

Universal Messaging Release Notes

Version 10.5

October 2019

This document applies to Universal Messaging Version 10.5 and to all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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About this Documentation

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Software AG Documentation Website

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Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

1 Overview

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The *Release Notes* for Universal Messaging describe the changes introduced with the current product release.

Documentation roadmap

Universal Messaging provides documentation in the following formats:

- HTML
- PDF

The following table describes the different guides that are available.

Title	Description
Administration Guide	Describes how to perform administration tasks for your Universal Messaging environment, by using either using a graphical user interface or an API.
Clustering Guide	Describes how to work with Universal Messaging clusters.
Concepts	Describes the underlying concepts of the Universal Messaging product.
Developer Guide	Describes how to develop client applications for enterprise, mobile clients or web clients.
Installation Guide	Describes how to install the product.
Operations Guide	Describes how to perform daily operations, special operations, monitoring, troubleshooting, archiving and cleanup tasks in order to keep the Universal Messaging system running smoothly.
Reference Guide	Provides programmer-level API documentation for the supported APIs and languages.
Release Notes	Describes new features and changes since the previous release.

Supported Product Releases and Platforms

Supported Product Releases

In addition to the current product release, older versions of the product remain may continue to be supported for a certain period of time.

For a list of product releases and their support periods, refer to the document *Release Availability* that is available from the following web page: "http://documentation.softwareag.com/webmethods/universal_messaging/umessaging_vers.htm".

Each new release of Universal Messaging has its own *Release Availability* document. Be sure to consult that document for details about supported releases.

Supported Platforms

Universal Messaging runs on the platforms listed in the *Supported Platforms* document that is available from the following web page: "http://documentation.softwareag.com/webmethods/universal_messaging/umessaging_vers.htm".

Each new release of Universal Messaging has its own *Supported Platforms* document. Be sure to consult that document for details about supported versions of operating systems, web browsers, etc.

License Types and Feature Sets

To use Universal Messaging in a production environment, you require one of the following licence types:

NUMWF/NUMTF

Universal Messaging Fully Featured / TC Universal Messaging Fully Featured.

NUMWI

Universal Messaging for Integration Active/Passive.

NUMWS

Universal Messaging for Integration Active/Active.

Note: You can only use this license type if you also have the NUMWI license type.

The following table shows the feature sets available with each of the license types:

Feature Name	Description	NUMWF / NUMTF	NUMWI	NUMWS
Max Resources	Can create channels, queues, data groups and data streams	Unlimited / Specified	Unlimited	
Mixed Channels	Can create channels that contain messages that are persistent or reliable	x	x	
Reliable Channels	Can create channels that contain messages that are reliable (current event ID persisted to disk)	x	x	
Persistent Channels	Can create channels where all events are stored on disk	x	x	
Queues	Messaging paradigm where only one consumer can read a message from a queue. If more than one consumer is subscribed to a queue then the messages are distributed in a round-robin fashion.	x	x	
JMS Clients	Clients can use the JMS API	x	x	
Java Clients	Clients can use the native Java API	x	x	
Enterprise Clients (C++, C#, Python)	Clients can use additional native APIs (C++, C#, Python)	x	x	
Zones	Organize servers within one namespace	x	x	
Joins	Joins can be used to forward messages between servers or clusters	x	x	

Feature Name	Description	NUMWF / NUMTF	NUMWI	NUMWS
Publish Keys	Uniquely identify messages on a channel, used for merging or replacing	x	x	
Snoop	Peek at messages on a queue or topic	x	x	
Messaging Priority	Server can reorder messages based on priority	x	x	
Horizontal Scaling	Clients can seamlessly publish/consume events to/from multiple independent realms and clusters using a single connection	x	x	
Active/Active Clustering	Clusters are formed of multiple active servers for high availability	x		x
Web Clients	Web browser-based clients	x		
Mobile Clients	Mobile-based clients (Apple iOS, GoogleAndroid)	x		
Plugins	Server can expose additional functionality (e.g. files, REST) over HTTP interfaces	x		
Data groups	Group of consumers to which publishers can send messages, as an alternative to using channels (JMS topics). The messaging is focused on allowing management and alteration of client subscriptions.	x		
Data streams	Consumers which are members of data groups	x		

Feature Name	Description	NUMWF / NUMTF	NUMWI	NUMWS
Scheduling	Run scripts on the server on a schedule, e.g. maintenance	x		
HTTP Support	Connect over HTTP interfaces	x		
AMQP	Use the AMQP protocol for messaging with queueing	x		
MQTT	Use the MQTT lightweight protocol for embedded devices	x		
Shared Memory	Low latency interface communication on the same machine	x		
Multicast	Reliable multicast over UDP for efficient routing of messages	x		

Note: Universal Messaging ships with a trial license, which allows the full-feature server to run for a maximum of 90 days from first run. During the installation procedure, you can either choose to use the trial license, or you can specify the name of the production license file. If you start off with the trial license and later decide to move to a production license, follow the instructions in the section *Upgrading from a Trial to a Production License* of the *Installation Guide*.

2 What's New in Universal Messaging 10.5

Universal Messaging 10.5 is the successor of Universal Messaging 10.4.

Universal Messaging 10.5 includes new features, enhancements, and changes as described in the following topics.

New features in v10.5

The following Universal Messaging features have been added in Universal Messaging 10.5:

■ Support for purging events on a queue using Command Central

It is now possible to purge a range of event IDs or a single event ID on a queue.

This means that purging of events on queues is possible through Enterprise Manager, Command Central and the client API, in the same way as for purging events on channels.

■ Monitoring queue-level connections

It is now possible to monitor both asynchronous and synchronous subscription to a specific queue similar to the monitoring of connections to durable subscribers. This is available programmatically via `nQueueNode`, similar to `nDurableNode`. Both Enterprise Manager and the Command Central UI have been updated to show these statistics; they are almost identical to how connections for durable subscribers are shown.

In Enterprise Manager they can be seen under a specific queue in the **Consumer Info** tab. In Command Central they are under in the **Administration** tab when you click on a specific queue and go to `Consumer Info` tab. Additionally there are few new queue properties present in the **Status** tab of the queue under **Consumer Status**.

■ Individual purging of events on shared/serial durables

The JMS Engine of Universal Messaging now has the ability to automatically purge individual events from channels whose consumers are exclusively using durable subscriptions of type *Shared* or *Serial*.

The individual JMS Engine purge is deactivated by default. To activate it, set the new realm configuration property "Event Storage"-> "JMSEngineIndividualPurgeEnabled" to "true".

Note: We are planning to change this default setting from deactivated (boolean value "false") to activated (boolean value "true") in a software fix that is scheduled for release shortly after the initial release of v10.5.

Changed features in v10.5

The following Universal Messaging features already available in the previous product release have been changed in Universal Messaging 10.5:

- **Health Checker error and warning messages**

Some messages which were previously reported as error messages during a health check of a live cluster have now been changed to warning messages. This is because small synchronization delays across the live cluster can occur that cause the health checker to detect discrepancies, although the cluster is working correctly. Such discrepancies are therefore now classified as warnings rather than errors.

- **Re-worked queue implementation**

In v10.5 the queue implementation in Universal Messaging has been reworked. This was done in order to reduce internal complexity regarding queue usage, and to increase their stability and maintainability.

- **Queue subscriber filtering**

In previous product versions, queue subscriber filtering was always enabled, which led to a certain amount of processing overhead. In v10.5 this has been changed, so that the feature can be activated or deactivated by using the new realm property `QueueSubscriberFiltering` in the **Event Storage** configuration group.

By default, this property is set to `false`, meaning that queue subscriber filtering is deactivated. If you set this property to `true`, this activates the feature whereby events published to a queue can be read by selected subscribers only.

Subscriber name/host filtering is activated at the API level by using the `setSubscriberName()` method of `nConsumeEvent`.

Even if you set a name/host on an `nConsumeEvent` (using `setSubscriberName`), this would not have any effect unless the new realm property `QueueSubscriberFiltering` is set to `true`.

Deprecated features in v10.5

The following Universal Messaging features are now deprecated in Universal Messaging 10.5. Features listed as deprecated are still available in the product, but will be removed in a future release.

- **API `nQueueReaderContext` method `setMaintainPriority()`**

For single node usage, the priority assignment for queue asynchronous consumers has been deprecated. This concerns only native queue asynchronous consumers, which set the `maintain priority` to `"true"` in their `nQueueReaderContext`.

Additionally, cluster support for this method has been removed. The method still exists, but for cluster usage it has no effect.

- **Fanout archive**

The fanout archive functionality is a legacy feature that has various limitations. It will be removed from the product in the next releases.

■ "Persistent" flag for durable objects

The "Persistent" flag for durable objects is now deprecated. When the flag is removed in a later product version, the persistence of the durable will be inherited by the persistence support of the durable's channel. If the parent channel supports persistent events, its durables will always be created as persistent, whereas if the parent channel does not support persistent events, its durables will always be created as non-persistent.

■ "Cluster-wide" flag for durable objects

When the flag is removed in a later product version, the cluster-wide property of the durable will not be defined explicitly. The durable will be created as cluster-wide if its channel is a cluster-wide channel, whereas the durable will be created as non-cluster-wide if its channel is non-cluster-wide.

Removed Features in v10.5

The following Universal Messaging features have been removed in Universal Messaging 10.5:

■ API for Microsoft Silverlight

The Universal Messaging client API for Microsoft Silverlight has been removed.

■ API for Windows Phone

The Universal Messaging client API for Windows Phone has been removed.

■ Removal of store types

Support for the channel/queue types Simple, Paged, Transient and Offheap has been removed.

Note: If a Universal Messaging client from an earlier product version connects to the version 10.5 server, the client might wish to create a store (channel or queue) that has a store type of Simple, Paged, Transient or Offheap. In this case, these store types will be remapped to one of the existing ones as follows:

- Simple -> Reliable
- Transient -> Reliable with a TTL (time to live) of 1 millisecond
- Off-heap -> Reliable
- Paged -> Mixed

Also, log message will be visible in the `nirvana.log` file.

Example: If a v10.3 client tries to create a Transient channel, the v10.5 server will instead create a Reliable channel, and will also set the TTL to 1 millisecond in order to provide functionality that is similar to what the

client would expect. A log message similar to the following will be visible in the `nirvana.log` file:

```
UserCreate> Warning :
  Store <store_name> is of type TRANSIENT which is not supported anymore.
  Instead RELIABLE type will be used with TTL set to 1 ms.
```

For further information on the migration of store types that have been removed, see the section [“Migration Notes” on page 63](#) in these Release Notes.

■ Removal of durable types "Priority" and "Shared-Queued"

The durable types "Priority" and "Shared-Queued" have been removed.

Clients connections from previous product versions that use these durable types will be automatically mapped to other types if they connect to a v10.5 server:

- "Priority" will be mapped to "Serial".
- "Shared-Queued" will be mapped to "Shared".

■ Removal of `nNamedObject`-based API from the `nChannel` API

The previously deprecated `nNamedObject`-based API has been removed from the `nChannel` public API. If you have client applications that use `nNamedObject`, you will need to change them to use the `nDurable` API instead.

For further information on the migration of applications that use `nNamedObject`, see the section [“Migration Notes” on page 63](#) in these Release Notes.

■ Client API for Java

The option `-autoconvert` has been removed from the Java client API. This option converted clustered transient channels and queues to mixed channels and queues when you imported a realm configuration from an XML file. The option has also been removed from the sample program `nimportrealmxml` that is delivered with the product.

■ Realm configuration properties

The following list shows the realm configuration properties that are no longer available. The names are given in the form `<category>:<property>`, where `<category>` is the category to which the property belongs, and `<property>` is the property name.

- Event Storage : `QueueDeliveryPersistencePolicy`
- Fanout Values : `SyncQueueDelay`
- Fanout Values : `SyncQueuePublisher`

If you exported a realm configuration containing any of these removed properties to an XML file in a previous product version, the XML file can still be imported into a newer realm, but in this case the properties will be ignored, regardless of the value that they were set to.

■ Transient queue events

The transient event flag of an `nConsumeEvent(setTransient())` for events published to a queue is no longer supported and will be ignored. As a consequence,

transient events will always be stored on the queue, even if there are no active subscribers.

Documentation Changes

■ **Enterprise Manager documentation**

The Universal Messaging Enterprise Manager documentation in the *Administration Guide* has been reorganized to be more task-oriented.

3 What's New in Universal Messaging 10.4

Universal Messaging 10.4 is the successor of Universal Messaging 10.3.

Universal Messaging 10.4 includes new features, enhancements, and changes as described in the following topics.

New features in v10.4

The following Universal Messaging features have been added in Universal Messaging 10.4:

■ **Support for channel and queue snoop in Command Central**

You can snoop on events on a Universal Messaging channel or queue as well as purge events from a channel or queue, using the Command Central web user interface and command-line interface.

For information, see the sections *Snooping on Channels*, *Snooping on Queues*, *Commands for Snooping on Channels*, and *Commands for Snooping on Queues* in the *Administration Guide*.

■ **Support for publishing events on channels and queues in Command Central**

You can publish events, including Protobuf events, on a Universal Messaging channel or queue, using the Command Central web user interface and command-line interface.

For information, see the sections *Publishing Events* and *Event Publishing Commands* in the *Administration Guide*.

■ **Support for .NET Standard 2.0**

The APIs `Nirvana.DotNet.dll`, `Nirvana.nAdminAPI.dll` and `Nirvana.Reactive.dll` have been tested to be compatible with .NET Standard 2.0. For the verification, the ".NET Portability Analyzer" tool from Microsoft is used.

For information see the section *Using UM API libraries for .NET in .NET Standard projects* in the *Developer Guide*

■ **Support for deleting clusters using the Tools Runner application**

The Tools Runner application (`runUMTool`) has been extended with a new command `DeleteCluster`. This command allows you to delete an existing cluster.

For information, see the topic *Syntax: Cluster Tools* in the section *Command Line Administration Tools* of the *Administration Guide*.

Changed features in v10.4

The following Universal Messaging features already available in the previous product release have been changed in Universal Messaging 10.4:

■ Multiplex session authentication

There is a change in the way user names are handled for client authentication in a multiplex session.

For details, refer to the topic *Multiplex session authentication* in the section *Multiplexing Sessions* in the *Concepts* guide.

■ Horizontal Scalability

Universal Messaging sessions using the "horizontal scalability" feature now support automatic (re-)connection to realm servers in the scalability set that are offline/unavailable when the session is created or initialized.

Also, HS sessions support connecting to various connection interfaces, e.g. NHP/NHPS/NSP/NSPS, and you can use a combination of these in a single HS RNAME.

For details, refer to the topic *Usage Notes for Horizontal Scalability* in the section *Horizontal Scalability* in the *Concepts* guide.

■ Updated System.Reactive Libraries for .Net Reactive samples

The .Net Reactive Extensions (Rx) sample programs have been updated to use System.Reactive libraries v3.1.1. In the previous product release, version 1.0 of these libraries was used.

The sample programs are located under in folder `<InstallDir>\UniversalMessaging\docnet\examples`.

■ Using AMQP in clustered environments

Universal Messaging now supports AMQP 1.0 in clustered environments.

At the moment, automatic failover of AMQP clients is not supported. If the AMQP connection fails it is the responsibility of the AMQP client application to reconnect to another node in the cluster.

Note: For the initial release of V10.4, the new functionality is provided as a software fix that you need to install after the standard product installation procedure has completed. To install the fix, you can use either Command Central or the Software AG Update Manager. If you wish to use the Update Manager, general instructions are provided in the document *Using Software AG Update Manager* that you can find on the Software AG documentation web site.

Deprecated features in v10.4

The following Universal Messaging features are now deprecated in Universal Messaging 10.4. Features listed as deprecated are still available in the product, but will be removed in a future release.

■ The store type "transient"

The channel/queue type "transient" is deprecated in v10.4 and will be removed in a future version of the product.

■ **Realm configuration properties**

The following realm configuration property is deprecated:

- `SyncPingSize`

The realm configuration properties are described in the section *Realm Configuration* in the *Administration Guide*.

Removed Features in v10.4

If features have been removed in Universal Messaging 10.4, they are listed in this section.

There are currently no removed features in v10.4.

Documentation Changes

■ **Operations Guide**

The product documentation set has been extended to include a new *Operations Guide*. This guide gives guidance on how to perform day-to-day operation and maintenance tasks, and includes suggestions on how to deal with standard questions in the areas of troubleshooting and maintenance.

■ **Dead Event Store**

The description of how the dead event store is used for channel processing has been updated.

For details, refer to the topic *Dead Event Store restrictions for durable subscriptions* in the section *Channel Attributes* in the *Concepts* guide.

■ **Java Service Wrapper**

Several components of Universal Messaging make use of the Java Service Wrapper, which is an application provided by developed by Tanuki Software, Ltd. Information about the Universal Messaging components that use the Java Service Wrapper, and how to configure it, have been added to the documentation.

For details, refer to the section *Configuring the Java Service Wrapper* in the *Administration* guide.

■ **Startup and Shutdown Procedures**

Documentation has been added to better describe the procedures involved in starting up and shutting down a Universal Messaging Server.

For details, see the sections *Starting the Realm Server* and *Stopping the Realm Server* in the *Installation Guide*.

■ **Additional descriptions for Clustering**

Some topics such as the following have been added in the Clustering section of the Administration Guide.

- Roles and Responsibilities for Configuring an Active/Passive Cluster
- Configuring a Universal Messaging Active/Passive Cluster on UNIX
- Cluster Verification
- Failover Mechanism in an Active/Passive Cluster
- Virtual IP Address of an Active/Passive Cluster
- **Restrictions for Shared Memory connections**

A note has been added to the documentation that Shared Memory (SHM) connections are not supported on Solaris with SPARC architecture.

See the related note in the section *Shared Memory (SHM)* in the *Concepts guide*.

- **Rules for naming channels and queues**

A section has been added to the documentation to describe the valid set of characters that can be used when naming a new channel or queue.

For details, see the topic *Valid channel names* on the page *Creating Channels* in the Enterprise Manager section of the *Administration Guide*.

- **Removal of some client JAR files**

In previous product versions, some client Jar files were removed by design from the product delivery, but this was not stated clearly. The following table indicates Jar files that were delivered with previous product versions, but which are not delivered as Jar files any more. Their classes have now either been folded into other Jar files, or have been removed from the product altogether.

Previously available JAR File	Description	Status
nJ2EE.jar	Provided Universal Messaging support for interacting with Application servers that support J2EE.	The Jar file is no longer available. The Universal Messaging product now contains a resource adapter for use with application servers. See the topic <i>Resource Adapter for JMS</i> in the Java section of the <i>Developer Guide</i> for related information.
nAdminXMLAPI.jar	Provided Universal Messaging	The Jar file is no longer available, but

Previously available JAR File	Description	Status
	Configuration XML Import / Export functionality.	the contents have been folded into nAdminAPI.jar.
nP2P.jar	Provided Universal Messaging Peer-to-Peer functionality.	The P2P functionality was removed from the product in version 9.12. The Jar file is no longer available, and the contents have not been folded into any other Jar file.

For the list of currently delivered client JAR files, refer to the section *Client Jars* in the *Concepts* guide.

4 What's New in Universal Messaging 10.3

Universal Messaging 10.3 is the successor of Universal Messaging 10.2.

Universal Messaging 10.3 includes new features, enhancements, and changes as described in the following topics.

New features in v10.3

The following Universal Messaging features have been added in Universal Messaging 10.3:

■ **Client System Properties for Secure Communication**

The Universal Messaging client system properties for secure communication configure only the connections to Universal Messaging realms and have no impact on the connections established to other endpoints, unlike the standard Java Secure Socket Extension (JSSE) system properties. The following Universal Messaging client system properties have been added:

- `com.softwareag.um.client.ssl.certificate_alias`
- `com.softwareag.um.client.ssl.enabled_ciphers`
- `com.softwareag.um.client.ssl.keystore_password`
- `com.softwareag.um.client.ssl.keystore_path`
- `com.softwareag.um.client.ssl.ssl_protocol`
- `com.softwareag.um.client.ssl.truststore_password`
- `com.softwareag.um.client.ssl.truststore_path`

The properties are described in the section *Using the Universal Messaging Client System Properties for Secure Communication* in the *Concepts* guide.

■ **Client configuration properties**

The following client configuration parameters have been added:

- `com.softwareag.um.client.follow_the_master`
- `com.softwareag.um.client.network_io_buffer_size`
- `com.softwareag.um.client.session_disable_reconnect`
- `com.softwareag.um.client.write_handler`

The parameters are described in the section *Client Parameters* in the *Concepts* guide.

■ **Realm configuration properties for disk free space**

The following realm server startup parameters are now documented. They allow the Universal Messaging server to take action if the amount of free disk space drops below a threshold level.

- `DISK_USAGE_FREE_THRESHOLD`
- `DISK_USAGE_SCAN_ENABLE`
- `DISK_USAGE_SCAN_INTERVAL`
- `EXIT_ON_FREE_SPACE_ERROR`

These parameters were available in the previous product release, but were not documented.

The parameters are described in the section *Server Parameters* in the *Concepts* guide.

■ **Support for Configuring a Universal Messaging SHM Port in Command Central**

For information, see the sections *Ports Configuration* and *Configuring an SHM Port* in the *Administration Guide*.

■ **Support for Secure Communication Between Command Central and Universal Messaging**

Command Central now connects automatically to a Universal Messaging server that listens only on an nhps or nsps interface. Command Central uses this interface to establish the connection, as well as the truststore and keystore configured in the interface.

In addition, you can provide custom truststore and keystore files by configuring JSSE system properties or Universal Messaging client system properties.

For information, see the section *Securing Communication Between Command Central and Universal Messaging* in the *Administration Guide*.

Changed features in v10.3

The following Universal Messaging features already available in the previous product release have been changed:

■ **C++ libraries**

The following changes relating to the C++ libraries that Universal Messaging provides have taken place:

- The C++ libraries for Universal Messaging on Windows are now compiled with Visual Studio 2015.
- The C++ libraries for Universal Messaging on Linux are now compiled with gcc compiler version 4.8.5 20150623 (Red Hat 4.8.5-4).
- The C++ libraries for Universal Messaging utilize OpenSSL libraries which have now been upgraded to 1.1.0h (the previous version was 1.0.2l).
- The C++ libraries for Universal Messaging utilize POCO libraries which have now been upgraded to 1.9.0 (previous version was 1.6.3).

Should you experience any problems with the new version of the C++ client libraries for Universal Messaging, first consider recompiling your client applications against the new version of the libraries/compilers.

■ Cleanup of shared durable stores at server startup

Occasionally, a shared durable store of type "Shared-Queued" can continue to exist after the shared durable subscription for which the store was created has been deleted. To ensure that such "orphaned" stores are removed, the Universal Messaging realm server checks for orphaned stores at each restart and deletes them. This can cause a short delay during the startup procedure of the realm server.

■ Configuration of the Python API

The procedure for configuring the Python API for Universal Messaging has been modified.

For details, see the section *Environment Configuration* in the Python section of the *Developer Guide*.

■ Editing JNDI Settings for connection factories

The method for editing JNDI settings for a Universal Messaging realm has changed. Now, the **JNDI** tab for a selected realm in the Enterprise Manager allows you to view and edit existing JNDI settings of connection factories. You can also add your own optional JNDI key, value and data type settings.

The previous method for editing JNDI settings required you to do a *channel snoop* on the `/naming/defaultContext` channel and to use an "edit and republish" mechanism in the snoop panel. You can still use channel snoop to *view* the JNDI settings, but the "edit and republish" mechanism for the JNDI settings has been disabled (you can still enter new JNDI settings in the panel, but they will be ignored).

Note that the "edit and republish" mechanism of channel snoop still works as in previous product versions for all channel events **except** for events on the `/naming/defaultContext` channel that represent JNDI settings.

For related information on the new feature, see the section *Integration with JNDI* in the *Administration Guide*.

■ Format of timestamp field in log file entries

The format of the timestamp in log file entries has been changed. Previously, the time of day was shown as hours, minutes, seconds, in the format `hh:mm:ss`. Now, the time is shown as `hh:mm:ss.ttt`, where `ttt` represents thousandths of a second.

See the section *Universal Messaging Enterprise Manager : Logs Panel* in the *Administration Guide* for examples.

■ Google Protocol Buffers

The Google Protocol Buffer library that Universal Messaging 10.3 uses has been updated from version 2.5.0 to version 3.6.0. The 3.6.0 version of Google protocol buffers supports both the *proto2* language syntax and the new *proto3* language

syntax. The use of the new version brings Universal Messaging into line with other Software AG products that use Google Protocol Buffers.

There is one known restriction: Universal Messaging v10.3 does not support server-side filtering of events based on the "Map" container type that is available with the new Google protocol buffers.

■ **JVM behavior on Out of Memory Exception**

In previous product releases, the Java client library triggered a JVM exit when an out of memory exception (OOM) occurred. In some updated versions of previous product releases, the client configuration parameter `StopJVMonOOM` was introduced to allow this behavior to be configurable.

Now, in v10.3 the JVM never exits when an out of memory exception (OOM) occurs. Instead, the client library just logs the error, and the current session used by the client is automatically closed.

Also, in v10.3 the client parameter `StopJVMonOOM` has been removed again, since the V10.3 behavior is not configurable - it is equivalent to a setting of "`StopJVMonOOM=false`" in v10.2, meaning that the JVM will not exit if an OOM occurs.

■ **Limitations with Horizontal Scalability**

The current implementation of Horizontal Scalability (HS) has some limitations when dealing with Universal Messaging realm servers that went offline during HS operation and are now online again. Similar restrictions apply if a realm server was not available at the start of the HS operation but has now come online.

For details of these limitations, see the section *Usage Notes for Horizontal Scalability* in the *Concepts* guide.

■ **Temporary limitation on window size of indexed durable subscriptions**

For the initial release of v10.3, there is a limitation regarding the number of events per window that can be returned to clients that use durable subscriptions. This limitation is expected to be removed in later updates of v10.3. The limitation is as follows:

By default, the iterator window size of indexed durable subscriptions is currently set to 1, even if you have specified a value of more than 1 for the window size.

This applies to the following types of durable subscription:

- Serial
- Shared
- Shared-Queued

The lock can be overridden by setting the JVM argument `globalIndexedIteratorWindowSize` to "true". The default value of this parameter is "false".

For related information, see the section *Using Durable Subscriptions with Multiple Clients* in the *Concepts* guide.

Deprecated features in v10.3

The following Universal Messaging features are now deprecated in Universal Messaging 10.3. Features listed as deprecated are still available in the product, but will be removed in a future release.

■ Client API

In the client API, `nChannelAttributes.getFullName()` has been deprecated. Users of this method should use `nChannelAttributes.getName()` instead.

■ Client configuration properties

The following client configuration properties are deprecated:

- CAKEystore
- CAKEystorePASSWD
- CKEystore
- CKEystorePASSWD

The parameters are described in the section *Client Parameters* in the *Concepts* guide.

■ Creating non-clustered resources on clustered realm servers

The ability to create and use non-clustered resources on realm servers that are part of a cluster is deprecated.

For example, channels of type "transient" are not intended to be used in a clustered environment, so it will no longer be possible to create a channel of type "transient" on a realm server that is part of a cluster.

In the current product release it is possible to create such a non-clustered resource on a clustered realm server, but the behavior is unpredictable.

■ Priority and Shared-Queued Durable Subscriptions

The durable subscription types *Priority* and *Shared-Queued* are deprecated.

For future applications we suggest you use the durable type *Shared* instead of *Shared-Queued*, and the durable type *Serial* instead of *Priority*.

An overview of the durable subscription types is available in the section *Types of Durable Subscription* in the *Concepts* guide.

■ Realm configuration properties

The following realm configuration properties are deprecated:

- PriorityReadSpinLockMaxConnections
- PriorityReadSpinLockTime

- `PriorityReadType`

The realm configuration properties are described in the section *Realm Configuration* in the *Administration Guide*.

- **Storage properties of channels and queues**

The following storage properties of channels and queues are deprecated:

- `Enable Read Buffering`

- `Read Buffer Size`

The storage properties are described in the section *Storage Properties of Channels and Queues* in the *Concepts* guide.

Removed Features in v10.3

The following Universal Messaging features have been removed in Universal Messaging 10.3:

- **Client configuration parameters**

The following client configuration parameters have been removed:

- `StopJVMonOOM`

See the item *JVM behavior on Out of Memory Exception* in these Release Notes for related information.

The parameters are described in the section *Client Parameters* in the *Concepts* guide.

- **Legacy (i.e. global) protocol buffers**

Support for configuring "legacy" (i.e. global) Google protocol buffers has been removed. In previous product versions, protobuf descriptors could be kept in a global directory, rather than setting them on each channel. Now, support for using a global directory has been removed, and only channel-level protocol buffers are supported.

For this reason, several realm configuration parameters relating to protocol buffers have also been removed.

The option `Protobuf Config: FilterProtobufEvents` has been removed, since filtering of protobuf events is the most natural behavior and now always occurs (previously, filtering was optional). If you do not want filtering, you should not configure protobuf descriptors for the channel.

See the summary of the removed *Protobuf Config* properties in the list below.

- **Proxy forwarding**

Support for proxy forwarding has been removed. The corresponding realm configuration parameters in the category "Proxy Forward Config" have been removed.

- **Realm configuration properties**

The following list shows the realm configuration properties that are no longer available. The names are given in the form `<category>: <property>`, where `<category>` is the category to which the property belongs, and `<property>` is the property name. Property names are unique within a category, but the same property name can be present in different categories. Some properties are annotated with (*1), (*2) etc. There are references to notes that are described at the end of the list.

- Cluster Config : BufferSize (*3)
- Cluster Config: EnableSites (*2)
- Cluster Config: FilterEventsDuringRecovery (*2)
- Cluster Config: SecureHandshake (*2)
- Cluster Config: SeparateLog

Note: the spelling "SeperateLog" was used originally.

- Cluster Config: TransactionSync (*2)
- Connection Config : BufferQueueSize (*3)
- Connection Config : EnablePriorityMessaging (*3)
- Connection Config : HandshakeTimeout (*3)
- Connection Config : whPeakTrailDelay (*3)
- Connection Config: MaxBufferSizeClientSideCheck (*2)
- Connection Config: NIOSelectArray

After the removal of this property, UM will continue to behave as if this property were set to "false".

- Data Stream Config : FanoutTaskQueueSize (*3)
- Data Stream Config : MaxSessionIdSize (*3)
- Data Stream Config : ParallelFanoutThreshold (*3)
- Data Stream Config: FanoutTraversalType

After the removal of this property, UM will continue to behave as if this property were set to "in-order traversal".

- Event Storage : AutoMaintainOnFileLimit (*3)
- Event Storage : EnableStoreReadBuffering (*3)
- Event Storage: AutoMaintainSystemStores (*2)
- Event Storage: EnableBufferingKey (*2)
- Fanout Values : MaximumDelayInWrite (*3)
- Fanout Values : ParallelThreshold (*3)
- Fanout Values : ParallelUseGlobalPool (*3)

- Fanout Values : RoundRobinDelivery (*3)
- Fanout Values: ParallelBatchSize (*3)
- Global Values : ServerStateFlush (*3)
- Global Values : StatusUpdateTime (*3)
- Global Values: NanoDelayBase

After the removal of this property, UM will continue to behave as if the default value of this property (100000) were still in effect.

- Global Values: ServerTime (*2)
- Inter-Realm Comms Config: WriteDelayOnFail (*2)
- Inter-Realm Comms Config: ZoneDefaultCanRecv (*2)
- Inter-Realm Comms Config: ZoneDefaultCanSend (*2)
- JVM Management: AutoThreadDumpOnExit (*2)
- JVM Management: ExitOnMemoryError (*2)
- Logging Config: DisplayPackageName
- Logging Config: customDebugTag (*1)
- Logging Config: customErrorTag (*1)
- Logging Config: customFatalTag (*1)
- Logging Config: customInfoTag (*1)
- Logging Config: customLogTag (*1)
- Logging Config: customTraceTag (*1)
- Logging Config: customWarnTag (*1)
- Protobuf Config : MaximumProtobufBuilders
- Protobuf Config : MinimumProtobufBuilders
- Protobuf Config : ProtobufDescriptorsInputDir
- Protobuf Config : ProtobufDescriptorsOutputDir
- Protobuf Config : UpdateDescriptorsInterval
- Protobuf Config : UseChannelLevelProtobufCache
- Protobuf Config: FilterProtobufEvents (*2)
- Protocol AMQP Config : AllowUserTransformation (*3)
- Protocol MQTT Config : DisconnectOnSecurityException (*3)
- Protocol MQTT Config : Timeout (*3)
- Proxy Forward Config: BufferSize

- Proxy Forward Config: FlushTimeout

Notes:

- *1: The functionality of custom tags has been removed, so the properties have been removed accordingly.
- *2: After the removal of this property, UM will continue to behave as if the default value of this property ("true") were still in effect.
- *3: This property was made available in previous releases in preparation for possible future use, but its value was ignored, therefore the behavior of UM is not affected by the removal of this property.

If you exported a realm configuration containing any of these removed properties to an XML file in a previous product version, the XML file can still be imported into a newer realm, but in this case the properties will be ignored, regardless of the value that they were set to.

- **SOAP Plugin**

The SOAP server plugin has been removed.

This plugin was previously described in the section *Plugins* of the Enterprise Manager in the *Administration Guide*.

5 What's New In Universal Messaging 10.2

Universal Messaging 10.2 is the successor of Universal Messaging 10.1.

Universal Messaging 10.2 includes new features, enhancements, and changes as described in the following topics.

Updates for the HealthChecker tool

New checks

The set of available checks provided by the HealthChecker tool has been extended.

New checks are:

- `ServerProtectionConsistencyCheck`
- `XMLServerProtectionConsistencyCheck`
- `DurableSubscriberLargeStoreCheck`

Extended syntax allowing custom values

The syntax for running the HealthChecker has been extended to allow custom values to be specified by using additional parameters. For example, the `DurableSubscriberLargeStoreCheck` check examines the number of remaining events to be consumed in a shared durable, and if the number is greater than a certain threshold a warning will be displayed. The default value for the threshold is 1000, but the additional parameter `-threshold` allows you to specify a different value for the threshold.

For more information, refer to the section *Running a Configuration Health Check* in the *Administration Guide*.

New Diagnostic Tool - Realm Information Collector

The Realm Information Collector is a new command-line diagnostic tool that gathers files and live data from one or more Universal Messaging realm servers. The tool makes it easier for you to collect information that Software AG support may require to diagnose issues with Universal Messaging, but the information collected may also be useful for internal support within your organization.

For more information, refer to the section *The "Realm Information Collector" Diagnostic Tool* in the *Administration Guide*.

Heap Dump following a JVM "Out of Memory Error"

Universal Messaging now automatically generates a heap dump file when an `OutOfMemoryError` occurs in the Java Virtual Machine (JVM).

For more information, refer to the section *The Dump file for Out-of-Memory Errors (OOM)* in the *Installation Guide*.

JVM behavior on Out of Memory Exception

In the initial version of the current product release, the Java client library triggered a JVM exit when an out of memory exception (OOM) occurred. In some updated versions of the product release, the client configuration parameter `StopJVMonOOM` has been introduced to allow this behavior to be configurable.

For details, see the description of `StopJVMonOOM` in the section *Client Parameters* in the *Concepts* guide.

Documentation of Command Line Tools

For several product versions, Universal Messaging has provided a set of command line administration tools that display online help when called on the command line. The product documentation set has now been extended to include this online help.

For more information, refer to the section *Command Line Administration Tools* in the *Administrator Guide*.

Horizontal Scalability

In the 10.2 release we have introduced the *horizontal scalability* (HS) feature, which allows clients to seamlessly publish and consume events from multiple independent realms and clusters using a single connection. This feature is available for both the Universal Messaging native API for Java and the Universal Messaging API for JMS. It is enabled by using the newly defined horizontal scalability URL syntax.

HS is generally a client-side function, and a server that is used in a HS set can also be used (at the same time) as a normal standalone realm or cluster. However, we don't recommend using the same channels/queues in both HS and non-HS modes.

The *horizontal scalability* feature is a replacement of the JMS layer round-robin publishing feature which is now deprecated. Also, the term *round-robin connection factory* in the product documentation has been replaced by the term *horizontal scalability connection factory*.

For more information, refer to the section *Horizontal Scalability* in the *Concepts* guide.

Check for version compatibility of Universal Messaging server and administration API client

In previous product versions, there was no explicit version compatibility check between the Universal Messaging server and administration API clients connecting to the server, so for example an administration API client v9.12 could connect to a v10.1 server. In general, this resulted in an undefined behavior, but usually in a stream corruption, since cross-version administration API compatibility is not supported.

Starting from v10.2, the Universal Messaging server includes a version check that rejects connection requests from administration API clients whose protocol version differs

from that of the server. The Universal Messaging server adds an entry in the log file `nirvana.log`, clearly describing the protocol mismatch.

If the Universal Messaging server detects a version mismatch, the server replies to the client with a security exception that is intended to be compatible across Universal Messaging protocol versions. If, however, the security exception is not compatible with the protocol version of the administration API client, the client re-throws the received security exception.

Changed behavior following file system I/O exceptions

In previous product versions, the Universal Messaging server would keep running even after experiencing serious file system I/O exceptions, such as being unable to create a file for channel persistence due to using an invalid filename. In such situations, the application would not be made aware that these exceptions had been received, and so would continue processing without the expected persistence guarantees being in place.

This issue has been resolved by modifying the server to shut down when a non-recoverable I/O exception is received. This fail-fast behaviour may impact server availability but will avoid the worse situation where an application incorrectly assumes that it has persistence guarantees that are not in fact provided.

Client API for C++

New functionality

In the client API for C++, you can now get the header of an `nConsumeEvent` and iterate through its values. This functionality is already available in the client API for Java.

This can be achieved by getting the header from the event and then getting an iterator from the header.

Important: You have to dispose of the iterator after you have finished using it.

Example:

```
void someMethod(nConsumeEvent* event) {
    nHeader* header = event->getHeader();
    nHeaderIterator* headerIterator = header->getIterator();
    while (headerIterator->hasNext()) {
        // get the key and value
        std::string headerKey = headerIterator->getKey(); // nrvdead.orig.eid, nrvpub.time etc.
        fObject* headerValue = headerIterator->getValue();
        // do something with them
        .....
        // move the next value in the header
        headerIterator->next();
    }
    delete headerIterator;
}
```

Support for JAAS login with a client X.509 Certificate chain

Universal Messaging now supports authenticating users through the Software AG Security Infrastructure component (SIN) with a client X.509 certificate chain. This allows

users to access a Universal Messaging server that requires authentication, over an SSL/TLS enabled interface with a client certificate.

For more information, refer to the section *Server JAAS Authentication with Software AG Security infrastructure component* in the *Concepts* guide.

Added Support for creating Windows service and UNIX daemon during Installation

The Software AG Installer now contains an option that allows you to install the default instance of the Universal Messaging server as a Windows service or a UNIX daemon.

In the Installer you can also specify that the Windows service or UNIX daemon will start up automatically when the host machine starts up.

The executables used to start the Universal Messaging server in console mode have been replaced by `nserver.bat` (Windows) and `nserver` (UNIX). The new scripts start the Universal Messaging server either as a command line console or as a service (Windows) or daemon (UNIX), depending on in the mode in which the server was installed.

Note: As described in the section [“Replacement of configuration file `nserver.conf` by `nserverdaemon.conf`” on page 39](#), the configuration file `nserver.conf` used in previous product releases has been removed. The new scripts do not use the configuration file `nserver.conf` - they use `nserverdaemon.conf` instead.

Support for registering a Windows service using Command Central CLI

Command Central command-line interface can now be used to register a Windows service when creating a Universal Messaging server instance.

For more information, refer to the section *Universal Messaging Realm Server Instance Management* in the *Administrator Guide*.

Support for configuring JVM options using Command Central

Command Central web user interface and command-line interface can now be used to configure JVM options.

For more information, refer to the section *JVM Options* and *Universal Messaging Commands* in the *Administrator Guide*.

Enterprise Manager Enhancements

- The Enterprise Manager now offers an option to convert clustered transient channels and queues to mixed channels and queues when you import a realm configuration from an XML file.

For more information, refer to the section *Importing a Realm Configuration from an XML File* in the *Administrator Guide*.

- The Named Objects tab for a channel has been renamed to Durables tab, and the Get button has been removed. Now, the Enterprise Manager updates the durables table

automatically when a durable is added or removed, or the attributes of a durable are changed.

For more information, refer to the section *Viewing and Managing Durables for a Channel* in the *Administrator Guide*.

Client API for Java

The Java client API provides a new option, `-autoconvert`, to convert clustered transient channels and queues to mixed channels and queues when you import a realm configuration from an XML file.

For more information, refer to the section *Java Client: Import a realm's configuration information* in the *Developer Guide*.

Replacement of configuration file `nserver.conf` by `nserverdaemon.conf`

In previous product releases, the Universal Messaging server could be configured using either of the configuration files `nserver.conf` or `nserverdaemon.conf`. The file `nserver.conf` file was used if the server was started from the command line, and `nserverdaemon.conf` was used if the server was started as a Window service or UNIX daemon.

In the new release, the configuration file `nserver.conf` has been removed, and internal scripts that previously used `nserver.conf` use `nserverdaemon.conf` instead.

Use of terms "named object" and "durable subscription"

In previous product releases, we used the terms *named object* and *durable subscription* as synonyms. As of v10.2, we are phasing out the term *named object* and focusing on using the term *durable subscription* or its abbreviated form *durable*.

Documentation Corrections

MQTT Quality of Service (QoS) Level Support

In previous product releases, the documentation stated that Universal Messaging supports MQTT QoS levels 0, 1 and 2.

However, support is only provided for QoS levels 0 and 1. Connections requesting QoS level 2 will be downgraded to QoS level 1 at connection time, as allowed by the MQTT specification.

For more information, refer to the section *MQTT: An Overview* in the *Concepts* guide.

Deprecated features in v10.2

The following Universal Messaging features are now deprecated in Universal Messaging 10.2. Features listed as deprecated are still available in the product, but will be removed in a future release.

- **XML document type**

Currently it is possible to publish and consume messages that are stored in XML format. This functionality is now deprecated.

Note that this deprecation notice only applies if the entire message is in XML format. It does not apply if only the event payload is in XML format.

■ **Simple, Paged and Offheap store types**

The following store types (i.e. channel types and queues types) are now deprecated:

- Simple
- Paged
- Offheap

■ **SSL certificate generator**

The Certificate Generator utility, that can be used to generate a self signed server certificate, a self signed client certificate and a trust store, is now deprecated.

■ **Client API for Python**

The Client API for Python is now deprecated.

■ **Server plugins**

The following server plugins are now deprecated:

- Graphics
- XML
- SOAP
- Proxy passthrough
- Servlet

■ **Round Robin publication via JMS**

All APIs and classes under the package `com.pcbsys.nirvana.nJMS.roundRobin` are deprecated and the functionality has been placed into the package `com.pcbsys.nirvana.nJMS` using the Horizontal Scalability feature of Universal Messaging introduced in v10.2.

Any existing JMS Round Robin scenarios will need to recreate or modify their JNDI environments to not use these classes but to use their equivalent in the package `com.pcbsys.nirvana.nJMS`.

The term *round-robin connection factory* in the product documentation has been replaced by the term *horizontal scalability connection factory*.

■ **Enterprise Manager Scheduler**

The Scheduler feature of the Enterprise Manager is now deprecated.

Removed features in v10.2

The following features that were available in previous product releases have been removed in Universal Messaging 10.2.

- **TradeSpace demo**

The TradeSpace demo that was available in previous versions has been removed from the product.

6 What's New In Universal Messaging 10.1

Universal Messaging 10.1 is the successor of Universal Messaging 10.0.

Universal Messaging 10.1 includes new features, enhancements, and changes as described in the following topics.

Updated and New Functionality in the client API for C#

■ Shared durable subscriptions now supported in client API for C#

The client API for C# now supports *shared durable subscriptions*. The client API for C# functionality used in previous product releases for creating named objects and named objects with priority has now been deprecated.

The new API provides different public methods for interaction. For operations like creating, retrieving, deleting or unbinding a durable, the `nDurableManager` must be used. Every channel has a durable manager associated with it.

For information how to use the new functionality, refer to the topic *Using Durable Objects* in the C# section of the *Developer Guide*. See also the section *Durable Subscriptions* in the *Concepts* guide.

■ Serial durable subscriptions now supported in client API for C#

The client API for C# now supports *serial durable subscriptions*.

With a serial durable subscription, multiple subscribers can hold a subscription to the same named object and all the subscribers will process events in a serial manner.

For information about the new functionality, refer to the topic *Using Durable Objects* in the C# section of the *Developer Guide*. See also the section *Durable Subscriptions* in the *Concepts* guide.

■ New public interface for committing and rolling back events

A new public interface has been added for committing and rolling back events. The methods are defined for the `nDurable` instance and the usage of the old API, e.g. calling `ack()` or `rollback()` on the received event's `nConsumeEvent` object, is not recommended since it does not fully support individual acknowledging and rolling back. To be able to apply these operations on a single event and not only on consecutive event IDs is a significant importance for the shared types.

■ Basic Authentication now supported in C# client API

It is now possible to use SASL (e.g. plain text) authentication for the client API for C#. Previously, this functionality was only available using the client API for Java.

For details, refer to the section *Basic Authentication* in the C# section of the *Developer Guide*.

Serial durable subscriptions now supported in client API for Java and as an extension to the API for JMS

The client API for Java now supports serial durable subscriptions. The same functionality has been added as an extension to the Universal Messaging API for JMS.

With a serial durable subscription, multiple subscribers can hold a subscription to the same named object, and all the subscribers will process events in a serial manner.

For information about the new functionality, refer to the topic *Durable channel consumers and named objects* in the Java section of the *Developer Guide*. Refer also to the section *Durable Subscriptions* in the *Concepts* guide.

Periodic logging of the realm server status

The logging feature has been extended to allow the status of the realm server to be reported in the server log at regular intervals. The status includes metrics such as the amount of memory currently in use for active events, the amount of disk space in use, CPU load, number of active connections, total bytes sent and received.

For details, see the section *Periodic Logging of Server Status* in the *Concepts* guide.

New and Enhanced Command Central Capabilities

Command Central can now be used to configure Universal Messaging zones and security groups.

Command Central now supports enhanced port configuration options.

You can now configure round-robin JMS Connection Factories using Command Central, allowing messages to be distributed evenly across multiple Universal Messaging realms or clusters. For more information, see the *Universal Messaging Administration Guide*.

These capabilities can be accessed using the Command Central web user interface, command-line interface, REST API, and composite templates.

Changed handling of missing operator in filter expression

In v10.0 it was permissible to omit a logical operator between two selector clauses in a filter expression. In such cases, the omitted operator was treated implicitly as an "AND" operator. For example, instead of the correct form:

```
( Item1 = 'ABC' ) AND ( Item2 in ( 'Invoicing', 'Pending' ) )
```

it was possible to state:

```
( Item1 = 'ABC' ) ( Item2 in ( 'Invoicing', 'Pending' ) )
```

In 10.1, omitting the logical operator will be flagged as an error. Therefore, when you upgrade to 10.1, ensure that you modify your filter expressions accordingly.

Pause Publishing

The new *pause publishing* feature allows all client publishing to the server to be paused, across channels, queues and data groups. This pause will not affect the administration API, inter-cluster communication or joins.

The feature is activated by setting the server configuration property `PauseServerPublishing` to true. Then, clients trying to publish or commit will receive `nPublishPausedException`. Exception handlers from prior to the current product version will handle this as `nSessionPausedException`, which the new `nPublishPausedException` extends.

Information about this feature is available in the section *Pause Publishing* in the *Concepts* guide.

If client applications using APIs from previous product versions are used to publish events to a v10.1 server, the following changes will be observed:

Old API (prior to 10.1)	Behavior publishing to a v10.1 server
Native API for Java	If a client API from a previous product version is used to connect to a 10.1 server, Java native clients will receive <code>nBaseClientException</code> instead of <code>nPublishPausedException</code> .
API for JMS	The behavior here is the same as for 10.1, with the difference that the root <code>JMSEException</code> will be <code>nBaseClientException</code> instead of <code>nPublishPausedException</code> .
API for C++/C#	The APIs for C++ and C# will throw <code>nUnexpectedResponseException</code> when publishing is paused.

Updates for MQTT

Configuration Properties for MQTT

A new set of realm configuration properties for MQTT has been added.

For the list of MQTT configuration properties see the topic *Realm Configuration* in the Enterprise Manager section of the *Administration Guide*.

Support for clustered channels

MQTT support for clustered channels has been added.

General improvements

Non-functional aspects such as performance, availability and scalability have been improved.

Server JAAS Authentication with Software AG Security infrastructure component

Universal Messaging can now use the Software AG Security Infrastructure component (SIN) to provide server JAAS authentication capabilities. The SIN component provides a variety of options for using different authentication back-ends and implementing flexible authentication scenarios.

The SIN module is now the default LDAP module for use with Universal Messaging.

SIN modules are delivered with the Universal Messaging distribution and are available on the Universal Messaging server classpath.

For details, see the section *Security* in the *Concepts* guide.

Configuring Universal Messaging for use with IBM WebSphere Application Server

The Universal Messaging installation contains a product-specific generic resource adapter for JMS. Universal Messaging can be configured to work with IBM WebSphere Application Server via this adapter.

For details, see the section *Resource Adapter for JMS* in the *Developer Guide*

Microsoft Edge is a supported Web browser for Javascript Communication Drivers

The list of web browsers that are supported for the Javascript communication drivers has been extended to include Microsoft Edge for several of the drivers.

For details, see the section *Communication Drivers* in the *Developer Guide*.

Corrected DLL names in the product documentation

Some sections of the documentation referred to the DLL files "Nirvana DotNet.dll" and "Nirvana Silverlight.dll" by the wrong names "Universal Messaging DotNet.dll" and "Universal Messaging Silverlight.dll" respectively. These have been corrected.

These DLLs are mentioned in the C# and VBA sections of the Developer Guide.

New Java system property "Nirvana.sasl.client.enablePrehash"

The new Java system property `Nirvana.sasl.client.enablePrehash` specifies whether to prehash the supplied password when using the CRAM-MD5 or Digest-MD5 mechanisms.

For details, see the section *Client-side Authentication* in the Java section of the *Developer Guide*.

Removed and deprecated features in 10.1

The following Universal Messaging features are now deprecated or have been removed in Universal Messaging 10.1:

- **Deprecated Client API Support for Microsoft Silverlight**

The Universal Messaging client API for Microsoft Silverlight is deprecated and will be removed from the product distribution in the next official release.

■ **Removed realm configuration parameter "QueuedSharedDurableFilterBound"**

The realm configuration parameter `QueuedSharedDurableFilterBound`, which was introduced in Universal Messaging 10.0, has been removed. This boolean parameter specified whether or not to bind a shared durable to the event filter of its latest user.

The behavior in v10.1 without this parameter is the same as the 10.0 behavior when this parameter was set to "true", namely: once the shared durable is bound to a filter, any subsequent subscriptions that mismatch the filter will replace the filter and an asynchronous exception will be thrown to existing subscribers.

■ **Removed realm configuration parameter "OutputBlockSize"**

The realm configuration parameter `OutputBlockSize` has been removed.

■ **Deprecated methods in C# Client API**

The methods `ack()` and `rollback()` on the `nConsumeEvent` object of the received event is deprecated.

See the section ["Updated and New Functionality in the client API for C#" on page 43](#) above for information on the new API features for committing and rolling back events.

■ **Deprecated Client API Support for Windows Phone**

The Universal Messaging client API for Windows Phone is deprecated and will be removed from the product distribution in the next official release.

■ **Deprecated Universal Messaging Directory Backend Authentication**

The Internal User Repository and LDAP directory backend providers that were in use in Universal Messaging v10.0 for authentication have been deprecated. The directory backend providers are being replaced by the new functionality described in the section ["Server JAAS Authentication with Software AG Security infrastructure component "](#) on page 46 above.

■ **Deprecated Administration APIs for C# and C++**

The Administration APIs for C# and C++ are deprecated and will be removed from the product distribution in the next official release.

7 What's New In Universal Messaging 10.0

Universal Messaging 10.0 is the successor of Universal Messaging 9.12.

Universal Messaging 10.0 includes new features, enhancements, and changes as described in the following topics.

Durable subscribers can be browsed in Command Central

Command Central can now be used to browse individual messages in durable subscribers in a Universal Messaging server instance, including messages waiting to be received by Integration Server triggers. You can view the size of individual messages and some properties of each message. You can also view the payload of string messages. All or individual messages can be deleted from the durable subscriber (for some durable subscriber types).

Enhanced Command Central support for Universal Messaging

Command Central can now be used to configure realm ACLs for Universal Messaging, allowing you to control which users can perform what actions at the realm level. You can also use Command Central to configure Java system properties for Universal Messaging. For Universal Messaging clusters, Command Central now displays whether each running instance is a master or slave in the cluster.

These capabilities can be accessed using the Command Central web user interface, command-line interface, REST API, and composite templates.

Utility for migrating webMethods Broker gateway configurations to Universal Messaging

For webMethods Broker users who have configured territories and gateways and have large numbers of document types (topics) configured in the gateway connections, migrating these to equivalent remote joins in Universal Messaging previously involved a lot of manual effort. Now, you can use a new utility that can read the gateway configuration from webMethods Broker and automatically establish the same remote joins in Universal Messaging.

Servers can be instructed not to restrict incoming messages from specific clients in low memory situations

A client session can request to bypass the existing server-side low-memory throttling. This is intended to allow administrators or administrative services to continue to be able to connect in order to resolve the low-memory situation.

JNDI assets can now be stored in existing (non-Universal Messaging) JNDI providers

Users who wish to use a JNDI provider for binding JNDI assets such as Connection Factories and Destinations can now store their Universal Messaging JNDI assets in a

JNDI provider of their choice. This capability is only available through the respective API.

Cluster side-by-side upgrades to new machines are easier to manage

You can now use a migration utility to migrate cluster configurations to machines that are on different hosts from the original cluster.

Shared durables re-architected to improve efficiency and robustness

The implementation of shared durables has been re-written to improve efficiency. The new implementation performs tracking of durable objects in-place on the channel, rather than relying on additional internal stores. This approach saves memory and reduces the complexity of the solution, improving robustness. A new API has been developed to manage durable objects through the Universal Messaging native API. The Universal Messaging JMS library has also been updated to utilize the new durable implementation.

Configuration using Enterprise Manager is simplified

Enterprise Manager hides a number of configuration settings behind an **Advanced** button. These hidden settings are ones that are rarely recommended to be modified.

Additional tools are now available showing how to use the API with datagroups and illustrating how to publish and subscribe

Tools are provided that allow management of datagroups and illustrate how to use publish and subscribe.

Robustness improvements for installations using the default out-of-the-box configuration

The default configuration for new installations has been reviewed and tested to ensure Universal Messaging is robust.

Named object ID is a concatenation of client ID and durable subscriber ID

Named objects IDs are now a concatenation of the client ID and the durable subscriber ID. Previously Universal Messaging just used the durable subscriber ID provided by the client.

Removed and deprecated features in 10.0

The following Universal Messaging features are now deprecated or have been removed in Universal Messaging 10.0:

- The **SharedDurableFilterBound** option, found in the **Durable Config** group in the administrative API and Enterprise Manager/Command Central, has been migrated to be a System Property (**-DQueuedSharedDurableFilterBound**). This new system property is deprecated and will be removed in a future release.

8 What's New In Universal Messaging 9.12

Universal Messaging 9.12 is the successor of Universal Messaging 9.10.

Universal Messaging 9.12 includes new features, enhancements, and changes as described in the following topics.

Durable subscribers monitoring and API improvements

Enterprise Manager has improved monitoring of durable subscribers and is now able to display more details for the durable subscribers, including details about the connections currently be used, the EIDs and the number of events outstanding in the queues. This information can now also be accessed via the administration API.

The client API for durable subscribers and named objects has been redesigned to improve performance, robustness and usability. The new durable subscribers API, available from the client API, maps to the existing durable subscribers functionality.

New and enhanced Command Central capabilities

You can now use Command Central to add, edit, delete, administer, and monitor channels (topics) and queues. In addition, you can monitor durable subscribers to easily detect and identify issues such as stalled triggers or processing backlogs.

These capabilities can be accessed using the Command Central web user interface, Command Central command-line interface, and REST API.

The Command Central web user interface now provides the following capabilities:

- Create and delete Universal Messaging server instances.
- Search for JNDI entries, channels, and queues.
- View, create, edit, and delete access control lists (ACLs).
- View create, edit, and delete joins for a channel or a queue.
- Delete durable subscribers.

Improved handling of low memory situations

New methods for protecting against out-of-memory situations have been introduced to increase the robustness of Universal Messaging under heavy load.

The "event usage" metric provides information on memory currently in use by on-heap events. This includes current on-heap event memory usage, the maximum memory currently available to the JVM, and the percentage of on-heap memory currently in use. These statistics enable monitoring of the current memory usage, allowing action to be taken accordingly.

Universal Messaging servers can now throttle producing connections while processing their events. At predefined, configurable thresholds of on-heap event memory usage, producer connections are throttled, enabling consumers to reduce the number of events on the connections while they are throttled. Connections are more strictly throttled as memory usage rises, helping to prevent out-of-memory situations.

Round-robin message publishing using connection factories for JMS

Horizontal scalability improvements have been introduced with the API for JMS, now allowing the configuration of round-robin connection factories. These factories allow clients to publish messages in a round-robin fashion, so that one message or transaction gets published to the first realm node or cluster, the next message to the next realm node or cluster, and so on.

These connection factories for JMS have the following limitations:

- Event consumption is not supported through these factories so, for example, message listeners cannot be registered and consumers cannot be created via the sessions created from these connection factories.
- The sessions created through these connection factories do not support distributed (XA) transactions.

For more information consult the JMS-related section of the product documentation.

Logging capabilities enhancements

Support has been added for utilizing the third party logging frameworks Logback and Log4J 2. Both of these testing frameworks offer improved throughput performance when compared to the existing Flogger engine.

Log file entries are now categorized by the component which generated the entry, e.g. Cluster Communications, Joins, etc.

Improved futureproofing for Universal Messaging clients

The client API is now officially supported for use with newer versions of the Universal Messaging server, which means that the 9.12 client API will be supported for use with future versions of UM server.

The client API has been extended in this release with features that were previously only in the administration API (which is not supported for use with newer versions of the server).

ACLs can now be set at store-creation time via the client APIs for Java and C++. This allows basic ACL control for stores without needing to use the administration API.

Setting ACLs at store-creation time has been a typical use for the administration API. These changes allow the client API to be used in a greater number of use cases. The client API is more lightweight than the administration API, and therefore switching to the client API can increase overall system performance and consumed bandwidth.

HTTP drivers support checking of "Origin" headers

The HTTP/WebSocket drivers have been updated to process the Origin header field according to standards proposed in RFC-6454, RFC-6455 and the W3C Cross Origin Resource Sharing document (" <https://www.w3.org/TR/cors>").

Any nhp/nhps interfaces may have to have their CORS Allowed origins (located under the nhp/nhps Interface -> Javascript tab in Enterprise Manager) altered if an HTTP request has the Origin header field set. Previous versions of Universal Messaging had default values of "localhost, 127.0.0.1" assigned to the CORS Allowed origins field, and would process only host names as values to this field. The current W3C standards now expect any origin to be of the form "<scheme>://<host>:<port>"; for example, "localhost" is an incorrect value, while "http://localhost:11000" is a properly formatted value. The exception is a single value of "*", which indicates that all hosts are permitted access; note that the processing of this value has not changed with the update, and is now the default value in the CORS Allowed origins field whenever an nhp/nhps interface is created.

In addition, support for matching "http://example.com" and "http://example.com:80" as origins (as documented in RFC-6454) is currently not supported. You will need to explicitly white list hosts with *:80 as potential origins (if needed) in addition to others.

Warning of the effects of editing stores

When stores are edited, Universal Messaging deletes and recreates the store and this can disrupt active subscriptions. Enterprise Manager has been updated to display a warning message that the store will be recreated, before a channel edit is performed.

nInterfaceTool extended to allow editing of additional interface settings (e.g. autostart)

The nInterfaceTool has been extended to provide additional capabilities. For example, it now allows you to set interfaces to automatically start when the server starts.

Docker 1.10 support

The Docker kit for Universal Messaging now supports Docker 1.10.

Python and iOS client libraries included in installation

The client libraries for Python and iOS are now included as part of the installation.

UM-tools "runner" is installed as part of the "Template applications" module

The um-tools runner is now part of the installer "Template applications" module rather than the "Server" module. This allows you to install the um-tools runner without installing the server.

Updated version of OpenSSL

Universal Messaging now uses OpenSSL 1.0.2 instead of the previous version 1.0.1.

Platform changes in 9.12

Universal Messaging 9.12 runs on the platforms listed in the *Supported Platforms* document that is included in the Universal Messaging 9.12 documentation set. You can find this documentation set in the Software AG Documentation web site as described in the section [“Supported Product Releases and Platforms” on page 9](#).

Check the above mentioned *Supported Platforms* document for details about the newer platform versions supported by Universal Messaging 9.12.

Removed and deprecated features in 9.12

The following Universal Messaging features are now deprecated or have been removed in Universal Messaging 9.12:

- Support for Flex has now been removed from Universal Messaging. Flex is a rich internet application (RIA) language which allows the development of complex web applications that run inside a browser. Flex is no longer supported by Adobe Systems Incorporated and has been transferred to the Apache Software Foundation.
- Support for P2P has now been removed from Universal Messaging. The API for P2P is a legacy API within Universal Messaging. It allows stream-based communication between two clients mediated by the Broker. This messaging system is no longer useful in the light of more recent and modern paradigms such as DataGroups.

9 What's New In Universal Messaging 9.10

Universal Messaging 9.10 is the successor of Universal Messaging 9.9.

Universal Messaging 9.10 includes new features, enhancements, and changes as described in the following topics.

Docker support

A Universal Messaging Packaging Kit for Docker is now part of the standard Universal Messaging installation on Linux. The kit was previously available only on TECHcommunity.

The Universal Messaging Packaging Kit can be found here:

```
<SAG Install Folder>/UniversalMessaging/server/<UM Server Name>/bin/docker
```

The kit includes the following Docker tools:

- Dockerfile for creating a Docker image from the Universal Messaging installation on Linux.
- Samples showing how to start the Universal Messaging server from the Docker image and run the sample applications of Universal Messaging within the image.
- The TradeSpace demo application shows how to use 'docker-compose' to set up and run the TradeSpace demo of Universal Messaging.

Optimized persistent store

There is a new form of persistent store, enabled by setting the spindle size to a value greater than zero. This store format uses multiple files for each channel or queue and removes the overhead of Universal Messaging which has to "perform maintenance" on them. This new mechanism also allows stores to grow without any restriction on the JVM heap. The standard persistent store mechanism keeps an in-memory index which grows each time a message is added.

Improved Handling of Maximum Message Size

In previous releases, Universal Messaging restricted the maximum message size that the server will read in by the `MaxBufferSize` configuration property. Exceeding this value would cause the connection to be disconnected, but the message had already been sent over the network and the reason for the disconnection was not obvious to the client. This check by the server remains but Universal Messaging now has a client side check so that the message is rejected before it is sent over the network and the user can handle the exception.

Clients can “follow the master node”

Clients can now be enabled to "follow the master" in a cluster. The client will initially connect to a server in the cluster but if that server is not the master, the client will be redirected to the master node. Connecting to the master node can provide better performance in some use cases.

Transactions over AMQP

The AMQP specification defines a number of transactional operations. Universal Messaging now supports AMQP transacted operations so that client applications can perform transactional work when communicating with the realm server over AMQP. For example, if an application communicates to the realm server using a JMS AMQP client library (e.g. Apache Qpid JMS client) it can take advantage of the local transaction functionalities defined in the JMS specification.

Universal Messaging does not currently support the AMQP Transactional Acquisition operation. However, this sets no limitations on using JMS transactions over AMQP.

Configuration profiles in Installer

It is now possible to select different configuration profiles using the Software AG Installer. We have provided two configurations: one tuned for typical webMethods use cases and one tuned for standalone use cases.

JNDI asset configuration in Command Central

Command Central now supports the creation and maintenance of JNDI connection factories, queues, and topics for Universal Messaging. These assets can be managed through the Command Central web user interface, command line interface, REST API, and within templates.

Enterprise Manager handles realm name conflicts more gracefully

You can no longer connect to a realm with the same name as the realm to which you are already connected. Enterprise Manager now shows the host and port in the realm tree to make it clear which realm is being referenced.

Additional sample applications

New sample applications are included that can be used to:

- Create clusters
- Create server interfaces
- Manage security groups

Additional documentation

Various items have been added to the product documentation:

- The documentation has been updated with a guide helping you configure your JVM in order to support FIPS 140-2.
- The documentation now includes best practice guidelines helping you to configure Universal Messaging to have separate interfaces for client and cluster communication. The guide describes how to restrict regular client communication but allow administrators to connect when a cluster is forming.
- Documentation is also provided describing the API's `setMessageType()` method that allows a client to convert a JMS message back to its original type.

Removal of Standalone Installer

Universal Messaging can no longer be installed using its own standalone Installer. It can now only be installed using the standard Software AG Installer or Command Central.

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What's New In Universal Messaging 9.9

Universal Messaging 9.9 is the successor of Universal Messaging 9.8.

Universal Messaging 9.9 includes new features, enhancements, and changes as described in the following topics.

Automatic creation of JNDI entries during JMS migration from webMethods Broker

For users who were using webMethods Broker connections for JMS configured using Native webMethods API instead of JNDI Lookup, it was necessary to manually create JNDI destination entries for migrated queues and channels. Now, the Broker-to-Universal Messaging migration utility for JMS provides the option to auto-generate relevant JNDI destination entries for migrated queues and channels.

Realm properties configurable using Command Central

Command Central now provides support for configuration of Universal Messaging realm properties using the Command Central web user interface, command-line, or templates.

JMS Resource Adapter

Universal Messaging now provides a pre-packaged JMS Resource Adapter for easy use in 3rd party application servers.

Enterprise Manager enhancements

The following usability improvements are now available in Enterprise Manager:

- When creating or editing JNDI Connection Factories, the user can now more easily select, view or change whether the Connection Factory has the Shared Durable flag set. This flag defines whether multiple client connections are allowed to concurrently read from JMS Topic Durable Subscriptions.
- When viewing Named Objects (also known as Durable Subscriptions) associated with a channel, Enterprise Manager now shows the number of messages not yet retrieved by the subscriber.
- Removal of the login section at the top of the JNDI panel provides a streamlined user interface for JNDI editing.

AMQP 1.0 Support

Universal Messaging now supports a significant part of the AMQP 1.0 standard wire protocol for messaging, specifically the parts that are exposed through the JMS API.

The following capabilities are supported:

- TCP and TLS (alternative NOT negotiated) transport

- AMQP PLAIN & AMQP over SASL
- Publishing to Topics and Queues (non-transactional)
- Temporary Queues
- Keep Alives
- Synchronous and Asynchronous consuming on topics and queues (non-transactional)
- Flow control
- Durable subscribers
- Interoperability with UM publishers and subscribers (using any of the available client APIs)
- Interoperability with existing AMQP JMS clients (SwiftMQ, Apache QPID and Apache Legacy QPID)
- Some interoperability with MQTT clients

Note: AMQP support is only available with the fully-featured Universal Messaging license (NUMWF or NUMTF).

Adapter Notifications Support for non-default webMethods Messaging aliases

Adapter notifications generate publishable document types, which were previously always bound to the default webMethods Messaging connection alias. Now, the developer can select which specific messaging connection to use for each generated document type.

Testing capabilities support Universal Messaging

Developers can now use two testing features of Software AG Designer with Universal Messaging:

- Publishable document types can be sent from Software AG Designer to Universal Messaging using the Run As Publishable Document option.
- webMethods Messaging Triggers subscribing from Universal Messaging can be tested using the Run As webMethods Messaging Trigger option.

Support of authenticated connections for deployment of assets to Universal Messaging

webMethods Deployer now supports deployment of assets to Universal Messaging servers that are configured to enforce authentication. Both basic authentication (username/password) and certificate-based authentication are supported.

New umStorage API for working with storage types

The Universal Messaging server has a highly optimized I/O subsystem for efficient serialization of data to and from disk. The umStorage API (Java only) abstracts this layer from the server so it can be used directly by applications. This simple API allows the

user to construct any of the standard Universal Messaging storage types (Mixed, Off Heap, Reliable etc.) and easily serialize/deserialize data.

New ordering policy for rolled back messages on queues

When a transactional queue consumer rolls back a message, it needs to be put back onto the queue. Prior to 9.9 this message would be simply republished to the end of the queue. In 9.9 we have changed the default behavior so that the message is re-added to the front of the queue.

Per-session SSL settings

It is now possible to specify custom SSL settings per nSession rather than per JVM, e.g. key store, trust store.

JMS resource adapter support

As part of the install we now ship a resource adapter for JMS. Users with existing JMS applications that run on an application server such as JBoss can now seamlessly switch to Universal Messaging as a JMS provider.

Support for dynamically updating Google Protocol Buffer schema

Universal Messaging allows you to attach a Google Protocol Buffer schema to a channel/queue but until 9.9, changing the schema would require deleting and recreating the channel. A channel edit that only changes the schema is now supported without recreating the channel.

Usability improvements for shared named objects

It is now possible to monitor the number of messages outstanding for a shared named object. Due to the architecture of shared named objects it was not previously clear how many events were being stored waiting to be consumed. This information is now available in the API and also visible in the Enterprise Manager.

11 Migration Notes

If you are migrating from an earlier version of the product to a new version, there may be some migration issues that you should be aware of. Such issues are described in the document *Installation and Upgrade Information for Software AG Products* that is available on the Software AG documentation web site.

Additionally, we list some of the issues below.

Migrating queues that use the JMS engine from v9.x to v10.x

During the migration of Universal Messaging from version 9.x to version 10.x, any queues that were configured to use the JMS engine with version 9.x will be migrated successfully. However, from version 10.1 onwards, Universal Messaging doesn't support queues using the JMS engine. Therefore, on the first server restart in version 10.x, any queues that previously used the JMS engine will be permanently reconfigured to use the Universal Messaging default engine instead.

Migration of removed store types on v10.5 server startup

In Universal Messaging version 10.5, the store types Simple, Transient, Off-heap and Paged have been removed. If Universal Messaging v10.5 is installed to the same disk location as a previous version of the product, and there are any of these store types from the older version at this disk location, these store types will be mapped to other store types when the v10.5 server is started for the first time.

The mapping from removed store types to available store types is as follows:

- Simple -> Reliable
- Transient -> Reliable with a TTL (time to live) of 1 millisecond
- Off-heap -> Reliable
- Paged -> Mixed

For Paged stores, events might be persisted on disk and the Universal Messaging server is responsible for copying them to the migrated store. Please have in mind that this can lead to difference in the event IDs, but apart from that everything else will be available.

Also, note that there will be log entries for new stores being created and old ones being deleted.

Example

Assume we have a Paged channel called `PagedChannel1`. This will be migrated to a channel of type Mixed via several steps :

1. A new temporary channel `PagedChannel1_new` will be created as a copy of `PagedChannel1`.

2. Events present on `PagedChannel` will be copied to `PagedChannel_new`.
3. The type of `PagedChannel` will be switched to `MIXED`.
4. Events will be copied from `PagedChannel_new` to `PagedChannel`, and `PagedChannel_new` will be removed.

The log entries will be like this:

```
[...] [main] Startup: Opening store PagedChannel_new
...
[...] [main] Startup: Opening store PagedChannel
...
[...] [main] Deleting store PagedChannel_new
[...] [main] Mixed-Store> junit2\data\StoreMigrationStandaloneTest100000_26010\
    data\PagedChannel_new6716f746102986.mem : File has been deleted
[...] [main] Deleting store complete PagedChannel_new
```

For related information, see the section [“What's New in Universal Messaging 10.5” on page 13](#) that is specific to version 10.5.

Migration of client applications using the `nNamedObject` API

In v10.5, the previously deprecated `nNamedObject`-based API has been removed from the `nChannel` API. `nNamedObject` was used for coding applications that used durable types "Priority" and "Shared-Queued", and these durable types have also been removed in v10.5.

You will need to manually adapt any of your applications that used `nNamedObject` to use the `nDurable` API instead. The following table shows the mapping between `nNamedObject` and `nDurable`.

Type	NamedObject API	nDurable API
Named Object	<code>channels.createNamedObject(startEid, persistent, isClusterWide, false);</code>	<pre>long startEid = startEID; boolean isClusterWide = clusterWide; nDurable named = null; nDurableAttributes nDurableType type = nDurableAttributes.nDurableAttributes.Serial; if (enablePriority) { type = nDurableType.Serial; } nDurableAttributes attr = nDurableAttributes.create(type, name); attr.setPersistent(persistent); attr.setClustered(isClusterWide); attr.setStartEID(startEid); try { named = channels.getDurableManager().add(attr); } catch (nNameAlreadyBoundException exception) { return channels.getDurableManager().get(name); }</pre>
Named Priority Durable	<code>channels.createNamedObject(startEid, persistent, isClusterWide, true);</code>	<pre>long startEid = startEID; boolean isClusterWide = clusterWide; nDurable named = null; nDurableAttributes nDurableType type = nDurableAttributes.nDurableAttributes.SharedQueued; nDurableAttributes attr = nDurableAttributes.create(type, name); attr.setPersistent(persistent); attr.setClustered(isClusterWide);</pre>

		<pre> attr.setStartEID(startEid); try { named = channels.getDurableManager().add(attr); } catch (nNameAlreadyBoundException exception) { return channels.getDurableManager().get(name); } </pre>
Shared Named Object	channels.createSharedNamedObject(nDurableAttributes attr = persistent, isClusterWide, startEid);	<pre> // create the shared durable using new implementation. nDurableAttributes attr = nDurableAttributes.create(nDurableAttributes.nDurableType. attr.setPersistent(persistent); attr.setClustered(isClusterWide); attr.setStartEID(startEid); // Need to check first in case shared durable already exists try { return channels.getDurableManager().get(attr.getName()); } catch (nNameDoesNotExistException ex) { return channels.getDurableManager().add(attr); } </pre>
Deletion	channel. delNamedObject("myNamedObject")	<pre> channel.getDurableManager().delete("myDurable"); </pre>