# AVATO

# User Guide 2020-10-30

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## About This Document

The audience for this document includes everyone who interacts with the Avato user interface in any capacity whatsoever.

Part I, "Avato UI Tour" fully describes the Avato user interface, starting with the page layout and its components, its "Welcome" log-in page, followed by descriptions of each page displayed when a choice in the Navigation panel is selected.

Part II, "Tasks Reference" provides instructions for accomplishing various tasks through the Avato interface. These tasks are presented in sections corresponding to each major section in the Navigation panel.

Please see Appendix A, Document Conventions for useful information regarding the typography used in schema models, xml models, and prose content.

We invite customer input regarding our user manuals. Please see Appendix B, Technical Support for contact details and information on accessing the latest edition of the manual.

## 1

## Overview

Avato is a hybrid integration platform that provides a robust technology foundation that securely, quickly, and simply integrates fragmented and incompatible systems and data. Developed for complex, regulated environments, Avato de-risks digital transformation and delivers unmatched value.

Deployable in highly-available clusters, Avato can run in the cloud on Azure, AWS, or Google Cloud, and can also be deployed securely behind your organization's firewalls.

By providing a middle-tier layer that adapts application and service communication protocols from arbitrary external applications, Avato enables standards-compliant, highly-available connectivity between systems and services, while providing mechanisms that help you adhere to information technology best practices.

The platform offers a browser-accessible user interface that provides developers a map of Avato components and connections, with access to messaging entry and exit points to enable testing and development of interfaces, a message traffic recording system that provides deep insight into message exchanges and connected application behaviour, and a playback mechanism that plays back transactions in real-time to accurately and repeatedly reproduce production scenarios in troubleshooting environments.



A Typical Avato Display

## Part I. Avato UI Tour

This section describes the Avato user interface in detail.

A description of the "desktop" and "mobile" interfaces is presented first, followed by a description of the "Welcome" page. The remaining sections are presented in the order listed in the Navigation menu, with subsections delving deeper into those pages specific to a particular feature.

Note that this manual will use the "desktop" interface in its screenshots and descriptions.

## 2

## The Default "Desktop" Layout

When viewing Avato on a computer or device with a large display, the "desktop" version of the user interface is shown:



#### A "Desktop" Interface

The default Avato desktop interface comprises two or three components: a Header part, a usually hidden Navigation menu, and a Display panel that consumes most of the display area.

The Header panel has a menu button, an Avato logo that returns you to the Welcome page, a business or system name, the page title, and either a **Log in** or your username and **Log out** button. It may also contain other buttons, including **Monitor**, **Play Messages**, **Recording**, and **Share**.

The "hamburger" Navigation button displays a panel with contents that vary dependent on your login status. When logged-in it contains links that determine the content of the Display panel; when logged out, it contains links to obtain Avato and to documentation. For details, see Chapter 6, The Welcome Page for a description of the navigation panel when you are logged out, and Chapter 5, The Navigation Panel for when you are logged in.

The contents of the Display panel will vary, depending on the choices you make in the Navigation panel and/or a previous Display panel.

## 3

## The Default "Mobile" Layout

When viewing Avato on a computer or device with a small display, the "mobile" version of the user interface is shown:

Welcome to Avato Demo 4.0
Dashboards
Interfaces
Vertical Schwarz     Vertical Schwarz
Messages

A "Mobile" Interface

The default Avato mobile interface has three components: a scrolling Display panel consuming most of the display space, a Footer fixed at the bottom with a set of buttons, and a normally-hidden Navigation pop-out panel controlled by a Footer button.

The Footer panel contains buttons that vary dependent on your login status. It will always contain a "hamburger" navigation button and a **Share** button. When logged-in, it will also contain other buttons, including **Monitor**, **Play Messages**, and **Recording**.

The Navigation panel varies dependent on your login status. When logged in it contains links that determine the content of the Display panel; when logged out, it contains links to documentation. For details, see Chapter 6, The Welcome Page for a description of the navigation panel when you are logged out, and Chapter 5, The Navigation Panel for when you are logged in.

The contents of the Display panel will vary depending on choices you make in the Navigation panel and/or a previous Display panel.



#### Note

This manual will use the "desktop" interface in its screenshots and descriptions.

## The Header Panel

The Header panel displays, from left to right, a "hamburger" menu button, the Avato logo, the business or system name, the name of the Display page, a share button, and a **Log in** or **Log out** button and your username.

When the Welcome page is not displayed — which is to say, you have left the home page and start using Avato — the header may also contain other buttons, including **Live Updates**, **Play Messages**, **Record Sequence**, and **Share**.

_		Understanding Distance	Trab.	Welcome admin
=	AVAIUDEMU	Hyunu integration Platform	تنا	Log out

The Header Panel on the Welcome Page

Choosing **Log in** or **Log out** logs you into or out of Avato. See Section 15.2, "Logging In" and Section 15.3, "Logging Out" for details.

Choosing your **username** will display your user profile on the Display panel if the user support packages are installed.

Choosing the Avato logo will return you to Chapter 6, The Welcome Page.

Choosing the menu button will display Chapter 5, The Navigation Panel.

Currently, a set of four large buttons is also usually displayed in the header:

- Live Updates, which, when selected, allows the user interface to update in real time.
- Play Messages, which will play back the displayed sequence.
- Record Sequence, which can be held to enable sequence recording configuration; and clicked or tapped to start and stop recording a sequence.
- 🖆 Share, which is not functional.

These extra buttons are discussed in Chapter 17, Recording and Playback of Message Traffic and Chapter 23, Miscellaneous Tasks.

## The Navigation Panel

When logged-in, the Navigation menu provides access to various Avato functionality. The panel is usually hidden; selecting the "hamburger" menu icon will display the panel.

The panel comprises a list of headers, each with a list of actions or views. Choosing a header will hide or show its list: selecting an action or view will change the Display panel to show the corresponding user interface page.

Choosing anything outside of the Navigation panel will hide it again.



The Navigation Panel (Logged in, some headers expanded)

In top to bottom order Navigation choices will perform the following actions:

#### Dashboards

• Messages: displays a graph of Avato system events and tools for inspecting the graph and the messages it recorded.

#### Interfaces

- All Interfaces: shows all interfaces and their circuits, and tools for working with them.
- various interface names: shows a subset of interfaces. Use the checkboxes to display selected interfaces. Select the name of the interface to jump directly to that group in the Display panel.
- Reset View: restores the default Interfaces page.

#### Manuals

• Links to various Avato documentation.

#### Tests

• All Tests: provides a credentials form, where you are requested to provide a username and password for use by the test suite. After logging into the test suite, the tests are run; upon completion, you can inspect the results in detail.

#### Messages

- Sequences: provides tools for viewing and managing sequences and the messages and data within them.
- Search: displays a list of the most-recently logged messages; above the list is a text box into which search terms can be typed. Typing Enter will execute the search, and the list of messages will be reduced to only those messages that meet the search criteria.
- Import: provides tools to import various types of files.
- New: shows a form through which new message sequences can be created.

#### Schedule

- Schedules: shows a list of schedulers. Schedulers run a task on a periodic basis. They can also be started or stopped on-demand using this panel.
- Tasks: shows a list of tasks. Tasks send an request to Avato, which will handle the request using an interface and circuits. They can be called by a scheduler, or run on-demand using this panel.
- Workflow: shows a collection of workflow circuits. Workflows run tasks and, depending on the task result, may run further tasks.

#### A The Navigation Panel •

#### System

- Packages: displays a selection of packages, from which you can install or uninstall packages and their message sequences.
- Parameters: provides tools for configuring Avato system parameters.
- Undelivered Messages: shows a list of messages that are queued for delivery, and tools to work with them.
- Logs: displays the server log file, which may contain important debugging information.
- Update: provides a web form through which you can configure an Avato update.

#### User

• Invite User: provides a web form through which a new user can be invited to join the Avato community. Upon acceptance, the new user will have access to the Avato bootstrap.

## The Welcome Page

=	AVATO DEMO	Hybrid Integration Platform		C2	Log in
			Welcome to Avato Demo 4.0		
	Dashboards	Interfaces	Messages	Manuals	
			Request Access		

The "Welcome" Page

When visiting Avato for the first time or when attempting to reach a secure page after your session has expired or logged out, the Avato Welcome page is displayed.

The Navigation panel, available through the "hamburger" menu, displays a list of links to various resources, including the Avato web site, various Avato documents, and other handy resources. Choosing a Navigation link will display the contents of the link on the Display panel.

When the Welcome page is active the Display panel shows a set of vignettes representing various Avato functionality and, if enabled, a **Request Access** button for new account creation. See Section 15.1, "Requesting Access" for details.

The Header panel has a **Log in** button for logging into Avato. You can also select a vignette to bring up the log in page. See Section 15.2, "Logging In" for details.

See Chapter 15, Logging in, Logging out, and Viewing Your Profile for more detailed usage instructions.

## Dashboards

The Dashboards pages provide real-time interfaces to various system activities.

## 7.1. The Messages Dashboard

The Messages Dashboard provides a timeline of captured request and response cycles.

09:21.8	4 s		15:09:2
steet r ler r	-8 msg-reader	apslicer Son/soa s	exmb = arset= utf=8
	application/soap+xml;charset=utf-8 t t t t t at 3 tf	=utf-8 tf-8 tf-8 tf-8 utf-8 tf-8 text xml charset=	utf-8 : f-8 iaiset=utf-8 =utf-8 =utf-8 =
	wsdl-xform rm rm	n mərm wsdl-xform m ışıc	Il-xform form form
		resolver	solver r er
text/xml; charset=utf-8		applicatio	n/soap+xml;charset=utf-8
wsdl-test-execute			
text/xmi; charset=utr-8		applicatio	on/soap+xml;charset=utf-8
wsdl-test-timing-input			ľ
text/xml; charset=utf-8			application/soap+xml;charset=utf-8
TestSuites			
application/x-www-form-urlencoded			application/soap+xml;charset=utf-8
TestSuitesForm			

The Messages Dashboard

There are three parts to the Messages dashboard, from top to bottom:

- a set of controls across the top controlling the time period on display.
- a timeline showing the start time, duration, and end time for the time period on display.
- a graph of message events.

See Chapter 20, Using the Dashboard for detailed usage instructions, or continue reading for an overview of the user interface.

## 7.1.1. Time Period Controls

The controls at across the top of the Display panel are as follows:

• A • menu button that, when hovered, pops up time-period selection options:

- **Recent periods** displays a selector that allows you to choose from a set of convenient time periods: last minute, last 5 minutes, last 15 minutes, last hour, and today.
- **From/To** displays From and To date-time selectors in the format yyyymm-dd, hh:mm:ss.sss xM.
- From/Duration → displays a From date selector in the format yyyymm-dd, hh:mm:ss.sss xM, a Duration field, and a time-unit selector with choices of ms, seconds, minutes, hours, and days. The From date selector has the same controls as provided by **From/To**.
- A pair of ← and → arrows that pan the displayed graph across time, in increments of the graph duration.
- A **Go** Go button, which performs a search of the messages database for message events for the selected time period, and subsequently displays the message graph for those events.

For the From and To date-time selectors a trio of buttons provides tools for changing the values in the field:

- The 🚳 Clear Field button blanks the date-time value.
- To its right, the S **Spinner** control will increment or decrement the selected date-time sub-value (e.g. incrementing years if the yyyy value is selected.) You can use the Tab key to move between sub-values.
- The **T** Calendar popup displays a date selector. It has additional controls for selecting the month directly, or for "flipping" the calendar forward or backward by month. The "dot" button between the month forward/ backward buttons will select the today's date.

### 7.1.2. Timespan Markers

Along the top of the graph the start time, duration, and end time for the graphed events is shown.

### 7.1.3. Message Event Graph

The message event graph displays a request and response couplet for every message that passes through the system. The x-axis of the graph represents time from left-to-right, while the y-axis represents the cascade of incoming requests and outgoing responses from top-to-bottom.

The start of each message exchange is identified by a down-pointing (incoming message) arrow with a right-pointing flag annotated with the message's root

element name. The end of the message exchange is identified by an up-pointing (outgoing message) arrow with a left-pointing flag annotated with its message type. If the request generated an error response, the left-pointing flag will be coloured differently than the right-pointing flag (usually red). The incoming and outgoing arrows are attached to a rectangular box that identifies the component that handled the message exchange.

If the component itself emits a request message, that exchange is denoted by its own request-response couplet, attached to and below the component box. Thus, one can easily follow the path that has handled an incoming request, following down-pointing arrows from the initial incoming message, through the components that were involved in processing the request, and back up until reaching the final message response.



Choosing a request or response arrow or flag will display details about the related message:



Choosing the message details will, in turn, display the message itself on the **Navigation Menu**  $\rightarrow$  **Messages**  $\rightarrow$  **Sequences**  $\rightarrow$  **message**  $\rightarrow$  **Content** page. Use the browser **Back** button to return to the Messages dashboard.

## 8

## The Interfaces Page

The Interfaces page displays Avato circuits and provides controls that support hands-on testing of interfaces down to the component level.

In Avato an interface provides endpoints that receive requests, perform actions, and return responses. These endpoints are typically used by applications that need to access data from services with which they can not natively communicate. The role of the interface is to receive and interpret the incoming request, obtain the needed data, assemble a response that will be understood by the requesting application, and then return that response using a protocol the application will accept.

The fundamental unit of construction for an interface is the component, an Avato adaptation of J2EE Servlets.

The Interfaces page shows the interfaces, and the components and circuits within each interface, in the Display panel. Access the page by choosing Interfaces in the navigation panel, where you will can select either **Navigation** Menu  $\rightarrow$  Interfaces  $\rightarrow$  All Interfaces or select checkboxes that will hide or show specific interfaces.



The Interfaces Page

The illustration above shows a number of interfaces in dark grey boxes, each with its name in the top left corner. Within each interface are one or more

components: the light grey boxes with connectors on one side. Each component has a name, description, and various controls.

For usage instructions, see Chapter 21, Working with Interfaces, Components, and Circuits. A detailed description of the Interfaces user interface follows:

## 8.1. Interfaces

An interface acts as an organizational container for components, described below. Each interface has its own section on the page and is identified by its unique name.

Within each interface section are a number of components, and these are connected to one another through connectors, creating circuits of components that communicate with one another through their endpoints. Note that connectors may cross interfaces, such that a component in one interface may call upon an endpoint in another interface.



Adjusting an Interface Box

The edges of the interface box may be dragged to resize the box; its components will automatically arrange themselves to fit. Hovering over the bottom edge will display an **Auto** button that will adjust the box to exactly fit the circuit layout. Dragging the box background will allow you to reposition the box on the page.

Interfaces and their circuits are defined in Package configuration files. If you wish to develop your own interfaces, please consult the Interface Developer Guide.

## 8.2. Components

Components are the building block for interfaces. They are represented as a box with input (----O) and output (-----C) connectors on the right. These connectors may be attached to other components using connectors, described in Section 8.3, "Connectors", below.



#### A Component

Components provide a robust interface for learning about an interface's functionality and for performing hands-on tests.

Each component initially displays:

- At the top left, the component name
- Below it, the component's class name and type. When hovering over the name, a ? Help button will be displayed; use it to display additional information about the component.
- A menu icon in the top right provides additional commands:
  - **Component Menu** → **Maximize** expands the component to full size for ease of reading and editing requests and responses; or, selected a second time, shrinks the component to best-fit size.
  - **Component Menu** → **Auto Position** attempts to resize and reposition the component to best fit the available space.
  - **Component Menu** → **Edit request transform** opens the transformation that handles the incoming request message. This command is displayed only when a transformation is associated with the component. If the transformation is loaded into the Avato database, it can be modified; if the transformation is located on the filesystem, it can only be viewed.
  - **Component Menu** → **Edit response transform**, opens the transformation that handles the outgoing response message. This command is displayed only when a transformation is associated with the component. If the transformation is loaded into the Avato database, it can be modified; if the transformation is located on the filesystem, it can only be viewed.
  - **Component Menu** → **Find messages**, which opens a view that lists all the captured messages for this component. This menu entry appears only when the component class type is Logger.
- At the bottom of the component, a row of nine "LED" boxes acts as an activity indicator when sending a manually-initiated request or generating a SOAP request template.
- Also at the bottom of the component, **try** and **wsdl** buttons reveal new functionality in the component user interface.
  - **wsdl** is shown only when there is an associated WSDL, and displays the WSDL associated with the component.
  - **try** expands the component box, revealing a new set of controls. The additional controls constitute:
    - **H** Show WSDL Operations, which will display a list of operations available at the component's request endpoint. Selecting an

operation will place a SOAP message template in the request text box, where it can be edited before being sent. This control is displayed only when a WSDL is associated with the component.

Encryption Service encrypt.service: Encryptor		
Provides services for encrypting data		
+ → ← ቑ		
Encrypt Hash getKey		
	try	wsdl

Figure 84. Component WSDL Operations

- Show/Hide Request displays or hides a text box with which you can edit a message request.
- **Show/Hide Response** displays or hides a text box with which any response to a sent request will be displayed.
- **4** Show/Hide Request-Response displays both the request and response text boxes and their corresponding messages.

When a show request or show response button is selected the component will display:

• A single-line text box if the endpoint accepts REST-style URL query.

ocumentation-service: DocumentService	
URI tail + params	
ortrain · paramo	
Send	
	diama a

Figure 8.5. A Component REST Query

• One or two large text boxes, dependent on the status of the Show/Hide Request/Response buttons, for input of a request message or display of a response. When both text boxes are displayed the upper one contains the request message and the lower one the response message.



Figure 8.6. A Component SOAP Query

• **Send**, which sends the request message to the component's request endpoint. The component's response to the request will appear in the response text box.

A component can be moved to a new location in the display panel by dragging its background. The connection lines will be adjusted for the new component location. A component may be resized by dragging an edge or by choosing **Component Menu**  $\rightarrow$  **Maximize** from the "hamburger" menu at the top right of the component (selecting maximize a second time will shrink the component to a best-fit size.)

## 8.3. Connectors

Note that connectors may link to a component in another interface; in such a case the connector line will cross over the interface separator lines. These interface interlinks may be quite common, as components often make requests to system services like validation, catalog resolution, and encryption.

## Manuals Page

The Manuals page lists available system, package, or other documentation.



The Manuals Page (when logged in)



Note

Documentation is shown only when it is included as part of the build process.

## Tests Pages

10

The Tests pages provide access to test suites.

## 10.1. The Avato Automated Tests Page

Selecting **Navigation Menu**  $\rightarrow$  **Tests**  $\rightarrow$  **All Tests** will display the Automated Tests page, comprising a Credentials section followed by sections for each test suite.

▼ Credentials										
	testops			Login	Login succeeded.					
•	WSDL Service	e Tests	Run Tests	https://localho	st:8443/esb	Returned			history	Edit
	Case	Scenario						With Data	Time (ms)	Status
	TC-001: Get a	a List of Operat	ions							
		► TC-001.0	01: Get a List of	Operations —	SOAP11			]	659	pass
		► TC-001.0	02: Get a List of	Operations —	SOAP12				65	pass
	TC-002: Get a	a GetListOfOpe	erations Templat	e						
	► TC-002.01: Get a GetListOfOperations Template — SOAP11					getListTemplate	156	pass		
		► TC-002.0	02: Get a GetLis	tOfOperations	Template — SOAP12			getListTemplate	91	pass
	TC-003: Get a GetOperationTemplate Template									
	► TC-003.01: Get a GetOperationTemplate template — SOAP11				getOperationTemplate	92	pass			
		► TC-003.0	02: Get a GetOp	erationTemplat	e template — SOAP1	.2		getOperationTemplate	98	pass
	TC-004: Bad GetOperationTemplate Requests									
	<ul> <li>▼ TC-004.01: Get a BogusOperation template - SOAP11</li> <li>Override the default template, substituting the name of a template that does not exist.</li> <li>▶ ws:SetListOperationSequest</li> <li>▶ ws:GetUsOperationExpose Response</li> <li>▶ ws:GetUsOperationExpose Response</li> <li>▶ si2Fault Response</li> <li>▶ Expected</li> <li>▶ Errors</li> </ul>				92	pass†				
					TE	xpected Fail				

#### The Automated Tests Page

Expanding the credentials section reveals username and password entry boxes, and a **Login** button. These credentials are used by the test framework to log into services, and to differentiate test logging from other activity.

Each test suite section provides the test name, a **Run Tests** button, and a URL identifying the host server on which the tests will run, and that server's root path. Expanding a test suite reveals the test cases and scenarios that comprise the suite. Each scenario can be expanded to reveal further details. After running tests, expanded scenarios will list the message sequence that comprised the test. In turn, each message and, for failed tests, the expected result and error analysis can be expanded to reveal metadata and/or content details.

If sequence recording is enabled the **history** link will, after running a test scenario, open the associated Avato sequences page. This is an alternative to expanding the scenarios and message sequences as described above.

The **Edit** button associated with a test suite will open the associated test cases configuration file in the standard Avato message editor. See <u>Editing a Message</u> for usage details.

For more information about running tests and interpreting the results, see Chapter 22, Working with Tests.



## Messages Pages

Avato's core functionality is centered on messages: receiving, transforming, and sending messages between systems that would otherwise have difficulty communicating with one another. In support of this functionality the Messages pages provide access to powerful tools that aide in collecting, viewing, editing, exporting, and importing messages and sequences of messages.

A collection of one or more messages is called a sequence. Each sequence has a number of associated details (its metadata) and content comprising a set of messages. Each message, too, has associated metadata and content.

A common use for sequences is to record the messages that are passed between a requesting external service, the Avato internal components, Avato requests to external services, responses from those services, and the Avato response to the original request. Having captured the exchange of messages, Avato can then replay the sequence precisely as it occurred, with the original data and timing.

In addition to providing a record of messages, the Sequencer can be leveraged for other data storage, and it is in this capacity that it is used to load packages to make various files, like XSL transforms, WSDLs, and CSS web page styles, available through a mutable database in preference to immutable files stored in the deployed server filesystem.

In the navigation bar to the left, select **Messages** to access commands that apply to sequences and messages:

- Navigation Menu → Messages → Sequences: see Section 11.1, "The Sequences Page".
- Navigation Menu → Messages → Search: see Section 11.2, "The Message Search Page".
- Navigation Menu → Messages → Import: see Section 11.3, "The Import Page".
- Navigation Menu → Messages → New: see Section 11.4, "The New Sequence Page".

See Chapter 16, Working with Sequences and Messages for tasks involving sequences and messages. Continue reading to learn more about the Messages pages user interfaces.

## 11.1. The Sequences Page

When **Navigation Menu**  $\rightarrow$  **Messages**  $\rightarrow$  **Sequences** is selected, the Sequences page is displayed.

#### A Messages Pages • The Sequences Page

Name	From	То	#
User Interface	2018-11-13 11:39:44.648	2018-11-21 14:45:28.313	28
UI Themes	2018-11-13 11:38:03.143	2018-11-13 11:38:03.213	9

The Sequences Page

In the Display panel, available sequences are listed in a table with the following columns:

#### Name

The name of the sequence.

From

The timestamp of the earliest message in the sequence.

То

The timestamp of the latest message in the sequence.

# (number sign)

The number of messages captured in the sequence.

Above the list is a case-insensitive simple search, filtering for inclusion all sequence names containing the search term. Wildcards are not supported.

Selecting a sequence will display a list of its messages, as described next.

### 11.1.1. The Messages Page

After choosing a sequence on the Section 11.1, "The Sequences Page", the Messages page displays its metadata, messages list, or activity graph.

User Emails Baseline	ser Emails Baseline				
🖘 🔶 🗭 metadata list graph			Q	+ 🛍 📥	
16:37:08.14		4 h 57 m		21:34:49.722	
Logged	Logger	Request	Response	ms	
2017-02-05 21:34:49.555	exchange	m:Createltem	m:CreateItemResponse	128	
2017-02-05 21:34:49.491	user-email-logger	Email	html	231	
2017-02-05 19:25:55.956	exchange	m:Createltem	s:Fault	56	

The Messages Page, showing a list of messages within a sequence

#### 11.1.1.1. Common Controls

The three types of Messages page share a common set of controls. Starting from the top, working left to right, we see:

- the sequence name.
- a set of navigation buttons:
  - • **Back** returns to the Sequences page.
  - ← Previous and → Next page through the list of messages (when there is more than one page of messages.)

- a set of page content selectors:
  - **metadata** displays additional information about the sequence: its ID, Name, Created timestamp, Created By owner, last Modified timestamp, and Modified By owner.
  - list displays the list of messages contained in the sequence.
  - **graph** displays a detailed graph of requests and responses captured in the message sequence. This graph is similar to the one displayed on the Dashboard page, which is described in Chapter 7, Dashboards.
- a set of tool buttons:
  - **Q Search** finds text within messages.
  - **New** adds a new message to the sequence.
  - Delete permanently deletes the sequence.



Warning

This deletes the **sequence** and all its messages. To delete a message, select its name (taking you to the message detail page) and then **Delete**.

Export saves the sequence to a folder of your choice. The saved file will use the sequence name for its filename.

#### 11.1.1.2. The Sequence Metadata Tab

When the metadata tab is selected, details about the sequence are displayed:



Sequence Metadata

ID

The unique sequence GUID.

Name

The sequence name.

#### Created

The sequence creation date/time stamp.

#### Created By

The user account under which the sequence was created.

#### Modified

The date/time stamp of the latest change to the sequence.

#### Modified By

The user account under which the sequence was modified.

The sequence metadata can not be edited.

#### 11.1.1.3. The Messages List Tab

When the **list** tab is selected, a one-dimensional timeline and a list of messages is displayed.

Jser Emails Baseline				
16:37:08.14		4 h 57 m	21	34:49.722
Logged	Logger	Request	Response	ms
2017-02-05 21:34:49.555	exchange	m:CreateItem	m:CreateItemResponse	128
2017-02-05 21:34:49.491	user-email-logger	Email	html	231

Sequence Messages

The timeline provides an intuitive visual reference to requests and responses timing, helping you to identify slow and overlapping response-request cycles.





Right-pointing triangles correspond to message requests, while their corresponding left-pointing triangle indicates the response to that request. The spans between these request/response pairs may overlap other pairs, indicating traffic activity that occurred while a request was awaiting a response. Requests that failed to receive a response and responses that return an error will be highlighted in red.

The request/response icons provide help in identifying pairs of messages:

- Hover over a triangle to highlight both endpoints and the time span.
- Select a triangle to highlight its request or response in the message list.

Immediately under the graph, the sequence's start timestamp, sequence duration, and end timestamp are displayed.

Below this, the messages associated with the sequence are listed in a table:

Logged	Logger	Request	Response	ms
2017-02-05 21:34:49.555	exchange	m:Createltem	m:CreateItemResponse	128
2017-02-05 21:34:49.491	user-email-logger	Email	html	231
2017-02-05 19:25:55.956	exchange	m:Createltem	s:Fault	56

The Sequence Messages Table

When viewing a captured message exchange the Logged column indicates the time the message was received, the Logger column lists the name of the component that logged the message, Request and Response provide the name of the message's root element, and ms lists the time it took to process and respond to the request.

Choosing the Logged timestamp of a message or its Request name will show the request message; choosing the Response name will show the response message. See Section 11.1.2, "The Message Detail Page" for more details.

#### 11.1.14. The Sequence Activity Graph Tab

When the **graph** tab is selected, a two-dimensional timeline of message exchanges is displayed, adding component details along the y-axis.



The Sequence Graph

With this view you can trace the message path through a circuit's individual components. Again, triangles are used to indicate requests and responses, as with the sequence messages timeline. Hovering over a triangle or its label will highlight the request/response pair. Selecting a triangle or its label will display the corresponding message.

## 11.1.2. The Message Detail Page

Selecting a message in the Section 11.1.1, "The Messages Page" or via a timeline icon displays the message's content and provides access to its metadata details, message headers, or message content.



The Message Detail Page (showing message content)

#### 11.1.2.1. Common Controls

The three types of Messages page share a common set of controls. Starting from the top, working left to right, we see:

- the type of message and the message name.
- a set of navigation buttons:
  - • Back returns to the sequence's Messages page.
  - ← Previous and → Next select the previous or next message in the sequence.
- a set of page content selectors:
  - metadata displays additional information about the message.
  - **headers** displays the HTTP headers associated with the message.
  - **content** displays the message payload.
- When applicable, → **Request** or ← **Response**, which toggle between the request message and its corresponding response message.
- a set of tool buttons:
- **Content** Edit, which will allow you to modify the message.
- **Delete**, to permanently delete the message.

#### 11.1.2.2. The Message Metadata Tab

When the **metadata** tab is selected, details about the message are displayed:
requ	iest: m	:Crea	ateltem		
+	+	+	metadata	headers conte	nt
1	ID:				
	1174DD	74C0A8	3038167166D8	302EFCD1B1	
- 5	Name:				
I	Folder:				
ı	Create	٩٠	2010	A0 22 12	.49.54 BM

Message Metadata

Use *C* Edit to modify the message metadata. You can then use *C* Save to save your changes or *S* Back to revert your changes.

#### 11.1.2.3. The Message Header Tab

When the headers tab is selected, message HTTP details are displayed:

```
{"original":{
    "null":"POST /esb/recorder?cmd=record&msgname=interface-service&fwd=/interfaces HTTP/2.0"
    ","content-length":"427"
    "referer":"https://localhost:8443/esb/ui/circuits"
    "acccept-language":"en-US,en;q=0.9"
    "cookie":"JSESSIONID=UFzdz-qQdLufyO2gPumfznUDr2Oe-36TB65bABL.minnie"
    "cookie":"JSESSIONID=UFzdz-qQdLufyO2gPumfznUDr2Oe-36TB65bABL.minnie"
    "doti:":"fit"
    "host":"localhost:8443"
    "host":"fit"
    "dot:":"fit"
    "dot:":"fit"
    "dot:":"fit"
    "dot:":"fit"
    "dot:":"fit"
    "acccept::"fit"
    "gotop::"en-US and the fit of the fit o
```

Message Headers

Header information can not be changed.

#### 11.1.24. The Message Content Tab

When the content tab is selected, the message payload is displayed:



Message Content

Use **C** Edit to modify the message payload. You can then use **Save** to save your changes or **Sack** to revert your changes.

#### 11.2. The Message Search Page

The Search Page allows you to execute SQL SELECT queries against the sequences database by providing a WHERE condition. Identical functionality is

also available on Section 11.1.1, "The Messages Page", but with the database restricted to only those messages within a specific sequence; see Section 16.8, "Searching for a Message in a Sequence" for details.

Search queries are composed by combining a table alias with a column name, separating the two parts with an underscore, followed by an operator and criteria, e.g. req\_Logger='fed-service-input'. SQL functions may also be used, e.g. TIMESTAMPDIFF(SECOND, req\_Logged, rsp\_Logged) > 15.

Two table aliases are available<sup>1</sup>:

- req is aliased to the Requests table.
- rsp is aliased to the Responses table.

The following columns are available, and correspond to the metadata fields shown when viewing message details:

Search Criteria Fields

- ID
   Interface
- Name
   Logger
- Created Server
- CreatedBy
   Thread
- Modified
   Type
- ModifiedBy
   Direction
- Logged
   Content

All SQL functions and operators (except aggregate functions) are available for use in the WHERE expression. The exact set of these may vary with the SQL server backend; consult your database user manual for full details.



#### Important

When using wildcards, substitute \* (asterisk) for the standard SQL % (percent) wildcard.



Important

Within the criteria parameter the following percent-encodings are required. \* should only be encoded if it is not being used as a wildcard.

<sup>&</sup>lt;sup>1</sup> These are actually columns; Avato constructs the query so that you can treat them as tables.

#### ${\ensuremath{\mathsf{A}}}$ ${\ensuremath{\mathsf{Messages}}}$ Ressages Pages ${\ensuremath{\mathsf{\bullet}}}$ The Message Search Page

#### Table 11.2. Search Criteria Encodings

!	%21	,	%2C
#	%23	/	%2F
\$	%24	:	%3A
&	%26	;	%3B
ı	%27	=	%3D
(	%28	?	%3F
)	%29	Q	%40
*	%2A	Ľ	%5B
+	%2B	]	%5D

A Messages Pages • The Message Search Page

#### 11.2.1. Search Examples

#### Search for a Message by Content

Find messages that have specific content, like a user login:

req\_Content like 'username="Waldo"'

#### Search for Messages from a Specific Logger

Find all the messages that a specific circuit Logger component logged. Note that the logger records in both directions:

(req\_Logger='fed-ivr-log-input') AND (rsp\_Logger='fed-ivr-log-input')

Search for Fault Messages from a Specific Logger

Note that SOAP elements usually have a namespace prefix, like s11:Fault or soapenv12:Fault. The prefix is arbitrary, so it's best to search only for the common part of the element: :Fault>.

(rsp\_Logger='fed-ivr-log-input') AND (rsp\_Content like '\*:Fault>\*')

#### Search for Recent Messages

Find messages that were recorded within the past ten minutes:

```
(TIMESTAMPDIFF(MINUTE,req_Logged,Now()) < 10) OR
(TIMESTAMPDIFF(MINUTE,rsp_Logged,Now()) < 10)</pre>
```

#### Search for Slow Responses

Find messages where the response took over a fifteen seconds to come back:

```
TIMESTAMPDIFF(SECOND,req_Logged,rsp_Logged) > 15
```

#### 11.3. The Import Page

Avato can import messages from several sources:

- An exported Avato sequence can be loaded.
- Logged messages can be retrieved from server logs.
- A packet capture file can be parsed and any captured messages extracted from its logs.
- ISO 8583 (financial transaction card originated interchange messaging) logs can be parsed and extracted to a sequence.

The import page lists these as expandable sections on the page:

Im	port Message Sequence
Þ	Import Sequence File
►	Import Avato Log File
۲	Import PCAP File
۲	Import ISO8583 Log File

The Import Message Sequence Page

See Chapter 16, Working with Sequences and Messages for details regarding import tasks.

Each of the source options can be expanded to display its configuration, as shown below:

▼ Import See	quence File
File	Choose File No file chosen
Load	

Importing an Avato Sequence File

▼ Import Avat	o Log File	
Logger:		Add
Name		
File		
	□ Filter by Time	
Start Time	:	
End Time	:	
Load		

Importing an Avato Log File

<ul> <li>Import PCAP</li> </ul>	File
Name:	
File:	
Server Port:	
Load	

Importing a PCAP File

<ul> <li>Import ISO85</li> </ul>	83 Log File	
Name:		
File:		
	Filter by Tir	ne
Start Time	:	
End Time	:	
Load		

Importing an ISO 8583 Log File

#### 114. The New Sequence Page

Choosing **Navigation Menu**  $\rightarrow$  **Messages**  $\rightarrow$  **New** displays the New Avato Message Sequence page in the display panel. It provides a simple form through which you can create a new sequence.  ${\ensuremath{\mathsf{A}}}$  Messages Pages  ${\ensuremath{\mathsf{\bullet}}}$  The New Sequence Page

New Message Sequence	28
ID: (G	Generate)
Name:	
Save	

The New Sequence Page

See Chapter 16, Working with Sequences and Messages for details regarding tasks that involve sequences and messages.

# Schedule Pages

12

The Schedule pages provide information about schedulers, tasks, and workflows.

Schedulers periodically send requests to tasks or workflows. Tasks perform an action upon request; the action is performed by a circuit and may receive parameters in the request. Workflows call a task upon request and, depending on the result, may issue other task calls.

Schedulers, tasks, and workflows are defined in Package configuration files. If you wish to develop your own interfaces, please consult the Interface Developer Guide.

## 12.1. The Schedule Manager Page

The Schedule Manager page lists schedulers known to the sytem.

Schedule Manager				
Name	Mode	Description		
poller1	CRON 0 * * * * ?	Test poller to run a Poller every minute.	Start	Stop
schedule1	EVERY 1 MINUTE	Test schedule to run an Expector and send emails every minute.	Start	Stop
schedule2	EVERY 2 MINUTES	This schedule will start auotmatically in a new environment. You can stop it by click on the stop button.	Start	Stop
schedule4	CRON 0 0 6 7 8 9 10 11 12 13 14 15 * * 2	This schedule uses cron expression to run every hour from 6am to 3pm	Start	Stop

The Scheduler Manager Page

Schedulers normally run on a periodic basis, but can be triggered or stopped using the **Start** and **Stop** controls.

### 12.2. The Task Manager Page

The Task Manager page lists tasks known to the sytem.

Task Manager			
ID	Туре	Description	
TestExpect1	Expector	Check traffic of tutorial-test in the last 10 minutes.	Run
TestExpect2	Expector	Check traffic of tutorial-test in the last 20 minutes.	Run
TestExpect3	Expector	Check traffic of tutorial-test in the last 30 minutes.	Run
TestExpect4	Expector	Check traffic of tutorial-test in the last 40 minutes.	Run

The Task Manager Page

Tasks are often used in conjunction with schedulers or workflows, but are also useful as manually-operated actions. To run a task manually, use the **Run** button.

## 12.3. The Workflows Page

The Workflows page lists workflows known to the sytem.

A Schedule Pages • The Workflows Page

Workflows							
	TestWorkflow1 Expector	<u> </u>	TestWorkflow2 Expector		4	TestWorkflow3 Expector	<b>4</b>
	This is a workflow that runs TestExpector3	•	This is a workflow that runs TestExpector4			This is a workflow that runs TestExpector5	
	Run			Run			Run
			TestWorkflow4		$\checkmark$		
			Expector				
			This is a workflow that runs TestExpector6				
				Run			

The Workflows Page

A workflow represents a decision tree that chooses a action path based on the outcome of a task request. On success, it will choose a next task; on failure, it will choose an alternative next task. Each of these tasks may in turn make decisions predicated on the task's success, creating a chain of task actions and outcome decisions that can perform an arbitrarily complex flow of requests and responses.

Workflows can be initiated by schedulers or run manually by selecting **Run**. In normal use, you would initiate the run at the workflow entry point, but in support of workflow testing, the workflow can be started at any point in the decision tree.

# 13

## System Pages

The System pages provide administrator-level configuration of Avato.

### 13.1. The System Packages Page

Avato supports the use of Packages as a means to add new functionality to the system. A package bundles a configuration file that defines a circuit of components in an interface with the files that support the circuit, including transformations, WSDLs, schemas, user interface components and scripts, catalogs, and more.

The Packages page lists all the packages that are available to Avato, with facility to install or uninstall a specific package, or to go directly to its user interface page.

MailChimp Interface	
Nonitar - SLA Processor Ing to one an UK Service Local Ale 14.1 with the former Ing to the former Ing t	Interface to MailChimp
Versages LLogor Control of the second	
a and a first a scale of the sc	
<b>*</b>	Included go

A Typical Package Element

Each package element lists, from top to bottom, left to right:

- A descriptive name.
- A vignette providing a visual representation of the package.
- A short description of the package.

If the package has been installed or is included by default with Avato, the package element displays:

 Import sequences from package, which imports any message sequences associated with the package.

- **Remove package**, which removes the package from Avato next time you build and deploy.
- "Installed" and/or "Included", indicating that the package is installed.
- go, which takes you to the page associated with the package, if there is one.

If the package has not been installed or is not included with Avato, the package element will display:

• **Add**, which installs the package to Avato.

NOTE: After adding the package, you may need to use **A Import** sequences from package to add package files to the Avato database.

• "Available for Installation", indicating that the package is available for installation, but has not been installed.

After adding a package, Avato must be rebuilt and redeployed.

For detailed usage instructions, see Chapter 18, Package Management.



#### Important

Before using Avato packages, you must configure a system parameter identifying the location of your packages directory:

- In the left navigation panel, choose Navigation Menu → System
   → Parameters. The Avato Settings page will be shown in the display panel, listing the system parameters.
- If there is no entry titled System.Packages.Path/ Custom.System.Packages.Path/Core listed under the Class heading, select New. Otherwise, select that row and check that its settings are correct, as listed in the next step.
- 3. For **Web Server**, **Instance**, and **Context Root**, type a wildcard asterisk (\*).

For **Class** use System.Packages.Path/ Custom.System.Packages.Path/Core.

For Name use Source.

For **Value** provide the absolute path the packages folder in your Avato Packages source code folder, e.g. /Users/myaccount/ Avato/core or c:/Avato/core.

Source	
ID:	f5110ab7-bea9-45d1-bd1
Web Server:	1
Instance:	•
Context Root:	*
Class:	System.Packages.Path/(
Name:	Source
Value:	/Users/wwt/dev-wwt/Ava
Save	

Figure 13.2. Configuring Packages Parameters

4. Select **Save**. The setting will now appear on the Avato Settings page:

Mobius Settings		
Class	Name	Value
⊖ System.Packages.Path/Custom.System.Packages.Path/C ore	Source	/Users/wwt/dev-wwt/Avato/Avato-4.0/app/packages
Delete New		

Figure 13.3. Packages Parameter Listing

5. If the Class, Name, or Value are incorrect, you can choose the Class name to change the values, or select the checkbox beside the Class name and use **Delete** to remove the entry.

For information about package development see the Interface Developer Guide.

#### 13.2. The System Parameters Page

Choosing **Navigation Menu**  $\rightarrow$  **System**  $\rightarrow$  **Parameters** displays the System Parameters page in the Display panel. Here you will see a list of system parameters with their class, name, and value. Each system parameter listed on this page overrides a servlet configuration or servlet initialization parameter value.

Mobius Settings		
Class	Name	Value
ca.worldwest.mobius.package	Source	/Users/wwt/dev-wwt/Avato/Avato-4.0/app/packages
ca.worldwest.mobius.sequencer.recording	enabled	false
a.worldwest.mobius.ui	ActiveStyle	/msg/sys/ui/Themes/light.css
□ System.Packages.Path/Custom.System.Packages.Path/C ore	Source	/Users/wwt/dev-wwt/Avato/Avato-4.0/app/packages
Delete New		

The System Parameters Page

Choosing a class name will open a parameters editor. The **New** button lets you create a new parameter from scratch. **Delete** will delete all parameters selected

Note

using the checkboxes; you can select all parameters simultaneously by using the checkbox beside the class column header.

See Chapter 19, Configuring System Parameters for usage details.



System parameters are also used to provide values for Avato functions that are not provided through Avato components, such as the package loader, discussed in further detail in Section 13.1, "The System Packages Page".

System parameters allow administrators to change the behaviour of Avato components without rebuilding the system or rebooting the server. While some of these overrides might be minor, such as changing the title of a component, others can be much more significant: overriding the default masking mode of a Logger, for instance, for the purpose of debugging a message exchange could introduce a security risk by exposing personally identifiable information contrary to federal privacy acts.

We suggest reserving the use of system parameters to those settings not configurable through package configuration files, and those that need to be temporarily overridden to perform development and debugging tasks.

# 13.3. The Undelivered Messages Manager Page

The Undelivered Messages Manager page lists queued messages that have not yet been delivered to their intended recipient.

Undelivered Messages Manager				
Delete Resubmit Enter a keyword to search				Search
Name	Logger	Sender	Date	
TestSuites	TSLogger	/test/wsdl-execute	2019-10-01T15:24:18.656	

The Undelivered Messages Manager Page

There are two parts to the Messages dashboard:

- A set of controls across the top:
  - **Delete**, which deletes selected messages.
  - Resubmit, which attempts to delivers the selected messages.
  - A simple keyword search bar, and its **Search** button.
- A list of undelivered messages in tabular format, listing the message's name, its Logger, the Sender, and a datestamp.

- Selecting an undelivered message Name will open that message in Navigation Menu → Messages → Sequences → sequence → message Message details page.
- Selecting the Logger, on the other hand, will display the Logger component on the **Navigation Menu** → **Interfaces** → **interface** Interfaces page.

See Chapter 16, Working with Sequences and Messages for detailed instructions.

#### 134. The System Log Page

The Logs page displays the server log. See Section 23.3, "Viewing the Server Log File" for further details.

Note that the log file may be imported as a sequence: see Importing a Log File.

#### 13.5. The Update Page

The Update page can be used to update Avato and its packages.

Microservice Microservice Microservice Microservice Microservice Microservice	Update Mob Clicking Perform server to the lat will need to login restarts. Ø Bootstrap Ø Properties Ø Core Ø Packages	ius n Update will update the est version of Mobius. You n again once the server	
	*Package file	properties/dev-wildfly/packag	
	*Environment	dev-wildfly	
	*Context root	esb	
	Versions		
	*Bootstrap	latest	
	*Properties	latest	
	*Core	latest	
	*Packages	latest	
	Perform U	pdate	

Updating Avato

See Section 23.4, "Updating Avato" for details.

# 14

# User Pages

The User pages provide administrator-level user administration for Avato.

### 14.1. Invite User

The Invite User page provides a form through which you can enroll someone to receive download and installation instructions for Avato.

Invite User		
*Email	I	
*First Name		
*Last Name		
*Organization		
*Title		
Department		
*Country	Canada	\$
Office Phone		
Office Phone Mobile		
Office Phone Mobile Website		
Office Phone Mobile Website LinkedIn		

Save

The Invite User Page

The form requests a number of details; those that are required are marked with an asterisk.

# Part II. Tasks Reference

This section describes Avato functions and tasks.

# 15

# Logging in, Logging out, and Viewing Your Profile

## 15.1. Requesting Access

Your Avato administrator may configure Avato to allow new users to create their own accounts, or may require that you submit an application to create a new account. In the latter case, you will need to contact your administrator directly, and will receive a username and password when you are approved for access.

When your administrator allows for self-signup you will be able to choose **Request Access** below the function vignettes on the Welcome page.

To request access to Avato:

- 1. Go to the Avato Welcome page by selecting the Avato logo or name at the top of the page.
- 2. Choose **Request Access**, located below the vignettes of Avato functions.
- 3. On the Request Avato Access page, fill out the requested details.

Request Avato Access
Our customers demand the highest levels of security. As such, Avato access is granted only to verifiable parties.
*Business email *First Name
*Last Name
By clicking Request Access, you accept World West's end user license and privacy policy
Request Access

- 4. Choose **Request Access**.
- 5. Monitor your email account. A confirmation email will be sent to you. Respond appropriately to receive your login details.
- 6. Continue monitoring your email account. A login details email will be sent to you.
- 7. Return to the Avato Welcome page and log in.

## 15.2. Logging In

In order to log in you must already have an Avato user account. An account can be obtained by contacting your system administrator or, if enabled, using **Request Access** on the Welcome or Login page as described in Section 15.1, "Requesting Access".

You can log in by choosing one of the Avato function vignettes on the Welcome page or by choosing **Login** at the top right of the Header panel. In either case, you will be shown a Login form.

Login to Avato	Demo v4.0
Email	
Passwor	d
🛃 Rememi	ber me
Submit	Request Access

When presented the Login form, provide your username<sup>2</sup> and password. If you want your login name to be remembered between sessions, select **Remember Me**. After filling out the form, choose **Submit**.

## 15.3. Logging Out

Choose **Log out** at the top right of the page. You will be taken to the Log out page, where you can choose to have your session (cookies and other saved data) forgotten on the computer or device you are using. Choose **Log out** to log out. You will be returned to Chapter 6, The Welcome Page.

### 154. Viewing Your User Profile

The User Profile page displays information about your Avato user account.

To view your own User Profile:

- 1. Log into Avato.
- 2. Choose your username, at the top right of the Header panel.
- 3. View your user profile in the Display panel.

<sup>&</sup>lt;sup>2</sup> Name, email address, or Active Directory/LDAP username

# 16

## Working with Sequences and Messages

### 16.1. Viewing a List of Sequences

To see a list of known sequences:

Name	From	То	#
User Interface	2018-11-13 11:39:44.648	2018-11-21 14:45:28.313	28
UI Themes	2018-11-13 11:38:03.143	2018-11-13 11:38:03.213	9

The Sequences List

Each row of the list provides a sequence Name, its From–To time span inclusive of the first and last messages in the sequence, and a count (#) of its messages. Sequences are listed in date order, using their From time.

Selecting a row displays the messages within that sequence.

#### 16.2. Viewing Sequence Details

When viewing a list of sequences:

• Choose a row.

The display panel will now show sequence metadata, a list of messages within the sequence, or a graph of those messages, as well as a number of controls. The contents of the display area are controlled by selecting **metadata**, **list**, or **graph**.

User Emails Baseline		٠	٩	+ â ≛
16:37:08.14		4 h 57 m		21:34:49.722
Logged	Logger	Request	Response	ms
2017-02-05 21-34-49 555	exchange	m:Croateltam	m:CreateltemPersones	120
2017-02-03 21.34.43.333	excitatige	m.creatertem	m.createnennesponse	120
2017-02-05 21:34:49.491	user-email-logger	Email	html	231

### 16.3. Viewing Sequence Metadata

When viewing sequence details:

• Choose metadata to view sequence metadata details.

User Interface	
ID:	user-interface
Name:	User Interface
Created:	2018-11-13T11:39:44.00
Created By:	admin
Modified:	2018-11-13T11:39:44.00
Modified By:	admin

Figure 16.2. Sequence Metadata Details

#### 164. Viewing Sequence Messages

When viewing sequence details:

• Choose **list** to view sequence messages.

User Emails Baseline						
★ ★ → metadata list graph				9	+ 6	i 📥
16:37:08.14		4 h 57 m			21:34:4	19.722
Logged	Logger	Request	Response			ms
Logged 2017-02-05 21:34:49.555	Logger exchange	Request m:Createltem	Response m:CreateltemResponse			ms 128
Logged 2017-02-05 21:34:49.555 2017-02-05 21:34:49.491	Logger exchange user-email-logger	Request m:Createltem Email	Response m:CreateltemResponse html			ms 128 231

Figure 16.3. Sequence Message List

#### 16.5. Viewing Sequence Graphs

When viewing sequence details:

• Choose **graph** to view the sequence graph.



Figure 164. Sequence Graph Details

### 16.6. Paging through a List of Messages

When viewing sequence messages:

## 16.7. Returning to the List of Sequences

When viewing sequence details:

• Choose **• Back** to return to the list of sequences.

### 16.8. Searching for a Message in a Sequence

When viewing sequence messages you can filter the list using a search term:

- 1. Choose  $\mathsf{Q}$  Search. The sequence toolbar will be replaced by a search bar.
- •

The search bar has three controls. From left to right:

- • **Back** returns to the list of messages within the sequence.
- A text entry box where you type your search terms. Pressing Enter will execute the search.
- **Q Search** also executes the search.

The sequence search page is functionally equivalent to Section 11.2, "The Message Search Page" but with the sequence ID automatically appended as one of the search terms, limiting the search to those messages within the sequence. See Section 11.2, "The Message Search Page" for further details.

### 16.9. Deleting a Sequence

When viewing sequence messages:

• Choose **Delete**, to permanently delete the sequence.



Warning

This deletes the **sequence** and all its messages. To delete a message, see Section 16.12, "Deleting a Message".

## 16.10. Viewing a Message

When viewing sequence messages:

Viewing a Request or Response Message

• Choose the Logged timestamp of a message or its Request name to show the request message.

OR

• Choose the Response name to show the response message.

See Section 11.1.2, "The Message Detail Page" for more details.

Alternating between a pair of Request and Response Messages

In the toolbar, select the → request or ← response button.
 The button changes between the two states as appropriate.

#### 16.11. Viewing the Next or Previous Message

When viewing a message:

• Choose ← Previous or → Next to go to the next or previous message in the sequence.

### 16.12. Deleting a Message

When viewing a message:





Warning

Make sure you are viewing the message you want deleted, not the list of messages within a sequence. Choosing **Delete** for the latter will **irrevokably delete the sequence and all its messages**, not just a single message.

## 16.13. Editing a Message

When viewing a message:

1. Choose 🖉 Edit.

The display changes: the toolbar has a Save button on the right.

```
t24.IVREXCHRATESResponse

t t metadata headers content

i <?xml version="1.0" encoding="UTF=8"?>
content
content
content version="1.0" encoding="UTF=8"?>
conten
```

1

- 2. Choose metadata or content as appropriate.
- 3. Make changes to the message as desired.

4. Choose Save.

You will be returned to the message detail view.

#### 16.14. Associating a Sequence Timeline Request or Response with its Message

When viewing sequence messages:

• Selecting an anchoring request or response triangle will highlight its entry in the messages list.

#### 16.15. Creating a New Message Sequence

To create a new sequence:

1. Choose Navigation Menu  $\rightarrow$  Messages  $\rightarrow$  New.

New Message Sequence			
ID:	(Generate)		
Name:	1		
Save			

Tip

Figure 16.5. Creating a New Message Sequence

2. Provide an ID and a Name for the message. The name will be displayed on Section 11.1, "The Sequences Page". The ID will be displayed with the sequence's metadata.



Leave the ID field blank if a specific ID is not required. This allows Avato to generate an ID that is guaranteed unique. You will not be permitted to save with a non-unique ID.

3. Choose Save

Your new, empty sequence will be displayed on Section 11.1.1, "The Messages Page". See Section 16.16, "Creating a New Message in a Sequence" to add messages to your sequence.

# 16.16. Creating a New Message in a Sequence

When viewing sequence messages you can create a new message by hand:

1. Choose **H**New.

ID:	(Generate)
Name:	
Folder:	
Interface:	
Logger:	
Server:	
Thread:	
Туре:	
Direction:	
Response To:	
Content:	

Figure 16.6. Creating a New Message in a Sequence

2. Provide an ID. The ID will be displayed with the sequence's metadata.



Tip

Leave the ID field blank if a specific ID is not required. This allows Avato to generate an ID that is guaranteed unique. You will not be permitted to save with a non-unique ID.

- 3. Provide a Name. The name will be displayed when viewing message details.
- 4. Provide a Logger name. The name of the logger will be displayed in the sequence's message list. When creating messages by hand it is useful to use the same Name and Logger values, so that you can identify the message in both the sequence message list and when viewing the message.
- 5. Provide other details as needed or known. When creating a message by hand, you will normally not need to provide these additional details, and can use an asterisk ("\*") to indicate that the setting applies to all cases:
  - Folder Interface Server Thread Type Direction Response To
- 6. Type the message content in the Content box.

#### 7. Choose Save.

You will be returned to the sequence messages list.

#### 16.17. Returning to the List of Messages

When viewing a message:

Choose Section 11.1.1, "The Messages Page" for details.

#### 16.18. Exporting a Sequence

When viewing sequence messages:

• Choose 📥 Export.

The sequence will be saved to your downloads folder using its sequence name as the file name.

#### 16.19. Importing a Sequence File

To load an Avato sequence file that has been previously exported (see Section 16.18, "Exporting a Sequence"):

1. Choose **Navigation Menu** → **Messages** → **Import**. In the display panel, choose **Import Avato Sequence File**.

```
    ✓ Import Sequence File
File
Choose File No file chosen
Load
```

Figure 16.7. Importing a Sequence File

- 2. Choose **Choose File**. Using the file selection dialog, select the sequence file you wish to import and choose **Open**.
- 3. Choose Load.

If the sequence has not been previously loaded the newly loaded sequence and its messages will be displayed on Section 11.1.1, "The Messages Page". If the sequence has been previously loaded you will remain on the Import Message Sequence page.

### 16.20. Importing a Log File

Avato can import server log files, extracting logged messages into a sequence with their original (logged) timing characteristics.

To import a server log file into a sequence:

 Choose Navigation Menu → Messages → Import. In the display panel, choose Import Avato Log File.

<ul> <li>Import Avat</li> </ul>	o Log File	
Logger:		
Name		
File		
	Filter by Tim	0
Start Time		
End Time		
Load		

Figure 16.8. Importing a Log File

- 2. In Logger provide the servlet name of the logger component that has logged the messages you wish to capture. The servlet name of a logger is shown under the divider line on its Section 8.2, "Components" diagram on Chapter 8, The Interfaces Page, prefixing the component's description. If you want to capture all messages from all loggers, type an asterisk (\*).
- 3. Choose **Add** and add more logger names as desired. You can select and deselect the checkbox beside a Logger entry to enable/disable import of that logger's message.
- 4. In Name type the name of the new sequence into which the messages will be captured.
- 5. In File provide the path to the log file. This will be a relative path name and must be accessible by the application server's service account.
- 6. To restrict the imported messages to those that fall within a certain (inclusive) time span, enable Filter by Time and provide a Start Time and End Time in "hh:mm AM/PM" format.
- 7. Choose Load.

The new sequence with its captured log messages will be displayed on Section 11.1.1, "The Messages Page".

### 16.21. Importing a PCAP File

Avato can import PCAP Ethernet capture files, reconstructing their TCP/IP requests and responses from the underlying network packets, assembling them into complete messages, and recording them into a sequence with their original timing characteristics.

To import a PCAP file into a sequence:

1. Choose Navigation Menu → Messages → Import. In the display panel, choose Import PCAP File.

▼ Import PCAF	P File
Name:	
File:	
Server Port:	
Load	

Figure 16.9. Importing a PCAP file

- 2. Provide a Name for the new sequence.
- 3. Provide a File path to the PCAP file. This will be a relative path name and must be accessible by the application server's service account.
- 4. Provide the Server Port to identify the traffic you wish to import from the file. For example, to import HTTP traffic, you would typically set server port to 80.
- 5. Choose Load.

The new sequence with its captured messages will be displayed on Section 11.1.1, "The Messages Page".

#### 16.22. Importing an ISO 8583 Log File

Avato can import ISO 8583 (financial transaction card originated interchange messaging) log files.

To import an ISO 8583 log file into a sequence:

1. Choose **Navigation Menu** → **Messages** → **Import**. In the display panel, choose **Import ISO8583 Log File**.

<ul> <li>Import ISO8</li> </ul>	583 Log File
Name:	
File:	
	□ Filter by Tim
Start Time	
End Time	
Load	

Figure 16.10. Importing an ISO 8583 log file

- 2. Provide a Name for the new sequence.
- 3. Provide a File path to the log file. This will be a relative path name and must be accessible by the application server's service account.
- To restrict the imported messages to those that fall within a certain (inclusive) time span, enable Filter by Time and provide a Start Time and End Time in "hh:mm AM/PM" format.

#### 5. Choose Load.

The new sequence with its captured messages will be displayed on Section 11.1.1, "The Messages Page".

#### 16.23. Viewing Undelivered Messages

To view a list of messages that were unable to be delivered in a timely fashion:

• Choose Navigation Menu -> System -> Undelivered Messages.

Undelivered Messages Manager				
Delete Resubmit Enter a keyword to search				Search
Name	Logger	Sender	Date	
TestSuites	TSLogger	/test/wsdl-execute	2019-10-01T15:24:18.656	

The Undelivered Messages Manager

#### Viewing an Undelivered Message

Selecting an undelivered message Name will open that message in **Navigation Menu**  $\rightarrow$  **Messages**  $\rightarrow$  **Sequences**  $\rightarrow$  **sequence**  $\rightarrow$  **message** message details page.

Viewing the Originating Circuit

Selecting the Logger will display the involved circuit on the **Navigation Menu**  $\rightarrow$  **Interfaces**  $\rightarrow$  **interface** Interfaces page.

#### 16.24. Deleting Undelivered Messages



Warning

Deleted messages can not be recovered.

#### While viewing undelivered messages:

To delete individual messages:

- 1. Select the checkboxes for the messages you wish to delete.
- 2. Choose Delete.

A confirmation dialog will pop up. If you are sure you wish to delete the selected messages, choose **Ok**, otherwise choose **Cancel**.

To delete all messages from all queues:

- 1. Select the checkbox in the table header.
- 2. Choose Delete.

A confirmation dialog will pop up. If you are sure you wish to delete the selected messages, choose **Ok**, otherwise choose **Cancel**.

### 16.25. Resubmitting Undelivered Messages

While viewing undelivered messages:

To resubmit individual messages:

- 1. Select the checkboxes for the messages you wish to resubmit.
- 2. Choose Resubmit.

A confirmation dialog will pop up. If you are sure you wish to resubmit the selected messages, choose **Ok**, otherwise choose **Cancel**.

To resubmit all messages from all queues:

- 1. Select the checkbox in the table header.
- 2. Choose **Resubmit**.

A confirmation dialog will pop up. If you are sure you wish to resubmit the selected messages, choose **Ok**, otherwise choose **Cancel**.

#### 16.26. Searching Undelivered Messages

While viewing undelivered messages:

- 1. Type any keyword into the search box. The asterisk (\*) may be used as a wildcard. Character case is ignored.
- 2. Choose **Search** or press Return. All messages that have headers or content that match the search keyword will be listed; all other messages will be hidden.

Clear the search box and choose **Search** again to restore the full list of undelivered messages.

# 17

# Recording and Playback of Message Traffic

## 17.1. Recording Messages

Message traffic can be recorded to a message sequence for subsequent examination.

To record messages:

- Hold the Record button for a few seconds. A Recording panel will be displayed, listing existing recorded sequences and providing a New button with which to create a new sequence.
- Select the **New** button. Provide a new sequence name in the text box, and then choose **Save**. Creation of a new recording sequence can be abandoned by choosing **Cancel**.
- Do any preparatory steps that you do not wish to have recorded: for instance, opening an interface and configuring a request at a service endpoint.
- Choose the Record button when you are ready to start recording. While recording, the button will be coloured.
- Choose the Record button again when you want to stop recording; the button will be returned to grey.

### 17.2. Viewing Recordings

To view a recorded message sequence:

- Hold the Record button for a few seconds.
- A Recording panel will be displayed, listing existing recorded sequences.
- Select an existing recorded sequence to display it on the Navigation Menu

   → Messages → Sequences page. Use the browser Back button to return to
   the previous display.

### 17.3. Playing Back a Recording

Sequences can be played back and, to further aide debugging efforts, playback of only the message requests, only the message responses, or both requests and responses may be selected. The playback can also be routed to an endpoint, enabling you to pipe a message sequence into a validator, an external service, or any other facility.

After viewing recordings:

- Hold the ▶ Play button for a few seconds.
- A Playback panel will be displayed, with options to select playback of requests and/or responses, and to configure routing. Configure these options as desired.
- Choose the 🕨 Play button again to start playback.

## 174. Deleting Recordings

Recorded sequences are like any other message sequence.

When viewing recordings:

• Choose **Delete**, to permanently delete the sequence.



Warning

This deletes the **sequence** and all its messages.

# 18

## Package Management

## 18.1. Enabling Package Installation

Before using Avato packages, you must configure a system parameter identifying the location of your packages directory:

Before using Avato packages, you must configure a system parameter identifying the location of your packages directory:

- In the left navigation panel, choose Navigation Menu → System → Parameters. The Avato Settings page will be shown in the display panel, listing the system parameters.
- If there is no entry titled System.Packages.Path/ Custom.System.Packages.Path/Core listed under the Class heading, select New. Otherwise, select that row and check that its settings are correct, as listed in the next step.
- 3. For Web Server, Instance, and Context Root, type a wildcard asterisk (\*).

For **Class** use System.Packages.Path/Custom.System.Packages.Path/ Core.

For Name use Source.

For **Value** provide the absolute path the packages folder in your Avato Packages source code folder, e.g. /Users/myaccount/Avato/core or c:/ Avato/core.

Source	
ID:	f5110ab7-bea9-45d1-bd
Web Server:	1
Instance:	•
Context Root:	•
Class:	System.Packages.Path/(
Name:	Source
Value:	/Users/wwt/dev-wwt/Ava
Save	

Figure 18.1. Configuring Packages Parameters

4. Select **Save**. The setting will now appear on the Avato Settings page:

Mobius Settings		
	Name	Value
⊖ System.Packages.Path/Custom.System.Packages.Path/C ore	Source	/Users/wwt/dev-wwt/Avato/Avato-4.0/app/packages
Delete New		

Figure 18.2. Packages Parameter Listing

5. If the Class, Name, or Value are incorrect, you can choose the Class name to change the values, or select the checkbox beside the Class name and use **Delete** to remove the entry.

#### 18.2. Installing a Package

To install an Avato package:

- On the left, choose Navigation Menu → System → Packages. The Display panel will show a grid of packages, with titles and vignettes. Packages that have not been installed will show "Included" at the bottom right, while installed packages show "Installed/Included."
- 2. Hover over the package you wish to install. Buttons will be shown along the bottom of the vignette.
- <sup>3.</sup> Choose  $\checkmark$  Add Package to add the package to the next build cycle.
- 4. Rebuild and redeploy the server.

You can check that the package was installed by looking at the Interfaces page.

After installing a package you may also need to use **A Import sequences** from package to add package files to the Avato database. See Section 18.3, "Installing Package Message Sequences" for details.

#### 18.3. Installing Package Message Sequences

Packages often include files and data that can be stored as message sequences in the Avato database.

After rebuilding and redeploying the server:

- On the left, choose Navigation Menu → System → Packages. The Display panel will show a grid of packages, with titles and vignettes. Packages that have not been installed will show "Included" at the bottom right, while installed packages show "Installed/Included."
- 2. For each new package that was installed, hover over the package.

Buttons will be shown along the bottom of its vignette. Choose **A Import** sequences from package to add its package files to the Avato database.

If there were support files and data to be uploaded to the database, their sequence names will be listed in place of the package description. Selecting a sequence name will open the **Navigation Menu**  $\rightarrow$  **Messages**  $\rightarrow$  **Sequences**  $\rightarrow$  **Selected Sequence** sequence's message list.

If there were no support files, no sequence names will be listed.

#### 184. Uninstalling a Package

To uninstall an Avato package:

- On the left, choose Navigation Menu → System → Packages. The Display panel will show a grid of packages, with titles and vignettes. Packages that have not been installed will show "Included" at the bottom right, while installed packages show "Installed/Included."
- 2. Hover over the package you wish to uninstall. Buttons will be shown along the bottom of the vignette.
- 3. Choose TRemove Package to remove the package from the next build cycle.
- 4. Rebuild and redeploy the server.

You can check that the package was uninstalled by looking at the **Interfaces** page. If the package had imported files or data into the Avato database, you can use the **Navigation Menu**  $\rightarrow$  **Messages**  $\rightarrow$  **Sequences**  $\rightarrow$  **sequence** page to remove them. See Section 16.9, "Deleting a Sequence" for details.

# 19

# Configuring System Parameters

## 19.1. Creating a New System Parameter

To create a system parameter:

- 1. Choose Navigation Menu → System → Parameters.
- 2. Configure the fields as required.
  - The parameter *ID* must be unique. Leave the *ID* field blank if a specific *ID* is not required. This allows Avato to generate an *ID* that is guaranteed unique.



Warning

Saving a parameter with a non-unique ID will overwrite an existing parameter.

- Web Server, Instance, and Context Root are used to explicitly target an Avato instance, enabling the parameter for only those systems that qualify. If the parameter value is to be used in all Avato instances, use an asterisk (\*) for these entries. Otherwise, use the exact string upon which to match a specific Avato instance. Note that a value **must** be provided; when in doubt, use \*.
- A Class name must be provided, identifying the Avato component or Java class that uses the named value. This must be an exact string, in hierarchical dot notation, in the form com.org.system.interfaceName.
- An exact matching Name identifies the overridden servlet or initialization parameter. A name must be provided.
- Value provides a replacement value for overridden parameter. If the field is empty, the servlet or initialization parameter will be used.
- 3. Select Save.



Note

When two or more parameters match on multiple fields, the mostspecific match (in ascending sorted order of Class, Name, Web Server, Instance, and ContextRoot) is selected.



Caution

Do not attempt to override an existing system parameter by defining a duplicate with an alternative value. When two or more parameters exactly match on all five sort fields, there is **no guarantee** as to which value will be selected.

### 19.2. Modifying a System Parameter

To modify a system parameter:

- 1. Choose Navigation Menu  $\rightarrow$  System  $\rightarrow$  Parameters.
- 2. In the Class column, select the name of the parameter.
- 3. Modify any of the fields.
- 4. Select Save.



Caution

Changing the ID of a parameter is discouraged. Parameter IDs must remain unique.

#### 19.3. Deleting a System Parameter

To delete a system parameter:

- 1. Choose Navigation Menu  $\rightarrow$  System  $\rightarrow$  Parameters.
- 2. Select the checkbox for the parameter.
- 3. Select Delete.

Note that this action can not be undone.

# 194. Configuring a System Parameter to Enable Packages

Before using Avato packages, you must configure a system parameter identifying the location of your packages directory:

- In the left navigation panel, choose Navigation Menu → System → Parameters. The Avato Settings page will be shown in the display panel, listing the system parameters.
- 2. If there is no entry titled System.Packages.Path/ Custom.System.Packages.Path/Core listed under the Class heading,

select **New**. Otherwise, select that row and check that its settings are correct, as listed in the next step.

3. For Web Server, Instance, and Context Root, type a wildcard asterisk (\*).

For **Class** use System.Packages.Path/Custom.System.Packages.Path/ Core.

For **Name** use Source.

For **Value** provide the absolute path the packages folder in your Avato Packages source code folder, e.g. /Users/myaccount/Avato/core or c:/ Avato/core.

Source	
ID:	f5110ab7-bea9-45d1-bd1
Web Server:	1
Instance:	•
Context Root:	*
Class:	System.Packages.Path/(
Name:	Source
Value:	/Users/wwt/dev-wwt/Ava
Save	

Figure 19.1. Configuring Packages Parameters

4. Select **Save**. The setting will now appear on the Avato Settings page:

Mobius Settings				
Class	Name	Value		
System.Packages.Path/Custom.System.Packages.Path/C ore	Source	/Users/wwt/dev-wwt/Avato/Avato-4.0/app/packages		
Delete New				

Figure 19.2. Packages Parameter Listing

5. If the Class, Name, or Value are incorrect, you can choose the Class name to change the values, or select the checkbox beside the Class name and use **Delete** to remove the entry.

#### 19.5. Important System Parameters

The following parameters are likely to be important and should be configured during the initial Avato server installation and test-out.

#### 19.5.1. Enabling Packages

To use the Avato packaging system, which allows users to install packages via the web interface, configure the following system parameter:
```
Web Server

*

Instance

*

Context Root

*

Class

System.Packages.Path/Custom.System.Packages.Path/Core

Name

Source
```

Value

/path/to/packages/directory

Step-by-step instruction is available at Section 19.4, "Configuring a System Parameter to Enable Packages".

### 19.5.2. Enabling UI Themes

Web Server

\*

Instance

\*

#### Context Root /serverroot, e.g. /esb

#### Class

System.Packages.Path/???/Core

#### Name

ActiveStyle

#### Value

/msg/sys/ui/Themes/theme.css

# Using the Dashboard

# 20.1. Viewing the Messages Dashboard

To see an event graph of messages received and sent by the system, including all internal activity:

#### • Choose Navigation Menu -> Dashboards -> Messages.

The Display panel will show a graph of recent messages or, if available, the last viewed graph.



Request-response cycles are shown as a vertical graph. External incoming requests are at the top of the graph; successive requests and responses generated in the process of fulfilling the request are linked downward. Each

request is flagged by a right-pointing triangle, and each response by a right-pointing triangle. Response triangles are highlighted when they returned an error message.



A Simple Request-Response Cycle

When zoomed-in sufficiently, the connecting bar between a request and its response can be seen:



Zooming in on a Request-Response Cycle

Most requests and responses will be labeled. If the request is a SOAP message, the name of the first child of the <soap:Body/> element will be used. If the request is a generic XML message, the name of the root element will be used. If the message is not an XML message, the HTTP content-type will be used.

## 20.3. Viewing Message Details

When viewing the messages dashboard selecting a request or response flag will pop up some detail about the message, including:

- The direction it was travelling (request, response).
- The type of message (first element name or header content-type).
- The message's timestamp.
- The name of the server that handled the message.
- The name of component that handled the message.
- The message's HTTP content-type.

Hovering over details will highlight them; choosing one will open an appropriate page:

- Choosing the message type displays the message header information (equivalent to Navigation Menu → Messages → Sequences → selected sequence → selected message → headers).
- Choosing the timestamp zooms-in to the period covered by the request/ response cycle (equivalent to using viewing messages over a date range.)
- Choosing the component name displays the circuit containing that component (equivalent to Navigation Menu → Interfaces → All Interfaces → selected interface.)

# 204. Viewing Recent Messages on the Dashboard

When viewing the messages dashboard you can easily view recent messages:

- 1. Using the "hamburger" menu on the Display panel, choose **Dashboard** Menu  $\rightarrow$  Recent Periods.
- 2. Using the drop-down selector to the right, choose one of
  - Last Minute
  - Last 5 Minutes
  - Last 15 Minutes
  - Last Hour

• Today

### 20.5. Viewing Messages Over a Date Range

When viewing the messages dashboard you can see messages that were handled during a specific date range:

- 1. Using the "hamburger" menu on the Display panel, choose **Dashboard** Menu  $\rightarrow$  From/To.
- 2. Enter or select dates and times in the From and To text boxes.
- 3. Choose go.

In the From and To text boxes, a triplet of icons provides alternative methods to specify the date and time:

- The S Clear Field button blanks the date-time value.
- To its right, the S **Spinner** control will increment or decrement the selected date-time sub-value (e.g. incrementing years if the yyyy value is selected.) You can use the Tab key to move between sub-values.
- The **T** Calendar popup displays a date selector. It has additional controls for selecting the month directly, or for "flipping" the calendar forward or backward by month. The "dot" button between the month forward/ backward buttons will select the today's date.

### 20.6. Viewing Messages Over a Duration

When viewing the messages dashboard you can see messages that were handled over a specific duration:

- 1. Using the "hamburger" menu on the Display panel, choose **Dashboard** Menu  $\rightarrow$  From/Duration.
- 2. Enter the start time in the From text box.
- 3. Enter a duration in the Duration text box and select a unit from the dropdown selector:
  - ms (milliseconds)
  - seconds
  - minutes
  - hours

- days
- 4. Choose go.

In the From text box, a triplet of icons provides alternative methods to specify the date and time:

- The 🚳 Clear Field button blanks the date-time value.
- To its right, the <sup>(2)</sup> **Spinner** control will increment or decrement the selected date-time sub-value (e.g. incrementing years if the yyyy value is selected.) You can use the Tab key to move between sub-values.
- The **T** Calendar popup displays a date selector. It has additional controls for selecting the month directly, or for "flipping" the calendar forward or backward by month. The "dot" button between the month forward/ backward buttons will select the today's date.

# Working with Interfaces, Components, and Circuits

# 21.1. Viewing Interfaces

Interfaces define service endpoints and the interconnections between components.

### 21.1.1. Displaying All Interfaces

To display all the interfaces known to Avato:

#### • Choose Navigation Menu -> Interfaces -> All Interfaces.

The Display panel will display the installed interfaces, with components and connecting lines.



#### A Typical Interfaces View

Note



When there are many interfaces with complex circuit connections it may take a moment for the display to render the view.

### 21.1.2. Displaying Select Interfaces

To display a subset of interfaces:

• Choose Navigation Menu → Interfaces and select checkboxes for the interfaces you wish to view, or de-select checkboxes for those interfaces you wish to hide.

### 21.1.3. Viewing a Specific Interface

To scroll the Display to a specific, checkbox-selected interface:

• Choose Navigation Menu → Interfaces and choose the name of the interface you wish to view.

# 21.2. Adjusting Interface Layout

When viewing interfaces, the interface boxes can be moved or resized. Component boxes within an interface may also be moved or resized.

### 21.2.1. Moving an Interface

• Drag anywhere in the interface that is not a component. The interface, and the components it contains, will move to the dragged location. Note that interface boxes can not be overlapped: other interfaces will adjust their position to remove the overlap.

### 21.2.2. Adjusting the Size of an Interface

- Drag any edge of the interface box to enlarge or shrink it.
   OR
- Hover over the bottom edge of the interface box and select **Auto**. The interface will be adjusted to fit its contents.

### 21.2.3. Moving a Component

• Drag anywhere in the component that is not text or graphics. The component will move to the dragged location. Unlike interfaces, components can be overlapped.

OR

• Choose **Component Menu** → **Auto position**. The component will be moved to a location determined by the browser.

### 21.24. Adjusting the Size of a Component

- Drag any edge to enlarge or shrink the component box.
   OR
- Choose Component Menu → Maximize. The component will be adjusted to use the full width of the screen (or, if maximized, restored to its original size). Its height will be maintained as-is.

### 21.2.5. Restoring the Auto-arranged Layout

To revert any layout changes you have made:

• Choose Navigation Menu  $\rightarrow$  Interfaces  $\rightarrow$  Reset View.

## 21.3. Identifying Component Endpoints

When viewing interfaces, a component's endpoint can be identified by hovering over its lollipop connector (----O). A link pop-up will provide the URL for the endpoint.

Note that hovering over a socket connector ( $---\zeta$ ) displays the endpoint for the component to which it is connected.

## 214. Viewing a Component WSDL

When viewing interfaces, some components will indicate that a WSDL is available.

To view the WSDL:

• Choose the **WSDL** button.

# 21.5. Finding Messages Handled by a Component

When viewing interfaces you can easily find all the messages that it has handled:

#### • Choose Component Menu → Find messages.

This is equivalent to using Navigation Menu  $\rightarrow$  Messages  $\rightarrow$  Search with an appropriate search term.

# 21.6. Observing Message Traffic

When viewing interfaces, message traffic is indicated in the "LED boxes" at the bottom of the component. When a message is received or sent by a component,

these boxes light up; the number of "LEDs" that are lit is proportional to the time required to process the message.



Message Traffic Indicators

### 21.7. Viewing or Modifying Component Transformations

When viewing interfaces you can inspect or modify the request or response transformation used by a component (if the component uses a transformation):

• Choose Component Menu → Edit request transform or Component Menu → Edit response transform.

### 21.8. Manually Testing Components

When viewing interfaces a component can be tested by manually configuring a request message; as an aide to this task, Avato can provide a message template for guidance:

### 21.8.1. Testing WSDL-enabled Components

1. Select **try** at the bottom right.

After a few moments, the **Tew Message** button will be selected and a list of available SOAP operations will be provided.

2. Select a SOAP operation.

After a few moments, the **Request** button will be selected and a SOAP message template will be shown in the request editor.

3. The SOAP template provides hints regarding acceptable XML elements and element content. Using your knowledge of the service being tested, make changes to the template to construct a valid SOAP request.

4. Choose **Send** at the bottom of the editor to submit the SOAP request to the component.

After a few moments, the **Response** button will be selected and the response message will be shown in the response editor.

To test a different operation, select **H** New Message again and repeat the above steps.

### 21.8.2. Testing RESTful Components

- 1. Select **try** at the bottom right.
- 2. In the URI tail + params box, provide the query and/or fragment parts of the request.
- 3. In the larger editor box, provide any payload required by the request.
- 4. Choose **Send** at the bottom of the editor to submit the request to the component.

After a few moments, the **Response** button will be selected and the response message will be shown in the response editor.

### 21.8.3. Viewing, Modifying, or Re-Sending the Request

#### 1. Select $\Rightarrow$ Request.

2. View or revise the request. Select **Send** to submit the request and view the response.

### 21.84. Viewing the Response

#### 1. Select **FResponse**.

The response can not, of course, be modified.

# 21.8.5. Viewing the Request and Response Simultaneously

1. Select **4** Request-Response. The request will be displayed in the top text edit box; the response will be displayed in the lower box.

### 21.8.6. Hiding the Request and/or Response

1. Select **try** at the bottom right.

# Working with Tests

## 22.1. Viewing Avato Test Suites

To view the Avato Test Suites

- 1. On the left, choose **Navigation Menu**  $\rightarrow$  **Tests**  $\rightarrow$  **All Tests**. The Display panel will show a Credentials section and a stack of installed Tests.
- Use the ▶ and ▼ buttons to reveal or hide details about the credentials or tests.

See Section 22.4, "Investigating Test Results" for information about viewing the message sequence, expected result, and error analysis for a failed test scenario.

### 22.2. Providing Test Suite Credentials

After viewing test suites one normally provides credentials to be used by the test framework.

Y Credentials testops Login Login succeeded.

The Credentials Section

Test suites often need to log into external service providers in order to use their APIs or access data. The credentials you used to log into an Avato system are not necessarily the same as those you would use for a third party, nor are your privileges and access rights necessarily those needed by a test suite. Additionally, it is useful to have messages and logs generated by the test suite to be identified separately from those you generate through manual actions.

To provide the test suite with its own set of credentials:

- 1. Expand the Credentials section using the  $\blacktriangleright$  show button.
- 2. Provide the test suite's username and password
- 3. Choose Login.

Avato will confirm the credentials with a Login succeeded message. You can then proceed to run test suites.

### 22.3. Running an Avato Test Suite

Test suites are initially displayed in a collapsed state, showing only an ▶ expand button, test suite name, and several other controls.

A Working with Tests • Running an Avato Test Suite

WSDL Service Tests
 Run Tests
 https://localhost:8443/esb

A Collapsed Test Suite

After providinging test suite credentials:

1. Confirm that the suite's host server URL is correct.

#### 2. Choose Run Tests.

After the tests have been run and test results analysed, the test suite will be shown in an expanded state. The tests are presented in a grid, sorted by Case and Scenario, with the test data, elapsed test time, and test status shown for each test scenario.

history Edit

Especially in the case of failed tests, you may wish proceed by investigating the test results.

### 224. Investigating Test Results

Avato automatically expands the test suite when its tests have been completed, allowing you to quickly identify which tests have passed and which have failed. Still hidden from view, though, are the messages generated and received by each test scenario — information that is very useful, especially in diagnosing test failures.

To view the messages used in a test scenario, after Section 22.3, "Running an Avato Test Suite":

- 1. For the test scenario under investigation, choose its expand ▶ button to reveal its message sequence.
- 2. For any message in the sequence, choose its expand ▶ button to reveal that message's metadata and content.
- 3. For failed scenarios, you can also use ▶ to expand the Expected response and the Errors that were identified in the failed response.

A detailed examination of the test message sequence will often identify the root issues for a failed test.



Note

As an alternative to recursively expanding test scenarios, you can choose **history** after running a test suite to view its recorded message sequence. See Chapter 17, Recording and Playback of Message Traffic for details.

### 22.5. Editing a Test Suite Configuration

If you are developing a test suite, or if a test suite configuration has been determined to be the cause of a test failure, you can modify it using a standard Avato message editor.

When viewing test suites:

1. For the test suite requiring an updated configuration, choose Edit.

A standard Avato message editor will be opened, with the configuration file loaded and ready for editing.

- 2. Change the configuration as needed.
- 3. Use 🖾 Save to save your changes, or 🖴 Back to revert them.

Use **Navigation Menu**  $\rightarrow$  **Tests**  $\rightarrow$  **All Tests** to return back to the test suites.

# Miscellaneous Tasks

# 23.1. Enabling and Disabling Live Updates

Several pages support live updates, in which the Avato server will, while handling its usual traffic duties, simultaneously send messages to the web browser, providing data that can be used to update graphs, lists, or other parts of the user interface.

On the Chapter 11, Messages Pages, for instance, live updates will enable the graph to continuously display new messaging information, allowing you to track a message request-response exchange as various components are brought into play. Likewise, the Section 13.3, "The Undelivered Messages Manager Page" will remove messages from the list should they get delivered while the page is being viewed.

To enable or disable live updates:

• Choose the 😌 Live Updates button.

When messaging is active, the Live Updates button will be highlighted in colour.

When messaging is disabled, the system health button will be grey.

## 23.2. Sharing a Message

This feature is not implemented.

### 23.3. Viewing the Server Log File

To view the application server log file:

#### • Choose Navigation Menu → System → Logs.

The server log file will be shown in the Display panel, in date order. Note that server logs may be automatically rotated; the time span covered by the log file will be dependent on application server settings.

## 234. Updating Avato

Avato can be updated (or restored to an earlier version) on-the-fly.

To update Avato:

1. Choose Navigation Menu  $\rightarrow$  System  $\rightarrow$  Update.



### **Update Mobius**

Clicking Perform Update will update the server to the latest version of Mobius. You will need to login again once the server restarts.

properties/dev-wildfly/packac

- Bootstrap
   Properties
- Core
- Packages
- \*Package file
- \*Environment
- \*Context root

#### Versions

*Bootstrap	latest
*Properties	latest
*Core	latest
*Packages	latest

dev-wildfly

esb

### Perform Update

Figure 23.1. Updating Avato

- 2. Select the parts of Avato that you wish to update:
  - Bootstrap:: update the build.xml and core properties files.
  - Properties: update the environment and package properties files.
  - Core: update the base Avato runtime and core packages.
  - Packages: update the optional custom Avato packages.

- 3. Configure update properties:
  - Package file: identifies the list of packages that will be installed automatically when the system is rebuilt.
  - Environment: identifies the environment, and hence environment properties, that will be used during the rebuilding process.
  - Context root: sets the root path providing access to Avato; this is the first path element following the server authority part.
- 4. Choose the version for the parts of Avato that are being updated. Use lastest to obtain the most up-to-date editions; otherwise, use a version number.

#### 5. Choose **Perform Update**.

The update process will download the required parts, rebuild the system, reinstall it to the application server, and then reboot the system.

After updating Avato you will need to log in again.

Part III. Appendices

# **Document Conventions**

## A.1. Keycap References

Please note that Macintosh and Windows keyboards use different names for the modifier keys:

In this Manual	Macintosh Keyboard	Windows Keyboard
Alt	Option	Alt
Cmd	Cmd	Ctrl
Enter	Return	Enter
Shift	Shift	Shift

Modifier Key Name Conventions

# A.2. Typography

The following typographical conventions are used to help differentiate different word meanings:

Typographic Conventions

Typographic Style	Meaning
Normal text	No special meaning.
Emphasis	Important text.
Strong Emphasis	Very important text.
Value to be typed	A value to be typed into an input box using the keyboard.
source code	Source code
computer text	A line of source code, computer output, file name, or other code- or computer-oriented data.
Key name + key name	A command or shortcut key or key combination to be typed on the keyboard.
Control Label	The name of a control on the screen.
Menu $\rightarrow$ Submenu $\rightarrow$ Command	The "path" to select the specified command or control.
Document Reference	The title of a document or a heading within a document.
Document Reference	A selectable link to a document.

## A.3. User Actions

The following conventions are used when referring to actions performed using the mouse, touch screen, or other pointing device:

Action Conventions

Verb item on which to act	Action
Select <b>item</b>	Point the mouse cursor at the item and then click and release the left (primary) mouse button; or point the trackpad cursor at the item and then click and release the trackpad; or touch the screen at the item and then tap the screen.
Select/De-select <b>item</b>	When referring to an item in a list, turn on the highlight (select) or turn off highlighting (deselect) by selecting the item. For some items you may multi-select by pressing a modifier key (Shift or Cmd) while selecting.
Select/De-select "content"	Select the text content by click-drag- releasing the left (primary) mouse button, sweeping the cursor over the desired text.
Drag <b>item</b>	Select the item without releasing the mouse button, then move the item to a new position or place, releasing the mouse button to drop the item.
Key name + Drag <b>item</b> (e.g. Ctrl+Drag item)	Hold down the named key, then drag the item.
Choose <b>Menu</b> → <b>Sub-menu</b> → <b>Command</b>	Select the named menu, then choose the sub-menu and/or command.

### A4. Tips and Admonitions

The following symbols are used to identify important information:

Symbol Conventions



Тір

A hint that may make things easier or help you be more productive.



Note

Supplemental information qualifying an important points or that applies to a special case.



Important

Information should not be ignored but will not cause data loss.



#### Caution

Information that should not be ignored because recoverable data loss might occur.



Warning

Information that must

not be ignored because irrecoverable data loss might occur.

### **Technical Support**

When contacting technical support, please have the following information available. The quality of the information you provide greatly affects our ability to provide you with timely and comprehensive support answers. Having these details available will help us help you more quickly and effectively.

- A precise description of the problem.
- A list of the components installed in your Avato system.
- The version of Avato you have installed on your servers.
- A list of customizations you have made to your Avato system.

Avato technical support is available via

Email

<techsupport@avato.co>

#### Telephone

GMT+8 standard office hours, at 1.604.600.7715.

If you have discovered an error in the documentation, please send details to <docs@avato.co>.

Documentation updates are available through the Avato update system. Please see Section 13.5, "The Update Page" for details.

# **AVATO**

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