



Avaya Context Store Snap-in Release Notes

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Chapter 1: Introduction

Purpose

The Avaya Context Store Snap-in 3.6.1.0 Release Notes provides information on the features available and solution details. This document provides the latest information to supplement Context Store software and documentation.

Intended audience

This document is intended for implementation engineers and administrators who install/deploy Context Store Snap-in.

Related resources

Documentation

For updated documentation, product support notices, and service pack information, visit the Avaya Support Center website at <https://support.avaya.com>.

Title	Description
Avaya Context Store Snap-In Reference Guide	The purpose of this document is to describe the Context Store Snap-In characteristics and capabilities, including feature descriptions, interoperability, and performance specifications and to provide instructions on deploying, configuring, and troubleshooting the Context Store services.
Avaya Context Store Snap-In Developer Guide	Developer guide explaining how to use each individual feature of Context Store
<i>Other relevant product documentation</i>	
Avaya Breeze™ Documentation	
Engagement Designer Documentation [for users of the Context Store Task Type only]	
Orchestration Designer Documentation [for users of the Context Store Pluggable Data Connector only]	

Training

The following courses are available on the Avaya Learning website at www.avaya-learning.com. After logging into the website, enter the course code or the course title in the Search field and click Go to search for the course.

Code	Course title
2519W	Introducing Avaya Context Store Snap-in 3.1 (Self-Paced OnDemand)
4115W	Omnichannel Assisted: Avaya Breeze and Snap-ins (Part 1) (Self-Paced OnDemand)

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Chapter 2: Release Information

Changes in Avaya Context Store 3.6.1.0

This Context Store 3.6.1.0 release supports the same feature set as that of Context Store 3.6.0.0. For detailed information about these features, as well as installation and configuration instructions, see the latest *Context Store Reference Guide* and *Context Store Developer Guide* available from support.avaya.com

The *Context Store Developer Guide* contains API documentation for Context Store interfaces and SDKs, as well as usage tutorials for the sample clients provided for certain features of the product.

Avaya Breeze™ 3.6.0.2

Breeze root login

Enabling Avaya EASG login is required in order to enable the root user account on Breeze nodes.

Re-configuration of certificates required after Avaya Breeze™ upgrade

When an Avaya Breeze™ 3.6.0.2 server is upgraded (using the .ISO), the security keystore required for the Context Store geo-redundancy feature is erased by the upgrade process. Without the keystore, the geo-redundancy feature cannot operate; no data will be replicated between the clusters.

It is therefore necessary to reconfigure this keystore in the `/opt/Avaya/dcm/gigaspace/security/` directory as per the instructions in the *Avaya Context Store Snap-In Reference Guide 3.6*

Java 8 and SQL Server JDBC Driver (for EDM)

Breeze 3.6.0.2 (as well as all versions later than 3.3.0.0) is a Java 8 environment, therefore the Java 8 version of SQL Server JDBC driver (*sqljdbc42.jar*) must be used for the External Data Mart feature.

See section *Upgrade SQL Server JDBC Driver used for External DataMart* in this document

Supported TLS version

By default, the supported TLS version across clusters is TLS 1.0 but the Oceana solution, of which Context Store is a component supports TLS1.2. You can manually change the TLS version through System Manager from [Home / Services / Security / Configuration / Security Configuration](#)

Chapter 3: Context Store Software Installation and Upgrade

All the software required for deploying the Avaya Context Store services and underlying platform is available on the Avaya Support site - <https://support.avaya.com/>

Context Store Software

This section provides information on the software required for deployment of Context Store 3.6.1.0.

Product	Version	PLDS ID & MD5 Checksum
ContextStoreManager SVAR	3.6.1.0. 69112702	PLDS: CD000000133 MD5: 4e0ec73238b0e4a32845eabc931aac61
ContextStoreRest SVAR	3.6.1.0. 69112702	PLDS: CD000000135 MD5: 8439f6dbd8865280264bf1b0b5ae6ba0
ContextStoreScreenPop SVAR	3.6.1.0.69112702	PLDS: CD000000139 MD5: 371d6c36360efc652e4dbe0e5a3a050b
ContextStoreNotify SVAR	3.6.1.0.69112702	PLDS: CD000000140 MD5: 7bc5a9aff94bec742e0134ba10f91806
ContextStoreRules SVAR	3.6.1.0.69112702	PLDS: CD000000141 MD5: 8506c21b034b4ce7a7a30333882077a5
Streams SVAR	3.6.1.0.69112702	PLDS: CD000000142 MD5: 2552c5f0891d879dfe723ed50658cda1
ContextStoreSoap SVAR	3.6.1.0.69112702	PLDS: CD000000143 MD5: ac021570e217d4f9c499ffbb1c0632da
ContextStoreQuery SVAR	3.6.1.0. 69112702	PLDS: CD000000134 MD5: 07f01a0421075423ea4aa9f3c8abcd6b
ContextStoreTasks (for Engagement Designer)	3.6.1.0. 69112702	PLDS: CD000000136 MD5: 0c9c16e43f4368dc5e4ba140e4c0800f
CS PDC JAR (Pluggable Data Connector)	cs-pdc-plugin-6911.2.7	
CS Java SDK ZIP	cs-sdk-zip-6911.2.7	
CS JavaScript SDK (datastorejssdk package in the Breeze Client SDK)	3.6.1.0	

Please note that the CS PDC JAR, CS Java SDK ZIP and CS JavaScript SDK components are available through www.devconnectprogram.com -> Products & Resources -> Context Store -> select the appropriate release number.

Additional Software required for ‘Customer Journey for Workspaces on Elite’

The following software is required to enable the ‘Customer Journey for Workspaces on Elite’ functionality. However, it is not required for Customer Journey Visualization standalone for Context Store.

For more information about ‘Customer Journey for Workspaces on Elite’ including the deployment process, configuration and its usage please see the ‘Customer Journey for Workspace on Elite Reference White Paper’ available from www.devconnectprogram.com -> Products & Resources -> Context Store -> select the appropriate release number.

Product	Version	PLDS ID & MD5 Checksum
Customer Journey Service SVAR	3.6.1.0.112702	PLDS: CD000000137 MD5: 43fe9916aa9083180f461e37a736195f
Customer Management SVAR	3.6.1.0.112702	PLDS: CD000000138 MD5: 339d50f4459161851774d6405cb0d751

Platform Interoperability

Context Store 3.6.1.0 release software is supported on the Avaya Breeze™ 3.6.0.2.

For System Manager line-up and installation information, see Avaya Breeze™ documentation.

Avaya Breeze™

Product	Version	MD5 Checksum
Avaya Breeze™ ova	Breeze-3.6.0.2.360203.ova	d889799ddeedf8b0317b9e899160a790
Avaya Breeze™ iso (for upgrades)	aus-installer-3.6.0.2.360203.iso	167d158174a40b4a406df4ae1935e936
Required Avaya Breeze™ patch	ce-patch-3.6.0.2.03360203.bin	a2a1a6b4b9278415ae3942757fbd0422

NB: Before installing this Context Store release, you must install (or upgrade to) Avaya Breeze™ 3.6.0.2 release and the required patch.

Answer yes to the following question during patch installation:

“Is this node intended to be used in a Customer Engagement cluster as part of an Oceana® Solution (y/n)?” y

Engagement Designer

Product	Version	MD5 Checksum
Engagement Designer svar	3.6.1.0.69007	05054359ba21c2dd50bac718246b99e2
EngagementDesignerTasks jar	3.6.1.0.69007	3ebf4e53cfb0bdcea74c87ec2b74d4b0

Upgrading the Context Store snap-in services

Before you begin

NB: Upgrade to Avaya Breeze™ 3.6.0.2 before proceeding with this Context Store 3.6.1.0 upgrade.

Upgrade Overview

To upgrade a Context Store Snap-In service, you must install a new version of the snap-in service using the Avaya Breeze™ Element Manager.

When you upgrade the ContextStoreManager SVAR, the existing data-grid remains unchanged. All CS services currently installed will continue to use the existing spaces until the cluster of Avaya Breeze™ servers are simultaneously restarted and the new data-grid is deployed.

NB: All information stored in the data-grid will be lost when the cluster is restarted.

Service Version Management

- If no **Preferred Version** is selected, the newest version of the snap-in currently installed will automatically be selected to service requests.
- If **Preferred Version** is already set for the currently installed snap-in service, this version will continue to service the Context Store requests after the new version of the service has been

installed. To use the newly installed snap-in service version by default, you must set the newer version as the **Preferred Version**.

For more information about snap-in service version management, see Avaya Breeze™ administration guide.

Upgrade procedures for Context Store Snap-In Services

Upgrade SQL Server JDBC Driver used for External DataMart

Breeze 3.6.0.2 runs on Java 8 therefore the SQL Server driver must be aligned. If are upgrading from a prior release which was a Java 7 environments, you must update this driver

1. Upload the Java 8 SQL Server JDBC driver (**sqljdbc42.jar**) into the Breeze Element Manager from `Home / Elements / Avaya Breeze™ / Configuration / JDBC Providers`
2. Upgrade the JDBC driver used in Context Store cluster by following the Standard Upgrade Procedure below.

Standard Upgrade Procedure for Context Store services

NB: The standard upgrade procedure described below applies to all Context Store SVARs except *ContextStoreScreenPop*, *Streams* and *ContextStoreTasks* for Engagement Designer (see section customized upgrade instructions on pages 13 -15).

1. Verify that the current Context Store deployment is functioning correctly before the upgrade.
2. On the System Manager Web console, click **Elements > Avaya Breeze™**
3. In the left navigation pane, click **Cluster Administration**.
4. Select cluster to be upgraded and set to **Deny New Service** state in the **Cluster State** list.
5. Upgrade to Avaya Breeze™ 3.6.0.2 before proceeding with this Context Store 3.6.1.0 upgrade.
6. In the left navigation pane, click **Service Management**.
7. On the **Service Management** page, load the new versions of the Context Store snap-in services.
8. To upgrade to the latest release of the Context Store service (3.6.1.0), following either of the following procedures:
 - ✓ On the **Service Management** page, select and install the new version of Context Store
 - ✓ On the **Cluster Administration** page, select the check-box beside the cluster you wish to upgrade and click the **Edit** button. On the **Services** tab, select the snap-in versions to install from the **Available Services** list.

For more information about loading and installing snap-in service, see *Administering Avaya Breeze™*.

9. When the installation is complete, verify that the upgraded services are successfully installed. For verification steps, see **Verifying a successful deployment** in the *Avaya Context Store Snap-in Reference*.
10. In the left navigation pane, click **Cluster Administration**.
11. Select upgraded cluster and set to **Accept New Service** state in the **Cluster State** list.
12. Verify that the Context Store deployment is functioning correctly after the upgrade.
13. The previously installed versions can now be uninstalled and deleted. These procedures are documented in the *Avaya Context Store Snap-in Reference Guide 3.6*

Upgrade Procedure for ContextStoreScreenPop and Streams services

1. Follow steps 1- 6 in the standard upgrade procedure on page 11.
2. On the **Service Management** page, uninstall the old service by selecting it and clicking uninstall.
3. After uninstallation is completed, delete the old service version from Avaya Breeze™ Element Manager.
4. Load the new version of the service SVAR.
5. Install the new version of the service on the Context Store cluster.
6. When the installation is complete:
 - **Streams:**
 - 1) navigate to **Elements > Avaya Breeze™ > Configuration > Service Ports** page
 - 2) select the Streams service
 - 3) Verify that **TCP/HTTP** and **TCP/HTTPS** ports ranging from **9292** to **9301** and **8443** to **8452** appears respectively which is an indication that System has reserved these ports for the Service.
7. In the left navigation pane, click **Cluster Administration**.
8. Select upgraded cluster and set to **Accept New Service** state in the **Cluster State** list.

Upgrade procedure for Context Store PDC

1. Verify that the currently installed Context Store Snap-In Service versions are functioning correctly before starting the upgrade.
2. Start the Orchestration Designer Eclipse application.
3. Select **Window > Open Perspective > Speech**.
4. Select the project for which you have enabled Context Store PDC connector.
5. From the **Project** menu, select **Properties**.
6. On the left pane of the properties window, click **Orchestration Designer**.
7. On the **Orchestration Designer** pane, click the **Pluggable Connectors** tab.
8. From the **Available Connectors** list, clear the **Context Store Connector** check box.
9. Click **OK**.

10. Repeat step 2 through 8 for all the projects for which you have enabled Context Store PDC connector.
11. Close the Orchestration Designer Eclipse application.
12. Open the `<Eclipse_Home>/plugins` folder and delete the existing `cs-pdc-plugin-x.xx.jar` file.
13. Start the Orchestration Designer Eclipse application.
14. Copy the new `cs-pdc-plugin-6011.0.9.jar` file into the `<Eclipse_Home>/plugins` folder.
15. Re-start the Orchestration Designer Eclipse application.
16. Configure the projects to use the upgraded Context Store PDC plug-in.

For information on how to configure a project to use Context Store PDC for Avaya Experience Portal, see **Configuring the sample application to use Context Store PDC plug-in** in the *Avaya Context Store Snap-in Reference*.

Optional: Update pre-3.3.0.0 release AAEP callflows which use the CS PDC

Existing Orchestration Designer/Avaya Aura Experience Portal workflows must be updated after upgrading to the latest Context Store PDC. A new parameter (`rulesEnabled`) was added to the Context Store PDC in 3.3.0.0 to support `ContextStoreRules` service functionality.

1. Verify workflow execute successfully using the Application Simulator in the Orchestration Designer environment which uses an older version of the CS PDC
2. Upgrade the PDC as instructed above (procedure also documented in the CS Developer Guide)
3. Make sure that `WEB-INF/lib` contains the updated version PDC jar only. If the old version also exists then:
 - remove it from `WEB-INF/lib` folder;
 - go to *Properties* -> *Java Build Path (Libraries)* and remove old PDC jar from list.
4. Restart Orchestration Designer.

Optional: Update pre-3.2.0.0 release AAEP callflows which use the CS PDC

Context Store PDC packaging and naming was updated in the CS 3.2 release; applications built against a 3.1.X or 3.0.x version of this plugin must be cleaned and rebuilt. If rebuilding does not resolve the reported error, main `.flow` file must be updated manually as instructed below

1. Upgrade the PDC as instructed in Context Store Developer Guide
2. Error will be reported when new Context Store connector is enabled

("Call flow item is not valid. Either the type no longer exists, or the plug-ins that define the item type are not installed.
Type: `com.avaya.ingensg.cs.pdc.connector`")
3. The word "ingensg" in the Context Store connector package name is no longer valid and therefore all references to this name must be removed by cleaning and rebuilding the project.

NB: If cleaning and rebuilding the project does not correct the error, all references to the old package name must be updated manually.

Right-click on the main `.flow` class in the project (usually called `main.flow`), click on **Open with** and select **Text Editor** and delete "ingensg" from all package references, correct package name should now be `"com.avaya.cs.pdc.connector"`
4. Restart the Orchestration Designer Eclipse application; the error will be removed.

Upgrade procedure for Context Store Tasks for Engagement Designer

Before you begin

NB: The Engagement Designer environment must be upgraded to the version 3.6.0.1 release before proceeding with the upgrade of Task bundles.

Follow the corresponding procedure below depending on whether the existing ContextStoreTasks version is:

- 1) installed using the Avaya Breeze™ Element Manager
- 2) installed using the Engagement Designer Admin console

The Engagement Design Admin console can be accessed at the following URL:

`https://<ED-IP-ADDRESS>/services/EngagementDesigner/admin.html`

Refer to *Getting Started with Avaya Engagement Designer* for usage information for the Engagement Designer Admin console.

Procedure for upgrading ContextStoreTasks installed via Avaya Breeze™ Element Manager

1. On the System Manager Web console, click **Elements > Avaya Breeze™**.
2. In the left navigation pane, click **Cluster Administration**.
3. Select cluster to be upgraded and set to **Deny New Service** state in the **Cluster State** list.
4. In the left navigation pane, click **Service Management**.
5. On the **Service Management** page, uninstall the old ContextStoreTasks service by selecting it and clicking **uninstall**.
6. After uninstallation is completed, delete the old ContextStoreTasks service version from Avaya Breeze™ Element Manager.
7. Open the **Engagement Designer Admin** console. Click on the **Bundles** tab.
8. To upload the new ContextStoreTasks SVAR, click on **Upload Bundle**
9. Click **Choose File** and navigate to the location of your saved ContextStoreTasks SVAR
10. Select the ContextStoreTasks SVAR and click **Upload**
11. When the ContextStoreTasks SVAR has been uploaded, select it and click **Deploy**

Procedure for upgrading ContextStoreTasks installed via the ED Admin console

1. Open the **Engagement Designer Admin** console.
2. Click on the **Bundles** tab.
3. Select the version of ContextStoreTasks that you wish to uninstall
4. Click on **Undeploy**
5. To upload the new ContextStoreTasks SVAR, click on **Upload**
6. Click **Choose File** and navigate to the location of your saved ContextStoreTasks SVAR
7. Select the SVAR and click **Upload**
8. When the SVAR has been uploaded, select it and click **Deploy**

9. After the ContextStoreTasks bundle has been deployed successfully, select the old version of ContextStoreTasks and click on **Delete**

Chapter 4: Known issues, fixes and workarounds

Refer to the Avaya Breeze™ release documentation for known platform issues and workarounds.

Context Store: Known issues

Issue 1: *ContextStoreNotify* snap-in service is limited to one subscriber and certified to max throughput of 620 requests per second

Problem

There has been no change in the *ContextStoreNotify* itself, but the Breeze platform and Context Store base (*ContextStoreManager*) has been modified in numerous releases to support the Oceana solution, so there is no longer enough CPU capacity available to support more than one notification subscriber. Each subscription requires a significant amount of CPU resources to process.

Workaround

Avoid combining use of the *ContextStoreNotify* service, with use of features which have high CPU utilization (e.g. *aliasIds*, *audit trail*, *upsert*, *ContextStoreRules*, *Streams*).

Reference

CSSNAPIN-4792

Keywords

Notification, CPU, limitation

Issue 2: High CPU Utilization for Lab 9 Deployment

Problem

For Lab 9 Deployment (64GB/8cpu/3nodes), when no of requests exceeds 1000 per second, CPU utilization for active LB and EDM active node is seen reaching/crossing threshold of 80%.

This occurs when the EDM PU is deployed on same node which is running the active load balancer. High CPU utilization can result in the node (and potentially eventually the cluster) going into 'deny state'.

Workaround

N/A

Reference

AOEC-6049

Keywords

CPU Utilization, ContextStoreManager, EDM, Load Balancer

Issue 3: Context Store hung threads causing large number of Core Dumps**Problem**

Breeze will automatically create a dump file when a thread is hung for more than 60 second and this issue appeared to be occurring in ContextStoreQuery.

This timer has been reduced on ContextStoreQuery in 3.6.1.0 but the timer has not been reduced for ContextStoreManager for the mirroring service from the datagrid to External Data Mart on an Oracle Database.

Workaround

N/A

Reference

AOEC-10177

Keywords

Hung Thread,Core Dumps, Oracle, Request Timeout

Context Store: Fixed issues

Issue 1: *ContextStoreManager* attribute 'GEO:Target Cluster Id' needs to be reconfigured if there is only one version of *ContextStoreManager* installed on SMGR which is then uninstalled and reinstalled

Problem

The value of the *ContextStoreManager* dropdown attribute for "GEO:Target Cluster Id" is not automatically repopulated after *ContextStoreManager* is uninstalled and then reinstalled in the case where there is only one *ContextStoreManager* version installed on SMGR.

Workaround

The value of the attribute "GEO:Target Cluster Id" needs to be re-entered and saved after reinstall of *ContextStoreManager* on both GEO clusters.

Reference

ZEPHYR-59000

Keywords

ContextStoreManager, SMGR, attributes, GEO

Issue 2: The "Failed to persist item to external data mart." alarm may be delayed for up to 15 minutes after Context Store loses connection to the EDM on Oracle, SQL Server and PostgreSQL DBs.

Problem

After the EDM is disconnected and a context is created with 'persistToEDM' flag set to true, the alarm "Failed to persist item to external data mart." should be generated. However, the generation of this alarm may be delayed by up to 15 minutes.

Workaround

N/A

Reference

AOEC-6705

Keywords

Alarms, EDM

Issue 3: ContextStoreQuery is incorrectly logging an error when retrieving Customer Journey data from Context Store EDM when Oceana has routed a 'Required Resource' contact for that Customer

Problem

When the *ServiceMap* in WorkRequest object written to Context Store is null, ContextStoreQuery is logging an error statement instead of a debug statement in relation to being unable to remove escape characters (because it is null and there are no escape characters to remove).

Workaround

N/A

Reference

AOEC-9731

Keywords

ContextStoreQuery, EDM, Customer Journey

Keywords

User Interface, Languages

Chapter 5: Certified Deployments

This chapter contains a list of all Context Store deployments which have been tested and certified.

Detailed configuration information for each of these thirteen certified deployment options is provided in the [Data-grid Configuration Settings – ContextStoreManager Attributes](#) of this document. For additional, uncertified deployment configurations, use the CS Capacity Planner (available from DevConnect) to estimate the most suitable configuration.

About these certified deployments

- Deployments 1 - 3 are small labs intended for trial purposes and product demos only.
- Deployments 4 – 13 are suitable for production environments.

Configuration Details – Supported Features

Id	Deployment Name	Avaya Breeze™ Nodes	Memory	CPU Cores	Disk Size	HA	GEO	EDM	Event Streams	Notifications
1	Lab: Core	1	8	4	S	N	N	N	N	N
2	Lab: HA	2	8	4	S	Y	N	N	N	Y
3	Lab: Feature	1	10	6	S	N	N	Y	N	Y
4	Prod: 16x2	2	16	8	M	Y	Y	Y	N	Y
5	Prod: 16x3	3	16	8	M	Y	Y	Y	N	Y
6	Prod: 32x3	3	32	8	M	Y	Y	Y	N	Y
7	Prod: 32x4	4	32	8	M	Y	Y	Y	N	Y
8	Prod: 32x5	5	32	8	M	Y	Y	Y	N	Y
9	Prod: 64x3	3	64	8	L	Y	Y	Y	Y	Y
10	Prod: 64x5	5	64	8	L	Y	N	Y	Y	Y
11	Prod: 128x1	1	128	8	L	N	N	Y	N	Y
12	Prod :128x2	2	128	8	L	Y	Y	Y	N	Y
13	Prod: 128x3	3	128	8	L	Y	Y	Y	N	Y

NOTE:

All of the thirteen certified deployment configurations listed support the **ContextStoreRest** interface (which includes the audit, upsert and alias features), **ContextStoreScreenPop**, **ContextStoreNotify**, the **Context Store SDK**, **ContextStoreRules**, the **Context Store PDC** and the **Context Store Engagement Designer Tasks**.

- **NB:** The *Event Streams* feature (Streams SVAR) is not included in these certified configurations.

If enabling this feature, the 6GB of memory required for deployment of this feature must be taken from the *ContextStoreSpace* size given for certified deployment configurations.

Traffic Rates, Configuration Settings and Limitations

Id	Requests / Sec	Lease	Number of Notifications Clients	Max Number of Audit Trail Entries	Number of AliasIds per Context
1	5	7200	0	10	1
2	10	7200	1	10	1
3	5	7200	1	10	1
4	50	7200	2	10	2
5	100	7200	2	10	2
6	120	3600	3	10	3
7	700	7200	1	10	2
8	1000	7200	1	10	2
9	1240	7200	1	10	3
10	1240	10800	1	10	3
11	400	9000	1	10	3
12	420	10800	1	10	3
13	1240	14400	1	10	3

The configuration information (snap-in service attributes) which applies to these certified Context Store deployments is provided in the [Data-grid Configuration Settings – ContextStoreManager Attributes](#) of this document.

Hard Disk Sizing For Context Store Nodes

ContextStore stores all the data in-memory, rather than on disk. The hard disk is only necessary for logs files, software installed on the cluster etc. The S, M, L sizings suggested for certified deployments are guidelines only based on this usage.

The default disk size Breeze allocates on smaller node profiles, 50GB, is sufficient for the lab deployments (lab 1, 2 & 3).

Typical recommendation is 150GB for medium and 300GB for large, but this can vary depending on what the customer wants.

If logs need to be retained for long period of time (this is configurable on a per service basis), then the large 300GB disk should be used.

Performance Impact when Enabling Multiple Optional Features

If multiple optional features which have high cpu-usage are enabled on the Context Store cluster, supported throughput rate is decreased. This is necessary to preserve service by preventing *CPU Overload* state from being triggered on the Avaya Breeze™ nodes in the Context Store cluster.

If CPU usage on an Avaya Breeze™ server remains above 80% for more than one minute, *CPU Overload* protection will be triggered on Avaya Breeze™ and all requests to that server will be blocked. This situation puts additional load on the CPUs of remaining nodes in the cluster therefore it is likely that *CPU Overload* state will eventually be triggered on these nodes also.

For example, If both **EDM** and **ContextStoreNotify** features are enabled, the supportable throughput rate for environments which support over 1000 RPS for basic operation, is reduced by 50%

For additional performance-related information, see the **Performance and Scalability Considerations** chapter in the *Context Store Developer Guide*; in particular the **Enabling Optional Features** sub-section

ContextStoreSoap Capacity Limitation

The **ContextStoreSoap** interface is certified for up to 300 requests per second only in CS 3.5.0.1.

This throughput level has been certified with the following combination of features.

- AliasId feature used, three aliasIds associated with each Context
- EDM persistence enabled, all Contexts persisted to External DataMart
- ContextStoreNotify enabled, two notifications subscribers receiving unfiltered notifications
- CS Audit: Event Limit = 5 entries per Context

ContextStoreNotify Capacity Limitation

ContextStoreNotify snap-in service is limited to one subscriber and certified to max throughput of 620 requests per second in this release. Each notification subscription requires a significant amount of CPU resources to process, and there is no longer enough spare CPU capacity available on a cluster to support more than one subscription at high throughput (> 620 requests per second). Enabling multiple subscribers at high throughput is likely to cause *CPU Overload* state which will negatively impact all users of Context Store.

For optimum performance, avoid combining use of the *ContextStoreNotify* service, with use of other features which have high CPU utilization (e.g. aliasIds, audit trail, upsert, *ContextStoreRules*, *Streams*) at high traffic rates.

Context Store External Data Mart Capacity Limitation

When the EDM PU is deployed on the same node as an active load balancer the maximum throughput of 800 requests per second is supported in this release for the largest deployment of Context Store.

Data in the External Data Mart will need to be archived or truncated periodically, this is related to the type of database being used and how large it is. Please note; archived data cannot be returned via Context Store Query or Customer Journey.

Appendix

Data-grid Configuration Settings – ContextStoreManager Attributes

NB: If enabling *Event Streams* feature (Streams SVAR), the 6GB of memory required for deployment of this feature must be taken from the *ContextStoreSpace* size given for certified deployment configurations.

This feature is only supported on Context Store clusters equal to, or greater than, 3 servers with 64GB of RAM each, i.e. lab Id 9 or higher.

Note: The configuration values provided for the ContextStoreManager attribute ‘EDM: Mirror Service redo log size’ equates to approximately 30 minutes of data stored before reconnection of the EDM. The number provided in relation to this attribute represents the number of replication packets stored. A replication packet is either a single non-transactional “destructive” (write/take/update) operation, or a group of such operations that are done under the same transaction.

Deployment Scenario – Id 1 Lab: Core

→ Single Avaya Breeze™ server with 8GB of RAM and 4 cores

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	64m,128m,1
ContextStoreSpace DataGrid Settings	256m,1024m,1
CS Audit: Event limit	10
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	6
CS Threshold: Instance Low Requests per Second	5
CS Threshold: Service High Requests per Second	6
CS Threshold: Service Low Requests per Second	5
EDM: Mirror Service container size	<i>EDM is not supported on nodes with just 8GB of RAM</i>
GEO: Gateway Service container size	<i>GEO is not supported on single-node deployments or on nodes with just 8GB of RAM</i>

Deployment Scenario – Id 2 Lab: HA

→ Cluster of two Avaya Breeze™ servers with 8GB of RAM and 4 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	64m,128m,1
ContextStoreSpace DataGrid Settings	256m,1536m,1
CS Audit: Event limit	10
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	11
CS Threshold: Instance Low Requests per Second	10
CS Threshold: Service High Requests per Second	11
CS Threshold: Service Low Requests per Second	10
EDM: Mirror Service container size	<i>EDM is not supported on nodes with just 8GB of RAM</i>
GEO: Gateway Service container size	<i>GEO is not supported on nodes with just 8GB of RAM</i>

Deployment Scenario – Id 3 Lab: Feature

→ Single Avaya Breeze™ server with 10GB of RAM with 6 cores

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	64m,128m,1
ContextStoreSpace DataGrid Settings	256m,1024m,1
CS Audit: Event limit	10
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	6
CS Threshold: Instance Low Requests per Second	5
CS Threshold: Service High Requests per Second	6
CS Threshold: Service Low Requests per Second	5
EDM: Mirror Service container size	128m
EDM: Mirror Service redo log size	10000
GEO: Gateway Service container size	<i>GEO is not supported on single-node deployments</i>

Deployment Scenario – Id 4 Prod: 16x2

→ Cluster of two Avaya Breeze™ servers with 16GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	256m,512m,1
ContextStoreSpace DataGrid Settings	512m,5120m,1
CS Audit: Event limit	10
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	50
CS Threshold: Instance Low Requests per Second	40
CS Threshold: Service High Requests per Second	50
CS Threshold: Service Low Requests per Second	40
EDM: Mirror Service container size	1
EDM: Mirror Service redo log size	30000
GEO: Gateway Service container size	1

Deployment Scenario – Id 5 Prod: 16x3

→ Cluster of three Avaya Breeze™ servers with 16GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	256m,512m,1
ContextStoreSpace DataGrid Settings	512m,9216m,1
CS Audit: Event limit	10
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	60
CS Threshold: Instance Low Requests per Second	50
CS Threshold: Service High Requests per Second	100
CS Threshold: Service Low Requests per Second	80
EDM: Mirror Service container size	1
EDM: Mirror Service redo log size	60000
GEO: Gateway Service container size	1

Deployment Scenario – Id 6 Prod: 32x3

→ Cluster of three Avaya Breeze™ servers with 32GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	1,2,1
ContextStoreSpace DataGrid Settings	4,16,1
CS Audit: Event limit	10
CS Default Lease Time	3600
CS Threshold: Instance High Requests per Second	60
CS Threshold: Instance Low Requests per Second	50
CS Threshold: Service High Requests per Second	120
CS Threshold: Service Low Requests per Second	100
EDM: Mirror Service container size	2
EDM: Mirror Service redo log size	10000
GEO: Gateway Service container size	2

Deployment Scenario – Id 7 Prod: 32x4

→ Cluster of four Avaya Breeze™ servers with 32GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	1,2,1
ContextStoreSpace DataGrid Settings	2,32,1
CS Audit: Event limit	10
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	650
CS Threshold: Instance Low Requests per Second	550
CS Threshold: Service High Requests per Second	1240
CS Threshold: Service Low Requests per Second	1000
EDM: Mirror Service container size	<i>Certified configuration does not include EDM feature</i>
EDM: Mirror Service redo log size	<i>Certified configuration does not include EDM feature</i>
GEO: Gateway Service container size	<i>Certified configuration does not include GEO feature</i>

Deployment Scenario – Id 8 Prod: 32x5

→ Cluster of five Avaya Breeze™ servers with 32GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	512m,1024m,1
ContextStoreSpace DataGrid Settings	4,40,1
CS Audit: Event limit	10
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	650
CS Threshold: Instance Low Requests per Second	550
CS Threshold: Service High Requests per Second	1240
CS Threshold: Service Low Requests per Second	1000
EDM: Mirror Service container size	2
EDM: Mirror Service redo log size	30000
GEO: Gateway Service container size	<i>Certified configuration does not include GEO feature</i>

Deployment Scenario – Id 9 Prod: 64x3

→ Cluster of three Avaya Breeze™ servers with 64GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	1,2,1
ContextStoreSpace DataGrid Settings	8,112,1
CS Audit: Event limit	10
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	650
CS Threshold: Instance Low Requests per Second	550
CS Threshold: Service High Requests per Second	1240
CS Threshold: Service Low Requests per Second	1000
EDM: Mirror Service container size	4
EDM: Mirror Service redo log size	250000
GEO: Gateway Service container size	4

Deployment Scenario – Id 10 Prod: 64x5

→ Cluster of five Avaya Breeze™ servers with 64GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	1,2,1
ContextStoreSpace DataGrid Settings	8,160,1
CS Audit: Event limit	10
CS Default Lease Time	10800
CS Threshold: Instance High Requests per Second	650
CS Threshold: Instance Low Requests per Second	550
CS Threshold: Service High Requests per Second	1240
CS Threshold: Service Low Requests per Second	1000
EDM: Mirror Service container size	4
EDM: Mirror Service redo log size	250000
GEO: Gateway Service container size	4

Deployment Scenario – Id 11 Prod: 128x1

→ Single Avaya Breeze™ server with 128GB of RAM and 8 cores

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	1,2,1
ContextStoreSpace DataGrid Settings	8,80,1
CS Audit: Event limit	10
CS Default Lease Time	9000
CS Threshold: Instance High Requests per Second	401
CS Threshold: Instance Low Requests per Second	400
CS Threshold: Service High Requests per Second	401
CS Threshold: Service Low Requests per Second	400
EDM: Mirror Service container size	4
EDM: Mirror Service redo log size	30000
GEO: Gateway Service container size	<i>GEO is not supported on single-node deployments</i>

Deployment Scenario – Id 12 Prod: 128x2

→ Cluster of two Avaya Breeze™ servers with 128GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	1,2,1
ContextStoreSpace DataGrid Settings	8,80,1
CS Audit: Event limit	10
CS Default Lease Time	10800
CS Threshold: Instance High Requests per Second	420
CS Threshold: Instance Low Requests per Second	340
CS Threshold: Service High Requests per Second	420
CS Threshold: Service Low Requests per Second	340
EDM: Mirror Service container size	4
EDM: Mirror Service redo log size	30000
GEO: Gateway Service container size	4

Deployment Scenario – Id 13 Prod: 128x3

→ Cluster of three Avaya Breeze™ servers with 128GB of RAM and 8 cores each

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	1,2,1
ContextStoreSpace DataGrid Settings	8,120,1
CS Audit: Event limit	10
CS Default Lease Time	14400
CS Threshold: Instance High Requests per Second	650
CS Threshold: Instance Low Requests per Second	550
CS Threshold: Service High Requests per Second	1240
CS Threshold: Service Low Requests per Second	1000
EDM: Mirror Service container size	4
EDM: Mirror Service redo log size	45000
GEO: Gateway Service container size	<i>Certified configuration does not include GEO feature due to lack of hardware for test (128GB x 6 nodes). This does not preclude customers from running a GEO setup with clusters of this size.</i>

Context Store Deployment in Oceana Solution

Oceana 100-Agent Deployment

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	128m,256m,1
ContextStoreSpace DataGrid Settings	256m,1536m,1
CS Audit: Event limit	50
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	12
CS Threshold: Instance Low Requests per Second	11
CS Threshold: Service High Requests per Second	21
CS Threshold: Service Low Requests per Second	19
EDM: Mirror Service container size	128m
EDM: Mirror Service redo log size	10000

Oceana 1000-Agent Deployment

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	128m,256m,1
ContextStoreSpace DataGrid Settings	512m,10240m,1
CS Audit: Event limit	50
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	65
CS Threshold: Instance Low Requests per Second	55
CS Threshold: Service High Requests per Second	105
CS Threshold: Service Low Requests per Second	85
EDM: Mirror Service container size	1
EDM: Mirror Service redo log size	60000

Oceana 2000-Agent Deployment

Change the ContextStoreSpace DataGrid Settings attribute value from **2560m**, 20480m, 1 to **2048m**, 20480m, 1. If the data-grid has already been deployed, a cluster reboot is necessary for the change in container size to take effect.

Requirement	Specification
ContextStore ManagerSpace DataGrid Settings	128m,256m,1
ContextStoreSpace DataGrid Settings	2048m,20480m,1
CS Audit: Event limit	50
CS Default Lease Time	7200
CS Threshold: Instance High Requests per Second	130
CS Threshold: Instance Low Requests per Second	110
CS Threshold: Service High Requests per Second	210
CS Threshold: Service Low Requests per Second	170
EDM: Mirror Service container size	2
EDM: Mirror Service redo log size	250000

Migrating External DataMart Data from CS 3.3 (or older)

There is no data migration required when upgrading from CS 3.4.X.X or 3.5.X.X to CS 3.6.1.0 release.

However if upgrading from CS 3.3.X.X (or older) to CS 3.6.1.0 release then there will be changes in the schema of the External DataMart which will require migration of the existing schema.

If migration steps are not executed, the old data with differing structure will cause errors when Customer Journey data is being queried.

These migration scripts are also available from www.devconnectprogram.com on the Context Store product page for release 3.6.1.0

Variations of migration scripts are available for each database type supported by Context Store (PostgreSQL, SQL Server, Oracle), to facilitate older as well as more modern product versions.

***** WARNING *** DO NOT INTERRUPT COMMANDS as doing so will result in data corruption**

Expected Operation Ranges Per SQL Migration Command:

Database	Estimated Migration Time Per 1,000 Records (this will increase for larger context data)
PostgreSQL	209 Milliseconds / 1,000 records
Microsoft SQL Server	596 Milliseconds / 1,000 records
Oracle	1394 Milliseconds / 1,000 records

Verify Indexes:

Ensure that the indexes below are in place before running the scripts. The indexes do not exist then refer to the *Avaya Context Store Snap-in Reference Guide* for details on how to create them.

Index Name	Table	Field
CS_OPERATION_TOUCHPOINT_IDX	CS_OPERATION	TOUCHPOINT
CS_OPERATION_TIMESTAMP_IDX	CS_OPERATION	TIMESTAMP

SQL Migration Commands:

Database	SQL Commands
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PostgreSQL	1 <pre> DO LANGUAGE plpgsql \$\$ DECLARE max_id INTEGER = 0; BEGIN WHILE max_id > -1 LOOP WITH insertrows AS (WITH cte AS (SELECT persist_context_uid, touchpoint FROM CS_OPERATION WHERE touchpoint IS NULL LIMIT 10000) UPDATE CS_OPERATION d SET touchpoint = LEFT(RIGHT(META_JSON, (position('}' in META_JSON) - (position('lastTouchpoint' in META_JSON)+16))), (position('*' in REPLACE (REPLACE (RIGHT(META_JSON,(position('}' in META_JSON) - (position('lastTouchpoint' in META_JSON)+16))) ',' , '*') ',' , '*')) -2)) FROM cte WHERE d.persist_context_uid = cte.persist_context_uid RETURNING d.persist_context_uid) SELECT max(persist_context_uid) INTO max_id from insertrows; RAISE NOTICE '%', max_id; END LOOP; END\$\$ </pre>
PostgreSQL	2 <pre> DO LANGUAGE plpgsql \$\$ DECLARE max_id INTEGER = 0; BEGIN WHILE max_id > -1 LOOP WITH insertrows AS (WITH cte AS (SELECT persist_context_uid, timestamp FROM CS_OPERATION WHERE timestamp IS NULL LIMIT 10000) UPDATE CS_OPERATION d SET timestamp = LEFT(RIGHT(META_JSON, (position('}' in META_JSON) - (position('timestamp' in META_JSON)+10))), (position('*' in REPLACE (REPLACE (RIGHT(META_JSON,(position('}' in META_JSON) - (position('timestamp' in META_JSON)+10))) ',' , '*') ',' , '*')) -1)) FROM cte WHERE d.persist_context_uid = cte.persist_context_uid </pre>

		<pre> RETURNING d.persist_context_uid) SELECT max(persist_context_uid) INTO max_id from insertrows; RAISE NOTICE '%', max_id; END LOOP; END\$\$ </pre>
Oracle	1	<pre> BEGIN LOOP UPDATE CS_OPERATION SET TOUCHPOINT = SUBSTR(SUBSTR(META_JSON,INSTR(META_JSON,'lastTouchpoint')+17), 0, (INSTR(REPLACE (REPLACE (SUBSTR(META_JSON,INSTR(META_JSON,'lastTouchpoint')+17) , ' ' , '*') , '}' , '*') , '}' , '*') , '*') -2)) WHERE TOUCHPOINT IS NULL AND rownum <= 10000; exit when sql%notfound; COMMIT; END LOOP; commit; END; </pre>
Oracle	2	<pre> BEGIN LOOP UPDATE CS_OPERATION SET TIMESTAMP = SUBSTR(SUBSTR(META_JSON, INSTR(META_JSON,'timestamp')+11) ,1 , (INSTR(REPLACE (REPLACE (SUBSTR(META_JSON,INSTR(META_JSON,'timestamp')+11) , ' ' , '*') , '}' , '*') , '}' , '*') , '*') -1)) WHERE TIMESTAMP IS NULL AND rownum <= 10000; exit when sql%notfound; COMMIT; END LOOP; </pre>

MS SQL Server	1	<pre> DECLARE @Rowcount INT = 1 WHILE @Rowcount > 0 BEGIN UPDATE TOP (10000) CS_OPERATION SET TOUCHPOINT = LEFT(RIGHT(CAST(META_JSON as NVarchar(MAX)), (CHARINDEX('}',META_JSON) - (CHARINDEX('lastTouchpoint',META_JSON)+16))), (CHARINDEX('*', REPLACE (REPLACE (RIGHT(CAST(META_JSON as NVarchar(MAX)), (CHARINDEX('}',META_JSON) - (CHARINDEX('lastTouchpoint',META_JSON)+16))) ',' , '*') ',' , '*')) -2)) where TOUCHPOINT IS NULL or TOUCHPOINT = '' SET @Rowcount = @@ROWCOUNT END; </pre>
MS SQL Server	2	<pre> DECLARE @Rowcount INT = 1 WHILE @Rowcount > 0 BEGIN UPDATE TOP (10000) CS_OPERATION SET TIMESTAMP = LEFT(RIGHT(CAST(META_JSON as NVarchar(MAX)), (CHARINDEX('}',META_JSON) - (CHARINDEX('timestamp',META_JSON)+10))), (CHARINDEX('*', REPLACE (REPLACE (RIGHT(CAST(META_JSON as NVarchar(MAX)), (CHARINDEX('}',META_JSON) - (CHARINDEX('timestamp',META_JSON)+10))) ',' , '*') ',' , '*')) -1)) where TIMESTAMP IS NULL or TIMESTAMP = '' SET @Rowcount = @@ROWCOUNT END; </pre>