Preparing for upgrade

⚠ This documentation page describes a legacy method of upgrading CAST AIP. This documentation is no longer maintained and may contain obsolete information. You should instead refer to **Upgrade process**.

On this page:

- Required background reading
- Required action points
- Next step

Target audience:

CAST AI Administrators

ⓘ **Summary:** information you need to read and actions you need to complete before starting the CAST AIP upgrade process.

Required background reading

As part of the preparation process, please take note of the following information and action points:

Release Notes

Ensure you read and check the following information:

- New in this release
- Resolved issues in this release

Please also check the same information in any major, minor or Service Pack release in between (i.e. when upgrading from CAST AIP 8.1.x to CAST AIP 8.3.x, you should check all releases in between).

Information about storage hosts

- CAST highly recommends that you use the **CAST Storage Service** to host your **CAST Analysis/Dashboard/Management Service schemas** in CAST AIP 8.3.x as it is the "preferred" storage host. See Migrating CAST AIP schemas from Oracle Server and Microsoft SQL Server for more information.
- CAST has introduced **CAST Storage Service 3** (based on Postgres 9.6.x) and recommends that you use it with new and existing Applications in CAST AIP 8.3.x. See CAST Storage Service - Upgrading to version 3.x.x for more information about upgrading to CSS3 (this should be done before you embark on the CAST AIP upgrade process).

Information about 64-bit Operating System compatibility

CAST AIP 8.3.x is a **64-bit compliant application**, therefore you must only use a supported **64-bit** Operating System to host CAST AIP. Please also take into account the following information:

- The **Visual Basic analyzer** is delivered (in this release) as a 32-bit "application". Please read the section **Visual Basic analyzer and 64-bit compatibility** in Visual Basic - Required third-party software.

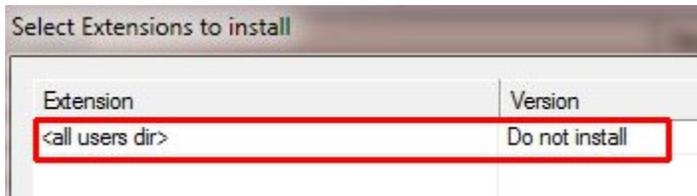### Information about upgrading with custom extensions

If you are actively using **custom extensions** (i.e. any extension **not officially provided by CAST**) and wish to upgrade to the current release of CAST AIP, then CAST highly recommends that you export your current Assessment Model to file (use the **File > Export file** option in the **CAST Management Studio**) before you begin the upgrade procedure. If necessary this Assessment Model can used in a comparison process at the end of the upgrade procedure.

Information about upgrading when you have installed legacy custom UA packages using the <all users dir> option

If you have installed legacy custom Universal Analyzer (UA) packages using the **<all users dir>** option under the **Manage Extensions** option in CAST Server Manager, then you should consider the following:

CAST highly recommends that before you start the upgrade process you:

- **convert** these custom legacy Universal Analyzer packages to the current "extension" format (see Scenario 3 - You want to create a new custom extension or modify an existing custom extension)
- **download and install** the newly converted extensions as part of upgrade process (see **Action: download and install the new release of CAST AIP** below)
- ensure the **<all users dir>** option is set to "**Do Not Install**" under the **Manage Extensions** option in CAST Server Manager (this is its default position, but please check this):

If this process is not possible before you upgrade, then please proceed as follows:

- copy the custom legacy Universal Analyzer packages from **<CAST_ALL_USERS_PATH for version before upgrade>\configuration\languages** to **<CAST_ALL_USERS_PATH for new release>\configuration\languages** where **<CAST_ALL_USERS_PATH>** is the value defined in the CastGlobalSettings.ini file (the default value is **%PROGRAMDATA%\CAST\CAST\<version>**).
- ensure the **<all users dir>** option is set to "**8.3.0**" under the **Manage Extensions** option in CAST Server Manager to ensure the language packs are taken into account during the upgrade (the **<all users dir>** option will only be visible if custom legacy Universal Analyzer language packs exist in **<CAST_ALL_USERS_PATH>**)

Information about upgrading when you have installed the custom UA package "SQL Script" extension

⚠ Note that this section only applies to those upgrading to **CAST AIP 8.3.0 - 8.3.4**. The issue is managed automatically in **CAST AIP 8.3.5**.

If you are actively using a very old and unsupported custom Universal Analyzer language pack called "SQL Script" in your CAST AIP schemas, you must ensure that you perform the workaround described here BEFORE you being the upgrade process. This old Universal Analyzer language pack causes a conflict with the SQL Analyzer shipped by default with CAST AIP and will prevent the upgrade from completing.

To determine if you need to apply the workaround, run following query against your Management Service schema. When it returns a line, this old "SQL Script" language pack is installed.

```
select * from Cat where IdCat = 2361000
```

Information about upgrading from CAST AIP 8.0.x
CAST Transaction Configuration Center - Impact Factor configuration

In CAST AIP 8.1.x the stored procedures used to configure **Impact Factor** (see the CAST Transaction Configuration product help for more information) for Transactional Functions are now named as follows:

- TCC_EFP_USR_IF_DELETED_RULE --> EFP_USR_IF_DEL_TF_RULE
- TCC_EFP_USR_IF_MODIFIED_RULE --> EFP_USR_IF_MOD_TF_RULE
- TCC_EFP_USR_IF_ADDED_RULE --> EFP_USR_IF_ADD_TF_RULE

This is so that their names are in-line with the stored procedures added in CAST AIP 8.1.x for configuring Impact Factor for Data Functions. By default and to avoid a situation where configurations from CAST AIP 8.0.x are lost following an upgrade to CAST AIP 8.3.x, CAST has included a call to the legacy CAST AIP 8.0.x stored procedures in the stored procedures in CAST AIP 8.3.x, for example:

- EFP_USR_IF_DEL_TF_RULE will call in its code the existing stored procedure from CAST 8.0.x: TCC_EFP_USR_IF_DELETED_RULE
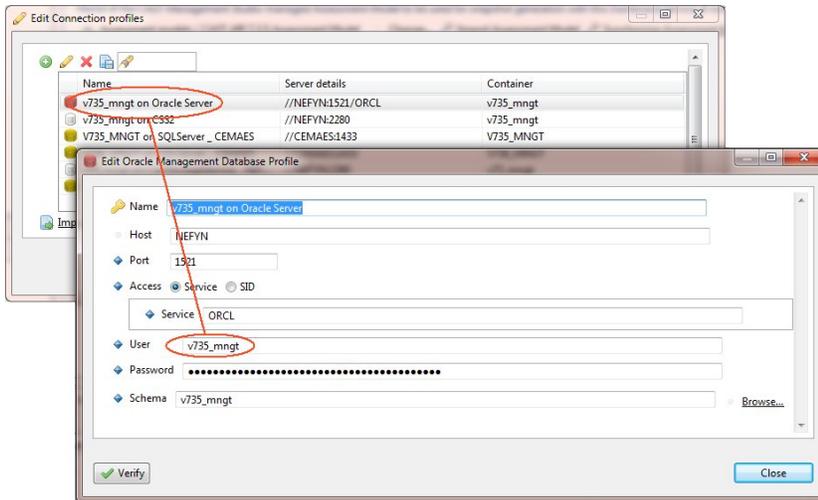
Despite the automated handling of this during the upgrade process, CAST highly recommends that you take a copy of the scripts in the legacy stored procedures so that you can start using them in CAST AIP 8.3.x in the new stored procedures.

Information about upgrading when using Oracle Server to host your CAST AIP schemas
When working with an **Oracle Server** as the host for the CAST schemas, you must ensure that you are NOT connecting to the Management, Analysis, Dashboard or Measurement Services using the Oracle "**system**" user. The upgrade process will fail if this is the case. To check:
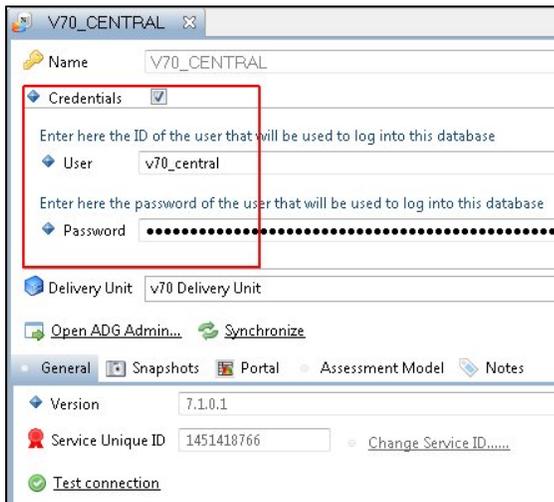
- Launch the CAST Management Studio
- In the **CAST-MS Database connections manager dialog box** (displayed during the launch), change the user used to connect the Management Service (MNGT) from **SYSTEM** to the **MNGT schema user**:

Click to enlarge

- Once connected, update all **Analysis** and **Dashboard Services** to change the respective Analysis Service/Dashboard Service schemas user - you will need to enable the **Credentials** option in the respective Analysis /Dashboard Service editors to override the connection defined automatically that is using the "SYSTEM" user. The example below is for a Dashboard Service:
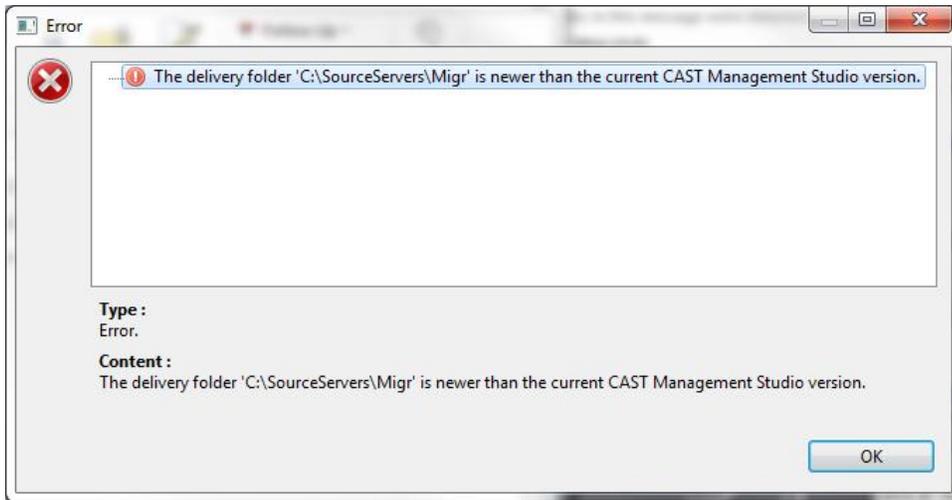
Click to enlarge

Information about how to prevent specific Applications from being upgraded
What to do if you do not want to upgrade all Applications in a given CAST AIC Portal/Delivery folder at the same time

Because the Delivery folder is "locked" to a specific release of CAST AIP, when it is upgraded to the new release of CAST AIP, any Management Service schemas (and Applications managed in them) that have not themselves been selected for upgrade will no longer be permitted to use the Delivery folder and you will receive the following error in the CAST Management Studio when trying to work with the Applications that have not been upgraded:
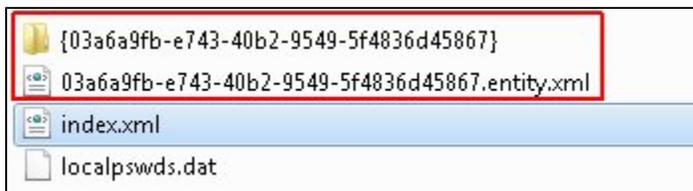
Click to enlarge

If you do not want to upgrade ALL your Management Services and their Applications to the new release of CAST AIP, you have two options:

1. You can **proceed with the upgrade anyway** and ensure that you follow the instructions at the very end of this documentation to comment out any non-upgraded Applications from the index.xml file in the data folder at the root of the Delivery folder (see Deploy the CAST web applications)
2. You can **create two CAST AIC Portal** and **two Delivery folders**, each containing the Applications you require depending on whether they need to be upgraded to the new release of CAST AIP or not. Instructions for this are displayed below:

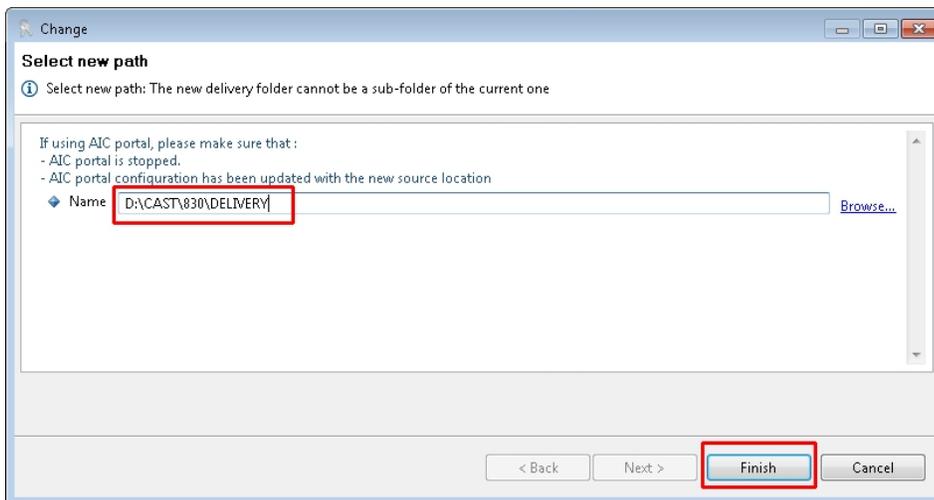### Create two CAST AIC Portal and two Delivery folders

In this scenario, we are migrating **from CAST AIP 8.1.x** to **CAST AIP 8.3.x** as an example (but the same applies when updating between other supported paths):

- Ensure that the **existing 8.1.x** CAST AIC Portal is not running
- Deploy a new CAST AIC Portal for **CAST AIP 8.3.x** (see Installing and configuring the CAST AIC Portal) alongside the existing 8.1.x CAST AIC Portal - ensure you use the CAST-AICP.war file from the **new release** of CAST AIP.
- Configure a new empty **Delivery** folder for CAST AIP 8.3.x in the **web.xml** file of the CAST AIC Portal for **CAST AIP 8.3.x**
- Stop the new CAST AIC Portal for **CAST AIP 8.3.x**
- Copy the "**plugins**" folder from the **existing 8.1.x** Delivery folder and paste it into the **new 8.3.x** Delivery folder - overwriting the "plugins" folder.
- Copy the "**data\index.xml**" file from the **existing 8.1.x** Delivery folder and paste it into the "**data**" folder in the **new 8.3.x** Delivery folder - there should be no files present in the "data" folder in the new Delivery folder
- Edit the "**data\index.xml**" file (with a text editor) from the **existing 8.1.x** Delivery folder to **remove** references to any Applications **you would like to upgrade** to the new release of CAST AIP - this is a fairly simple process whereby you need to remove any entry starting **<entry key="<GUID-of-your-Application**. There will be around 10 entries for each Application. Save any changes.
- Edit the "**data\index.xml**" file (with a text editor) from the **new 8.3.x** Delivery folder to **remove** references to any Applications **you do not want to upgrade** to the new release of CAST AIP - this is a fairly simple process whereby you need to remove any entry starting **<entry key="<GUID-of-your-Application**. There will be around 10 entries for each Application. Save any changes.
- Cut and paste any Applications in the "**data**" folder from the **existing 8.1.x** Delivery folder to the "**data**" folder in the **new 8.3.x** Delivery folder **that you would like to upgrade** to the new version of CAST AIP. An Application consists of a folder named **<GUID>** and a file named **<GUID>.entity.xml** - where GUID corresponds to the Application:

- Copy the "**localpswds.dat**" file in the "**data**" folder from the **existing 8.1.x** Delivery folder to the "**data**" folder in the **new 8.3.x** Delivery folder
- Open the CAST Management Studio from the **existing 8.1.x** CAST AIP and connect to ALL Management Service schemas that you intend to upgrade to CAST AIP 8.3.x. Change the location of the "**Source Code Delivery Folder**" in **Window > Preferences** so that it corresponds to the location of the new Delivery folder in CAST AIP 8.3.x:
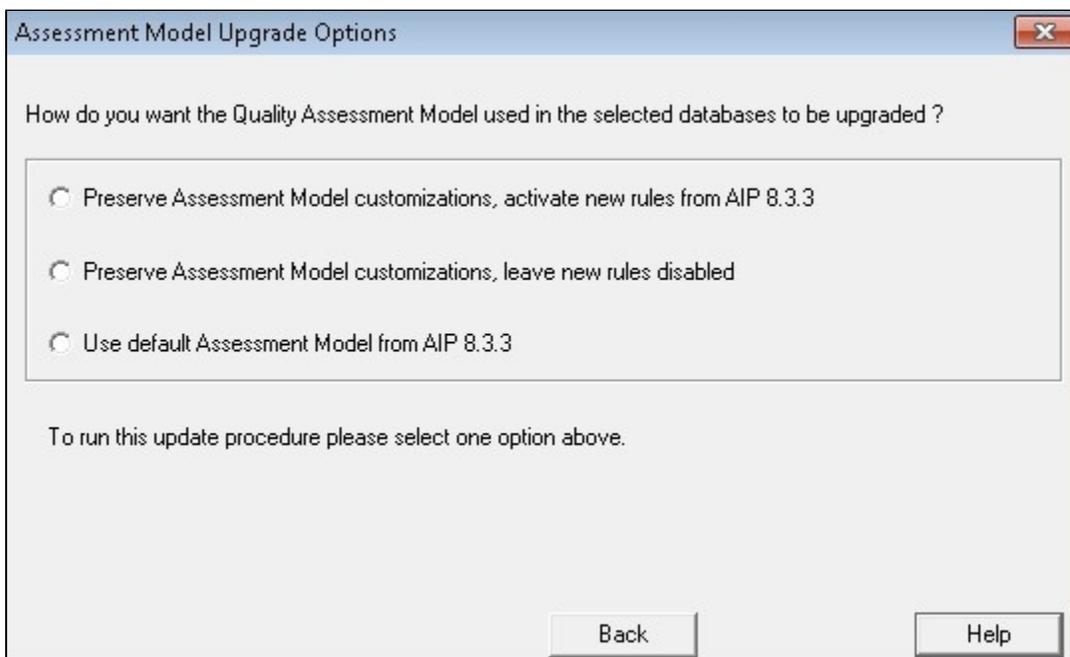
Click to enlarge

- Finally you will end up with:
    - **one 8.1.x Delivery folder containing only the Applications you want to retain on CAST AIP 8.1.x**
    - **one 8.3.x Delivery folder containing only the Applications you want to upgrade to CAST AIP 8.3.x**

Information about how to choose an Assessment Model upgrade strategy

During the upgrade process using **CAST Server Manager** (see Step by step upgrade process), you will be asked to choose an option with regard to the handling of the CAST AIP **Assessment Model**:

Please ensure that you decide now, based on the information below, what strategy you will use during the upgrade:

Option	Description
Preserve Assessment Model customizatio ns, activate new rules from AIP 8.3. x	These two options will **preserve the current Assessment Model assigned to your CAST Dashboard Service schemas** and **me rge in any new rules delivered with the CAST AIP 8.3.x Assessment Model** - depending on your option choice, these new rules will either be **activated** (provides the benefits of the new release with all options actived) or **disabled** (therefore making post upgrade results more stable and in-line with the previous release of CAST AIP but not benefiting from updates in the new release). Please see Assessment Model updates for more information about new Quality Rules that may have been added in this release of CAST AIP. If you choose either of these options, the following Assessment Model values will be retained: • the status of active/inactive Quality Rules • thresholds • weights • critical contributions

Preserve Assessment Model customizations, leave new rules disabled	- parameter values - custom indicators - custom Quality Rules However, the Assessment Model will still be subject to an upgrade process to modify some values to make them compatible with CAST AIP 8.3.x, for example: - SQL and property implements - applicable technologies - associate values - documentation
Use default Assessment Model from CAST AIP 8.3.x	If you choose this option, the **new Assessment Model from CAST AIP 8.3.x** will be **assigned to the CAST Dashboard Service schemas selected for update**, therefore replacing any existing Assessment Models.

> ⓘ Please be aware that assessment results **will differ** when you generate a new snapshot regardless of the option you choose due to the improvements that have been made in the new model as well as in the delivery and analysis capabilities of CAST AIP. Please see Changes in results post upgrade for more information about the changes that may occur in your results post upgrade.

Information about extensions shipped with CAST AIP 8.3.x and installed as part of the upgrade

As part of CAST's drive to improve and speed up the frequency of software releases, a process of "**externalizing**" the source code delivery and analysis capabilities of CAST AIP has begun in CAST AIP 8.3.x. To this end various official CAST AIP extensions are shipped with **CAST AIP 8.3.x** and are installed **automatically** as part of the **upgrade process** and also when installing new CAST AIP "triplets". Please see Technology coverage changes in CAST AIP 8.3.x for more information.

> ⚠ Note that when upgrading CAST AIP, previously installed extensions that are shipped with **CAST AIP 8.3.x** will not be automatically upgraded even if a more recent version of an extension is shipped with the new release of AIP. To benefit from latest improvements and bug fixing in the most recent extension version, you need to explicitly select the new release of the extension as explained in Step by step upgrade process.

Information about upgrading with IBM DB2 z/OS and UDB applications

CAST has provided support for analyzing both **IBM DB2 UDB** and **IBM DB2 z/OS** via its **DB2 Analyzer** (provided out-of-the-box in **CAST AIP 8.2.x**) for some time now. This "legacy" analyzer requires the following:

- For **IBM DB2 UDB** you must **manually define a connection to the DB2 UDB instance** - this instance must be available during the analysis process in the CAST Management Studio - this is known as an "online" analysis. In addition, a DB2 client layer must be installed on the workstation on which the CAST Management Studio is being run from.
- For **IBM DB2 z/OS** a standalone extractor based on JCL must be installed on the target z/OS execution environment and then run to output data that the DB2 Analyzer can handle.

These requirements can sometimes present significant difficulties for the process of on-boarding an IBM DB2 application into CAST AIP. As a direct result of this and wanting to simplify the approach, CAST has developed the SQL Analyzer as a standalone extension. The extension analyzes **DDL, DML** and **SQL exports** and (in **version 2.0**) supports the analysis of IBM DB2. The analysis is therefore "**offline**" (no connection to a live database is required).

From **CAST AIP 8.3.x**, the legacy DB2 Analyzer (provided out-of-the-box in **CAST AIP**) is **no longer available**, therefore for upgrades to **CAST AIP 8.3.x**, existing **IBM DB2 UDB** and **IBM DB2 z/OS** analyses will still function and will not block the post-upgrade consistency snapshot, however, it will not be possible to package new source code in existing or new packages, therefore CAST recommends that you transition to the SQL Analyzer version 2.0 **BEFORE** you start the process of upgrading to CAST AIP 8.3.x. See How to transition from the CAST AIP DB2 Analyzer to the SQL Analyzer extension.

Information about upgrading with SAP BusinessObjects applications

CAST has provided support for analyzing SAP BusinessObjects source code via its **BO Analyzer** (provided out-of-the-box in **CAST AIP 8.2.x**) for some time now. This "legacy" analyzer requires the following:

- **SAP BusinessObjects** (the **BO Designer** module) must be installed on the workstation on which the CAST Management Studio is being run from.
- you must **manually define a connection to the SAP BusinessObjects instance** on which your Universe files are used - this instance must be available during the analysis process in the CAST Management Studio - this is known as an "online" analysis.

These requirements can sometimes present significant difficulties for the process of on-boarding a SAP BusinessObjects application into CAST AIP. As a direct result of this and wanting to simplify the approach, CAST has developed the SAP BusinessObjects Analyzer as a **standalone extension**. The extension (introduced in CAST AIP 8.2.5) provides a means to analyze SAP BusinessObjects source code "**offline**", i.e. no connection to the SAP BusinessObjects instance is required. In addition there is no longer any requirement to have **BusinessObjects** (the **BO Designer** module) installed on the workstation on which the CAST Management Studio is being run from.

From **CAST AIP 8.3.x**, the legacy BO Analyzer (provided out-of-the-box in **CAST AIP**) is **no longer available**, therefore:

- to analyze new **SAP BusinessObjects** applications, you must use the SAP BusinessObjects Analyzer (together with the CAST SAP BusinessObjects Extractor - not delivered with CAST AIP) which is delivered and installed automatically with CAST AIP 8.3.x with new CAST AIP triplets and as part of an upgrade.
- for upgrades to **CAST AIP 8.3.x**, existing **SAP BusinessObjects** analyses **will no longer function and will block** the post-upgrade consistency snapshot. As such, CAST recommends that you transition to the SAP BusinessObjects Analyzer **AFTER** an upgrade, but **BEFOR** you generate a post-upgrade consistency snapshot (see **Switching from legacy to new delivery/analysis method** in SAP BusinessObjects Analyzer).

Required action points

This section lists the actions you must complete before starting the CAST AIP upgrade process.

Action: generate a snapshot
Generate a snapshot before you start the upgrade process. This allows you to compare the pre and post upgrade results, as discussed in Changes in results post upgrade.

Action: backup existing data
Before starting the upgrade process, CAST strongly recommends that any existing analysis and result data from previous releases of CAST AIP is backed up. You should backup the following items as a basic minimum so that the existing AIP environment can be restored in case an error occurs during the upgrade process.

Item to backup	How to back it up
CAST AIP schemas (Management / Analysis / Dashboard / Measurement Services)	**CAST Storage Service** - Use the CAST Storage Service backup tools (**CSSBackup**) to backup each CAST AIP schema you intend to upgrade - please refer to the documentation for the version of CAST AIP you are upgrading from for more information. **Commercial RDBMS (Oracle Server or Microsoft SQL Server)** - Use the built in backup tools for your RDBMS to backup each CAST AIP schema you intend to upgrade.
CAST Delivery folder	Ensure that you make a copy of your **Delivery** folder - simply by copying the folder to another location on disk (unrelated to CAST AIP).

> ⓘ When upgrading the CAST AIP schemas on a CAST Storage Service, the upgrade process will drop any **custom tables/views /procedures etc.** you may have created that directly or indirectly use any default Analysis/Dashboard Service schemas objects.

Action: download and install the new release of CAST AIP
Download and install the new release of CAST AIP, either on the **same workstation** as the existing release of CAST AIP, or on a **different workstation** where no previous release of CAST AIP exists.

Action: download extensions (optional)
Download any **new versions of existing extensions** or **new extensions that may be useful for your Application** on to the workstation you will be running the upgrade from, as discussed in Download an extension. This is not necessary if a more recent version of an installed extension is shipped with CAST AIP (see Technology coverage changes in CAST AIP 8.3.x for more information).

Action: complete the pre-upgrade checks
Before beginning the update process, please ensure that you have carried out all of the following tasks:

✅	**Database access exclusivity**	Ensure that you have **exclusive access** to the schemas you want to upgrade - i.e. that the schema is not being used by any other user, application (such as the CAST Management Studio) or web portal (such as the CAST Application Analysis/Engineering Dashboards).
✅	**Check free RAM memory**	Before starting this step, please ensure that you have at least **1GB** of free RAM memory on your workstation. If you do not have sufficient free RAM memory, there is a risk that some of the upgrade actions may fail.
✅	**Stop the CAST AIC Portal on the application server**	Ensure that you STOP the existing deployment of the **CAST AIC Portal** (using the application server management system) before starting the upgrade process.
✅	**Ensure your custom and official CAST AIP extensions are compatible (optional)**	If you have custom or official CAST AIP extensions installed in the current release of CAST AIP, you must ensure they are compatible with the new release of CAST AIP you are upgrading to.
✅	**Ensure that your Delivery folder is accessible and**	Ensure that your **Delivery folder** (as defined in the Management Service schemas that you want to upgrade) is accessible and contains a valid **version.xml** file.

	contains a version.xml	
✅	**Ensure that all schemas are from the same release of CAST AIP**	Ensure that **all CAST AIP schemas** (Analysis/Dashboard Service schemas) involved in the upgrade are installed with the **same release of CAST AIP** as the selected Management Service schemas.
✅	**Application / Snapshot in the Management Service schema**	Ensure that **at least one Application** with **at least one Snapshot** exists in the Management Service schema you want to upgrade.

Next step

Please see Step by step upgrade process for information about what to do next.