters (shaded in the table) and some properties are adapter-specific as indicated by the **Applicable Adapter(s)** column. The properties are listed in alphabetical order.

Property	Applicable Adapter(s)	Default	What It Controls
BYPASS_SEC_VALIDATION	Oracle Apps	N	If set to Y, the secondary user validation is bypassed. If not, secondary user validation is performed.
CLASSPATH	All	<none>	(Optional) – The path to the JDBC driver. If the default CLASSPATH used when the Adapter process is started does not include an appropriate JDBC driver jar required to connect to the PowerCenter Repository Database, you will need to specify this <i>service.props</i> configuration
CONN_SYNC	Informatica, Oracle Apps, SAP	N	Setting this flag to Y allows synchronous connections without overloading the RDOOnly Thread. If set to N, the adapter might stop trying to reconnect after an outage or downtime.
DISCONN_ON_LOSTCONN	Informatica	N	Setting this flag to Y avoids an unnecessary logout call to the Informatica server when the connection is lost. This logout call usually hangs.
EnableDynamicPollingInterval	All	N	Use to avoid frequent polling on long-running jobs. When set to Y in service.props of a particular adapter, these properties are enabled: MinDynamicPollInterval–Minimum value should be 5 seconds. MaxDynamicPollIntervalInMin–Maximum value should be 5 minutes. PercentOfEstDuration–Default value is 5.

service.props Properties

Property	Applicable Adapter(s)	Default	What It Controls
HADOOP_JAVA_HOME	Sqoop	<none>	If the Java version used in the Hadoop environment is lower than Java 8, then install the same lower JDK version in the in the Master and include the path of the JDK in this property.
IGNORE_CODES	Informatica	<none>	This parameter can be set in service.props, job configuration and connection configuration parameters. The order of precedence is service.props (applicable for all jobs running in all connections), job level (only for that particular job), and connection (applicable for all jobs in the connection). This parameter is used to specify Informatica-specific error codes, separated by commas (,), that you want to ignore while running a job.
IGNORESUBREQ	Oracle Apps	N	Y or N. Setting this flag to Y stops huge job xml file transfers back and forth between the adapter and the AdapterHost during polls when a single request set has multiple sub-requests of more than 100. The default value is N or empty.
kerbkdc	MapReduce	<none>	If the Hadoop cluster is Kerberos secured, use this value to specify the KDC Server. For example, kerbkdc=172.25.6.112
kerbrealm	MapReduce	<none>	If the Hadoop cluster is Kerberos secured, use this value to specify the Kerberos Realm. For example, kerbrealm=TIDALSOFT.LOCAL
Keystore	BusinessObjects, BusinessObjects BI, BusinessObjects DS, Cognos, JD Edwards, Oracle Applications, UCS Manager, VMware, Web Service	<none>	Specify Keystore=c:\\<adapter_certificate_directory>\\<your_trusted_keystore>.keystore when importing certificates into a Java keystore.
LAUNCH_DELAY (in milliseconds)	Informatica	<none>	This parameter can be set in service.props, job configuration and connection configuration parameters. The order of precedence is service.props (applicable for all jobs running in all connections), job level (only for that particular job), and connection (applicable for all jobs in the connection). If a non-zero value is set for this parameter, then the jobs are delayed for the specified number of milliseconds before being submitted to Informatica.

Property	Applicable Adapter(s)	Default	What It Controls
LoginConfig	BusinessObjects BI Platform, BusinessObjects Data Services	<none>	Specifies the location of the login configuration if using WinAD or LDAP authentication. For example: LoginConfig=c:\\windows\\bscLogin.conf where "c:\\windows\\bscLogin.conf" is the location of the login configuration information. Note the use of \\ if this is a Windows location.
MaxLogFiles	Informatica, JDBC, PeopleSoft	50	(Optional) - Number of logs to retain.
OUTPUT_ASYNC_LOGOUT	Informatica	N	Setting this flag to Y avoids jobs getting stuck in Gathering Output status.
OUTPUT_SYNC	All	Y	Enables concurrent output gathering on a connection. To enable this feature, set the value to N.
POLL_SYNC	All	Y	Enables concurrent polling on connections of the same type. This is helpful when there is a heavily load on one connection of an adapter. The heavily loaded connection will not affect the other adapter connection. To enable this feature, set the value to N.
QUERY_TIMEOUT	Oracle Apps	N	Y or N. If set to Y, the timeout value defined using the parameter QUERY_TIMEOUT_VALUE is applied to the SQL queries. Default value is N or empty.
QUERY_TIMEOUT_VALUE	Oracle Apps	unset	The time period in seconds that SQL queries wait before timeout. If 0 or not set, there is no timeout.
READPCHAINLOG	SAP	Y	Used to control the log gathering in SAP Process Chain jobs. This property depends on the Summary Only check box of the job definition Options tab.
SCANFOR_SESSIONSTATS	Informatica	Y	Y or N - Set this parameter to N to turn off the default behavior of Informatica jobs collecting the session statistics during the job run.
SCANFOR_SESSIONSTATS_AFTER_WF_ENDS	Informatica	N	Y or N - Set this parameter to Y to turn off the gathering of session statistics during each poll for the status of Informatica jobs.
TDLINFA_LOCALE	Informatica	<none>	Points to the Load Manager Library locale directory. See "Configuring the Informatica Adapter" in the <i>Informatica Adapter Guide</i> for how to set this for Windows and Unix environments.
TDLINFA_REQUESTTIMEOUT	Informatica	<none>	(Optional) - The number of seconds before an API request times out. The default is 120 seconds, if not specified.
TDLJDBC_LIBPATH	JDBC	<none>	(Windows only, optional) An alternate path to the JDBC library files. The library file path should have been configured given system environment variables. This option is available in case you wish to use an alternate set of libraries and may be helpful for trouble-shooting purposes.

service.props Properties

Property	Applicable Adapter(s)	Default	What It Controls
TDLJDBC_LOCALE	JDBC	<none>	The path to the JDBC locale files.
TRANSACTION_LOG_BATCH_SIZE	MS SQL	5000	Set this parameter if more than 5000 lines need to be read from the transaction table.
version_pre898	JD Edwards	N	If running on a JD Edwards server version that is less than 8.9.8, set version_pre898=Y.