

Avaya Work Assignment Snap-in Reference

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Chapter 1: Introduction

Purpose

This document describes the characteristics and capabilities of Avaya Work Assignment Snap-in, including overview and feature descriptions, interoperability, and performance specifications. The document also provides instructions on how to deploy, configure, and troubleshoot the Work Assignment services.

The document also provides an overview about installing Avaya Aura® Collaboration Environment and validating and deploying a workflow.

For detailed information about Avaya Aura[®] Collaboration Environment, Avaya Aura[®] System Manager, and Avaya Collaboration Designer Snap-in, see the respective product documentation on Avaya support website: https://support.avaya.com.

Intended audience

This document is intended for people who need to install, configure, and administer Avaya Work Assignment Snap-in.

Before deploying Work Assignment, ensure that you have access to the following product documentation:

- Collaboration Environment
- System Manager

Related resources

Documentation

See the following related documents at http://support.avaya.com.

| Title | Purpose | Audience | | |
|---|---|---|--|--|
| Maintaining | Maintaining | | | |
| Avaya Work Assignment Snap-in Release Notes | This document contains Avaya Work Assignment Snap-in information that is not included in the Snap-in documentation. This document highlights known issues about Work Assignment with workarounds that are available. | Avaya Professional Services Implementation engineers | | |
| Using | | | | |
| Work Assignment Developer guide | This document provides information to Work Assignment developers on how to write software that will interact with a deployed Work Assignment system. | Business process analysts Developers | | |
| Avaya Aura [®] Collaboration Environment 3.0 documentation | The Collaboration Environment documents provide information about architecture, administration, implementation, and configuration of Collaboration Environment 3.0. | System administrators Business process analysts Implementation engineers | | |
| Avaya Collaboration Designer Snap-in Reference | Provides a functional description of Avaya Collaboration Designer Snap-in as well as administration, deployment, security, and maintenance. This document includes interoperability, performance, and design considerations. | Business process analysts System administrators Implementation engineers Developers | | |
| Avaya Collaboration Designer Snap-in Developer's Guide | Describes detailed steps and concepts that are needed to create a work flow definition. | Developers Implementation engineers System administrators | | |
| Administering Avaya Aura [®] System Manager | Provides the procedures to administer and configure System Manager. | System administrators Services and Support personnel | | |

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Architecture overview

Work Assignment is a highly available work distribution system that assigns work to resources across your enterprise. Work Assignment provides you attribute-based work and resource matching capabilities. Work Assignment can match one-to-one and one-to-many resources, find the most expert resource for a work item, and also form a dynamic team of resources based on requirements.

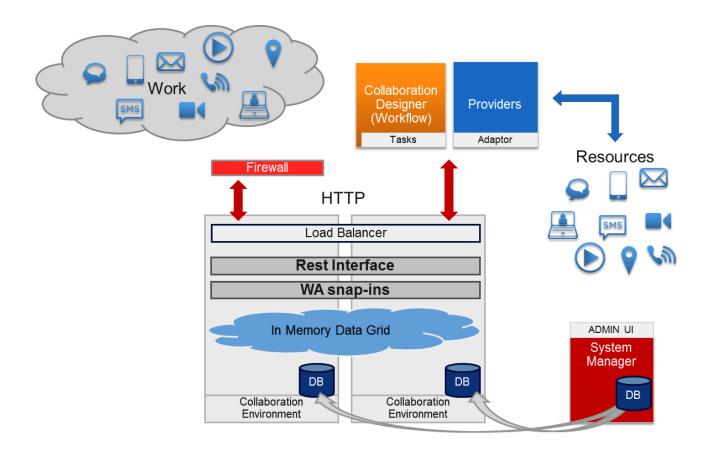
Work Assignment maintains all resources across the enterprise in a single pool and assigns work using a single universal matching engine and attributes-driven routing. For an incoming request, Work Assignment considers each resource in the pool and selects the best matching resource for a given set of attributes considering the properties of the resources.

Work Assignment is deployed and configured as a snap-in on the Collaboration Environment platform. System Manager provides the administration user interface for Work Assignment and Collaboration Designer provides the overall flow logic. However, using Collaboration Designer is optional. You may choose to use a tool of your choice to provide the flow logic for Work Assignment.

Work Assignment offers the following functionality:

- Match resources to incoming requests based on attributes.
- Match work to one resource, where Work Assignment finds the most suitable resource for the requested work.
- Match work to a number of homogenous resources, as specified in the work request.
- Match work to a group of heterogeneous resources.
- Match work to a resource in a work surplus situation.
- · Cancel requests.
- Retrieve metrics associated with a set of attributes.

The following is a high level component diagram of Work Assignment, showing the main integrations and overall communication between the different components for work and resources:



Chapter 2: Work Assignment services and features

Work Assignment services

Work Assignment provides the following snap-in services:

- Unified Collaboration Model Manager (UCMManagerService)
- Work Assignment Manager (WAManagerService)
- Unified Collaboration Administration Configuration (UCAConfigService)
- Health Master (HealthMaster)
- Work Assignment Service REST API (WAIMRestService)
- Work Assignment Resource REST API (WARPRestService)

Work Assignment snap-in services are packaged as SVAR files that are deployed on Collaboration Environment.

Unified Collaboration Model Manager

Unified Collaboration Model (UCM) Manager is a snap-in service that mainly deploys and manages the UCM grid components.

The UCM Manager snap-in service performs the following tasks:

- Deploys UCM grid components such as UCM processing units and spaces on the data grid.
- Manages any dynamic configuration for the UCM grid components.
- Stores information about the real-time state of work and resources.
- Notifies the Work Assignment Engine about match requests and resource states. For example, change in the state of a resource.

Work Assignment Manager

Work Assignment Manager is a snap-in service that deploys and manages the Work Assignment grid components.

The Work Assignment Manager snap-in service performs the following tasks:

- Deploys the Work Assignment grid components on the data grid.
- Manages any dynamic configuration for the Work Assignment grid components.
- Provides mechanism to manage resources in Work Assignment.

Unified Collaboration Administration Configuration

Unified Collaboration Administration (UCA) Configuration is a snap-in service that manages the administration entities of Work Assignment.

Health Master

Health Master is a mandatory Work Assignment service that manages the synchronization of resource state from resource providers.

Health Master performs the following functions:

- · Synchronizing resource states at startup
- Synchronizing resource states after recovery of resource provider adapter
- Monitoring resource provider adapters
- · Logging resource provider adapter states in System Manager

Related Links

<u>Functional overview</u> on page 35 Configuring Health Master on page 35

Work Assignment SDK and REST services

The Work Assignment SDK provides the specifications of the Work Assignment REST service APIs and reference clients for you to write software that will interact with a Work Assignment system.

Work Assignment provides two REST services:

- Work Assignment Service REST: For the Work Assignment clients to perform operations on the Work Assignment service requests.
- Work Assignment Resource REST: For the Work Assignment clients to perform operations to manage the availability status of the Work Assignment resources.

Work Assignment Service REST

Work Assignment Service REST is a REST-based service through which you can send a work request and perform various operations on the request. Using this REST API, you can design other

applications, for example- Avaya Aura[®] Experience Portal or Collaboration Designer, to work with Work Assignment and perform the following operations:

- Create a request
- Cancel a request.
- · Accept an offer response to a request.

Work Assignment Resource REST

The Work Assignment Resource REST service API allows you to build an adapter and use applications such as Avaya Aura® Call Center Elite that can alter the real time availability state of the resources for Work Assignment. Using Work Assignment Resource REST service, you can perform the following operations:

- · Manage the log in and log out of resources in Work Assignment.
- Mark a resource as available or unavailable.
- Manage number of work items assigned to a resource. After assigning work, the resource
 provider adapter increases the active work count for the resource by one. After the work is
 complete, the resource provider adapter decreases the active work count for the resource by
 one.

Resource provider adapter services

The Work Assignment resource provider adapter provides you the functionality of managing the status of the resources. However, using the Work Assignment resource provider adapter and its service is optional. You can choose to enable or disable resource provider adapter for selected Account Sources using the System Manager web console. The two available Deployment Types are: Resource Adapter Present and No Resource Adapter Present. The following table compares each of the deployment types and also defines the functions that the resource provider adapter controls:

| Function | Description | Deployment Type | |
|-----------------------------|---|---|--|
| | | Resource Adapter Present | No Resource Adapter Present |
| Active/Idle resource status | When you Accept an offer and work is assigned to a resource, the resource provider adapter increases the active work item count for that resource by one. When the resource completes the work and you mark the work as Complete, the work item is removed from the resource workflow and the resource provider adapter reduces the active work item count for the resource by one. | The resource provider adapter controls the Active/Idle status of the resources at the time of assigning or completing work. | No Active/Idle status management for the resources. |
| Always Available | Irrespective of the number of active work items for the resource, the availability status of an <i>Always Available</i> resource remains <i>Available</i> . Work Assignment | The resource status is not Always Available. The resource provider adapter manages the | Work Assignment considers resources as Always Available. |

| Function | Description | Deployment Type | |
|------------|---|--|---|
| | | Resource Adapter Present | No Resource Adapter Present |
| | distributes the incoming work equally among the resources who are Always Available. | availability of the resources. | |
| Auto-Login | After you create and log in the new resources in Work Assignment, the Work Assignment resource provider adapter manages the availability status of the resources. However, if you do not use a resource provider adapter, the new resources are automatically logged in to Work Assignment, ready for assignment. | The resource provider adapter manages the log in/log out state of the resources. | Work Assignment automatically logs in the resources after they are created. There is no log in/log out and availability status management of the resources. |

Note:

You can choose the Deployment Type for the Account Sources from the **Property** tab of System Manager > Work Assignment > Assignment Management page. You can see the Property tab when you select Account Sources and click Next. You can also configure the default value for the property **Deployment Type** from the **Property Management** page of System Manager.

Work Assignment features

Work Assignment provides you the following capabilities:

- Attribute-based matching
- Service Metrics
- Request for a single resource:
 - Request Resource
 - Queue to Multiple
- Request for multiple resources:
 - Request Multiple Resources
 - Request Group of Resources
- Selection strategies:
 - Resource Selection Strategy
 - Work Selection Strategy
 - Property based selection
- Query Resources

Reporting

Attribute-based Matching

Work Assignment uses Attribute-based Matching to find the most eligible resources to assign work. To find resources for your work, you must define a set of attributes and send a work request to Work Assignment.

Attributes describe which type of work a resource can handle. The knowledge of a particular language, or the capability to work on a particular channel are examples of attribute.

As the first step in matching work and resources, Work Assignment uses attributes to filter resources who have the required knowledge and skills that you require.

Work Assignment considers one or more attributes together for matching and reporting.

After Work Assignment identifies a suitable resource for your request, you can use the tasks *Accept*, *Cancel*, or *Complete* for completing the work request.

Accept

When you send a work request to Work Assignment, Work Assignment selects, from the pool of available resources, the most suitable resources for your request. Work Assignment reserves the selected resources and sends information of the resources to you. If you find the resources suitable for assigning work, you can use Accept to notify Work Assignment that you accept the offer. However, you must accept the offer within 40 seconds. After 40 seconds of sending the offer, Work Assignment automatically cancels the offer. Before accepting an offer, if you are using resource provider adapter, ensure that the resource can handle the work. After you accept the offer, you can only Complete the request and not Cancel.

Important:

After you accept the offer, the resource provider adapter must increase the active work count for the selected resources. If the resource provider adapter does not increase the active work count, Work Assignment marks the resources as *unavailable* for indefinite time.

Cancel

When you send a work request to Work Assignment, Work Assignment processes your request and sends you an offer of the resources that best match your query. If you do not want to accept the offered resources or if the work request is waiting in the queue, you can cancel the request by using Cancel. When Work Assignment sends you an offer, Work Assignment keeps the resources reserved for you for 40 seconds. If you do not accept the offer before 40 seconds, Work Assignment automatically cancels the offer and makes the resources available for other requests. You cannot cancel a request after you accept the offer.

Complete

After resources complete a work request, you must send the Complete instruction to notify Work Assignment that the work request has completed. For a multiple resource work request, the status of the work request changes to Complete only after each resource completes their tasks.

Service Metrics

You can use the Service Metrics feature to obtain metrics for a specific attribute set or service. To obtain the metrics, you must provide at least one attribute set. An attribute set consists of at least one key-value pair of attribute category and value, in the form of [category, Value]. You can also specify priority. If you do not specify a priority, Work Assignment uses the default value.

When you provide the input parameters for Service Metrics, Work Assignment provides the following metrics:

| Metric | Description |
|---|---|
| ResourceReadyCount | Number of resources ready for assigning work. |
| ResourceBusyCount | Number of resources who are currently handling the service that you queried. |
| ResourceStaffedCount | Number of logged in resources in a service, irrespective of their availability. |
| WaitingWorkCount | Number of work from the queried service, with a particular priority, that are waiting for assignment. |
| ProcessingWorkCount | Number of work from the queried service, with a particular priority, that are under processing. |
| CompletedWorkCount | Number of work items of the queried service, with a particular priority, that have been completed. |
| OldestWorkWaiting | Name of the oldest work item that is waiting for a resource to accept. |
| Rolling ASA (Rolling average speed of answer) | This field provides a rolling average number of seconds it takes a client to receives an answer from Work Assignment for the queried service. |
| Service Occupancy | Percentage ratio of busy resource to staffed resources per service. |
| EWT (Estimated wait time) | Based on the given task and priority, Work Assignment calculates and provides an estimated wait time for the Work Assignment requests. |

Note:

You must provide Priority values in your query to obtain data for *WaitingWorkCount*, *ProcessingWorkCount*, *CompletedWorkCount*, and *EWT*.

Single resource requests

Request Resource

Using Request Resource feature, you can send a work request to Work Assignment to find a single resource based on up to six attribute sets. To use the Request Resource feature, you must define the attribute sets and send a work request to Work Assignment.

Upon receiving the work request, Work Assignment attempts to match a resource based on the attribute sets you specified. After identifying a resource based on the attribute sets, Work Assignment reserves the resource and sends information of the resource to you. You can then either accept the offer and assign work to the resource, or cancel the request.

If Work Assignment does not find an available resource for the specified attribute sets, the request waits in queue until a suitable resource becomes available. If more than one requests are waiting in the queue, Work Assignment selects the request with highest priority first. Work Assignment applies Resource Selection Strategy to select a resource from a list of suitable resources. If you do not specify any Resource Selection Strategy, Work Assignment applies the preconfigured default strategy.

Important:

You can assign work to a resource only if the resource is available. Work Assignment notifies you about the availability of the resource only when you are requesting a single resource: either by Request Resource or by Queue to Multiple.

Work Assignment supports queueing of requests only when you are requesting a single resource.

Queue to Multiple

You can use the Queue to Multiple feature to maximize the chances of finding a resource. This feature is applicable only when you are requesting a single resource.

Using the Queue to Multiple feature, you can send a work request to Work Assignment to find a resource based on multiple attribute sets. After receiving the request, Work Assignment attempts to match a resource that has any of the specified attribute sets. If Work Assignment does not find any available resource that matches your request, Work Assignment keeps the request in queue until a matching resource becomes available. Work Assignment notifies you of the status of your request. When the resource becomes available, Work Assignment sends you an offer. You can choose to either accept or cancel the offer. Accepting the offer reserves the resource for you, and canceling the offer releases the resource and cancels your request.

Multiple resources requests

Request Multiple Resources

Using Request Multiple Resources feature, you can send a work request to Work Assignment to find more than one resource based on an attribute set. While sending a work request to Work Assignment, along with the attribute set, you must also specify the total number of resources that you require.

After receiving the work request, Work Assignment attempts to match resources based on the attribute set. Work Assignment matches each resource for all attributes defined in the attribute set. After identifying the required number of resources for the request, Work Assignment reserves the resources and sends the information of the resources to you. Using the resource information, you can accept the offer and assign work to the resources. However, if the total number of resources you have requested are unavailable, Work Assignment notifies you with a WORK_UNFULFILLED response. If Work Assignment cannot find the required number of resources, Work Assignment releases the selected resources and cancels the request. For any further retries, you must send a new work request.

Important:

You can assign work to resources only if all resources are available. Work Assignment does not support queuing for this feature.

Request Group of Resources

Using the Request Group of Resources feature, you can send a work request to Work Assignment to find a group of resources for your work. While specifying the attribute sets for your work request, you must also specify the total number of resources that you require in the group.

After receiving the work request, Work Assignment attempts to match the required number of resources based on the attribute sets. Work Assignment matches each resource for all attributes in the work request. After identifying the group of resources based on the attribute sets, Work Assignment reserves the resources and also sends information of the resources to you. Using the resource information, you can accept the offer and assign work to the group of resources. However, if Work Assignment cannot find the total number of resources you have requested, Work Assignment notifies you with WORK_UNFULFILLED response. If Work Assignment cannot find the required number of resources, Work Assignment releases the resources and cancels the request. For any further retries, you must send a new work request.

Important:

You can assign work to resources only if all resources in the group are available. Work Assignment does not support queuing for this feature.

Selection strategies

Resource Selection Strategy

When you send a work request, Work Assignment selects, from the pool of resources, the most eligible resource available to process the work. If Work Assignment does not find any available resource, Work Assignment keeps the work item in queue and applies Work Selection Strategy.

You can specify the following Resource Selection Strategies:

- Most Idle resource: In this strategy, Work Assignment selects a resource that has not processed any work for the longest time.
- Least Occupied resource selection: In this strategy, Work Assignment selects the resource that
 is the least occupied. Occupancy is the ratio of time in busy state to time in available state.
 Work Assignment updates this metric for all resources in an interval of 18 seconds.

Work Selection Strategy

The Work Selection Strategy feature in Work Assignment provides the functionality to find the most suitable work for a particular resource. Work Selection Strategy is applicable only on a resource transition to *available* state. Work Assignment scans all waiting work that match the resource's attributes, and sends the resource information to you.

The Work Assignment administrator may select one of the following Work Selection Strategies for each resource:

- Greatest Need: When a resource becomes available, Work Assignment scans all waiting works
 that match the resource's attributes, and selects the highest priority work that has the longest
 wait time. This is the default Work Selection Strategy.
- Skill Level: Work Assignment selects, from all waiting works that match the resource's attributes, the work for which the resource is most proficient that has the longest waiting.

Property based selection

Proficiency

When you send a work request, Work Assignment selects, from the pool of available resources, the most suitable resources for the request. Work Assignment selects the resources based on the defined Proficiency values for the resources. You can define Proficiency for Work Assignment resources through:

- System default: Default proficiency value for all resources in your system. If you do not set
 Proficiency for individual resources, Work Assignment uses this value as the proficiency of all
 resources for all services.
- Default resource proficiency: Default proficiency value for all services for a particular resource. Work Assignment considers this proficiency value for all services for the particular resource.

 Derived proficiency: Proficiency values for individual categories for a resource. Based on these specific Proficiency for different categories, Work Assignment derives a Proficiency value for the particular resource for a requested service.

You can configure the default proficiency value using the Proficiency system property, from the **Elements > Work Assignment > Property Management** page of System Manager. You can also add or remove categories from the property. For Proficiency, you must specify a numeric value from 1 through 16. A lesser value denotes higher proficiency.

You can set Proficiency for individual resources from the **Elements > Work Assignment > Assignment Management** page of System Manager.

For deployments with *no resource provider adapter*, you must administer Proficiency carefully, so that Work Assignment does not assign all incoming work to the same set of resources who have the highest proficiency level.

Related Links

<u>Configuring Proficiency</u> on page 45 <u>Assigning Proficiency</u> on page 46

Multiplicity

You can use the Multiplicity feature to assign multiple requests of the same channel simultaneously to a resource. You can configure multiplicity for each channel, for example: email, voice, chat. A multiplicity of 2 for the channel chat means the resource can handle up to two assignments for chat at the same time. You can specify Multiplicity as a property of resource accounts.

A resource can have multiple accounts. You can specify Multiplicity for each account, and not for a resource. The Multiplicity rules are not applicable to a service, a channel, or resources that are Always Available. Work Assignment considers availability and Multiplicity of an account before assigning work to that account.



Multiplicity is applicable only in deployments where Resource Provider Adapter is present.

Related Links

Configuring Multiplicity on page 47 Assigning Multiplicity on page 48

Service Excluded

Work Assignment selects resources for an incoming work request based on the attributes that the request and the resources have. However, if you need to exclude specific services from selected resources, you can use the Service Excluded property of the Work Assignment resources. If you configure the Service Excluded property for a resource, Work Assignment does not consider the

resource for the service for which you have configured an exception. You can configure Service Excluded through:

- System default: By default, the Service Excluded value for all resources of Work Assignment is false. If you do not change this value or if you do not configure default values for individual resources, Work Assignment does not consider Service Excluded for any of the resources.
- Default resource property: You can override the system default value and specify a different Service Excluded value for an individual resource. Work Assignment considers this value of Service Excluded for all services for the particular resource.
- Derived Service Excluded: You can set different Service Excluded values for different categories for a resource. While selecting a resource for a work request, Work Assignment considers the combinations of these Service Excluded values for different categories for the particular resource.

You can configure the default system property from the **Elements > Work Assignment > Property Management** page of System Manager. You can also add or remove categories from the property.

You can configure Service Excluded for individual resources from the **Elements > Work Assignment > Assignment Management** page of System Manager. You must configure Service Exclusion in the **Properties** tab of the selected resources.

Related Links

<u>Configuring Service Excluded</u> on page 48 <u>Assigning Service Excluded</u> on page 50

Query Resources

You can use the Query Resources feature to obtain a list of the qualified resources based on a specific attribute set. However, you cannot use this information to assign work to resources. Work Assignment does not consider the availability of the resources while compiling this list. Work Assignment also does not reserve the resources that match the query.

The Query Resources feature returns a list of the first 50 resources that match the query. You can sort the list of resources based on the criteria Availability, Proficiency, or Least Occupied. Work Assignment does not include the resources that are excluded from service.

Reporting

Using the Work Assignment Reporting feature, you can configure a REST endpoint and subscribe for notifications about status changes of requests and resources. You can configure the endpoint using the System Manager web console.

The Work Assignment Reporting feature sends notifications for the following types of *events*:

 WorkAssignmentInteraction: This event represents the state of each work request in Work Assignment. When you send a work request to Work Assignment, the request goes through various states until it is completed. For each change in the status of the request, Work Assignment sends a notification to the configured endpoint.

The possible states of a work request that trigger notifications are: Requested, Queued, Offered, Accepted, and Complete.

- Resource: This event represents any update in the property of a Work Assignment resource. Work Assignment sends a notification to the configured endpoint whenever:
 - A Work Assignment resource is created or deleted
 - A new account is added to a resource
 - The availability state of an account changes

Related Links

Configuring endpoint for receiving notification on page 34

Chapter 3: Interoperability

Avaya product compatibility

The Work Assignment snap-in is compatible with the following Avaya products:

| Avaya product | Version |
|---------------------------------------|---------|
| Avaya Aura® System Manager | 6.3.10 |
| Avaya Aura® Collaboration Environment | 3.0 |
| Avaya Collaboration Designer Snap-in | 3.0 |



Additional service patch is required for Avaya Aura® Collaboration Environment and Avaya Collaboration Designer Snap-in.

Hardware requirements

Work Assignment requires two Collaboration Environment servers. Each server must meet the following requirements:

- Processor: 4 CPUs, each with at least 8 dedicated cores, equivalent to 2.9 GHz
- · Network:
 - Must support at least Gigabit Ethernet
 - All hosts must be on the same LAN
- Memory (RAM): 32 GB
- Storage: 300 GB, must at least be 15000 RPM SATA hard disks

Moreover, each server must: have the same amount of RAM, be on two different hosts, and be thick provisioned.

Software requirements

Virtual Machine requirements

Work Assignment requires the following VMWare software:

- ESXi 5.0, 5.1, 5.5
- · vSphere client

The Work Assignment software requirements are based on the Collaboration Environment and System Manager requirements. For more information, see the respective product documentation.

Chapter 4: Licensing

License requirements

Use of the Work Assignment software requires a valid Work Assignment license file and Collaboration Environment license file.

Work Assignment uses the snap-in service licensing feature provided by Collaboration Environment.

Platform and snap-in licenses are available through PLDS. These licenses must be installed on the WebLM server of System Manager, which manages the Platform and snap-in licenses.

Work Assignment SVARs contain a digital signature with which Collaboration Environment Element Manager recognizes that licenses are applicable for these services. If the signature is not valid, the system does not load the service.

A single license, containing information for each licensed feature, applies to all Work Assignment snap-in services.

Configuring licenses

Before you begin

- Ensure that you have obtained the Work Assignment license from Avaya PLDS.
- Ensure that the Collaboration Environment platform license is installed on System Manager.
 In System Manager, click Elements > Collaboration Environment > Server Administration to see the current status of each Collaboration Environment server platform license.

About this task

This task provides information about configuring Work Assignment license in System Manager.

Procedure

- 1. On the System Manager Home page, click **Services > Licenses**.
- Select Install License.
- 3. Browse to the location of the Work Assignment license.
- 4. Select the license file and click **Install**.

The system installs the license file.

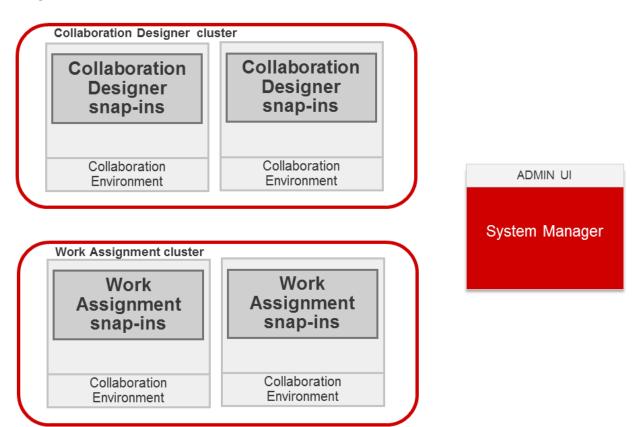
5. To verify if the license file is installed successfully, on the System Manager Home page, click **Services** > **Licenses**.

The **Licenses products** list on the left pane of the **Licenses** window displays Work Assignment. You can click on *Work Assignment* to know more about the installed license of the snap-in.

Collaboration Environment licensing audit runs every 9 minutes. Any license changes including install or uninstall actions on the WebLM server takes time to reflect on the user interface. The latest license information takes a maximum of 9 minutes to reflect in the Collaboration Environment Element Manager.

Chapter 5: Work Assignment Deployment

Deployment overview

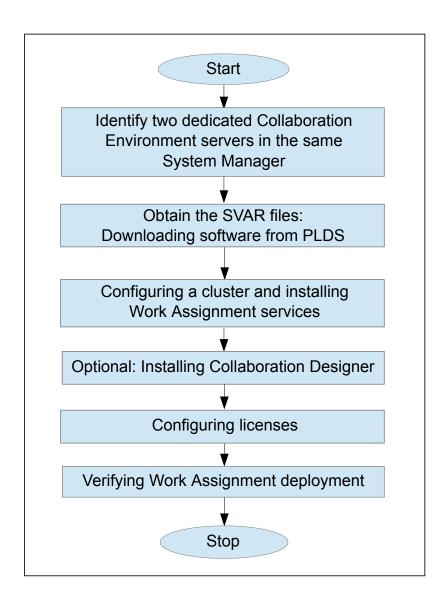


Note:

- You can create a Collaboration Designer cluster with one instance of Collaboration Environment server also. However, two instances are required to support high availability.
- You can create only one Collaboration Designer cluster in a System Manager.
 Collaboration Designer uses a General Purpose cluster.
- You can create only one Work Assignment cluster in a System Manager.
- Installing Collaboration Designer is optional. If you choose to use Collaboration Designer, you must create clusters of both Work Assignment and Collaboration Designer in the same System Manager.

• For a set up as shown in the image, you must have five instances of Virtual Machines: Four for the Collaboration Environment servers and one for System Manager.

Work Assignment deployment process flow



Work Assignment deployment checklist

| No. | Task | Notes | ~ |
|-----|---|---|---|
| 1 | Download the Work Assignment snap- in services from PLDS. | The Work Assignment snap-in services are available as Service Archive (SVAR) zip files in PLDS. | |
| 3 | Load the SVAR files in System Manager. | | |
| 4 | Optional: Configure the attributes of the services. | For information about configuring the Work Assignment service attributes, see appendix. | |
| 5 | Define a cluster from the Elements > Collaboration Environment > Cluster Administration page in System Manager, and assign 2 instances of Collaboration Environment to the cluster. | When you create a cluster, the system installs the Work Assignment SVAR files automatically. | |
| | Note: | | |
| | Ensure to select the cluster profile as Work Assignment and change the state of the cluster from Denying to Accepting. | | |
| 6 | Ensure that the Collaboration Environment servers in the cluster: | | |
| | Are in synchronized state | | |
| | Can pass the Collaboration Environment tests | | |
| | All Collaboration Environment Security modules must also be in the Up state. | | |
| 7 | Install the Work Assignment license. | License requirements on page 25 | |
| | | Configuring licenses on page 25 | |
| 8 | Verify installation of the REST interfaces and the license file. | | |

Key customer configuration information

This topic lists the information that you must have before you install and configure the Work Assignment snap-in services.

You need the following information to install and configure the Work Assignment snap-in services. Record the information in this worksheet before beginning the installation.

| Requirement | Notes | Your value |
|--|---|------------|
| The name of the Work Assignment | The Work Assignment SVAR files are: | |
| SVAR files that are available on PLDS | UCMManagerService | |
| | WAManagerService | |
| | UCAConfigService | |
| | WAIMRestService | |
| | WARPRestService | |
| | HealthMaster | |
| The location of the Work Assignment SVAR files that you have downloaded from PLDS | | |
| Identify two instances of Collaboration Environment in the System Manager where you plan to install Work Assignment | | |
| The IP address of the cluster | The cluster IP address must be on the same subnet as the Security Module IP address of the Collaboration Environment instances. | |
| | The cluster IP address must be unique, do not specify the IP address of any of the Collaboration Environment instances as the cluster IP address. | |
| | The cluster IP address is used as a Load Balancer. There is no option to select individual Collaboration Environment instances, within the cluster, for Load Balancing. | |
| The cluster name | You can add only one Work Assignment cluster per System Manager. | |
| Digital certificates for authentication | | |
| Identify the configuration attributes for the Work Assignment services | | |

Downloading software from PLDS

About this task



Note:

You can download product software from http://support.avaya.com also.

Procedure

- Type http://plds.avaya.com in your Web browser to go to the Avaya PLDS website.
- 2. Enter your Login ID and password to log on to the PLDS website.
- 3. On the Home page, select **Assets**.
- 4. Select View Downloads.
- 5. Search for the available downloads using one of the following methods:
 - By download name
 - By selecting an application type from the drop-down list
 - By download type

After entering the search criteria, click **Search Downloads**.

- 6. Click the download icon from the appropriate download.
- 7. When the system displays the confirmation box, select Click to download your file now.
- 8. If you receive an error message, click the message, install Active X, and continue with the download.
- 9. When the system displays the security warning, click **Install**.

When the installation is complete, PLDS displays the downloads again with a check mark next to the downloads that have completed successfully.

Configuring a cluster and installing Work Assignment services

Before you begin

 Identify the two Collaboration Environment servers on which you plan to install Work Assignment.

You can configure only one Work Assignment cluster per System Manager, and one Work Assignment cluster supports two Collaboration Environment servers. For a complete deployment of Work Assignment and Collaboration Designer, you require four Collaboration Environment servers: two servers for each snap-in.

- Add the Collaboration Environment servers to System Manager. For more information on adding the Collaboration Environment servers to System Manager, see *Deploying Avaya Aura*® Collaboration Environment.
- Verify the status of the Collaboration Environment servers.
- Ensure that the system can resolve the host name of the Collaboration Environment servers. Ensure that the System Manager, Collaboration Environment host names, and the fully qualified domain names (FQDNs) are registered with a domain name system (DNS) server.
- Download the following Work Assignment SVAR files from PLDS:
 - UCMManagerService
 - WAManagerService
 - UCAConfigService
 - WAIMRestService
 - WARPRestService
 - HealthMaster

About this task

This topic provides information about setting up a Collaboration Environment cluster for Work Assignment. When you create a cluster, the system installs the Work Assignment SVAR files automatically.

The cluster provides high availability and scaling by distributing the services across multiple Collaboration Environment servers. With this distribution of services, the system achieves overall throughput and avoids interruption in the event of failure. The clients of the cluster are not a part of this distribution. The clients access the services through a common IP address that supports high availability.

Procedure

- 1. On the System Manager web console, click **Elements** > **Collaboration Environment**.
- 2. In the left navigation pane, click **Service Management**.
- 3. On the **Service Management** page, load the Work Assignment SVAR files one at a time:
 - a. Click Load.
 - b. On the **Load Service** window, click **Browse** and locate the service (.SVAR) that you want to load.
 - c. Select the SVAR file and click **Open**.
 - d. Click Load.

System Manager displays an end-user license agreement for the snap-in. To load the snap-in, you must read and accept the license agreement.

4. Configure the attributes of the Work Assignment services.

You can configure the service attributes from System Manager > Elements > Collaboration Environment > Configuration > Attributes > Service Globals.

- 5. On the System Manager web console, in the **Elements** area, click **Collaboration Environment > Cluster Administration**.
- 6. On the Cluster Administration page, click New.
- 7. Enter the following details for the cluster in the **General** tab of the **Cluster Editor** page:
 - Cluster Profile: Select Work Assignment from the drop-down menu.
 - Cluster Name: Enter a unique cluster name. The name can be any string such as WorkAssignment.
 - Cluster IP: The Cluster IP must be on the same subnet as the Security Module IP of the Load Balancer Collaboration Environment servers. Ensure that you do not specify the IP address of any of the Collaboration Environment servers that you plan to add to the cluster.

The cluster IP address is used as a Load Balancer. There is no option to select individual Collaboration Environment instances, within the cluster, for Load Balancing.

- **Description**: Enter a description for the cluster.
- 8. In the **Cluster Attributes** section, specify the attributes for the cluster that you are creating.

Note:

- Increase the value of the attribute **Http or Https limit on connections** from the default value of 3, so that Work Assignment supports more connections simultaneously. The recommended value is 30000.
- For a description of the Cluster Attributes, click Help.
- 9. On the Cluster Editor page, select the Servers tab.

The system displays all Collaboration Environment servers in the **Unassigned Servers** section.

Note:

A minimum of two servers that meet the Work Assignment requirements must be available. The two servers must be on the same subnet.

10. Add the Collaboration Environment servers that you have identified to the Work Assignment cluster.

Click the plus sign (+) on the server to add the server to the cluster.

The system adds the Collaboration Environment servers to the **Assigned Servers** section.

11. On the **Cluster Editor** page, select the **Services** tab.

The system displays the Work Assignment services that you have loaded and configured through the **Service Management** page.

By default, the system automatically adds the Work Assignment services to the **Assigned Services** list. The **Available Services** list displays the optional services that are available for you to add to the Work Assignment cluster.

- 12. Click **the plus sign (+)** on any Work Assignment service in the **Available Services** list to add the service to the cluster.
- 13. Click Commit.
 - The system starts installing the assigned services to the cluster servers.
 - The system displays the Cluster Administration page.
- 14. Click **Show** on the new cluster to verify if the system has added the servers to the cluster.

The system displays the Collaboration Environment servers as part of the Work Assignment cluster.

- 15. Select the check box of the new cluster.
- From the Cluster State drop-down menu, select Accept New Service.
- 17. Click Continue in the Accept New Service dialog box.

The system displays the **Accepting [2/2]** state in the **Servers State** column.

Configuring endpoint for receiving notification

About this task

This procedure explains how to configure an endpoint to receive notifications through the Reporting feature. You can change this configuration dynamically, at run time.

If Work Assignment is unable to send a notification to an endpoint for any reason, Work Assignment retries to send the same notification to the same endpoint up to five times. After the fifth attempt, Work Assignment disables the subscription for that endpoint. In case of a disabled subscription, verify if the endpoint is in working condition and the network connectivity is available for the endpoint. Then, to receive the notifications again, configure the verified endpoint once again.

Procedure

- On the System Manager web console, click Elements > Collaboration Environment.
- 2. In the left navigation pane, click **Configuration > Attributes**.
- Click the Service Globals tab.
- 4. From the **Service** drop-down menu, select **UCMManagerService**.
- 5. In the **Subscription Configuration Details** parameter row:
 - a. Select Override Default.
 - b. In the **Effective Value** field, enter the following:

```
{"endpointURI": "URI of your REST endpoint",
"certLocation": "Location of the trust certificate"}
```

6. Click Commit.

Health Master

Functional overview

Health Master detects the loss and recovery of an external resource provider. The external resource provider adapter for Work Assignment must send a *heartbeat*. The Health Master service monitors the heartbeats and if it does not receive any heartbeat from a resource provider adapter for a specified period of time, Work Assignment considers the adapter as unavailable. Work Assignment then marks the resources related to the unavailable adapter as unavailable for assignment, and marks the work state for the resources as unknown. This prevents Work Assignment from issuing resources related to an unavailable resource provider adapter. When the resource provider adapter becomes available, Health Master detects the recovery and synchronizes the status of all resources related to the adapter.

Configuring Health Master

Procedure

- 1. On the System Manager web console, click **Elements > Collaboration Environment**.
- 2. In the left navigation pane, click **Configuration > Attributes**.
- 3. Click the **Service Globals** tab.
- 4. From the **Service** drop-down menu, select **HealthMaster**.
- 5. In the **Provider Details** parameter row:
 - a. Select Override Default.
 - b. In the **Effective Value** field, enter the following:

providerId=providerId1, heartbeatTimeoutInSecs=heartbeatTimeout1, synchronizeManager=RPA|

Note:

All the fields mentioned in this step are mandatory.

If you want to make any change in the existing provider configurations, you must first delete the provider details and click **Commit**. Wait for 1 minute for the changes to take effect. You can then enter the new configuration details as described in this step.

6. Click Commit.

Work Assignment uninstallation and deletion

Uninstallation overview

To uninstall Work Assignment, you must delete the Work Assignment cluster.

You cannot uninstall individual Work Assignment service unless you install a newer version of the same service.

Deleting a Work Assignment cluster

Procedure

- On the System Manager web console, click Elements > Collaboration Environment > Cluster Administration.
- 2. Select the Work Assignment clusters that you want to delete.
- 3. On the Cluster State list, select Deny New Service, if the clusters are in Accepting state.
- 4. On the Warning box, click **Continue**.
 - The states of the selected clusters change to **Denying**.
- 5. Click Delete.
- 6. On the Warning box, click **Continue**.

Next steps

Verify that the Work Assignment cluster was deleted successfully:

- 1. On the **Cluster Administration** page of System Manager web console, verify that the clusters that you deleted in the above procedure have been removed from the list.
- 2. On the **Service Management** page of System Manager web console, verify that the status of the Work Assignment services have been changed from **Installed** to **Loaded**.

Upgrading Work Assignment

About this task

This procedure describes how to upgrade Work Assignment. For information about upgrading Collaboration Environment and System Manager, see *Upgrading Avaya Aura*[®] *Collaboration Environment* and *Upgrading Avaya Aura*[®] *System Manager on VMware in Virtualized Environment* respectively, available on the Avaya support web site: https://support.avaya.com/.

Procedure

1. Delete the Work Assignment cluster.

See Deleting a Work Assignment cluster on page 36.

Note:

If you are upgrading only the Work Assignment software version and not upgrading Collaboration Environment and System Manager, you can skip this step. This step is required only when you upgrade Work Assignment as well as the platform.

- 2. Delete the existing Work Assignment SVAR files.
 - a. On the System Manager web console, navigate to **Elements > Collaboration Environment > Service Management.**
 - b. Select a Work Assignment service and click **Delete**.
 - c. Confirm deletion.
 - d. Repeat steps b and c for each Work Assignment service.
- 3. Load the new Work Assignment SVAR files in System Manager and create a new System Manager cluster.

See Configuring a cluster and installing Work Assignment services on page 31.

Chapter 6: Administering Work Assignment resources

Overview

You can manage resources, accounts, account sources, and the various properties of Work Assignment using the System Manager web console. The following table describes the different tasks that you can perform on different pages on System Manager:

| System Manager page | Purpose | Note |
|--|--|--|
| Users > User Management | Use this page to create resources, resource accounts, and account sources. A resource is an agent. A resource account is the communication addresses, for example: email, chat, and voice, configured for an agent. An account source is the source that is providing the resource account. For example, if a resource account is chat@avaya.com, then avaya.com is the account source. | This chapter provides a high level procedure to create a Work Assignment user account in System Manager. For more information about creating resources, see Administering Avaya Aura® System Manager. |
| Elements > Work Assignment > Assignment Management | | |

| System Manager page | Purpose | Note |
|--|---|---|
| | sources, for example: Deployment type. | |
| | Overall Business: Use this page to configure the business property— Expected average handling time. | |
| Elements > Work Assignment > | Use this page to: | This chapter provides the |
| Attribute Management | Add or delete categories from Work Assignment | procedures to configure these categories and attributes. For descriptions of each field on the |
| | Add or delete attributes from a category | pages, see the Work Assignment online help. |
| | For example: If you have a category called <i>Language</i> , a possible attribute for that category can be <i>English</i> . | |
| Elements > Work Assignment > Property Management | Using this page, you can configure all Work Assignment properties: resource properties, account properties, business properties, and the source properties. | This chapter provides the procedures to configure these Work Assignment properties. For descriptions of each field on the pages, see the Work Assignment online help. |

Creating a Work Assignment user in System Manager

Before you begin

Ensure that you have successfully deployed Work Assignment and you have administrative access to the System Manager where Work Assignment is deployed.

About this task

Use this procedure to create a resource for Work Assignment using the System Manager web console. You must create one resource at a time. A resource can have multiple accounts.

Important:

Work Assignment does not allow you to create or import multiple resources at once. You must repeat this procedure for every resource you add to Work Assignment.

- 1. On the System Manager web console, click **Users > User Management**.
- 2. On the left navigation pane, click **Manage Users**.
- 3. On the User Management pane, click **New**.

- 4. In the Identity pane, you must specify the following fields:
 - Last Name
 - First Name
 - Login Name
 - Authentication Type

The login name must be a Fully Qualified name, for example: abc@example.domain.

- 5. Click Commit & Continue.
- 6. In the Communication Profile tab, specify a communication profile password:
 - a. Click Edit.
 - b. In the **Communication Profile Password** field, enter the password.
 - c. In the **Confirm Password** field, type the password again.
- 7. Click Communication Address > New.
- 8. From the **Type** list, select **Work Assignment**.
- 9. In the **Fully Qualified Address** field, enter the fully qualified address of the Work Assignment resource account, separated by the @ symbol.

For example, abc and example.domain.

10. Click Add.

To add more accounts, repeat steps 7 through 10.

- 11. Expand Work Assignment Profile.
- 12. Select the accounts you have created for Work Assignment.
- 13. In the **Source Name** field, enter a source name for the resource account.
- 14. In the **Source Address** field, enter a source address for the resource account.
- 15. Click Commit.

Assignment Management

Managing resource assignments

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. In the left navigation pane, click **Assignment Management**.
- 3. If not selected by default, select **Resources** in the **Available Targets** list.

- 4. In the **Resources** list, select the resource that you want to use as the assignment target.
- Click Next.
- 6. In the **Attributes** tab:
 - a. Select the attribute that you want to assign to the selected resource.

You can search the attribute using the **Search** field in the **Select Attribute** area. You can also expand the categories to select the attributes.

- b. Click Commit & Continue.
- 7. In the **Properties** tab:
 - a. Select the property for which you want to assign a value.
 - b. To specify a new default value for the selected resource for this property, specify a value in the **Override Default Value** field.
 - c. To assign different property values to the selected resource for categories associated with the selected property, click View/Change in the Multiple values column.

If the system prompts you, you must first associate categories with this property.

- d. Click Commit & Continue.
- 8. In the **Strategy** tab, select a strategy for the selected resource.
- 9. Click Commit.

Managing resource account assignments

Procedure

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. In the left navigation pane, click **Assignment Management**.
- 3. In the Available Targets list, clic'k Resource Accounts.
- 4. In the **Resources** area, select the resource you want to use as the assignment target.

The **Resource Accounts** area displays a list of the accounts associated with the selected

- 5. In the **Resource Accounts** area, select the account that you want to use as the assignment target.
- 6. Click Next.
- 7. In the **Attributes** tab:
 - a. Select the attribute that you want to assign to the selected account.
 - b. Click Commit & Continue.
- 8. In the **Properties** tab:
 - a. Select the property for which you want to assign values, for the selected account.

- b. Specify a new default value of this property for the selected account.
- 9. Click Commit.

Managing account sources assignments

Procedure

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. In the left navigation pane, click Assignment Management.
- 3. In the Available Targets list, click Account Sources.
- 4. In the **Account Sources** list, select the source that you want to configure.
- 5. Click Next.
- 6. In the **Source Properties** list, select the property to which you want to assign values.
- 7. In the **Override Default Value** list, select a value for the selected property.
- 8. Click Commit.

Managing overall business assignment

Procedure

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. In the left navigation pane, click Assignment Management.
- 3. In the Available Targets list, click Overall Business.
- 4. To assign a new default value to the property, specify a value in the **Override Default Value** field.
- 5. To assign different values for the associated categories, click **View/Change** in the **Multiple Values** column.

If the system prompts you, you must first associate categories with the property.

6. Click Commit.

Attribute Management

Adding a category

Procedure

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. In the left navigation pane, click Attribute Management.
- 3. In the Category area, click Add.

The system displays a text box.

- 4. In the new text box, type the category that you want to add.
- 5. Click the check mark.

Deleting a category

Procedure

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. In the left navigation pane, click **Attribute Management**.
- 3. In the **Category** area, select the category that you want to delete.
- 4. Click Delete.
 - Note:

To delete a category, you must first delete all the attributes associated with the category.

5. On the **Delete Confirmation** window, click **Confirm**.

Adding an attribute

Procedure

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. In the left navigation pane, click Attribute Management.
- 3. Select the category to which you want to add an attribute.
- 4. On the Attributes for Selected Category(s) area, click Add.

The system displays a text box.

- 5. On the text box, type the name of the attribute.
- 6. Click the check mark.

Deleting an attribute

Procedure

- On the System Manager web console, click Elements > Work Assignment.
- 2. In the left navigation pane, click **Attribute Management**.
- 3. Select the category from which you want to delete an attribute.

The Attributes for Selected Category(s) area displays the attributes associated with the category you have selected.

4. Select the attribute that you want to delete.



Note:

You cannot delete an attribute that is assigned to a target.

- 5. Click Delete.
- 6. On the **Delete Confirmation** window, click **Confirm**.

Property Management

Editing Work Assignment properties

Procedure

- On the System Manager web console, click Elements > Work Assignment.
- 2. In the left navigation pane, click **Property Management**.
- 3. Select the property you want to edit.
- 4. (Optional) In the Default field, specify a value that you want to assign as the default value for the property.

Note:

- You cannot specify a value lower than that of Min or higher than that of Max.
- If you want to change the preconfigured default values for properties of type Resource and Account, you must specify the new value before you create accounts in System Manager.
- You cannot change the preconfigured default values for properties of type Business and Source.
- 5. (Optional) In the Select Categories for multi-valued popup area, use the arrow buttons to add, remove, or change the order of the categories associated with the selected property.

Work Assignment uses these categories when you edit this property using the **Multiple Value** column of either the **Selected Resources** page or the **Overall Business** page.

Important:

Work Assignment displays the **Select Categories for multi-valued popup** area only if the value of the field **Allow Derived Values** is set to **Yes**.

6. Click Commit.

Administering Proficiency

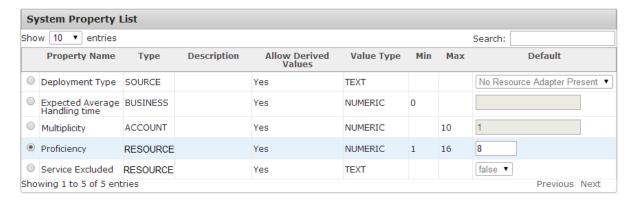
Configuring Proficiency

About this task

You can set the default value for Proficiency property using the **Property Management** page of System Manager. However, you must configure this default value before you add any account in System Manager. You can also configure the categories that Work Assignment considers to determine Proficiency. This procedure describes how to configure Proficiency.

By default, Work Assignment uses this value for all the resources. You can override this default value for selected resources using the **Assignment Management** page. You can also specify different values for different attributes assigned to the resource.

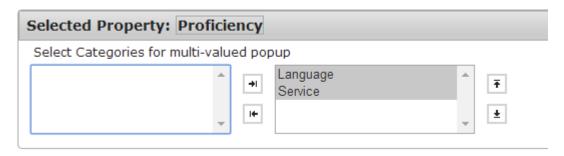
- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. On the left navigation pane, click **Property Management**.
- 3. In the **System Property List** area, select **Proficiency**.



- 4. Do any of the following:
 - a. Set a default value: In the **Default** field, enter a numeric value between 1 and 16.

Lower value denotes higher proficiency.

b. Configure associated categories: In the **Select Categories for multi-valued popup** area, select the categories that you want to add, remove, or rearrange the order for the property **Proficiency**.



The right area displays the categories that Work Assignment considers to determine Proficiency. The left area displays the available categories. Use the arrow buttons to add, remove, or rearrange the categories.

5. Click Commit.

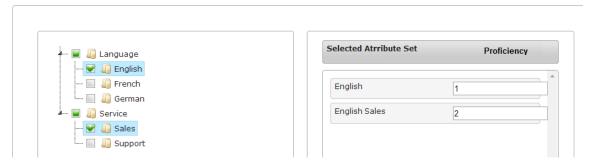
Assigning Proficiency

About this task

This procedure explains how to assign proficiency to Work Assignment resources. Work Assignment considers proficiency at resource level. For a selected resource, you can either override the system default value and set a different default proficiency value for all the attributes assigned to the resource or set different proficiency values for individual attributes or combination of attributes.

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. On the left navigation pane, click **Assignment Management**.
- 3. In the Available Targets list, select Resources.
- 4. Select the resource for which you want to assign proficiency.
- 5. Click Next.
- 6. Click the **Property** tab.
- 7. Select **Proficiency**.
- 8. If you want to set a new default value for the selected resource:
 - a. In the Override Default Value field, specify a value between 1 to 16.
 The system default value is 8. A lower value denotes higher proficiency.
 - b. Click Commit & Continue and then click Done.

- 9. If you want to specify different proficiency values for individual services:
 - a. In the Multiple values column, click View/Change.
 - b. Select the categories and the attributes for which you want to specify proficiency.



- c. In the right pane, specify the proficiency values for each attribute.
- d. Click Commit & Continue and then click Done.

Administering Multiplicity

Configuring Multiplicity

About this task

You can set the default value for Multiplicity property using the **Property Management** page of System Manager. However, you must configure this default value before you add any account in System Manager.

By default, Work Assignment uses this value for all the accounts. You can override this default value for selected accounts using the **Assignment Management** page.

Use the following procedure to specify a default value for Multiplicity.

- On the System Manager web console, click Elements > Work Assignment.
- 2. On the left navigation pane, click **Property Management**.
- 3. In the System Property List area, select Multiplicity.



- 4. In the **Default** field, enter a numeric value between 1 to 10.
- Click Commit.

Assigning Multiplicity

About this task

This procedure explains how to assign Multiplicity values to Work Assignment resource accounts. For the selected Work Assignment resource accounts, you can override the system default value and set a different default Multiplicity. This procedure explains how to specify an Multiplicity value.

Procedure

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. On the left navigation pane, click Assignment Management.
- 3. In the Available Targets list, select Resource Accounts.
- 4. In the Resources area, select the resource for which you want to assign Multiplicity.
 The Resource Accounts area displays the accounts associated to the resource you
 - The **Resource Accounts** area displays the accounts associated to the resource you selected.
- 5. In the **Resource Accounts** area, select the accounts for which you want to assign Multiplicity.
- 6. Click Next.
- 7. Click the **Property** tab.
- 8. Select Multiplicity.
- 9. In the **Override Default Value** field, enter a numeric value between 1 to 10.
- 10. Click Commit.

Administering Service Excluded

Configuring Service Excluded

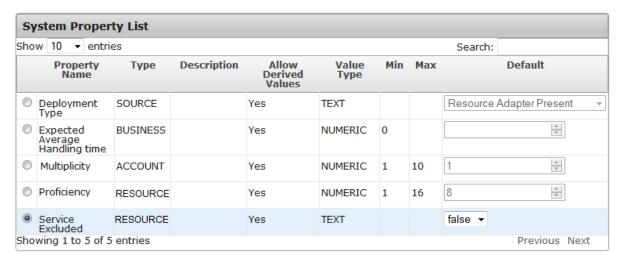
About this task

You can set the default value for Service Excluded property using the **Property Management** page of System Manager. However, you must configure this default value before you add any account in System Manager. You can also configure the categories that Work Assignment considers for deriving Service Excluded. This procedure describes how to configure Service Excluded.

By default, Work Assignment uses this value for all the resources. You can override this default value for the resources using the **Assignment Management** page. You can also specify different values for different attributes assigned to the resource.

Procedure

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. On the left navigation pane, click Property Management.
- 3. In the System Property List area, select Service Excluded.



- 4. Do any of the following:
 - a. Set a default value: In the **Default** field, select **true** or **false**.
 - b. Configure associated categories: In the **Select Categories for multi-valued popup** area, select the categories that you want to add, remove, or rearrange the order for the property **Service Excluded**.



The right area displays the categories that Work Assignment considers for deriving Service Excluded. The left area displays the available categories. Use the arrow buttons to add, remove, or rearrange the categories.

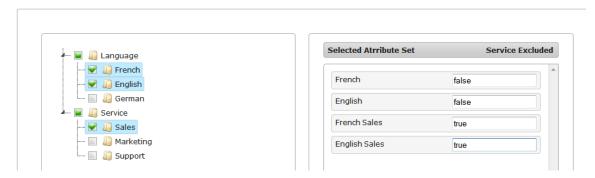
5. Click Commit.

Assigning Service Excluded

About this task

This procedure explains how to assign Service Excluded values to Work Assignment resources. Work Assignment considers Service Excluded at resource level. For a selected resource, you can either override the system default value and set a different default Service Excluded value for all the attributes assigned to the resource or set different values for individual attributes or combinations of attributes.

- 1. On the System Manager web console, click **Elements > Work Assignment**.
- 2. On the left navigation pane, click Assignment Management.
- 3. In the **Available Targets** list, select **Resources**.
- 4. Select the resource for which you want to assign Service Excluded.
- 5. Click Next.
- 6. Click the **Property** tab.
- 7. Select Service Excluded.
- 8. If you want to set a new default value for the selected resource:
 - a. In the **Override Default Value** field, select **yes** or **no**, depending on your system default value.
 - b. Click Commit & Continue and then click Done.
- 9. If you want to specify different values for individual attributes:
 - a. In the Multiple values column, click View/Change.
 - b. Select the categories and the attributes for which you want to specify a Service Excluded value.



- c. In the right pane, specify the **true** or **false**.
- d. Click Commit & Continue and then click Done.

Chapter 7: Working with Collaboration Designer

Overview

Collaboration Designer is a tool, using which you can design and deploy workflow definitions in a Collaboration Environment platform. A workflow definition is a series of connected events, data, and tasks that describe and execute business processes used in your enterprise.

Using Collaboration Designer, you can create and deploy workflow definitions for Work Assignment from a set of available tasks. Collaboration Designer has the following tasks specific to Work Assignment:

| Task | Icon | Description |
|-------------------------------|-------------|---|
| Request Resource | 2 ** | Requests a single resource. This task always considers the availability of the resource before selecting for assignment. For example: Request Resource with Attribute Set {A,B,C} OR {D, E, F} OR {G, H, I} |
| Request Multiple Resources | +2 | Requests one or more resources for a given attribute set. For example: Request N Resources with Attribute Set {A,B,C} |
| Request Group of Resources | +22 | Requests a group of resources from a set of attribute sets. For example: Request a group composed of: |
| | | Resources with Attribute Set {A,B,C} |
| | | Resources with Attribute Set {D,E,F} |
| | | Resources with Attribute Set {G,H,I} |
| Accept | 2 ** | Sends a confirmation to Work Assignment that the offer is acceptable. |
| Cancel | 2 ** | Requests Work Assignment to cancel a request that is in process. |
| Complete | 2** | Sends a confirmation to Work Assignment that the specific work is completed. |

| Task | Icon | Description |
|-----------------|-------------|---|
| Service Metrics | 2** | Retrieves metrics based on an attribute set. |
| Query Resource | 2 ** | Sends a query for one or more resources for a given attribute set. This task does not consider availability of the resources. |

This chapter contains a high level description of how to install and use Collaboration Designer. For more information about creating Work Assignment specific workflows in Collaboration Designer, see *Avaya Work Assignment Snap-in Developer's Guide*. For more information about Collaboration Designer in general, see the following documents that are available on the Avaya support web site: https://support.avaya.com/:

- · Avaya Collaboration Designer Snap-in Reference
- Avaya Collaboration Designer Snap-in Developer's Guide
- · Getting started with the Avaya Collaboration Designer Snap-in



You must install Work Assignment and Collaboration Designer in the same System Manager.

Installing Collaboration Designer

Before you begin

Ensure that you have downloaded the Collaboration Designer SVAR file and the Collaboration Designer license file from PLDS.

About this task

This task provides a high level description about installing Collaboration Designer. You must install Collaboration Designer on the same System Manager where you have installed Work Assignment. You must create a General Purpose cluster for Collaboration Designer and assign two instances of Collaboration Environment servers to the cluster.

- 1. On the System Manager web console, navigate to **Home > Elements > Collaboration Environment > Service Management**.
- 2. Load the Collaboration Designer SVAR file:
 - a. Click Load.
 - b. On the **Load Service** window, click **Browse** and locate the Collaboration Designer SVAR file.
 - c. Select the SVAR file and click **Open**.
 - d. Click Load.

System Manager displays an end-user license agreement for the snap-in. To load the snap-in, you must read and accept the license agreement.

- 3. Create a cluster for Collaboration Designer in the same way you have created a cluster for Work Assignment. However, in the **Cluster Profile** field, you must select **General Purpose**.
- 4. On the System Manager Home > Elements > Collaboration Environment > Service Management page, select the Collaboration Designer SVAR file you loaded.
- 5. Install the Collaboration Designer SVAR file:
 - a. Click Install.
 - b. Select the Collaboration Designer cluster and click **Commit**.

The **State** column in the **All Services** list displays the status of the installation. A status of **Installed** with a green tick mark indicates that Collaboration Designer has been installed. You might need to click the Refresh Table icon located on the upper-left corner of the list for the status to change.

- 6. Configure the attributes for Collaboration Designer:
 - a. Navigate to System Manager Home > Elements > Collaboration Environment > Configuration > Attributes.
 - b. Select the Service Globals tab.
 - c. Specify the Collaboration Designer attributes and click Commit.
- 7. Install the Collaboration Designer license file the same way you have installed the Work Assignment license.

See Configuring licenses on page 25.

8. To verify the installation, enter the following URL in your web browser:

http://<Host Name>/services/CollabDesigner/wf/Admin/testGS.

For a successful installation, the system displays a confirmation message on the screen. For a failed installation, the screen does not display any message.

Opening Collaboration Designer

Before you begin

Ensure that:

- Collaboration Designer is installed.
- The computer you are using to access Collaboration Designer can resolve the host names of the Collaboration Environment and System Manager servers. Register the Collaboration Environment and System Manager FQDNs with a DNS server.

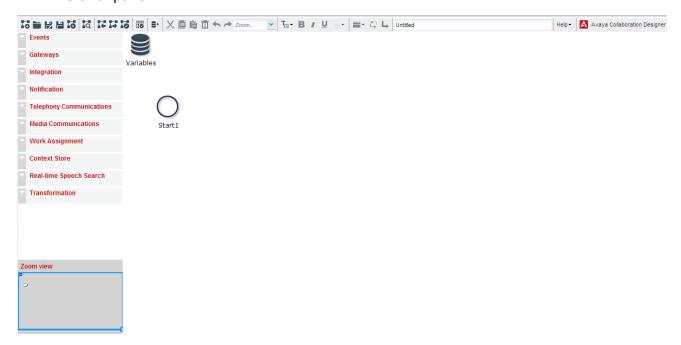
Procedure

- On the System Manager web portal, navigate to Home > Collaboration Environment > Server Administration.
- 2. Click the name of the server where Workflow Engine (WFE) is installed.
- 3. Select CollabDesigner.
- 4. At the top of the pane that lists the services, click **Designer Access**.

Collaboration Designer interface description

There are five sections of the Collaboration Designer interface:

- · The toolbar
- · The palette
- · The canvas
- · The zoom view
- · The error pane



The toolbar

The toolbar displays along the top edge of the interface. Place your cursor over any tool in the toolbar to see a brief description of its purpose. The toolbar provides basic text formatting and display options. It also provides special Workflow Definition tools such as those to create, open, save, delete, preview, import, export, validate, and deploy a Workflow Definition.

The palette

The palette displays along the left margin of the interface. It lists the tasks that can be dragged and dropped onto the canvas as part of a Workflow Definition. Tasks with common functions are divided into separate drawers that can be collapsed or expanded.

The canvas

The canvas is the section of the interface where the Workflow Definition displays as you build it. Drag tasks from the palette onto the canvas to create the Workflow Definition. Click the **Turn Grid On/Off** tool on the toolbar to display a grid on the canvas to help you align your workflow components. When dragging tasks across the canvas, guidelines appear to also aid in alignment. Use the **Line Width**, **Line Type**, and **Round** tools to change how connecting lines display on the canvas.

The zoom view

The zoom view shows all the canvas items in a small viewer in the lower- left corner of the interface, below the palette. It gives an overall perspective of the workflow.

The error pane

The error pane displays along the bottom edge of the interface only when you validate a Workflow Definition. It lists errors and warnings that result from the validation.

| 2 Error(s) |
|---|
| ReadFromDB1: Read From DB Task: SQL query cannot be null, empty or whitespaces. |
| ReadFromDB1: Read From DB Task: Output schema cannot be null, empty or whitespaces. |
| 0 Warning(s) |

Validating a workflow

Procedure

- 1. Open Collaboration Designer.
- 2. Open a workflow:
 - a. Click the Open Workflow icon on the Collaboration Designer toolbar.
 - b. Select the workflow that you want to open.
 - c. Click Open.
- 3. Click the Validate Workflow icon on the Collaboration Designer toolbar.

The error pane displays the errors in the workflow, if present.

Deploying a workflow

About this task

When you deploy a Collaboration Designer workflow, the Collaboration Designer snap-in deploys the workflow as a SVAR file in System Manager. You can access the deployed workflow from the System Manager web portal: **Home > Elements > Collaboration Environment > Service Management**. Use this procedure to understand how to deploy a Collaboration Designer workflow.

Note:

The maximum size of a workflow that can be saved or deployed successfully is 512kb. If you exceed the maximum size, you will get the following error message: **Unknown deployment error**.

Procedure

- Open Collaboration Designer.
- 2. Open a workflow:
 - a. Click the Open Workflow icon on the Collaboration Designer toolbar.
 - b. Select the workflow that you want to open.
 - c. Click Open.
- 3. Click the Deploy Workflow icon on the Collaboration Designer toolbar.
- 4. In the **File Name** field, specify a name for the workflow.
- 5. In the **Version** field, specify a version for the workflow.

Ensure to provide a unique combination of the **File Name** and **Version**.

6. Click OK.

Collaboration Designer displays the status of the deployment.

Next steps

After you deploy a workflow, you can use the workflow by sending a request through a REST client. Send a POST request specifying the workflow name, version, and the work request that you have.

Chapter 8: Verifying Work Assignment deployment

About this task

This procedure describes the tasks that you must perform to verify the deployment of Work Assignment. If you can successfully perform all of the tasks mentioned in this procedure, your Work Assignment deployment is successful.

Procedure

- 1. Verify deployment of the Work Assignment REST interfaces:
 - a. To verify the Work Assignment Service REST interface, enter the following URL in your web browser:

```
http://<IP_CLUSTER>/services/WAIMRestService/wa/imrest/v2/matches/check
```

Where *IP_CLUSTER* is the IP address of the Work Assignment cluster.

On successful validation, the web browser displays the following message:

```
IM Rest has started
IMPU is alive
```

b. To verify the Work Assignment Resource REST interface, enter the following URL in your web browser:

```
http://<IP CLUSTER>/services/WARPRestService/rp/rprest/check
```

On successful validation, the web browser displays the following message:

```
WA-RPRest Service is up
```

2. If you are using Collaboration Designer, verify deployment of Collaboration Designer:

Enter the following URL in your web browser:

```
http://<Host Name>/services/CollabDesigner/wf/Admin/testGS.
```

For a successful installation, the system displays a confirmation message on the screen. For a failed installation, the screen does not display any message.

3. Create a dummy resource, account, and source in System Manager.

See Creating a Work Assignment user in System Manager on page 39.

- 4. On the System Manager web console, select **Elements > Work Assignment > Assignment Management > Account Sources**.
- 5. Select the dummy source you created and click **Next**.
- In the Property tab, select Deployment Type and do one of the following:
 - If the Default Value is No Resource Provider Present, click Cancel.
 - If the **Default Value** is **Resource Provider Present**, in the **Override Default Value** field, select **No Resource Provider Present** and click **Commit**.
- 7. On the System Manager web console, select **Elements > Work Assignment > Assignment Management > Resource Accounts**.
- 8. Select the dummy resource and the resource accounts you created and click **Next**.
- 9. From the **Select Attribute** menu, select a default attribute, for example: **Voice**, and click **Commit**.
- 10. Create a Work Assignment workflow in Collaboration Designer or any other tool that you are using for that purpose.
- 11. Using a REST client, send a single resource request with the same attribute that you have assigned to the account, for example: Voice.
- 12. If Work Assignment sends you an offer, the deployment was successful. You can also check Work Assignment log files to see the status of your request.
 - For information about Work Assignment log files, see <u>Work Assignment log files</u> on page 71.

Chapter 9: High availability

Overview

Work Assignment uses the Collaboration Environment platform and data grid to achieve high availability. The Work Assignment cluster consists of two Collaboration Environment servers that are dedicated for Work Assignment.

Work Assignment creates a data grid across the two Collaboration Environment servers in the cluster where you deploy Work Assignment, so that the two servers can operate in an active/active mode.

Work Assignment stores the work and resource states and the configuration settings data in the data grid. When you change any Work Assignment configuration through the System Manager web portal, System Manager sends the data to both the servers in the Work Assignment cluster. Each server in the cluster stores the configuration data locally as well as in the data grid, so that the internal Work Assignment processing units can use the stored data.

The Work Assignment cluster is accessible through a cluster IP address that is maintained by a highly available load balancer. The load balancer distributes HTTP requests across each of the Collaboration Environment servers in the cluster. If one of the two servers in the Work Assignment cluster is unavailable, Work Assignment can handle incoming requests without significant impact to its performance.

To achieve high availability, the Work Assignment data grid uses the following techniques:

- Data sharing: All the servers in a Work Assignment cluster shares the same data grid. Even if
 one server is unavailable, the other server in the Work Assignment cluster can use the data
 present in the data grid.
- Data partition and redundancy: Work Assignment partitions the data that is present in the data grid and distributes the data across different machines. The system keeps a backup of data from each partition so that if one source becomes unavailable, Work Assignment can retrieve the same data from the backup location.
- Processing Unit backups: The Processing units within the data grid have backup processing units so that in case of a failure, Work Assignment can promote the backup processing units to work as active processing units.

Supported failure modes

Work Assignment supports a single point of failure, at rated capacity, while preserving data. A single point of failure is a server, a software component or container, or a network failure.

Work Assignment does not support multiple points of failure at the same time. Work Assignment supports the following failure modes one at a time, no combination of these modes are supported at the same time:

- Server failure: A single Collaboration Environment server in the Work Assignment cluster
- Container failure: A datagrid, WAS, or JBoss container failure
- · Component failure:
 - A primary or backup processing unit fails
 - A REST service fails
- PostGres database failure: The database fails on one of the Collaboration Environment servers in the Work Assignment cluster
- Network outage: Network outage affecting one of the Collaboration Environment servers in the Work Assignment cluster

For a Work Assignment cluster to be highly available, the cluster must be fully operational with both Collaboration Environment servers operational and all services operational. A Work Assignment cluster is not highly available if:

- One of the Collaboration Environment servers in the cluster has failed. After a server outage, the remaining server in the Work Assignment cluster is not highly available. The failed server must be restored to the cluster to restore high availability.
- One of the Collaboration Environment servers is in *Deny New Service* state.

Work Assignment does not support an unattended recovery of a server after a server or network outage. You must follow a manual restoration procedure for a successful recovery.

Work Assignment engine failover behavior

Preservation of Queued Work and processing of New Work

When a backup Work Assignment engine processing unit is promoted to active status, all queued work is processed by the new Work Assignment engine. This new engine also processes any work request that comes during the transition period.

The new Work Assignment engine does not process the requests that are in Offered state at the point of failure. You can Accept the offered work requests during or after the failover.

The new Work Assignment engine also does not process the requests that are in Accepted state at the point of failure. Work Assignment gives an error response if you mark such a request as Complete during or after the failover.

The configured Work Assignment reporting endpoints receive notifications about the Work Assignment engine failover behavior. The sequence of events for work that was recovered after failover will be different than that of the normal work.

Metrics behaviors

The following are the metrics behaviors after a Work Assignment engine processing unit failover, either because of the failure of the processing unit or where the processing unit was active on a server that failed:

- Metrics do not change during a Work Assignment engine failover
- Metrics are updated after the Work Assignment engine has fully completed failover and new work is being processed
- There might be a discrepancy between Query Resources and Service Metrics
- Completed Work Count can be less than expected after a failover and will never be fully corrected afterwards

Retry and timeouts

Client retries on the Work Assignment Service REST and Work Assignment Resource REST interfaces are a general principle of operation to minimize impact on flows using Work Assignment. Retries are necessary in a variety of failure modes where requests are either not responded to, or responded to with an error.

Examples of failure modes where retries are necessary:

- Server failure
- · Work Assignment engine failure
- IMPUD failure
- UCM space processing unit failure

The offers that are being sent at the time of failure might be lost. To avoid waiting indefinitely for an offer, you must implement a timeout.

Server failure

If a Work Assignment server fails due to power outage or network failure, both the load balancer and the data grid detects the failure. If required, Work Assignment then makes the backup load balancer active and the affected data grid processing units also make their backup processing units active. There is no loss of data during this period. However, if you encounter any error during this transition period, send your requests again.

Restoring a server to the Work Assignment cluster after server or network outage

About this task

Use the following procedure to restore a server that has failed due to network or server outage. To reduce impact on the ongoing services, Avaya recommends to plan a maintenance window to perform this procedure.

Work Assignment does not support unattended recovery of a server after server or network outage. You must follow this manual restoration procedure for a successful recovery.

Procedure

- 1. Change the cluster state to Deny New Service:
 - a. On the System Manager web console, navigate to **Elements > Collaboration Environment > Cluster Administration**.
 - b. Select the Work Assignment cluster.
 - c. From the Cluster State menu, select Deny New Service.
 - d. On the confirmation window, click **Continue**.
- 2. Shutdown the Collaboration Environment servers in the Work Assignment cluster using VMware vSphere Client.
- 3. Power on the Collaboration Environment servers in the Work Assignment cluster using VMware vSphere Client.

Power on the second server after 10 seconds of powering on the first server.

Until both the servers are powered up, the cluster status must be Deny New Service.

- 4. Change the cluster state to **Accept New Service**:
 - a. On the System Manager web console, navigate to **Elements > Collaboration Environment > Cluster Administration**.
 - b. Select the Work Assignment cluster.
 - c. From the Cluster State menu, select Accept New Service.
 - d. On the confirmation window, click **Continue**.

Once the **Cluster State** becomes **Accepting**, the Work Assignment cluster is ready for accepting requests.

Chapter 10: Performance

Capacity and scalability specification

| Specification | Capacity | Description |
|---|--|---|
| Maximum number of matches | 40000 Busy hour call completion (BHCC) | In Work Assignment, a call must be handled by an average of four individual Work Assignment service requests and two resource provider requests. |
| | | To support 40000 BHCC, Work Assignment supports up to 160000 service requests per hour. The resource provider service supports up to 100000 requests per hour, including 20000 agent state change requests. |
| Maximum number of concurrent resources | 2000 | The number of logged in resources, irrespective of the statues, Available or Unavailable. |
| Maximum number of concurrent accounts | 6000 | The number of resource accounts that you can configure in System Manager for Work Assignment. |
| Maximum number of concurrent work items, including all states except Complete | 5000 | Maximum supported total of concurrent work items. Work Assignment tracks the work items until you mark them as Complete. |
| Maximum number of supported services | 5000 | This is the maximum number of unique attribute sets that Work Assignment supports. |
| Minimum number of attributes per attribute set | 1 to 10 | You can specify up to 1 to 10 attributes per attribute set for an account. |
| Number of attributes configured for each resource | 20 | This is the maximum number of attributes that you can assign to a single resource. |
| Requests per second | 13 | The supported number of requests per second. |
| Response time | 317 milliseconds | The response time of Work Assignment. |
| Maximum system memory usage of a cluster | 45% | The maximum system memory that a Work Assignment cluster uses. |
| Maximum system CPU usage of a cluster | 71% | The maximum system CPU that a Work Assignment cluster uses. |

Performance

| Specification | Capacity | Description |
|--|----------|--|
| Maximum memory usage of a single system in a cluster | 76% | The maximum memory that a single server in a Work Assignment cluster uses. |
| Maximum CPU usage of a single system in a cluster | 65% | The maximum CPU that a single server in a Work Assignment cluster uses. |

Chapter 11: Security

Security overview

The Work Assignment services utilize Collaboration Environment to provide all security configuration for access to its services. Collaboration Environment provides configuration for HTTPS, Mutual TLS (Client Certificate Challenge), and Trust Certificates. System Manager also provides a flexible platform for administering certificates and authorities.

Port Matrix

For Work Assignment port information, see Collaboration Environment 3.0 Port Matrix document at https://support.avaya.com/security.

Certificate-based authentication

For the Work Assignment certificate-based authentication, you must perform the following procedures in the System Manager web portal:

- Configure the client certificate challenge in Collaboration Environment Element Manager. The
 configuration is available on the Collaboration Environment > Configuration > HTTP
 Security page.
- · Create a client keystore.
- Download the Collaboration Environment trusted certificate from System Manager.
- Import the trusted certificate to the keystore.

Ensure that client applications that access Work Assignment operations provide the location and credentials of the client certificate and trusted certificate to establish a secure session with the Work Assignment cluster.

For more information about security and certificates, see *Administering Avaya Aura*[®] *Collaboration Environment* and *Administering Avaya Aura*[®] *System Manager*, available at the Avaya support web site: https://support.avaya.com/.

Chapter 12: Troubleshooting

Alarms

Overview

Work Assignment generates two types of alarms:

- Service: Work Assignment raises these alarms based on error rate thresholds that are calculated periodically. You can configure the period.
- Deployment: Work Assignment raises these types of alarms if Work Assignment encounters any error during deployment for which the deployment process fails. The description of these alarms mention the reason for the error.

You can view, search, configure, and export the alarms from the System Manager web portal. The alarms information is available on the **Services** > **Events** > **Alarms** page in System Manager.

When Work Assignment raises an alarm, the status of the alarm is *Raised*. When you resolve the cause of the alarm, Work Assignment changes the status of the alarm from *Raised* to *Cleared*, keeping all the other fields unchanged. You can see the details of the alarm from the event logs, at /var/log/Avaya/services/event.log.

Enabling alarms

About this task

You must perform the following procedure to enable alarms for Work Assignment. For more information about each task described in this procedure, see *Administering Avaya Aura* System *Manager*, available on the Avaya support web site: https://support.avaya.com/.

- 1. Create an SNMPv3 user profile:
 - a. On the System Manager web console, click **Services** > **Inventory**.
 - b. In the left navigation pane, click **Manage Serviceability Agents > SNMPv3 User Profiles**.
 - c. Click New.
 - d. On the New User profile page, complete the User Details section.

Specify **User Name** as *initial* and **Privileges** as *Read/Write*.

- e. Click Commit.
- 2. Create an SNMP target profile:
 - a. On the System Manager web console, click **Services** > **Inventory**.
 - b. In the left navigation pane, click **Manage Serviceability Agents > SNMP Target** profiles.
 - c. On the SNMP Target Profiles page, complete the Target Details section.

This information must match with the Trap Listener profile. You can see the Trap Listener profile at System Manager **Home > Services > Configurations > Settings > SMGR > TrapListener**.

- d. Click the Attach/Detach User Profile tab.
- e. Select the initial user profile and click Assign.
- f. Click Commit.
- 3. Activate and assign the serviceability agents:
 - a. On the System Manager web console, click **Services > Inventory**.
 - b. In the left navigation pane, click **Manage Serviceability Agents** > **Serviceability Agents**.
 - c. Select the agents that you want to activate and click **Activate**.
 - d. Click Manage Profiles.
 - e. In the **SNMP Target Profiles** tab, select the SNMP target profile you created and click **Assign**.
 - f. In the SNMPv3 User Profile tab, select the user profile you created and click Assign.
 - g. Click Commit.
- 4. Verify the configuration:
 - a. On the System Manager web console, click **Services** > **Inventory**.
 - b. In the left navigation pane, click **Manage Serviceability Agents** > **Serviceability Agents**.
 - c. Select the agents for which you want to generate alarms.
 - d. Click Generate Test Alarm.

System Manager generates alarm.

You can view the alarm at System Manager **Home > Services > Events > Alarms**.

WAIMRestService_IM_ALRM_1

Condition

Alarm message text WA Service Grid is inaccessible or unresponsive.

Alarm level Major

Trigger component WAIMRestService: Two live instances in a cluster.

Cause

Work Assignment Service REST has passed the configured error rate threshold and is now considered to be experiencing a full or partial outage. Work Assignment clears the alarm when the error rate falls below the low threshold.

Solution

- 1. Ensure that the Collaboration Environment servers in the cluster have network connection. You can ping the servers to check the network connection.
- 2. Ensure that the service grid is available.
- 3. Ensure that the cluster has sufficient CPU, memory, hard disk space as per the deployment criteria.
- 4. Ensure that a primary IMPU instance is running on one of the Collaboration Environment servers in the cluster.

WARPRestService_RP_ALRM_1

Condition

Alarm message text RP Service Grid is inaccessible or unresponsive.

Alarm level Major

Trigger component WARPRestService: Two live instances in a cluster.

Cause

Work Assignment Resource Provider REST has passed the configured error rate threshold and is now considered to be experiencing a full or partial outage. Work Assignment clears the alarm when the error rate falls below the low threshold.

Solution

- 1. Ensure that the Collaboration Environment servers in the cluster have network connection. You can ping the servers to check the network connection.
- 2. Ensure that the service grid is available.

- 3. Ensure that the cluster has sufficient CPU, memory, hard disk space as per the deployment criteria.
- 4. Ensure that a primary UCM space PU instance is running on one of the Collaboration Environment servers in the cluster.

WAManagerService_WA_ALRM_1

Condition

Alarm message text Deployment of Work Assignment failed: Reason

Alarm level Major

Trigger component WAManagerService: Two live instances in a cluster.

Cause

Work Assignment Manager service has encountered a problem during the deployment of its components. You can either manually clear the alarm through System Manager or during the next deployment.

Solution

- Ensure that the Collaboration Environment servers in the cluster have network connection.
 You can ping the servers to check the network connection.
- 2. Ensure that the service grid is available.
- 3. Ensure that the cluster has sufficient CPU, memory, hard disk space as per the deployment criteria.
- 4. Ensure that the configured dependent spaces are available on the service grid.

HealthMaster_HM_ALRM_1

Condition

Alarm message text Deployment of Health Master failed: Reason

Alarm level Major

Trigger component HealthMaster: Two live instances in a cluster.

Cause

Health Master has encountered a problem during the deployment of its components. You can either manually clear the alarm through System Manager or during the next deployment.

Solution

1. Ensure that the Collaboration Environment servers in the cluster have network connection.

You can ping the servers to check the network connection.

- 2. Ensure that the service grid is available.
- 3. Ensure that the cluster has sufficient CPU, memory, hard disk space as per the deployment criteria.

UCMManagerService_WA_ALRM_1

Condition

Alarm message text Deployment of UCM failed: Reason

Alarm level Major

Trigger component UCMManagerService: Two live instances in a cluster.

Cause

UCM Manager service has encountered a problem during the deployment of its components. You can either manually clear the alarm through System Manager or during the next deployment.

Solution

- 1. Ensure that the Collaboration Environment servers in the cluster have network connection. You can ping the servers to check the network connection.
- 2. Ensure that the service grid is available.
- 3. Ensure that the cluster has sufficient CPU, memory, hard disk space as per the deployment criteria.

UCAConfigService_UCA_ALRM_1

Condition

Alarm message text UCA Service Not Replicating.

Alarm level Major

Trigger component UCAConfigService: Two live instances in a cluster.

Cause

UCA config service has encountered an error while replicating DRS. You can clear the alarm manually through System Manager.

Solution

1. Ensure that the Collaboration Environment servers in the cluster have network connection. You can ping the servers to check the network connection.

- 2. Ensure that the service grid is available.
- 3. Ensure that the UCA config and UCM spaces are deployed on the service grid.

Work Assignment log files

The following table describes the log name and location of the logs related to Work Assignment:

| Log name | Location | Description |
|------------------------------|---|--|
| Processing unit logs | /tmp/em/pulogoutput/ | The Work Assignment processing unit logs. For example: |
| | | WA-wa-wae-pu*.log contains all core Work Assignment engine logs |
| | | WA-wa-impu-*.log contains IM Rest processor logs |
| | | WA-wa-mc-pu-*.log contains multiplicity controller logs |
| | | WA-wa-loader-pu*.log contains UCM loader logs |
| Work Assignment services log | /var/log/Avaya/services/ ServiceName/ServiceName.log | Logs related to Work Assignment services. |
| Event logs | /var/log/Avaya/services/event.log | Logs related to the Work Assignment alarms and events. |
| Platform logs | /var/log/Avaya/sm/asm.log | Service logs for Collaboration Environment that are related to the Snap-in deployment. |
| Text logs | /var/log/Avaya/sm/ TextLog_date_time.log | Provides information on problems that might be blocking services. |
| DCM logs | /var/log/Avaya/dcm/dcm.log | DCM Console output log file. |
| Data grid logs | /var/log/Avaya/dcm/gs/ | Location of data grid log files. |

Appendix A: Administering Work Assignment services

Configuring attributes for the Work Assignment services

About this task

Use this procedure to configure attributes for a Work Assignment service.

Procedure

- 1. On the System Manager web console, click **Elements > Collaboration Environment**.
- 2. In the left navigation pane, click **Configuration > Attributes**.
- Click the Service Globals tab.
- 4. From the **Service** drop-down menu, select the service that contains the service attributes you want to configure.

The table displays all the attributes that you can configure for the service, including a description of each attribute.

- 5. For the attribute you want to change:
 - a. Click Override Default.
 - b. Enter the new value or string in the **Effective Value** field.
- 6. Click **Commit** to save your changes.

HealthMaster parameters

| Parameter | Description |
|--|--|
| Common shared grid identifier | Same for all components deployed to the same grid. |
| Default Heartbeat Timeout in MS | Heartbeat timeout, in milliseconds, for providers where timeout is not configured. |
| Default internal timeout in MS to recover a resynch for a provider | Default internal timeout, in milliseconds, to recover a resynch for a provider. |

| Parameter | Description |
|--|--|
| Default maximum timeout in MS to complete a provider resynch | Default maximum timeout, in milliseconds, to complete a provider resynch. |
| Default timeout in MS to lock a provider | The default timeout period, in milliseconds, after which Work Assignment locks out a non responsive provider. |
| Default timeout in MS to set unknown state for a provider | The default timeout period, in milliseconds, after which Work Assignment changes a provider status to <i>Unknown</i> . |
| Default timeout in MS to synch-lock a provider | The default timeout period, in milliseconds, after which Work Assignment locks syncing a provider. |
| Default timeout in MS to tidy up provider state after resynch | The default timeout period, in milliseconds, for Work Assignment to update the provider state after a resynch. |
| Default timeout in MS to unlock a provider | The default timeout period, in milliseconds, for Work Assignment to unlock a provider. |
| Deployment Type | Defines the deployment profile for grid components. |
| Internal return timer in MS when forcing resynch after heartbeat failure | Internal return timer when forcing resynch after heartbeat failure. |
| Provider Details | The configuration details of the provider. The format must be: |
| | providerId=provider1,heartbeatTimeoutIn Secs=20,synchronizeManager=RPA |
| Reserved memory capacity per machine | Capacity per machine for space/pu deployments. |

UCMManagerService parameters

| Parameters | Description |
|--------------------------------------|---|
| Common shared grid identifier | Specifies the shared grid, same for all components deployed on the same grid. |
| Deployment Type | Defines the deployment profile for grid components. |
| Reserved memory capacity per machine | The capacity, in GB, per machine for space/PU deployments. |
| Subscription Configuration Details | Details of subscribed reporting endpoint, if any. The format is: |
| | {"endpointURI":" ","certLocation":" "} |

UCAConfigService parameters

| Parameter | Description |
|-----------------|--|
| UCA Rest API | Provides the base URI to contact the UCA Rest API. |
| | The default value is: https://{smgr}/uca-rest. |
| UCA Space Retry | Specifies the retry period in seconds before attempting to contact UCA space on startup. The default value is: 30. |

WAManagerService parameters

| Parameter | Description |
|--|---|
| Common shared grid identifier | Same for all components deployed to the same grid. |
| IMPU default transaction timeout | Sets the IM processing unit default transaction time out in milliseconds. |
| IMPU Lease Manager interval | The interval, in milliseconds, the Lease Manager uses to iterate through and collect all the expired space objects. |
| IMPU max notify threads | The maximum number of space threads that are dealing with notification delivery. |
| IMPU min notify threads | The minimum number of space threads that are dealing with notification delivery. |
| IMPU read timeout in milliseconds when querying a WorkItem | The read timeout period, in milliseconds, for IM processing unit when sending a query for a work item. |
| IMPU Space name | The unique name for the IM processing unit space |
| IMPU WorkActionEntry and WorkResponseEntry lease | The lease both WorkActionEntry and WorkResponseEntry will be written with, in milliseconds. |
| IMPU WorkActionEntry concurrent consumers | Sets the number of concurrent consumers to create for WorkActionEntry FG Listener. |
| IMPU WorkActionEntry max concurrent consumers | Sets the maximum number of concurrent consumers to create for WorkActionEntry FG Listener |
| IMPU WorkItem Accept state timeout in milliseconds | Work item Accept state time out in milliseconds. |
| IMPU WorkItem Accepted state timeout in milliseconds | Work Item Accepted state time out in milliseconds. |
| IMPU WorkItem Cancelled state timeout in milliseconds | Work item Cancelled state time out in milliseconds |

| Parameter | Description |
|--|--|
| IMPU WorkItem Offered state timeout in milliseconds | Work item Offered state time out in milliseconds. |
| IMPU WorkItem Open state timeout in milliseconds | Work item Open state time out in milliseconds. |
| IMPU WorkItem Queued state timeout in milliseconds | Work item Queued state time out in milliseconds. |
| IMPU WorkItem read attempts | Number of attempts for IM processing unit to read a work item. |
| IMPU WorkItem read timeout in milliseconds | The timeout period, in milliseconds, for IM processing unit to read a work item. |
| IMPU WorkItem Reject state timeout in milliseconds | Work item Reject state time out in milliseconds. |
| IMPU WorkItem timedout state timeout in milliseconds | This is how long the work item can wait in the timeout state before actually timing out. |
| IMPU WorkResponseEntry concurrent consumers | Sets the number of concurrent consumers to create for WorkResponseEntry FG Listener. |
| IMPU WorkResponseEntry max concurrent consumers | Sets the maximum number of concurrent consumers to create for WorkResponseEntry FG Listener. |
| Reserved Memory Capacity Per Machine | Reserved memory capacity per machine for the elastic grid. |
| WA Loader healthMonitor | Set Loader Health Monitor configuration. |
| Work Assignment Deployment Type | Defines the deployment profile for Work Assignment grid components. Supported values are <i>Production</i> or <i>Development</i> . |

WAIMRestService parameters

| Parameter | Description |
|--|---|
| CallBack retry configuration | Configurations for the retry mechanism in the IM CallBack Client to handle slow callback servers. The configuration string must be in the following format: |
| | maxNumberOfThreads numberOfRetries SleepBetweenRetries. |
| IM instance error rate high threshold | High threshold for instance error rate percentage that the IM REST interface tolerates. Valid range: 1 - 100. |
| IM instance error rate low threshold | Low threshold for instance error rate percentage that the IM REST interface tolerates. Valid range: 1 - 100. |
| IM instance error rate monitoring period | Error rate monitoring period in seconds. Valid range: 1 - 3600. |

| Parameter | Description |
|------------------------------|--|
| IM ReST Max callbacks | Maximum allowed HTTP callback connections per IM REST instance |
| IM ReST Supported Metrics | The list of metrics supported. |
| IM ReST Sync Request Timeout | The timeout, in milliseconds, period an IM REST waits for an offered resource for a synchronous match request. |
| Max callback addresses | Maximum allowed HTTP callback connections per IM REST instance for each different callback address. |

WARPRestService parameters

| Parameter | Description |
|---|---|
| RP Instance error rate high threshold | High threshold of instance error rate, in percentage, that the RP REST interface tolerates. Valid range: 1 - 100. |
| RP Instance error rate low threshold | Low threshold of instance error rate, in percentage, that the RP REST interface tolerates. Valid range: 1 - 100. |
| RP Instance error rate monitored period | Error rate monitoring period in seconds. Valid range: 1 - 3600. |

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