

Tridion Docs Content Manager upgrade guide

Tridion Docs Content Manager 15.1.1



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Welcome to Content Manager Upgrade Guide

This document presents a description of all needed checks and actions necessary for an upgrade from the previous version of Content Manager to the latest version.

Customer support

To contact Technical Support, connect to the Customer Support Web Portal at <https://gateway.sdl.com> and log a case for your RWS product. You need an account to log a case. If you do not have an account, contact your company's RWS Support Account Administrator.

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Upgrading Content Manager

This section explains how to upgrade the Content Manager application, Content Manager database and Content Manager client tools, and how to enable the other Tridion Docs capabilities.

When upgrading, note the following:

- These instructions only describe to an upgrade of the Content Manager application only. You are assumed to have already upgraded your operating system, database server and other third-party software, if needed, to meet Content Manager requirements.
- The earliest version from which you can upgrade to the current Content Manager version is Content Manager 13.0.0. To upgrade from an earlier version, you must first upgrade to Content Manager 13.0.0 (and perform the post-upgrade operations).

Content Manager requirements

All requirements for the Content Manager application, web, and batch servers are described.

Content Manager hardware requirements

Check the hardware requirements.

Hardware

The performance of Content Manager depends primarily on the CPU power and the I/O characteristics of the hardware. High CPU power is needed to allow the system to make calculations on-the-fly, e.g. for publishing. The I/O performance largely influences the system's speed to gather and assemble information from the database to serve user requests. Content Manager imposes no specific requirements for data storage, as it holds generic versions that become specific versions by calculation on a user's request.

The hardware required for a specific Content Manager implementation depends on the specific requirements and settings of the project (for example, the number of concurrent users). The exact definition of the hardware requirements is typically done at the beginning of the project.

Database

The database server may be on any platform supported by the database vendor. Hardware and platform requirements for the database server should be obtained from the database vendor. The specifications supplied by Content Manager should be checked against the specifications supplied by the database vendor for the current hardware on which it is installed.

An example Microsoft Windows server machine could minimally have the following specifications:

- CPU: dual core contemporary CPU
- Internal Memory: 8 GB RAM

Database storage demands must account for the following:

- All XML content and related metadata.
- All images.
- Published output (e.g. PDF, CHM...).

As a rule of thumb, multiply the size of all images by 3 to get an estimate of the starting size for your database. A normal documentation project can use 100 GB for its storage needs for about 2 to 3 years.

Web and Application layer

The server can be on a single system. However, for performance reasons it is advised to scale and have redundancy over multiple servers. The scaling introduction included in Tridion Docs documentation helps you determine the setup. Due to the many setup variations, you may want to contact the support team to discuss your specifics.

Minimum server configuration: A recent quad core system(s) containing 8 GB of RAM or more. Virtualized environments are supported if they are guaranteed to behave like a Windows OS installed on a physical machine. If performance is or becomes an issue, you are advised to use physical servers.

Storage demands: The consumers of storage are the actual installed Content Manager software components, the full-text-index collection, exported, and published content. Considering a normal documentation project, with an initial database reservation of 100 GB, the server should have at least 50 GB storage capacity. The typical setup is two servers, one handling the synchronous operations and one server handling the asynchronous/background operations. Initially you can start with one server handling all operations; we then suggest a dual CPU server. A second server can be added quite easily afterwards if load needs to be reduced on the primary server.

Client requirements

Client machines running desktop applications such as Publication Manager should have at least a 2.0 GHz CPU and 4 GB RAM.

Network requirements

Due to its stateless model, Content Manager passes large quantities of data. A 10 Mbit network connection provides a more than acceptable throughput.

Content Manager software requirements

Information about third-party or client software that is packaged, configured and tested for this software version release.

The following overview includes information about:

- Third-party software that is configured or integrated in this server-side component release.
- Third-party software, such as the operating systems, databases, and runtimes that are quality-assurance tested.
- Client hardware and software compatibility.

The relation between the Authoring Bridge and the XML editors is not specified here. Installation packages for Authoring Bridge are not always available for all XML editors. Also third-party software such as authoring tools and databases have their specific requirements. Check out the third-party tools' documentation before installation.

This is a reference list not a task list. It specifies on which items our software relies. Some components might already be installed by other software. Some components may be needed only for certain features or configurations of Content Manager. Refer to the Content

Manager installation or upgrade tasks to know which of the specified software you need to install.

Supported software versions

Note: Names, trademarks, designs, logos, service marks, intellectual property and so on, of the products shown are exclusive property of their respective owners.

Application server

- One of the following:
 - Microsoft Windows Server 2022
 - Microsoft Windows Server 2019 x64
- Microsoft Windows PowerShell 5.1 (part of Windows Management Framework 5.1)
- Microsoft .NET Framework 4.8
- ASP.NET Core Hosting Bundle, version 8 (includes the Microsoft .NET 8 LTS runtime)
- One of the following:
 - Oracle Java Development Kit 21.0.x x64 also known as Oracle JDK 21 LTS
 - Adoptium Eclipse Temurin 21.0.x x64 based on OpenJDK 21 LTS
 - Oracle Java Development Kit 17.0.x x64 also known as Oracle JDK 17 LTS
 - Adoptium Eclipse Temurin 17.0.x x64 based on OpenJDK 17 LTS
- DITA-OT 2.3

Note: Our standard Tridion Docs installation package holds a DITA Open Toolkit version.

- Microsoft XML Parser 6.0, 32-bit and 64-bit (pre-installed with Windows Server 2012R2 and 2016)
- Software for publishing, as required:
 - Java Help 2.0.05
 - HTML Help Workshop 1.3
 - AntennaHouse XSL Formatter 7.0

Database server

One of the following database systems:

- Oracle Database 19c (19.3.0.0)
- Microsoft SQL Server 2022
- Microsoft SQL Server 2019

Client

- One of the following operating systems:
 - Microsoft Windows 11
 - Microsoft Windows 10
- One of the following web browsers:
 - Microsoft Edge (Chromium-based; Microsoft's Modern Lifecycle Policy release update channel)
 - Google Chrome (Chromium-based; release update channel)
 - Mozilla Firefox (release update channel)

The browser must be configured to allow the following:

- Cookies
- Pop-up windows for Collective Spaces (that is, Draft Space and Review Space) when the application is called from Organize Space.
- A minimum resolution of 1024 x 768 pixels. The optimal resolution is 1280 x 1024 pixels or higher.
- The required DITA authoring tool:
 - JustSystems XMetaL 18.0 x64
 - JustSystems XMetaL 17.0 x64
 - Syncro Soft Oxygen XML Author 26.x x64
 - Syncro Soft Oxygen XML Author 25.x x64
 - Acrolinx 5.0

Only 64-bit mode for the editors is approved and qualified.

Although multiple third-party XML editors are supported, we recommend choosing and using a single third-party editor. RWS is not responsible for third-party editor XML and DITA handling; behavior may differ depending on the XML editor. If you use more than one editor, you may experience cross-compatibility issues related to DITA handling. If you decide to use multiple third-party XML editors and if you experience cross-compatibility issues with DITA handling, contact the XML editor vendor to address these issues.

Installer User Requirements

The users who can install Content Manager must have permissions and access as required.

An administrator user who has authorized access on the machines to be installed can install the Content Manager software. The user must be able to:

- log on to the machine and have full access to the file system
- alter the registry
- have full access to the Services and Internet Information Services

A database administrator must set up the Content Manager database. The user must be able to:

- create a database
- run scripts to set up the database

Platform virtualization

You can deploy Content Manager software in a virtual environment (such as VMWare ESX).

You can deploy Content Manager software in a virtual environment if both of the following conditions are true:

1. Content Manager supports the environment in its non-virtual form.
2. The platform vendor states that it supports the virtual form of this environment.

Note: If you run a software component in a virtual environment, the hardware recommendations listed for that software component may not apply. The recommendations listed apply to the software component if it is installed directly on such a hardware profile, and not to the software component installed in a virtual environment that itself runs on the recommended hardware profile.

For specific virtual platform support requests, contact the platform vendor. For specific hardware recommendations, contact your virtual hardware solution vendor to find out how the hardware recommendation for a direct installation translates into a hardware recommendation for a virtual installation.

Firewalls and ports

In specific cases, firewall and ports may require special attention.

Firewalls and ports are an important part of your installation environment. Normally the default settings do not interfere with a basic installation, but there is a variety of possibilities regarding network and firewall configurations. This list provides some of the most common points of attention and is by no means comprehensive.

The user responsible for the network setup knows all the items that should be checked in your environment and has access to the specific technical documentation. Details can be found in the *Advanced topics for installers* section.

SMTP

Simple Mail Transfer Protocol (SMTP) is the standard for e-mail transmissions across the internet.

Microsoft SQL Server

Microsoft SQL Server is the relational database management system (RDBMS) produced by Microsoft.

Oracle

Oracle Database, or simply Oracle, is the relational database management system (RDBMS) produced by Oracle Corporation.

HTTPS (SSL)

HTTPS is a URI scheme used to indicate a secure HTTP connection. It refers to the combination of a normal HTTP interaction over an encrypted Secure Sockets Layer (SSL).

Content Manager pre-upgrade tasks

Only if you are upgrading an existing instance of Content Manager, perform the pre-upgrade tasks. These tasks consist of a backup and uninstallation of the old Content Manager version. You should always make a complete backup of both project and database before upgrading so you can restore to the current environment if necessary.

Note:

- Before beginning the upgrade it is recommended that you warn all users that the system will be temporarily unavailable.
 - No updates should be allowed beyond this point in time.
 - You should plan to copy the whole of the Content Manager environment to a secure destination.
 - The whole of the Content Manager environment includes all Content Manager websites, Content Manager website components, the Full Text Collection, the database backup(s), and the Content Manager registry keys.
 - Identify and plan to backup any custom files and information in the same way.
 - Remember all Trisoft COM+ Applications and all Virtual Directories will have to be removed as well.
-

Backing up the project

This backup operation makes a copy of everything installed and generated in this project.

About this task

This does a backup of the business components and used configuration and makes a full copy of:

- the Full Text Collection
 - all PublishService, ImportService, ExportService generated data
 - all generated logging
-

Note: This backup can take a lot of time. You can do an initial clean up of all data that needs no backup or do a manual backup of the necessary files and settings.

Procedure

1. Login to the Windows system as the **Administrator** user or a user with Administrator privileges (a user in the Administrator group).
2. In Windows Explorer, go to
`C:\ISHCD\yyyymmdd.CD.InfoShare<version_num>.ProjectName.IT__InstallTool`
3. Locate and double-click on **InstallTool.exe**.
4. Select the backup option.
5. Select the project that you want to backup and a location where you can safely store everything.

Back up the database

Follow the procedure to back up the Microsoft SQL Server or Oracle database based on your current configuration.

Note: The Oracle backup is much more complex than the Microsoft SQL Server backup. The Microsoft SQL Server algorithm is described by its Windows UI. The Oracle procedure is explained by command line tools so that it is valid for both a Windows and UNIX environment).

Backing up the Microsoft SQL Server database

Follow this procedure to backup your Microsoft SQL Server database.

Procedure

1. Open **SQL Server Management Studio**.
2. Open the **Databases** folder.
3. Right-click your database.
4. Select **Tasks > Back Up**.
5. **Backup type** should be **Full**.
6. Enter a **Name** for the backup.
It is recommended that you use the format: `yyyymmdd.projectname.bak` to name the backup.
7. Ensure that **Backup set will expire: After 0 days**
8. In the **Destination** pane at the bottom of the window, click **Add**.
9. Add a destination folder such as: `yyyymmdd.projectname\SQLServer\Dump`.
10. Click **Options** in the left pane and verify that the information is accurate:
 - Backup to the existing media set.
 - Append to the existing backup set.
 - Verify backup when finished.
11. Click **OK**.

The backup of the database starts.

Backing up the Oracle database

The description makes use of command line programs so that a person with a mixture of Windows and UNIX knowledge can follow the procedure on any machine hosting Oracle.

This procedure guides a knowledgeable person through the configuration so that no important steps are forgotten. However, it does not provide an explanations, or all the options for each step.

The procedure includes suggestions about how to do the steps. It is out of scope of this document to give a step-by-step explanation on basic Oracle maintenance. An Oracle DBA can choose any option desired, as long as an exact restoration of the Content Manager environment can be made.

Note:

- The description refers to a Windows environment concerning system variables and file paths.
 - The default database name is `ISH`.
-

Backing up the closed data files

You can just make a copy of closed data files. This action applies to cases when you are not planning to change the location of the files, the character set or the Oracle version, so you won't need to perform a complete export.

Procedure

1. To make a copy of closed data files, open a command line window and set the `ORACLE_SID` and `ORACLE_HOME` environment variables. For example, on Windows:

```
set ORACLE_SID=ISH
set ORACLE_HOME=C:\Oracle\Product\VERSION\db_1
```

where `VERSION` is your Oracle version.

2. Start SQL Plus:

```
SQLPLUS /NOLOG
```

3. Force a database to close by typing the following. The goal is to do this quickly enough so that no-one can make a connection and alter the database, ensuring that you copy a stable file version.

```
shutdown abort
startup open
shutdown normal
```

All pending connections are closed by force. The `startup open` command checks the

database and the `shutdown normal` command closes all database files.

Exporting the Oracle database

Perform a full database export if you need to be independent from version, character set or location. Exporting from the previous Oracle version in order to import into the latest supported version requires a specific procedure.

Procedure

1. Copy the file `expdp.par` from `C:\ISHCD\yyyyymmdd.CD.InfoShareVERSION.ProjectName.IT\Database\InfoShareCM\Common\Oracle\expdp\` to the dump directory (`DATA_PUMP_DIR`) on the database server, where `VERSION` is your product version. The dump directory is `C:\Oracle\admin\DBNAME\dpdump\`, where `DBNAME` is the name of your database.
2. Go to the database server.
3. Modify the file names for the `DUMPFILE` and `LOGFILE` in the `expdp.par` file to match your environment.
4. Open a command shell for your operating system.
5. On the command prompt, define the following environment variables, with the following values:

Environmet variable	Value
<code>ORACLE_SID</code>	ISH
<code>ORACLE_HOME</code>	the full path of the location where you copied the application

6. Start SQLPlus by entering the following on the command prompt: `sqlplus SYS AS SYSDBA`
7. Check if there is a dump directory `DATA_PUMP_DIR`:

```
SELECT directory_path FROM dba_directories WHERE directory_name = 'DATA_PUMP_DIR';
```

8. Make sure the dedicated `isource` database user has read and write access to the directory:

```
GRANT read, write ON DIRECTORY data_pump_dir TO isource;
```

9. Exit SQLPlus to return to the command prompt
10. Execute the following command:

```
expdp parfile="C:\Oracle\admin\DBNAME\dpdump\expdp.par"
```

where `DBNAME` is the name of your database.

11. Provide the user name and password for the dedicated `isource` database user.
The dump file is exported to the dump directory. You can import it back after you have

uninstalled the old version of Content Manager.

Upgrading your Background Task configuration

Only if you're upgrading Content Manager from a release older than Tridion Docs 15, you must transform your existing Background Task configuration XML from old format to Tridion Docs 15 format by running a Powershell script before starting your upgrade. During the upgrade, the configuration XML will then be automatically transformed to Tridion Docs 15.1 format.

About this task

If you're upgrading from Tridion Docs 15, you can skip this task, because your Background Task configuration will be upgraded for Tridion Docs 15.1 automatically. But if you're upgrading from an earlier version than Tridion Docs 15, you must run a Powershell script before starting your upgrade.

Procedure

1. On your installation media, go to the folder `__Resources\InfoShareScripts\Upgrade140xTo1500\`.
2. Copy the script `ConvertBackgroundTaskConfiguration.ps1` to your Content Manager server machine.
3. The script looks for your Background Task configuration XML file in the folder `C:\InfoShare\Web\Author\EnterViaUI\`. If you would like the conversion to occur in another folder, edit the script to change the path.
4. Run the Powershell script.
The script reads `Admin.XMLBackgroundTaskConfiguration.xml` and creates a converted file `Admin.XMLBackgroundTaskConfiguration.converted.xml` in the same folder.
5. Replace your existing XML Background Task configuration in the Content Manager database with the contents of the converted file. You can do this in one of the following ways:
 - In the Tridion Docs web client user interface, select **Settings** and then **XML Background Task Settings**. Clear the XML content you see, and paste the contents of `Admin.XMLBackgroundTaskConfiguration.converted.xml` into it. Then select **Save** to apply the change.
 - Write a script that replaces the XML in the database with the contents of `Admin.XMLBackgroundTaskConfiguration.converted.xml`, and run it.

What to do next

Your Background Task configuration is now in Tridion Docs 15 format. The upgrade process will automatically upgrade it to the Tridion Docs 15.1 format.

Uninstalling Content Manager

Removal of all Content Manager items of the installed environment is required before starting an upgrade.

Before you begin

In the context of a Content Manager install or uninstall operation, before you run InstallTool you need to make sure the Microsoft Distributed Transaction Coordinator MSDTC service is running.

About this task

All items which were installed and in the `installplan.xml` are removed from your system. Items which are not removed are:

- the Full Text Collection,
- all PublishService, ImportService, ExportService generated data,
- all generated logging,
- files that have changed after the initial installation (such as configuration files).

Procedure

1. Login to your Windows system as the **Administrator** user or a user with Administrator privileges (a user in the Administrator group).
2. In Windows Explorer, go to the location where the previous installation software is located, or to the CD that was used to install the current environment, to access the correct version of the tool for uninstalling the software. Go to:

```
C:\IShCD\yyyymmdd.CD.InfoShare<version_num>.ProjectName.IT\__InstallTool
```

3. Locate and double-click on **InstallTool.exe**.
4. Select the uninstall option.
5. Select the project that you want to remove.
6. Uninstall.

Note: If the tool ends with errors you can find extensive info in `installtool.log`.

7. After the uninstall have completed, check that no Trisoft COM+ application remained in **Component Services > Computers > My Computer > COM+ Applications**. Remove remaining applications having a name starting with Trisoft-, if any.

Installing Content Manager databases (installation only)

Only if you're installing Content Manager for the first time, set up your Content Manager databases before proceeding with the installation of the Content Manager application server. In addition, you need to install additional databases that are required for specific features.

The Content Manager databases can reside on either a Microsoft SQL Server or Oracle database server. Your database server must be installed with the approved version of

database software before beginning with these procedures.

Note: An Oracle setup is more complex than a Microsoft SQL Server setup. This is because the Microsoft SQL Server installation and configuration is explained using a Windows user interface. If you have the choice and are not an Oracle DBA, we advise that you install on a Microsoft SQL Server platform.

Setting up the Content Manager database on Microsoft SQL Server

Setting up the Content Manager database on Microsoft SQL Server requires configuration of the server and creation of the database.

Configuring Microsoft SQL Server

The database setup is done on the Microsoft SQL server.

First read the pre-installation notes for SQL Server provided in this documentation.

The SQL Server installation has to be an **AccentSensitive, CaseInsensitive, Unicode-ready** installation.

- If you are performing a fresh SQL Server installation, make sure that in the **Database engine Collation** settings, **Accent-sensitive** is selected and Case-sensitive is not selected.
- The typical Content Manager collation is **SQL_Latin1_General_CP1_CI_AS** (not the often mistaken collation Latin1_General_CI_AS). Depending on the SQL Server version, the collation **SQL_Latin1_General_CP1_CI_AS** is also displayed as **Dictionary order, caseinsensitive, for use with 1252 Character Set**.
- You can check the collation name by issuing a query in **SQL Server Management Studio** connected to your server.
 - Select **New Query** then enter `select ServerProperty('Collation')`.
 - Select **Execute**.
 - Verify that the result shows an Accent-sensitive (AS), Case-insensitive (CI) collation name.
For more information refer to Collations in the SQL Server help files.

We recommend authentication based on named SQL Server login ID and on Windows accounts.

- Check or modify authentication in **SQL Server Management Studio**, right-click **ServerName**, then click **Properties** and select **Security** on the left pane.
- In the **Server authentication** pane on the right, select **SQL Server and Windows Authentication Mode**.

SQL Server Agent is part of the SQL Server software.

- Check that this Windows Service is set to automatically start upon server reboot.

In the **Control Panel** select **System and Security** then **Administrative Tools** then open **Services**.

- Verify that **SQL Server Agent** startup type is **Automatic**.

Creating a Microsoft SQL Server database for Content Manager

Create a database for the Content Manager data collection.

Procedure

1. Open **SQL Server Management Studio**.
 2. Right-click on **Databases** then click **New Database...**
 3. Enter a database name (e.g. `ContentManager`).
 4. Click **Options** in the left pane.
 5. In the **Collation** field, select: **SQL_Latin1_General_CP1_CI_AS**.
 6. Select the appropriate **Recovery model**.
 - **Full**: All transactions are logged. The recommended choice for production databases.
 - **Simple**: A portion of the transactions are logged. A choice for some test or development databases.
 - **Bulk-Logged**: temporary setting used for specific large-scale bulk operations.
-
- Note:** The recovery model determines the number of transactions logged for later system recovery. Whereas a **Full** model provides the best security with a higher points-in-time for recovery, in some situations a **Full** model may cause logs to grow beyond system's ability to process them. Check your database documentation for more information.
-
7. In the **Compatibility** level field, select option corresponding to the version of SQL Server you are using.
 8. Click **OK**.

Importing data from the SQL dumpfile

Import the sample Content Manager database dump to validate the configuration and for training purposes.

About this task

The backup data you import can come from the same version of SQL server or from a previous version.

Procedure

1. In the SQL Server Management Studio window, under **Databases**, right-click on the database you created.
2. Click **Tasks > Restore > Database**.
3. In the **General** tab of the Restore Database window, select that you want to restore from a **Device**.
 - a. Click the ellipsis button next to the **Device** field.
 - b. Click **Add** in the resulting Specify Backup window.
 - c. Locate and select the latest available dump provided on the installation CD in a subfolder of the `\Database\Dump\` folder.
 - d. Click **OK**.
 - e. The **Database** field under **Source** is populated with the name of the database in the backup file.
 - f. In the **Database** field under **Destination**, select the name of the database you created (e.g. `ContentManager`). This is the database that is to be populated with the data from the backup/dump file.

Note: Make sure to select this after selecting the source otherwise it can default to another database name.

4. In the **Files** tab of the **Restore Database** Window:
 - a. For the **Rows Data** select the data file path of the database you created (e.g. `C:\Program Files\Microsoft SQL Server\MSSQL14.SQL2017\MSSQL\DATA\ContentManager.mdf`).
 - b. For the **Log** select the log file path of the database you created (e.g. `C:\Program Files\Microsoft SQL Server\MSSQL14.SQL2017\MSSQL\DATA\ContentManager_log.ldf`).
5. Under the **Options** tab, select **Overwrite the existing database**.
6. Click **OK**. The database is restored.
7. After restoring the database, use **SQL Server Management Studio** to:
 - a. Open the **Properties** window,
 - b. Go to the **Files** tab,
 - c. Check and adapt (if necessary) the logical name.

File type	Logical Name
Rows Data	Set Logical Name to <dbname> (e.g. <code>ContentManager</code>)
Log	Set Logical Name to <dbname>_Log (e.g. <code>ContentManager_Log</code>)

- d. Check the recovery model and verify that **Full** is selected for the **Recovery model**.

Removing the database user and schema

To ensure successful creation of a new database user and schema, delete the user that was created when importing the sample data, as well as the schema of the same name if one exists.

About this task

A database user in SQL Server exists on two levels, as an account on the SQL Server level and as an account on your database. Depending on the kind of initial database setup dump you received, you could have problems creating your new database user. Therefore, you should delete the Content Manager database designated user (by default named `isource`) and schema if one is present.

Note: The user listed within the created database part is to be removed and not the general SQL Server part listed under Security > Logins.

Procedure

1. In the SQL Server Management Studio window, locate and open the tree under the newly created database.
2. Open **Security > Schemas**.
3. Right-click on **isource** if it appears in the list, then click **Delete**.
A Delete Object window displays.

Note: The **isource** user may not exist under **Schemas**. If it does not exist, skip this and the next step; continue to the step to open **Security > Users**.

4. Click **OK** to confirm the removal.
5. Open **Security > Users**.
6. Right-click on **isource** then click **Delete**.
A Delete Object window displays.
7. Click **OK** to confirm the removal.

Creating a new database user and schema

Add a new user to connect to the newly created database.

Procedure

1. On the database server, open the **SQL Server Management Studio**.
2. In the left pane under the server name open **Security**.
3. Right-click on **Logins** then select **New Login...**
A Login - New window displays.
4. In the **Login name** field, enter an user name (e.g. `isource`).
5. **SQL Server Authentication** should be selected. Enter a **Password** (e.g. `isource`) and **Confirm password** for SQL Server Authentication.

Note: SDL is not able to assist you if you do not know the password so it is advised to store the password in a secure place.

6. Depending on your local password policy, you can enforce password policy and password expiration.
-

Note: Keep in mind to change the connect string whenever you change the password of the database user!

7. Use the drop down list to select the **Default database**; select your newly created database.
No other changes are required for the General information.
 8. Click **Server Roles** in the left pane.
 9. Select (check the boxes next to) **public** and **sysadmin** in the right pane.
This allows the Content Manager DBUpgradeTool (DBUT) to fully execute all necessary tasks to update your database with new releases.
-

Notice: If you want to reduce the server roles for everyday work, read "Optionally minimize the database user's roles and permissions " on page 19.

10. Click **User Mapping** in the left pane.
 11. Select (check the boxes next to) the newly created database in the upper right pane.
 12. In the upper right pane, in the **Default Schema** field for your database, enter **dbo**.
 13. In the bottom pane, select (check the boxes next to) **db_owner** and **public**.
-

Notice: If you want to reduce the permissions for day to day usage, read "Optionally minimize the database user's roles and permissions " on page 19.

14. In the Login - New window, click **Status** in the left pane.
15. Verify that **Grant** is selected for **Permission to connect to the database engine** and that **Enabled** is selected for **Login**.
16. Click **OK**.
17. Click **File > Exit**.

Optionally minimize the database user's roles and permissions

Describes how to optionally reduce the roles and permissions of the database user for everyday usage.

About this task

Optional execution to minimize the permissions for normal operations outside of the upgrade time frame.

Note: The following steps must be executed by a user who is administrator on the database server.

Procedure

1. On the database server, open **SQL Server Management Studio**.
2. In the left pane under the server name, open **Security > Logins**.
3. Right-click the database user (e.g `isource`) and select **Properties**.
4. Revoke the server role **sysadmin**.

The server role **sysadmin** provides the ability to perform any activity on the server. Content Manager DBUpgradeTool (DBUT) requires this server role to create the standard database job and add extra (error) messages, for example. In order to allow DBUT to fully execute all necessary tasks during an upgrade, we advice to reinstate the **sysadmin** server role for the duration of that task. However, during everyday usage you can revoke **sysadmin** using the following steps:

- a. Select **Server Roles** in the left pane.
 - b. Deselect **sysadmin** in the right pane. Make sure that **public** is still selected.
5. Revoke database role **db_owner**.

Note: Revoking the database role **db_owner** should be done only after revoking the server role **sysadmin**.

- a. Select **User Mapping** in the left pane.
 - b. Select the correct database in the upper right pane.
 - c. In the bottom pane, un-check the box next to **db_owner**. Make sure that **public** is still selected.
6. Select **OK**.
 7. After revoking the database role **db_owner**, add the minimal required permissions.

In order for the Content Manager application to work without issues, the database user needs the following permissions:

Name	Description	Usage
SELECT	Retrieve information/ records from the database	Everywhere
INSERT	Insert new records into the database	Everywhere
UPDATE	Update records in the database	Everywhere

Name	Description	Usage
DELETE	Delete records from the database	Everywhere
EXECUTE	Execute a stored procedure in the database	<p>Stored procedures are used everywhere to:</p> <ul style="list-style-type: none"> • Create new objects (maps, topics, publications, users, LOV values...) and get the newly created IDentity back. • Delete objects • Cleanup left-overs during a nightly maintenance job • ...
CREATE TABLE	Create a new table	<p>DBUpgradeTool: during the upgrade of the database from one version to another version, we might introduce new tables.</p> <p>Full-text search: out-of-the-box the tables for the full-text search are created when you start the Crawler for that installation for the first time.</p>
CREATE VIEW	Create a new view	DBUpgradeTool: during the upgrade of the database from one version to another version, we are dropping and recreating views.
CREATE FUNCTION	Create a new function	DBUpgradeTool: during the upgrade of the database from one version to another version, we are dropping and recreating functions.
CREATE PROCEDURE	Create a new stored procedure	DBUpgradeTool: During the upgrade of the database from one version to another version, we are dropping and recreating stored procedures.
REFERENCES	Create foreign keys between two tables	<p>DBUpgradeTool: During the upgrade of the database from one version to another version, we might introduce new tables and add new foreign keys between those new tables and the existing tables.</p> <p>Full-text search: out-of-the-box the tables for the full-text search are created when you start the Crawler for that installation for the first time, and we are also adding new foreign keys between those new tables and the existing tables.</p>
ALTER ANY SCHEMA	Create, alter and delete objects in any schema	<p>DBUpgradeTool: during the upgrade of the database from one version to another version, we are creating/altering/deleting tables, views, functions, stored procedures... in the schema <code>dbo</code>.</p> <p>Full-text search: we need to create the tables in the schema <code>dbo</code> for the full-text search.</p>

You can grant the necessary permissions to the database user using the following steps:

- In **SQL Server Management Studio** open the following file:

`C:\InfoShare\AppPROJECTSUFFIX\Database\InfoShareCM\Common\SQLServer\`

`Tools\GrantPermissionsToDBUser.sql`
where `PROJECTSUFFIX` is a suffix string.

- b. If your database user is not `isource`, change `isource` to the correct database user.
- c. Run the script as an administrator.
- d. Connect with the database user (e.g. `isource`) and run the following query to check that the database user has the required permissions.

```
SELECT * FROM fn_my_permissions(null, 'DATABASE')
```

Setting up the Content Manager database for Oracle

The installation makes use of the Oracle Database Configuration Assistant (DBCA) and command line programs to create and set up the database. This allows for anyone with a mixture of Windows and UNIX knowledge to be able to set up an environment on any Oracle hosting machine.

The configuration instructions refer to a Windows environment when noting system variables and file paths.

These instructions guide a knowledgeable person through the configuration so that no important steps are forgotten. However, it does not provide all explanations, or options pertaining to each step.

Note: The default database name is **ISH**.

Note: In case of issue, be sure to check the troubleshooting section dedicated to the database installation.

Configuring Oracle

Before creating your database, some configuration tasks are required.

Oracle database configuration requirements

The users who can configure Oracle must have permissions and access as required and be familiar with Oracle and Microsoft environments.

The provided configuration instructions are written for administrators who have knowledge of the Oracle and Microsoft environments.

Make sure that you satisfy the following requirements before you begin:

- Having a DBA role is required for a database migration.
- Reboot after Oracle installation for making sure that all Oracle environment settings are available to you.

Also note:

- All executed actions should be done in the same command window for making sure that shell specific settings, such as `ORACLE_SID` or `ORACLE_HOME`, are available.
- All paths are examples only. Paths are system specific, so make sure that all file paths are valid and contain the correct file(s), and beware of read-only flags on files.
- The default database name is **ISH** and is used in examples in the procedures.

Activating the Listener service for Oracle

You must start the Oracle listener service so that incoming client connection requests are received and sent to the database server.

About this task

Activate the Listener service for Oracle in one of two ways:

- If a general listener is available, select it,
- Otherwise, create a specific listener for your database and activate it, following the steps below.

Procedure

1. Start the Net Configuration Assistant. This Assistant is provided by Oracle.
2. Select **Listener Configuration** in the window that opens, then select **Next**".
3. Select **Add** in the following window, then select **Next**.
4. Enter a name for the new listener, then select **Next**.
5. Select **TCP** as the selected protocol in the list, then select **Next**.
6. Select **Use the standard port of 1521** in the following window, then select **Next**, or specify a custom port if using.
7. Complete the creation process by selecting **Next** again.

Creating the Oracle database for the Content Manager Repository

Use the Database Configuration Assistant to create the Oracle database for the Content Manager Repository, using a template.

Before you begin

To perform this task, you must be a member of the local Windows administration group, as well as of the `ORA_DBA` group.

About this task

To prepare your environment for the Oracle configuration, first copy the template file to your server. The version mentioned below has been quality-tested with this version of Content Manager.

Target directory on the server: `ORACLEHOME\assistants\dbca\templates\`

Procedure

1. Go to the folder `c:\InfoShare\App\Database\InfoShareCM\Common\Oracle\Oracle193.Admin\`.
2. Copy the template `SDL-Trisoft.InfoShare-Database-Template.dbt` to a location of your choosing, for example, `ORACLEHOME\assistants\dbca\templates`, where `ORACLEHOME` is the Oracle home directory on the server.
3. Start the Database Configuration Assistant (DCA). This Assistant is provided by Oracle.
4. On the **Database Operation** page, select **Create Database**, then select **Next**.
5. Change the configuration mode to **Advanced configuration**, then select **Next**.
6. On the **Database Template** page, select `SDL Trisoft InfoShare Database Template (19)`, then select **Next**.
7. On the **Database Identification** page, fill in the **Global Database Name** field with the database name; make sure that the **Create as Container Database** option is *not* selected, and then select **Next**.
8. On the **Storage Option** page, do the following:
 - a. Select **Use following for the database storage attributes**.
 - b. In the **Database files storage types** list, select **File System**.
 - c. Fill in the **Database files location** field with the path to the database.
 - d. Select **Next**.
9. Leave the **Fast Recovery Option** page as is, then select **Next**.
10. On the **Network Configuration** page, select the Listener that you previously selected or created for this database, then select **Next**.
11. Leave the **Database Options** page as is and select **Next**.
12. On the **Configuration Options** page, on the **Memory** tab, select **Use Automatic Shared Memory Management**. You may want to adapt the values to your specific needs.
13. On the **Configuration Options** page, on the **Sizing** tab, you may want to increase the processes value, depending on the size of your system. Each current database consumer (end users, services, background tasks...) uses a process, so you need to set a sufficient amount of them if you want all the consumers to be able to use the database in parallel.
14. Leave the rest of the **Configuration Options** page as is and select **Next**.
15. On the **Management Options** page, make sure that the specified port is unique and select **Next**.
16. On the **User Credentials** page, fill in the password fields, then select **Next**.
17. On the **Creation Option** page, select **Create database**, then select **Next**.
18. On the **Summary** page, select **Finish**.

Creating the designated ISOURCE database user

You must create the `ISOURCE` designated database user for the new database.

Procedure

1. If the folder `C:\oracle\admin\ISH\create\` on the server does not exist, create it now.
2. Copy `PACKAGEROOT\Database\InfoshareCM\Common\Oracle\Create\isrcuser.i` (where `PACKAGEROOT` is the root folder of the installation package) to the folder `C:\oracle\admin\ISH\create\`, and make sure the file is writable.
3. Check the paths, commands, usernames and passwords in the file. The examples in the file are Windows-specific. Open the file in a plain-text editor and change the example values as needed, especially the username and password of the designated user, to match your environment.
4. Open a command shell for your operating system.
5. On the command prompt, define the following environment variables, with the following values:

Environmet variable	Value
<code>ORACLE_SID</code>	<code>ISH</code>
<code>ORACLE_HOME</code>	the full path of the location where you copied the application

6. Start SQLPlus by entering the following on the command prompt: `sqlplus SYS AS SYSDBA`
7. Enter the following commands from the same command prompt:

```
SPOOL C:\oracle\admin\ISH\create\dbadmin2.log
CONNECT SYS/CHANGE_ON_INSTALL AS SYSDBA
@C:\oracle\admin\ISH\create\isrcuser.i
CONNECT ISOURCE/isource
@?/RDBMS/ADMIN/catdbsyn.sql
SPOOL OFF;
```

Note: If you receive the error "SP2-0606: Cannot create SPOOL file `C:\oracle\admin\ISH\create\dbadmin2.log`", then you have no folder `C:\oracle\admin\ISH\create\`.

Importing the data with Oracle

You can import sample data in order to validate your configuration or for training purposes. Use the Data Pump Import tool for this.

Procedure

1. If the folder `c:\oracle\admin\ISH\dpdump\` does not exist on the server, create it now.
2. Copy `PACKAGEROOT\Database\InfoShareCM\Common\Oracle\impdp\impdp.par` (where `PACKAGEROOT` is the root folder of your package) to the folder `c:\oracle\admin\ISH\dpdump\`, and make sure the file is writable.
3. Check the paths, commands, usernames and passwords in the file. The examples in the file are Windows-specific. Open the file in a plain-text editor and change the example values as needed, especially the name of the export file (`DUMPFIL` parameter) and the designated schema owner (`SCHEMAS` parameter), to match your environment.
4. Open a command shell for your operating system.
5. On the command prompt, define the following environment variables, with the following values:

Environmet variable	Value
<code>ORACLE_SID</code>	<code>ISH</code>
<code>ORACLE_HOME</code>	the full path of the location where you copied the application

6. Start SQLPlus by entering the following on the command prompt: `sqlplus SYS AS SYSDBA`
7. Make sure the `ISOURCE` user has read and write access to the folder:

```
GRANT read, write ON DIRECTORY data_pump_dir TO isource;
```

8. Make sure the file from the Data Pump Export is copied to the `DATA_PUMP_DIR`:

```
SELECT directory_path FROM dba_directories WHERE directory_name = 'DATA_PUMP_DIR';
```

9. Exit SQLPlus, so you are back at the command prompt.
10. Perform the import by executing the following command:

```
impdp isource parfile="C:\oracle\admin\ISH\dpdump\impdp.par"
```

Disabling optimizer dynamic sampling

Dynamic sampling is a functionality that gathers statistics on the fly during query execution. When switched on, it can adversely affect performance. For that reason, you should ensure that the `SYS` user disables optimizer dynamic sampling in the Oracle database.

Procedure

1. Open a command shell for your operating system.
2. Start SQLPlus by entering the following on the command prompt: `sqlplus SYS AS SYSDBA`
3. Enter the following command:

```
ALTER SYSTEM SET optimizer_dynamic_sampling=0
```

Validating the Oracle database

The newly imported Oracle database needs some packages, triggers and more to be (re-)compiled for the database to be valid.

Before you begin

To perform this task, the `ORACLE_SID` and `ORACLE_HOME` environment variables must be set correctly (this is normally done during the `ISOURCE` user creation).

Procedure

1. From a command shell in which where the `ORACLE_SID` and `ORACLE_HOME` environment variables are set correctly, enter the following from the command prompt:

```
SQLPLUS /NOLOG
```

2. Enter the commands to validate the database. Do not use a script file.

```
CONNECT SYS/CHANGE_ON_INSTALL AS SYSDBA  
@?/rdbms/admin/utlrp;
```

All objects in the database should be valid.

Editing `tnsnames.ora` for an Oracle database

For Oracle databases, the `tnsnames.ora` file defines the information for a connection to the database server and to the database instance for the Content Manager repository. Modify the file on the Oracle database server, and on all systems that communicate with the Oracle database server.

About this task

If the Oracle database server and client software are installed on the same system, you must edit the `tnsnames.ora` file under each Oracle home directory.

Procedure

1. Sign in to the server as an administrator user.
2. Go to the folder `ORACLEHOME\network\admin\`, where `ORACLEHOME` is the Oracle home directory.
3. If this folder does not yet contain a file called `tnsnames.ora`, create an empty plain-text document and save it as `tnsnames.ora` in this folder.
4. Open `ORACLEHOME\network\admin\tnsnames.ora` in a plain-text editor.
5. Add the following to the file. Make sure that the first line starts on position 1, that is, that it contains no leading whitespace.

```
NETSERVICENAME =
(DESCRIPTION =
  (ADDRESS_LIST =
    (ADDRESS = (PROTOCOL = TCP)
      (HOST = HOSTNAME)
      (PORT = 1521))
  )
(CONNECT_DATA =
  (SERVICE_NAME = SERVICENAME)
)
```

where:

- `NETSERVICENAME` is an alias, for example, `ISH.WORLD`, that is used for a connect descriptor.
- `HOSTNAME` is the IP address or name of the database server, for example, `devserver01` or `127.0.0.1`.
- `SERVICENAME` is a combination of the `db_name` and `db_domain` values in the `C:\oracle\admin\ISH\pfile\PFIL\initISH.ora` file. For example:

```
SERVICE_NAME = ISH.ORASERVER.DOMAIN.NAME
```

where `ISH` is the `db_name` value and `ORASERVER.DOMAIN.NAME` is the `db_domain` value in the `initISH.ora` file.

6. Save and close the file.

Analyzing the Oracle database

After the import, run a script that creates statistics used by the queries.

Before you begin

`ORACLE_SID` and `ORACLE_HOME` variables are set correctly (this is normally done during the `ISOURCE` user creation).

Procedure

1. At a command prompt where the environment variables `ORACLE_SID` and `ORACLE_HOME` are set correctly (this is normally done during the `ISOURCE` user creation), enter the following commands:

```
SQLPLUS /NOLOG
CONNECT ISOURCE/isource
```

2. Run the `PACKAGEROOT\Database\InfoshareCM\Common\Oracle\Tools\FullAnalyze.sql` script, where `PACKAGEROOT` is the root folder of your installation package.

Creating databases for Content Manager security

To implement security for Content Manager clients, you need to create three additional databases.

Databases

The following table describes the databases and their functions:

Feature	Description
Tridion Access Management	Tridion Access Management (or simply Access Management) provides implementors with a simplified approach to identity management and gives administrators a central location for ongoing management of access to applications.
Backend for frontend	<i>Backend for frontend</i> , or BFF, refers to an architectural pattern that uses a middle layer between the frontend clients and the backend. BFF also refers to the layer itself and each client has a dedicated BFF. A single BFF database is used for the various BFFs.
Tridion Docs Identity Provider	

Database server requirements

The Content Manager databases can reside on either an Microsoft SQL Server or Oracle database server. Your database server must be installed with the approved version of database software before beginning with these procedures.

Note: An Oracle setup is more complex than a Microsoft SQL Server setup. If you have the choice and are not an Oracle DBA, we advise that you install on a Microsoft SQL Server platform.

To complete this task, you need access to a database server machine that runs a supported database version. Database support is the same as for Content Manager.

PowerShell script requirements

To create these databases, you run PowerShell database scripts, which require a machine that meets the following requirements:

PowerShell

You require Microsoft Windows PowerShell 5.1. You can download Microsoft Windows Management Framework 5.1, which includes Microsoft Windows PowerShell 5.1, from this location: <http://aka.ms/wmf5download>

Operating system

You require an operating system that supports both the required PowerShell software and any software for the database you intend to install. As a general rule, ensure that the latest (security) updates are installed on your operating system.

Database client software

For Oracle databases, you require both of the following:

- Oracle Services for Microsoft Transaction Server (ORAMTS)
- Oracle Data Provider for .NET (ODP.NET)

For maintenance, configuration and debugging purposes, RWS recommends that you also install the Oracle SQL Developer PL/SQL IDE (or SQL*Plus) and Oracle Net.

Environment variables

For Oracle databases where you have defined a Net Service Name for each database in a `tnsnames.ora` file, you must also have defined a `TNS_ADMIN` environment variable. Set it to the directory where `tnsnames.ora` resides.

Microsoft .NET Framework

You require a .NET Framework version. The one to use depends on your Windows Server operating system version:

- If you run Microsoft Windows Server 2022, you can use Microsoft .NET Framework 4.8.1. You can download Microsoft .NET Framework 4.8.1 from the following location: <https://dotnet.microsoft.com/en-us/download/dotnet-framework/net481>
- If you run Microsoft Windows Server 2019 x64, you must use Microsoft .NET Framework 4.8. You can download Microsoft .NET Framework 4.8 from the following location: <https://dotnet.microsoft.com/en-us/download/dotnet-framework/net48>

Security

You need to be logged in as a user with sufficient security clearance. For example, to run a script that installs a database, you must be logged in as a user with rights to create that database.

Creating an SQL Tridion Docs administrator user for Oracle

Tridion Docs ships with an SQL script that creates a Tridion Docs administrator user. After running the script, you can use this new user when you run a PowerShell script to create a database for Content Manager security. The privileges and roles created for this user are the minimum requirements for database installation.

Procedure

1. On your Tridion Docs installation media, go to the folder `Database\Shared\Scripts\Oracle\Create\`.
2. Run the SQL script `TridionSYSUser.sql` (say, from SQL*Plus).
3. When prompted, give the following information:

Username	The name of the Tridion Docs administrator user that can create the database. RWS proposes the user name <code>TRIDION_DOCS_SYS</code> .
	Note: You cannot use a user that must connect as <code>SYSOPER</code> or <code>SYSDBA</code> with the PowerShell script.
Password	The password of this user
Default tablespace	The default tablespace for objects the user creates
Temporary tablespace	The tablespace for the user's temporary segments

What to do next

Once this user has been created, you can proceed to create your databases for Content Manager security.

Creating the Access Management database

Create the Access Management database using the provided PowerShell script.

Before you begin

- To complete this task, you need access to a database server machine that runs a supported database version. Database support is the same as for Content Manager.

About this task**Procedure**

1. On your database server machine, open a PowerShell prompt.
2. For Oracle databases, specify a host, port, service name and other connection information for the PowerShell script, either *before* or *while* running the script:
 - *Before* you run the script, you can define a variable in PowerShell, let's say `$MyDatabaseServer`, and set it to your connection string. When you invoke the script, you then append the string `-DatabaseServer $MyDatabaseServer` to the PowerShell command.
 - Alternatively, you can just invoke the script as is, and *while* you run the script, PowerShell prompts you for a value for **Net Service**, and you can then enter one of the following:
 - Enter the Net Service Name for this database if you have defined a Net Service Name in a `tnsnames.ora` file and specified the location of that file in a `TNS_ADMIN` environment variable.
 - Enter the string `%manual%` to let the script prompt you for the following: **Host**

name, Port and Service name.

- Enter the actual connection string directly on a single line if you have more to provide than just a host, port and service name. For example:

```
(DESCRIPTION = (ADDRESS = (PROTOCOL = TCP) (HOST = myhost) (PORT = 1521)) (CONNECT_DATA = (SERVICE_NAME = ora)))
```

3. Run the following PowerShell command, following the instructions that appear:

```
& '.\Install Access Management database.ps1'
```

By completing this step, you have created the Access Management database.

Creating the Tridion Docs Identity Provider database

Create the database for Tridion Docs Identity Provider using the provided PowerShell script.

Before you begin

- To complete this task, you need access to a database server machine that runs a supported database version. Database support is the same as for Content Manager.
- To run PowerShell database scripts for this database, the machine must meet the requirements described in “Creating databases for Content Manager security” on page 29.

Procedure

1. On your database server machine, open a PowerShell prompt.
2. In the location of your Tridion Docs installation media, navigate to the folder for the type of database you are creating:
 - For a Microsoft SQL Server database: `Database\InfoShareID\SQLServer\`
 - For an Oracle database: `Database\InfoShareID\Oracle\`
3. For Oracle databases, specify a host, port, service name and other connection information for the PowerShell script, either *before* or *while* running the script:
 - *Before* you run the script, you can define a variable in PowerShell, let's say `$MyDatabaseServer`, and set it to your connection string. When you invoke the script, you then append the string `-DatabaseServer $MyDatabaseServer` to the PowerShell command.
 - Alternatively, you can just invoke the script as is, and *while* you run the script, PowerShell prompts you for a value for **Net Service**, and you can then enter one of the following:
 - Enter the Net Service Name for this database if you have defined a Net Service Name in a `tnsnames.ora` file and specified the location of that file in a `TNS_ADMIN` environment variable.
 - Enter the string `%manual%` to let the script prompt you for the following: **Host name, Port and Service name.**
 - Enter the actual connection string directly on a single line if you have more to provide than just a host, port and service name. For example:


```
(DESCRIPTION = (ADDRESS = (PROTOCOL = TCP) (HOST = myhost) (PORT = 1521)) (CONNECT_DATA = (SERVICE_NAME = ora)))
```

4. Run the following PowerShell command, following the instructions that appear:

```
& '.\Install Infoshare Identity Provider database.ps1'
```

By completing this step, you have created the InfoShareID database.

Creating the backend for frontend database

Create the backend for frontend (BFF) database using the provided PowerShell script.

Before you begin

- To complete this task, you need access to a database server machine that runs a supported database version. Database support is the same as for Content Manager.
- To run PowerShell database scripts for this database, the machine must meet the requirements described in “Creating databases for Content Manager security” on page 29.

About this task

Backend for frontend, or BFF, refers to an architectural pattern that uses a middle layer between the frontend clients and the backend. BFF also refers to the layer itself and each client has a dedicated BFF. A single BFF database is used for the various BFFs.

Procedure

1. On your database server machine, open a PowerShell prompt.
2. For Oracle databases, specify a host, port, service name and other connection information for the PowerShell script, either *before* or *while* running the script:
 - *Before* you run the script, you can define a variable in PowerShell, let's say `$MyDatabaseServer`, and set it to your connection string. When you invoke the script, you then append the string `-DatabaseServer $MyDatabaseServer` to the PowerShell command.
 - Alternatively, you can just invoke the script as is, and *while* you run the script, PowerShell prompts you for a value for **Net Service**, and you can then enter one of the following:
 - Enter the Net Service Name for this database if you have defined a Net Service Name in a `tnsnames.ora` file and specified the location of that file in a `TNS_ADMIN` environment variable.
 - Enter the string `%manual%` to let the script prompt you for the following: **Host name**, **Port** and **Service name**.
 - Enter the actual connection string directly on a single line if you have more to provide than just a host, port and service name. For example:

```
(DESCRIPTION = (ADDRESS = (PROTOCOL = TCP) (HOST = myhost) (PORT = 1521)) (CONNECT_DATA = (SERVICE_NAME = ora)))
```

3. Run the following PowerShell command, following the instructions that appear:

```
& '.\Install Infoshare Backend For Frontend database.ps1'
```

By completing this step, you have created the backend for frontend database.

Creating the Metrics database

Create the Metrics database using the provided PowerShell script.

Before you begin

- To complete this task, you need access to a database server machine that runs a supported database version. Database support is the same as for Content Manager.
- To run PowerShell database scripts for this database, the machine must meet the requirements described in “Creating databases for Content Manager security” on page 29.

About this task

Metrics is a feature that gives customers a variety of metrics, extracted from the content they create. The feature extracts technical documentation metrics that consist of productivity metrics as well as a Return on Investment value, which is based on the level of content reuse that is measured. Gathered data is collected and aggregated in the Metrics database. The Metrics web service fetches the data from the database and serves it up to its clients.

Procedure

1. On your database server machine, open a PowerShell prompt.
2. For Oracle databases, specify a host, port, service name and other connection information for the PowerShell script, either *before* or *while* running the script:
 - *Before* you run the script, you can define a variable in PowerShell, let's say `$MyDatabaseServer`, and set it to your connection string. When you invoke the script, you then append the string `-DatabaseServer $MyDatabaseServer` to the PowerShell command.
 - Alternatively, you can just invoke the script as is, and *while* you run the script, PowerShell prompts you for a value for **Net Service**, and you can then enter one of the following:
 - Enter the Net Service Name for this database if you have defined a Net Service Name in a `tnsnames.ora` file and specified the location of that file in a `TNS_ADMIN` environment variable.
 - Enter the string `%manual%` to let the script prompt you for the following: **Host name**, **Port** and **Service name**.
 - Enter the actual connection string directly on a single line if you have more to provide than just a host, port and service name. For example:

```
(DESCRIPTION = (ADDRESS = (PROTOCOL = TCP) (HOST = myhost) (PORT = 1521)) (CONNECT_DATA = (SERVICE_NAME = ora)))
```

3. Run the following PowerShell command, following the instructions that appear:

```
& '.\Install Infoshare Metrics database.ps1'
```

By completing this step, you have created the Metrics database.

Installing the Content Manager server

You must install and configure the application and web server to use the Content Manager application, allowing you to connect to the repository.

Most of the Content Manager server installation process is automated. At the end of the process, some options must be set manually.

Be sure to check the installation requirements before initiating the application server installation.

Configuring database connection strings

Before installing the Content Manager software, you need to configure the connection between the application server and the Content Manager database. The connection is defined with a database connection string.

The topics in this section explain in detail the tasks involved in configuring connection strings.

Important: If you are upgrading to Tridion Docs 15.1 from a version earlier than release 15, you must create a *new* connection string. You cannot reuse an existing string in this upgrade scenario because Tridion Docs 15 introduces a stricter policy for keywords in connection strings.

The following steps summarize the process in the order the tasks must be performed:

1. Create the connection string according to the requirements for the type of database you are using, that is, for Microsoft SQL Server or Oracle.
2. If using an Oracle database, update the `tnsnames.ora` file.
3. Add the connection string to the `inputparameter.xml` file.

The final step is part of the broader task of editing the `inputparameter.xml` file. The next topic in this section provides the details on this file. Once that is done, you are ready to run the Content Manager InstallTool. After completing the installation process, the system adds the connection string to the `connect` setting in the server's registry.

Sample database connection strings

This topic provides examples of connection strings for SQL Server and Oracle databases.

Connection strings for SQL Server

The following is an example of a standard connection string for Microsoft SQL Server:

```
Provider=MSOLEDBSQL.1;Data Source=myServerAddress;Initial Catalog=myDataBase;User Id=myUsername;Password=myPassword;
```

The following is an example of a standard connection string for Microsoft SQL Server that includes a trusted connection using Integrated Security:

```
Provider=MSOLEDBSQL.1;Data Source=myServerAddress;Initial Catalog=myDataBase;Integrated Security=SSPI;
```

When using Integrated Security, the user specified in the Input Parameter `OSUser` used by `InstallTool`, should have sufficient privileges on the database.

Note:

- The provider shown is the Microsoft OLE DB Driver for SQL Server. Only this provider is supported.
 - Communication between the application server and the database server is (by default) encrypted.
One of the following is required:
 - A valid certificate issued by a certificate authority (CA) is installed on the Microsoft SQL Server.
 - The connection string contains "Trust server certificate = True" to indicate that you trust the server with a self-signed certificate.
 - Ensure that the connection string does not contain any of the following as keywords: *Access Token*, *Initial File Name* and *Server SPN*.
-

Connection strings for Oracle

The following is an example of a standard connection string for Oracle:

```
Provider=OraOLEDB.Oracle.1;Data Source=MyOracleDB;User Id=myUsername;Password=myPassword;
```

The following is an example of a standard connection string for Oracle with OS Authentication:

```
Provider=OraOLEDB.Oracle.1;Persist Security Info=False;User ID=/;Data Source=MyOracleDB
```

Note:

- The provider shown is the Oracle Provider for OLE DB. Only this provider is supported.
- The data source is the *net_service_name* entry in the *oracle_home\network\admin\tnsnames.ora* file.

Editing *tnsnames.ora* for an Oracle database

For Oracle databases, the *tnsnames.ora* file defines the information for a connection to the database server and to the database instance for the Content Manager repository. Modify the file on the Oracle database server, and on all systems that communicate with the Oracle database server.

About this task

If the Oracle database server and client software are installed on the same system, you must edit the *tnsnames.ora* file under each Oracle home directory.

Procedure

1. Sign in to the server as an administrator user.
2. Go to the folder *ORACLEHOME\network\admin*, where *ORACLEHOME* is the Oracle home directory.
3. If this folder does not yet contain a file called *tnsnames.ora*, create an empty plain-text document and save it as *tnsnames.ora* in this folder.
4. Open *ORACLEHOME\network\admin\tnsnames.ora* in a plain-text editor.
5. Add the following to the file. Make sure that the first line starts on position 1, that is, that it contains no leading whitespace.

```
NETSERVICENAME =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)
        (HOST = HOSTNAME)
        (PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = SERVICENAME)
    )
  )
```

where:

- *NETSERVICENAME* is an alias, for example, *ISH.WORLD*, that is used for a connect descriptor.
- *HOSTNAME* is the IP address or name of the database server, for example, *devserver01* OR *127.0.0.1*.
- *SERVICENAME* is a combination of the *db_name* and *db_domain* values in the *C:\oracle\admin\ISH\pfile\PFIL\initISH.ora* file. For example:

```
SERVICE_NAME = ISH.ORASERVER.DOMAIN.NAME
```

where *ISH* is the *db_name* value and *ORASERVER.DOMAIN.NAME* is the *db_domain* value in the *initISH.ora* file.

6. Save and close the file.

Preparing the `inputparameters.xml` file

The `inputparameters.xml` file stores parameters that are used by the Content Manager installer; therefore, the file must accurately reflect your environment before proceeding with installation. Only the mandatory parameters need to be considered in the vast majority of installations. The optional parameters cover rare and advanced cases.

Before you begin

Before modifying the `inputparameters.xml` file, you need to do the following:

- Obtain and install the certificate.
- Configure HTTPS bindings.

Procedure

1. From the `__InstallTool` folder of the installation directory, open the `inputparameters.xml` file for editing.
2. Edit the values of all mandatory parameters. Refer to the related topic for details. Each parameter in the `inputparameters.xml` file has the following syntax:

```
<param name="parameter">
  <currentvalue>value</currentvalue>
  <defaultvalue>example_value</defaultvalue>
  <description>description_of_how_used</description>
  <validate>if_validated</validate>
</param>
```

The XML elements perform the following functions:

<currentvalue>

Contains the value that is used by the Content Manager installer.

<defaultvalue>

Contains a predefined value as an example. Do not use the predefined value as a default value; its only purpose is to serve as an example.

<description>

Contains details describing how the current value of the parameter is used.

<validate>

Defines whether the value of the parameter is validated or not. If the element is empty, no validation is performed. The `<validate>` values are provided, and they should not be modified.

3. Edit the values of all optional parameters, as needed. Refer to the related topic for details.
4. Save and close the file.

Mandatory input parameters in `inputparameters.xml`

This section lists and describes the main input parameters contained in the `inputparameters.xml` file, the ones you need to set for any installation. Some of these input parameters are mandatory: you need to set them in order for the installation to work correctly.

osuser

The username of the designated operating system user. This user must be a local administrator and have the correct regional settings.

ospassword

The password of the designated operating system user. Set the password so that it never expires.

connectstring

The connection string for the Content Manager database (InfoShareCM). See the default suggestion or the documentation under "Sample database connection strings." For Oracle, 'Provider=OraOLEDB.Oracle.1;Data Source=MyOracleDB;User Id=myUsername; Password=myPassword;' should be used.

ishamconnectstring

The connection string for the Access Management database (InfoShareAM).

ishbffconnectstring

The connection string for the backend-for-frontend database (InfoShareBFF).

ishidconnectstring

The connection string for the Tridion Docs Identity Provider database (InfoShareID).

ishmetricsconnectstring

The connection string for the Tridion Docs Metrics database (InfoShareMetrics).

apppath

The root directory for the Content Manager installation. By default, this is set to `C:\InfoShare`.

baseurl

The first part of the URL that your InfoShare users will need to browse to use it, `https://ish.example.com` for example.

ps_java_home

The full path to an OpenJDK `JAVA_HOME` folder. This allows you to specify your path and, if needed, switch between compatible versions. Refer to the documentation for the version tested against.

Note: Do not use environment variables or put your file path in quotation marks.

serviceusername

Specify an existing InfoShare internal user profile `Username` to use for services like `TranslationBuilder`. Authentication happens over `AuthenticationContext` or using the deprecated WS-Trust authentication.

servicepassword

Specify an existing InfoShare internal user profile Password to use for services like TranslationBuilder. Authentication happens over AuthenticationContext or deprecated WS-Trust authentication.

serviceaccountclientid

Specify the InfoShare user profile Username to use for services like TranslationOrganizer. When the install tool for Access Management (ISHAM) is run, the value specified here is used, and thus becomes the service account client ID for requesting an access token from Access Management.

serviceaccountclientsecret

Specify any secret of your choice (it could be a GUID, for example) to use for services like TranslationOrganizer. When the install tool for Access Management (ISHAM) is run, the value specified here is used, and thus becomes the service account secret for requesting an access token from Access Management.

metricsserviceclientid

Specify the client identifier that the background task service should use to communicate with the Metrics API. When the install tool for Access Management (ISHAM) is run, the value specified here is used, and thus becomes the Metrics service client ID for requesting an access token from Access Management.

metricsserviceclientsecret

Specify any secret of your choice (it could be a GUID, for example) to use for communicating with the Metrics API. When the install tool for Access Management (ISHAM) is run, the value specified here is used, and thus becomes the Metrics service client secret for requesting an access token from Access Management.

Optional input parameters in `inputparameters.xml`

By default, the file `inputparameters.xml` contains only a set of mandatory properties. Optional parameters are either calculated by Content Manager, or they have a predefined default value. This section lists and describes the optional input parameters that you can set in the `inputparameters.xml` file. Only Content Manager experts should change these parameters.

Optional parameters

Note: When you provide a value to a parameter that is calculated by default, the parameter is set to your value and is no longer calculated.

Name	Description	Default value
projectsuffix	Whenever more than one project is installed, the <code>projectsuffix</code> value indicates the project. Remember to make web application names and service ports unique as well. The value of this parameter is given as <code>PROJECTSUFFIX</code> in the rest of this table.	(none)
webpath	The path of the folder in which the website folder is created.	<code>APPPATH</code> (calculated)
datapath	The path of the folder in which the data folder is created. For example, when the datapath is <code>c:\InfoShare</code> the logs will be created in the folder <code>c:\InfoShare\Data\Logs\</code> .	<code>APPPATH</code> (calculated)
workspacepath	This path is a temporary folder in which all the folders and files are copied and modified before the actual installation.	<code>APPPATH\Workspace</code> (calculated)
infosharecswebappname	The name of the web application that offers Organize Space, Draft Space and Review Space Services.	<code>ISHCS + PROJECTSUFFIX</code>
infoshareauthorwebappname	The name of the Content Manager web application hosting ClientConfig and ASP.NET pages.	<code>ISHCM + PROJECTSUFFIX</code>
infosharewswebappname	The name of the web application for Content Manager web services.	<code>ISHWS + PROJECTSUFFIX</code>
infosharestswebappname	The name of the web application with the deprecated Content Manager Secure Token Service (STS).	<code>ISHSTS + PROJECTSUFFIX</code>
websitename	The name of the website in which all web applications will be created.	Default Web Site
infoshareidwebappname	The name of the web application for the Tridion Docs Identity Provider.	<code>ISHID + PROJECTSUFFIX</code>
infoshareextwebappname	The name of the web application with the Web Extensions Service hosting customizations for Organize Space.	<code>ISHEXT + PROJECTSUFFIX</code>
infoshareamwebappname	The name of the Access Management web application.	<code>ISHAM + PROJECTSUFFIX</code>
infosharemetricswebappname	The name of the Metrics web application.	<code>ISHMT + PROJECTSUFFIX</code>

Name	Description	Default value
localservicehostname	Indicates the local service hostname part of the base URL. This can be <code>localhost</code> or the machine name. It will be used by all service side components that access the WCF Services on the same box.	the NetBIOS name of this local computer (calculated)
ps_fo_processor	The fully qualified file name of the XSL-FO processor, for example <code>C:\Program Files\AntennaHouse\AHFormatterV6\AHFCmd.exe</code> .	the highest installed version in <code>%ProgramFiles%</code> (calculated).
ps_htmlhelp_processor	The fully qualified file name of the HTML Help processor.	<code>C:\Program Files (x86)\HTML Help Workshop\hhc.exe</code> Note: Do not use environment variables or quotation marks.
ps_javahelp_home	The full path to a JavaHelp <code>JHHOME</code> folder, used when you want to publish with the JavaHelp output type.	<code>C:\javahelp\jh2.0</code> Note: Do not use environment variables or quotation marks.
solrlucene_service_port	The port that the <code>SolrLucene</code> service uses. This port must be unique for each Content Manager instance installed on a server.	8983
basehostname	The hostname part of the base URL. This value will be calculated using <code>BASEURL</code> as input, stripping the protocol <code>http</code> or <code>https</code> (e.g. <code>ish.example.com</code>)	<code>BASEURL</code> (calculated)
servicecertificatethumbprint	The thumbprint of an already installed certificate (e.g. <code>A43489159A520F0D93D032CCAF37E7FE20A8B419</code>) for unique service identification. You can repurpose your SSL certificate. Note that all your linked web application servers in a farm should offer the same trusted certificate.	from HTTPS binding of <code>websitename</code> (<code>20A8B419</code>)
servicecertificatevalidationmode	The validation mode specified here decides how the application-to-application communication validates service certificates (specified in <code>servicecertificatethumbprint</code>). The allowed options are: <code>ChainTrust</code> , <code>PeerTrust</code> , <code>PeerOrChainTrust</code> or <code>None</code> . Setting the mode to <code>None</code> causes any certificate to be accepted.	<code>ChainTrust</code>

Name	Description	Default value
servicecertificatesubjectname	Specify the subject name of an already installed certificate for unique service identification. You can repurpose your SSL certificate. Note that all your linked web application servers in a farm should offer the same trusted certificate.	from HTTPS binding of websitename

Executing the InstallTool

Use the Content Manager InstallTool to install and merge all standard and customer specific project files.

Before you begin

In the context of a Content Manager install or uninstall operation, before you run InstallTool you need to make sure the Microsoft Distributed Transaction Coordinator MSDTC service is running.

Procedure

1. Login to your Windows system as a Content Manager user with the Administrator user role.
2. In Windows Explorer, go to
C:\ISHCD\yyyymmdd.CD.InfoShare<version_num>\ProjectName.IT__InstallTool
3. Locate and double-click on **InstallTool.exe**.
4. Select the **Install** option by entering the number **2**.
5. Hit enter to respond to all questions; the default options should be sufficient.

All standard and customer specific project files are merged and installed. All required services have to be started manually (the Crawler, SolrLucene, IISAdmin, W3SVC).

Identifying reverse proxies

Various reverse proxy servers can be used in combination with Content Manager. Using reverse proxy servers may result in connection problems to the Content Manager repository. You can check the BASEURL to verify that it is not causing any problem in your internet browser.

When you identify reverse proxy servers, verify that the following URLs do not cause any problems in the internet browser:

- BASEURL/ISHWS/Application.asmx?wsdl
- BASEURL/ISHWS/Application.asmx?disco

The BASEURL is specified in the `inputparameters.xml` file used by the Content Manager installer.

The BASEURL must use the `https` schema. It must also reference a hostname that is valid for the SSL certificate.

For example if the server has a SSL certificate configured with **CN=example.com** then the **BASEURL** must be **https://example.com**.

Example:

```
<param name="baseurl">
<currentvalue>https://example.com</currentvalue>
<defaultvalue>https://example.com</defaultvalue>
<validate/>
</param>
```

Make sure that the URLs are accessible by your users.

Applying Update 1 to your Tridion Docs 15.1 Content Manager implementation

Only if you are applying Update 1 to a Tridion Docs 15.1 setup, run a number of PowerShell scripts. First, update your Content Manager application server or servers, and then update your Content Manager databases.

Procedure

1. Unzip the Update 1 ZIP file, which is called **DATE.UPDATE.InfoShare.15.1.BUILDNUMBER.1.Trisoft-DITA-OT.zip**, where **DATE** is the release date of the update, and **BUILDNUMBER** is the specific build number of the update, to its own **DATE.UPDATE.InfoShare.15.1.BUILDNUMBER.1.Trisoft-DITA-OT** folder under the Tridion Docs installation extraction path (**c:\Ishcd** by default).

What to do next

The Update 1 package is now ready for applying.

Applying Update 1 to your Tridion Docs 15.1 Content Manager application server or servers

Only if you are applying Update 1 to a Tridion Docs 15.1 setup, for each of your Content Manager application servers, run a PowerShell script.

Before you begin

You need to run the PowerShell script as an administrator.

Procedure

1. Access one of your Content Manager application servers.
2. Open a PowerShell prompt as an administrator.
3. Go to the folder
`C:\IshCD\DATE.UPDATE.InfoShare.15.1.BUILDNUMBER.1.Trisoft-DITA-OT\`, where *DATE* is the date of the release of Update 1, and *BUILDNUMBER* is the specific build number of the release.
4. Do one of the following:
 - If you still have at least one other Content Manager application server to update after this one, invoke the command `_Update-ISHWebAppServer.ps1 -SkipStartISHDeployment`
 - If this is your last (or only) Content Manager application server to update, invoke the command `_Update-ISHWebAppServer.ps1`

Note: If there are multiple ISHDeployment instances running on this server (you can find out by using the `Get-ISHDeployment` cmdlet), also add `-IshDeploymentName ISHDEPLOYMENTNAME`, where *ISHDEPLOYMENTNAME* is the name of the variable that contains the name of your ISHDeployment (for example, `$ishDeploymentName`).

5. If you still have at least one other Content Manager application server to update, repeat steps 1-4.

Applying Update 1 to your Tridion Docs 15.1 databases

Only if you are upgrading from Tridion Docs 15.1, update your databases by running a PowerShell script.

Before you begin

You need to run the PowerShell script as an administrator.

Procedure

1. Open a PowerShell prompt as an administrator.
2. Go to the folder
`C:\IshCD\DATE.UPDATE.InfoShare.15.1.BUILDNUMBER.1.Trisoft-DITA-OT\`, where *DATE* is the date of the release of Update 1, and *BUILDNUMBER* is the specific build number of the release.
3. Use the ISHRemote `New-IshSession` command to create a new session. For more information about this command, enter `Get-Help New-IshSession -Full`
4. Update the databases by executing the following command:

```
_Update-ISHDatabases.ps1 -IshSession SESSION
```

where *SESSION* is the name of the variable (for example, `$ishSession`) in which you stored the return value of your `New-IshSession`.

Note: If there are multiple ISHDeployment instances running on this server (you can find out by using the `Get-ISHDeployment` cmdlet), also add `-IshDeploymentName ISHDEPLOYMENTNAME`, where *ISHDEPLOYMENTNAME* is the name of the variable that contains the name of your ISHDeployment (for example, `$ishDeploymentName`).

Upgrading Access Management

To upgrade Access Management, you need to upgrade the database, uninstall the existing service and then install the version of the service that comes with Tridion Docs 15.1.

Upgrading the Access Management database

If you have Access Management installed as a part of your implementation, upgrade your existing Oracle or Microsoft SQL Server database by running a PowerShell script.

Before you begin

To upgrade the Access Management database itself, you need details of DBA and user credentials and the name of the database.

To run PowerShell database scripts for databases on the Content Manager side, you require a machine that meets the following requirements:

PowerShell

You require Microsoft Windows PowerShell 5.1. You can download Microsoft Windows Management Framework 5.1, which includes Microsoft Windows PowerShell 5.1, from this location: <http://aka.ms/wmf5download>

Operating system

You require an operating system that supports both the required PowerShell software and any software for the database you intend to install. As a general rule, ensure that the latest (security) updates are installed on your operating system.

Database client software

For Oracle databases, you require both of the following:

- Oracle Services for Microsoft Transaction Server (ORAMTS)
- Oracle Data Provider for .NET (ODP.NET)

For maintenance, configuration and debugging purposes, RWS recommends that you also install the Oracle SQL Developer PL/SQL IDE (or SQL*Plus) and Oracle Net.

Environment variables

For Oracle databases where you have defined a Net Service Name for each database in a `tnsnames.ora` file, you must also have defined a `TNS_ADMIN` environment variable. Set it to the directory where `tnsnames.ora` resides.

Microsoft .NET Framework

You require a .NET Framework version. The one to use depends on your Windows Server operating system version:

- If you run Microsoft Windows Server 2022, you can use Microsoft .NET Framework 4.8.1. You can download Microsoft .NET Framework 4.8.1 from the following location: <https://dotnet.microsoft.com/en-us/download/dotnet-framework/net481>
- If you run Microsoft Windows Server 2019 x64, you must use Microsoft .NET Framework 4.8. You can download Microsoft .NET Framework 4.8 from the following location: <https://dotnet.microsoft.com/en-us/download/dotnet-framework/net48>

Security

You need to be logged in as a user with sufficient security clearance. For example, to run a script that installs a database, you must be logged in as a user with rights to create that database.

Procedure

1. Close all connections to your database server.
2. If you have not done so already, make a back-up of your database for safety reasons.
3. On a system that meets the prerequisites for database installation and upgrade scripts, open PowerShell.
4. In PowerShell, depending on your database navigate to one of the following folders on the installation media:
 - For a Microsoft SQL Server, AWS RDS-MSSQL or Microsoft Azure database, navigate to `Database\MSSQL\`
 - For an Oracle database, navigate to `Database\Oracle\`
5. For a Microsoft SQL Server database, you can add an `-IntegratedSecurity` switch to let the script know that you want to use the current Windows account credentials to access the database, rather than specifying a database username and password.
6. For Oracle databases, specify a host, port, service name and other connection information for the PowerShell script, either *before* or *while* running the script:
 - *Before* you run the script, you can define a variable in PowerShell, let's say `$MyDatabaseServer`, and set it to your connection string. When you invoke the script, you then append the string `-DatabaseServer $MyDatabaseServer` to the PowerShell command.
 - Alternatively, you can just invoke the script as is, and *while* you run the script, PowerShell prompts you for a value for **Net Service**, and you can then enter one of the following:
 - Enter the Net Service Name for this database if you have defined a Net Service Name in a `tnsnames.ora` file and specified the location of that file in a `TNS_ADMIN` environment variable.
 - Enter the string `%manual%` to let the script prompt you for the following: **Host name**, **Port** and **Service name**.
 - Enter the actual connection string directly on a single line if you have more to provide than just a host, port and service name. For example:

```
(DESCRIPTION = (ADDRESS = (PROTOCOL = TCP) (HOST = myhost) (PORT = 1521)) (CONNECT_DATA = (SERVICE_NAME = ora)))
```

7. Type the following command to upgrade your Access Management database:

```
& '.\Upgrade Access Management database.ps1'
```

8. Follow the instructions in the PowerShell console to upgrade the database.

What to do next

If you encounter problems during the upgrade, restore your backup and try again. If your second attempt fails as well, consult RWS Customer Support for assistance. Do not attempt to fix the database.

Upgrading the Access Management service

Follow this process to upgrade the Access Management service to 15.1.

Before you begin

Before upgrading the Access Management service, you need to have first upgraded the database.

To run PowerShell scripts for software, you require a machine that meets the following requirements:

PowerShell

You require Microsoft Windows PowerShell 5.1. You can download Microsoft Windows Management Framework 5.1, which includes Microsoft Windows PowerShell 5.1, from this location: <http://aka.ms/wmf5download>

Operating system

You require an operating system that supports both the required PowerShell software and any software for the database you intend to install. As a general rule, ensure that the latest (security) updates are installed on your operating system.

Microsoft .NET Framework

You require a .NET Framework version. The one to use depends on your Windows Server operating system version:

- If you run Microsoft Windows Server 2022, you can use Microsoft .NET Framework 4.8.1. You can download Microsoft .NET Framework 4.8.1 from the following location: <https://dotnet.microsoft.com/en-us/download/dotnet-framework/net481>
- If you run Microsoft Windows Server 2019 x64, you must use Microsoft .NET Framework 4.8. You can download Microsoft .NET Framework 4.8 from the following location: <https://dotnet.microsoft.com/en-us/download/dotnet-framework/net48>

Security

You need to be logged in as a user with sufficient security clearance. For example, to run a script that installs a database, you must be logged in as a user with rights to create that database.

The steps that follows represent a high-level process, which includes several tasks that are individually explained in other topics. For details on the individual tasks, refer to the related topics.

Procedure

1. On the machine where the Access Management service is installed, locate the service's `appsettings.json` file and back it up to a safe location.
2. Uninstall old Access Management service. Rename it, if needed.
3. From the Tridion Docs 15.1 installation media, copy the entire root-level folder `Access Management\` to a folder of your choice on the target machine.
4. Locate the new version of `appsettings.json` and merge in your changes from the backed-up copy. If the backed-up file is encrypted, you will need to decrypt it first.
5. Install a new Access Management service that uses the upgraded database.

Results

The Access Management service upgrade is now complete.

Configuring custom IdPs in an upgraded Access Management

After upgrading Access Management, check that your identity providers are properly configured. In particular, ensure that any *custom* identity providers are configured for the features you intend to use in the upgraded Tridion Docs environment.

About this task

If you plan on enabling the Metrics feature of Organize Space, the identity provider in the upgraded Access Management must be configured to give access to the *Tridion Docs Metrics API*.

- If you are using the Tridion Docs Identity Provider that comes with Access Management, the upgrade process automatically updates IdP's services and roles to enable access as a user. No further action should be necessary.
- If you are using a *custom* identity provider (IdP), follow this procedure to update the IdP's services and roles.

Procedure

1. In your Tridion Docs environment, open Access Management.
2. Go to the **Identity providers** tab.
3. Open the identity provider and select **Edit**.
4. In the Access settings section, be sure the `Global` claim is selected in the list of the claims.
5. In the Services and roles list, locate the section for the `Tridion Docs Metrics API` and select the **User** role.
6. Select **Save**.

Installing desktop client tools

You can choose to install desktop client tools (Authoring Bridge, Publication Manager, Condition Manager and Content Importer) based on the role and responsibilities of the user. The versions of the desktop clients tools must match the version of Content Manager installed on the server.

Uninstalling desktop client tools (upgrade only)

If you are upgrading Content Manager, first uninstall your existing desktop client tools from the Windows Settings, in the **Apps & features** screen. The specific names of the items depend on the version from which you are upgrading, but will include the name of the product and the strings "Condition Manager," "Content Importer," "Publication Manager," and "Connector" or "Authoring Bridge".

Installing the Authoring Bridge

The Authoring Bridge is used to access the repository using an authoring tool.

About this task

Choose the Authoring Bridge installer for the XML editor software that you are using (XMetaL or Oxygen). The type and version of the editor you are using must be supported by the installed version of Content Manager.

If an incompatible version of the .NET runtime framework is installed, the installer will install a correct one after your validation.

The install package's names match the following format, one for each compatible XML Editor:

- `<date>.AuthoringBridge.<version>-XMetaL-Connector.msi`
- `<date>.AuthoringBridge.<version>-oXygen-Connector.msi`

The development kit's executable name matches the following format:

- `<date>.AuthoringBridgeSDK.<version>.exe`

Procedure

1. Double-click the Authoring Bridge install package, or **Setup Wizard**, and follow the proposed list of steps. After you hit the **Finish** button, the installation is complete and the Tridion Docs menu is now available in your authoring tool's menu bar.

Results

When you first try to access the Repository from your authoring tool, you will be requested to specify a user account in order to establish the connection.

For uninstall, be aware of the following:

- If you are using XMetaL on Windows, you must uninstall the Authoring Bridge before uninstalling XMetaL.
- If the Authoring Bridge is uninstalled, the Tridion Docs menu will remain in the menu bar, with all menu options greyed out. You must start XMetaL while pressing the **CTRL** key in order to have XMetaL clean up the menu bar and remove the Tridion Docs menu.

Installing Publication Manager

The publication manager is used to create, modify, check the status of, and produce publications in various formats.

About this task

If an incompatible version of the .NET runtime framework is installed, the installer will install a correct one after your validation.

The install package's name matches the following format: <date>.PublicationManager.<version>.msi

Procedure

1. Double-click the Publication Manager install package, or **Setup Wizard**, and follow the proposed list of steps. After you hit the **Finish** button, the installation is complete and Publication Manager is now available for you to use.

Installing Condition Manager

The Condition Manager is used to create and manage conditions for your publications.

About this task

If an incompatible version of the .NET runtime framework is installed, the installer will install a correct one after your validation.

The install package's name matches the following format: <date>.ConditionManager.<version>.msi

Procedure

1. Double-click the Condition Manager install package, or **Setup Wizard**, and follow the proposed list of steps.
2. Select the **Enable Synchronization** option when proposed (on the tab where you specify the installation folder). Content Manager can synchronize the set of conditions with definitions from another system. Synchronization needs to be configured separately, **Enable Synchronization** only makes the menu items available in the application.
3. After you hit the **Finish** button, the installation is complete and Condition Manager is now available for you to use.

Installing Content Importer

Content Importer helps you import content through Organize Space commands.

About this task

If an incompatible version of the .NET runtime framework is installed, the installer will install a correct one after your validation.

The install package's name matches the following format: *DATE*.ContentImporter.*VERSION*.msi, where *DATE* is a date and *VERSION* is the version of Content Importer.

Procedure

1. Double-click the Content Importer install package, or **Setup Wizard**, and follow the proposed list of steps. After you hit the **Finish** button, the installation is complete.

After the Content Manager upgrade

After you complete the upgrade of your Content Manager server, perform a number of tasks to help you verify the upgrade, and to configure the components that you have just upgraded.

Upgrading your XML configuration versions

If you've upgraded from Tridion Docs 15 to Tridion Docs 15.1, the upgrade automatically sets the versions of your XML configuration files to correct values for Tridion Docs 15.1. But if you've upgraded from an earlier version than Tridion Docs 15, you need to set the versions correctly yourself. This task explains how.

Procedure

1. Sign in to Organize Space as an administrator.
2. On the top tab level, select the **Settings** tab.
3. On the second tab level, select the **XML Settings** tab.
4. On the third tab level, select each XML configuration in turn and make sure that the value of the `version` attribute in the root element is the value given below, then select **Save** to apply your changes:

Name of XML configuration	Value of root-level <i>version</i> attribute
Background Tasks	3.0
Change Tracker	1.0
Collective Spaces	1.1
Extensions	2.0
Inboxes	2.0
Publish Plug-ins	1.0

Name of XML configuration	Value of root-level <i>version</i> attribute
Reports	1.0
Statuses	3.0
Translations	2.1
Write Plug-ins	2.0

Upgrading your Inboxes configuration

Tridion Docs 15 introduced some changes to the XML of the configuration for Inboxes. If you've upgraded Content Manager from a release earlier than Tridion Docs 15, transform your existing inbox configuration XML from old format to new format by running a Powershell script.

About this task

The script assumes to find your old inbox configuration XML file in the folder `C:\InfoShare\Web\Author\EnterViaUI\`. If you would like the conversion to occur in another folder, you can edit the script to change the path.

Procedure

1. On your installation media, go to the folder `__Resources\InfoShareScripts\Upgrade140xTo1500\`.
2. Copy the script `ConvertInboxConfiguration.ps1` to your Content Manager server machine.
3. Run the Powershell script.
The script reads `Admin.XMLInboxConfiguration.xml` and creates a converted file `Admin.XMLInboxConfiguration.converted.xml` in the same folder.
4. Replace your existing XML inbox configuration in the Content Manager database with the contents of the converted file. You can do this in one of the following ways:
 - In the new Organize Space user interface, go to **Settings > XML Settings > Inboxes**. Clear the XML content you see, and paste the contents of `Admin.XMLInboxConfiguration.converted.xml` into it. Then select **Save** to apply the change.
 - Write a script that replaces the XML in the database with the contents of `Admin.XMLInboxConfiguration.converted.xml`, and run it.

Migrating metadata properties to the taxonomy

After the upgrade to Tridion Docs 15.1, you may want to migrate some LOV-based metadata properties to the taxonomy.

Before you begin

To perform this task, you must be a user who has the Taxonomy Management privilege.

About this task

As from Tridion Docs 15.1, Content Manager has a configuration file for taxonomies that, by default, contains a simple preconfigured taxonomy. This taxonomy defines a number of metadata properties, including "Product family name" and "Product release name."

"Product family name" and "Product release name" are also lists of values (LOVs) (found in the dropdown under **Settings > System > Lists of values** in Organize Space. If you have used these metadata properties in your implementation, you should now run a migration script to make them part of the taxonomy, instead of lists of values.

Note: After you have completed the migration, you must republish all publications that use the metadata fields being migrated in order for your changes to take effect.

Procedure


1. Access your Tridion Docs installation artifacts and go to the folder `InfoShare\ App\ Database\ InfoShareCM\ Common\ DatabaseIndependent\ Examples\ CreateInternalTaxonomySyncWithLovs\`.
2. Invoke the migration script `MigrateToIshTaxonomies.ps1` as follows:

```
.\MigrateToIshTaxonomies.ps1 -WsBaseUrl "BASEURL" -OutputDir "OUTDIR"
-Mappings @{
    "GOAL"=" "
    "AUDIENCE"=" "
    "PRODUCTFAMILY"="DPRODUCTFAMILYNAME"
    "PRODUCTRELEASE"="DPRODUCTRELEASENAME"
}
```

where:

- *BASEURL* is the web service URL of Content Manager, for example, `https://ish.example.com/ISHWS/`
- *OUTDIR* is a writable folder location to which the script can write its output, for example, `c:\Temp`

The script runs and produces an output file in the output directory.

3. In Organize Space, go to **Settings > XML Settings > Taxonomies**.
4. Copy-paste the output of the migration script into the content area, overwriting the content you see.
5. Select **Save**  to apply your changes.
6. To take the existing values for the old "Product family name" and "Product release name" metadata fields and set those values as the values of the corresponding new fields, in the same folder, run the migration script `UpdateMBFieldsWithConcepts.ps1`.
7. Republish any publications that use the migrated metadata properties.

Rebuilding the full text index

Rebuild the full text index if it is no longer synchronized with the current database, or after a Content Manager upgrade on a new server for example. It should be done using `Invoke-ISHFullTextIndexMaintenance` cmdlet available over `ISHDeploy` module.

Before you begin

- You need to run `ISHDeploy` cmdlets as an administrator for the application server
- The crawler service must be running.
- To learn how to access and use `ISHDeploy`, refer to the section on "" on page 0.

Note: We recommend that you rebuild the index outside regular business hours as the initialization uses database resources. In addition, the index may take a while to rebuild depending on the size of the repository.

Procedure

1. In a Powershell command shell, enter the following command:

```
Invoke-ISHFullTextIndexMaintenance -ISHDeployment $deployment  
ISHDEPLOYMENT -Cleanup
```

to remove the existing index, where `ISHDEPLOYMENT` is the deployment you want to use. (If you have only one deployment, you can omit the `-ISHDeployment` parameter and its value.)

2. In a Powershell command shell, enter the following command:

```
Invoke-ISHFullTextIndexMaintenance -ISHDeployment $deployment  
ISHDEPLOYMENT -ReIndex
```

to rebuild the full text index, where `ISHDEPLOYMENT` is the deployment you want to use. (If you have only one deployment, you can omit the `-ISHDeployment` parameter and its value.)

Verifying Microsoft SQL System Administration role permissions

If you use Microsoft SQL Server as your database, then after upgrading Content Manager, grant the `isource` user system administrator permissions. This ensures that the database upgrade tool (`DBUpgradeTool` or `DBUT`) works properly.

About this task

To allow DBUT to fully execute all necessary tasks to update your Microsoft SQL Server database now and for each new release, follow the procedure below to ensure the database user has the necessary permissions.

Procedure

1. Access the **SQL Server Management Studio**.

Windows 2012: To access the **SQL Server Management Studio** if not readily accessible, use the **Windows Powershell** icon on the bottom toolbar then at the prompt type: **Ssms.exe**.

Note: If prompted and required, connect to the server.

2. Under the folder for the MSSQL server in the left pane, open **Security > Logins**.
3. Right-click on the **isource** user and select **Properties**.
A Login Properties - isource window displays.
4. In the left pane of the Login Properties - isource window select **Server Roles**.
5. In the right pane for Server Roles select **public** and **sysadmin**.
6. Click **OK**.
7. Click **File > Exit** to exit and close the Microsoft Server Management window.

Running DBUpgradeTool for maintenance

After upgrading Content Manager, use DBUpgradeTool (DBUT) to perform an overall verification of the database, to update database objects such as views, indexes, packages and stored procedures, and to modify metadata structures.

Before you begin

- The **isource** database user must have the System Administrator privilege.
- The Content Manager server and Content Manager database must be available (up and running), complete and correctly installed. The installation ensures that the upgrade files and connections are in place to allow a successful upgrade.
- DBUT has exclusive access to the Content Manager database. That means that before running the tool, you should stop all components and services, such as InfoShare Crawler, on all servers.

Procedure

1. Sign in to the Content Manager application server as a Windows user with the Administrator user role.
2. In Windows Explorer, go to the Content Manager installation directory, then go to **\App\Setup\DBUpgradeTool**.
3. Run **DBUpgradeTool.exe**
4. Only if you use ADFS, use DBUT to configure the **FishExternalID** of the administrator

user with a value such as *domain\username*, for the user who has to sign in to the system as administrator:

- a. In DBUT, select option 1: **Maintenance**.
 - b. Select option 5: **Append** an user's external ID for initial STS sign-in.
 - c. Choose the installation and then fill in the appropriate value for the Content Manager admin user.
5. If you performed an upgrade, select the **DatabaseUpgrade** option.
 6. Press **Enter** to respond to a series of questions; the default options are sufficient for the following questions:
 - Select your recently installed project (thereby selecting the database location and user, upgrade script paths, version and so on).
 - Default for the application.

The result is an upgrade from an older or same version to the installed version when applicable. The application pool needs to be restarted after a DBUT run.

Troubleshooting DBUpgradeTool

You may encounter issues during DBUT execution for database upgrade purposes.

Execution is interrupted

If the DBUT suddenly dies, it results in a hanging database upgrade logged in to the database. All other attempts to upgrade will fail since only one upgrade process is permitted to run at a time.

To force an undo of a hanging update, execute DBUT then select **Maintenance > Terminate** and your current project.

Current user isource warnings

The following warnings can occur in DBUT:

- WARNING: The current user "isource" does not have permission to disable the standard database job for InfoShare.
- WARNING: The current user "isource" does not have permission to install the standard database job for InfoShare. Ask a System Administrator to manually execute `ISH_CreateStandardInfoShareJob.sql` and `ISH_EnableStandardInfoShareJob.Sql` to create and enable the standard InfoShare job!
- WARNING: The current user "isource" does not have permission to enable the standard database job for InfoShare.

These warnings are returned when the user executing DBUT has not enough rights to access/create database jobs.

- Creating a database job requires a database administrator to execute `CD-Package\Database\InfoShareCM\Common\<SQLServerVersion>\Create\ISH_CreateStandardInfoShareJob.sql` and `CD-Package\Database\InfoShareAM\Common\<SQLServerVersion>\Create\ISH_CreateStandardInfoShareJob.sql`
- Enabling a database job requires a database administrator to execute `CD-Package\Database\InfoShareCM\Common\<SQLServerVersion>\Create\ISH_EnableStandardInfoShareJob.Sql` and `CD-Package\Database\InfoShareAM\Common\<SQLServerVersion>\Create\ISH_EnableStandardInfoShareJob.Sql`

Requesting assistance

In case you need to request assistance, you need to provide the following information:

- A screenshot of the failed execution of DBUpgradeTool.
- The log file: `\App\Setup\DBUpgradeTool\DBUpgradeTool.log`

Installing ISHDeploy and ISHRemote

When upgrading to Tridion Docs 15.1, you need to install the ISHDeploy and ISHRemote PowerShell modules on the Content Manager application server. The modules are needed to run the scripts delivered with Tridion Docs.

Before you begin

- Microsoft Windows PowerShell 5.1 (part of Windows Management Framework 5.1)
To quickly check your installed PowerShell version, execute the following script:

```
$PSVersionTable
```

If your operating system has an earlier version of PowerShell, then you need to install PowerShell 5.1.

- You must be logged on as an administrator user to perform this task.

About this task

ISHDeploy is a PowerShell module that enables the **code as configuration** concept for Tridion Docs. You can use ISHDeploy cmdlets for all basic setup operations, and for many advanced configuration tasks. Although manual configuration is still available, we recommend you use ISHDeploy for improved simplicity and safety. ISHDeploy also gives you access to automation.

ISHRemote is a PowerShell module that enables business automation for Tridion Docs. It's constructed close to the Web Services API to:

- allow business logic automation, ranging from triggering publishing into the continuous integration pipeline to legacy data correction, up to provisioning
- showcase code examples and API best practices

All scripts delivered with Tridion Docs, such as those in the `..\DatabaseIndependent\Examples\` folder, expect ISHDeploy and ISHRemote to be installed. Install both of the PowerShell modules using the installation script delivered with your installation package or downloaded from the [PowerShell Gallery](#) (always the latest).

Procedure

1. On the Content Manager application server, open a PowerShell prompt.
2. Run one of the following PowerShell scripts:

InstallPowerShellLibrariesFromLocal.ps1

This script is provided in the local NuGet packages delivered with the product. Get it from the following folder: `c:\InfoShare\App\Setup\PowerShell\Repository`

To run the script, use the following command:

```
& '.\InstallPowerShellLibrariesFromLocal.ps1'
```

InstallPowerShellLibrariesFromPSGallery.ps1

This script always installs the *latest* versions of ISHDeploy and ISHRemote. You can download from [PowerShell Gallery](#).

To run the script, use the following command:

```
& '.\InstallPowerShellLibrariesFromPSGallery.ps1'
```

Both ISHDeploy and ISHRemote are now installed.

Manually creating or updating XML configurations (upgrade only)

You must make your XML configurations work with the current release. You only need to perform this task if you did not receive a fully prepared database dump-backup file for your upgrade.

About this task


The following table lists the XML configurations for Content Manager. For each configuration, it lists the filename of the configuration (located on the server in the `Web\Author\EnterViaUI\` subdirectory of the Content Manager home directory) and the name of the corresponding screen under **Settings > XML Settings**. Perform the steps below for each XML configuration.

Configuration file	Settings > XML Settings screen
Admin.XMLAIAssistantConfiguration.xml	AI Assistant
Admin.XMLBackgroundTaskConfiguration.xml	Background Tasks
Admin.XMLChangeTrackerConfig.xml	Change Tracker
Admin.XMLCollectiveSpacesConfiguration.xml	Collective Spaces
Admin.XMLDeleteObjPluginConfig.xml	Delete Plug-ins
Admin.XMLExtensionConfiguration.xml	Extensions
Admin.XMLInboxConfiguration.xml	Inboxes
Admin.XMLMetricsConfiguration.xml	(none)
Admin.XMLPublishPluginConfiguration.xml	Publish Plug-ins
Admin.XMLReportConfiguration.xml	Reports
Admin.XMLStatusConfiguration.xml	Statuses

Configuration file	Settings > XML Settings screen
Admin.XMLTaxonomyConfiguration.xml	Taxonomies
Admin.XMLTranslationConfiguration.xml	Translations
Admin.XMLWriteObjPluginConfig.xml	Write Plug-ins

Note: RWS recommends that you perform this task before starting any services on your upgraded system.

Procedure

1. Sign in to Organize Space as a user with administrator-level credentials.
2. On the top tab level, select the **Settings** tab.
3. On the second tab level, select the **XML Settings** tab.
4. Select the third-level tab you intend to modify.
5. Do one of the following:
 - If this is an XML configuration that did not yet exist in the Tridion Docs release from which you are upgrading, copy-paste the contents of the XML configuration file on the server over the contents you see on the screen.
 - If this is an XML configuration that already existed in the Tridion Docs release from which you are upgrading, and you *did not* modify this XML configuration, copy-paste the contents of the XML configuration file on the server over the contents you see on the screen.
 - If this is an XML configuration that already existed in the Tridion Docs release from which you are upgrading, and you *did* modify this XML configuration, perform a three-way merge between your old out-of-the-box configuration file, your old customized configuration file, and the new out-of-the-box configuration file. That is, check which customizations you applied to the old configuration file, and reapply those customizations to the new configuration file.
6. Select **Save**  to apply your changes.
The configuration file is validated and some corrections are made. (For example, a @version attribute is added.)

Note: If you encounter validation errors when submitting the XML configuration for **Statuses**, remove all statuses in the status definitions with value "Not found as LOV Value"; that is, any XML statuses with the format `<Status Elm="STATUSNAME" value="Not found as LOV Value"/>`, where *STATUSNAME* is the name of a status.

7. Return to step 4 to continue with the next XML configuration.

Checking translation services roles and privileges

An active `TRANSLATORSERVICE` role is necessary for translation services (TranslationOrganizer, TranslationBuilder) to operate. This role is part of the out-of-the-box settings for Content Manager 10.0.0 and later. As from Tridion Docs 15, the user used for translation services must have an "Administrator" user role, or be a part of any other role that as "System Administrator" privilege or "Translation Mangement" privilege. In case `TRANSLATIONSERVICE` role needs to be created with all status transitions, follow the procedure:

Procedure

1. Sign in to Organize Space as a user with administrator-level credentials.
2. On the top tab level, select the **Settings** tab.
3. On the second tab level, select the **Users** tab.
4. On the third tab level, select the **User Roles** tab.
5. Do one of the following:
 - If `TRANSLATORSERVICE` is part of the list, select it and select **Properties** from the button toolbar. In the dialog that opens, make sure that **Active** is selected.
 - If `TRANSLATORSERVICE` is not part of the list, create it by selecting **New** from the button toolbar and, in the dialog that opens, specifying `TRANSLATORSERVICE` in the **Name** field. Then select **OK** to close the dialog and apply your changes.
6. On the second tab level, select the **XML Settings** tab.
7. On the third tab level, select the **Statuses** tab.
8. Check that the following status transitions are configured as `<FromStatus>` sections in the `<Transitions>` section of the XML you see:

From Status	To Status	User Role
To be translated	In translation	TRANSLATORSERVICE
In translation	Translation in review	TRANSLATORSERVICE
In translation	Translation approved	TRANSLATORSERVICE
Translation in review	Translation approved	TRANSLATORSERVICE
Translation in review	Translation rejected	TRANSLATORSERVICE
Translation rejected	In translation	TRANSLATORSERVICE

If you see XML for all these transitions, then no other action is required.

9. However, if any of these transitions are not part of the list, create them by adding the following XML fragment within the `<Transitions>` section:

```
<FromStatus ref="FROMSTATUS" userrole="TRANSLATORSERVICE">
  <ToStatus ref="TOSTATUS" />
</FromStatus>
```

where *FROMSTATUS* is the item in the **From Status** column above for the missing transition, and *TOSTATUS* is the item in the **To Status** column above for the missing transition.

10. If you made any changes, select **Save** to commit those changes.

Enabling Content Manager user interfaces and features

After upgrading Content Manager, you can individually enable the individual user interfaces and subfeatures that are part of Collective Spaces.

Enabling Draft Space

Enable Draft Space by running an ISHDeploy command and setting the **Enable Draft Space** flag in the Organize Space user interface.

Before you begin

To learn how to access and use ISHDeploy, refer to the section on "" on page 0.

About this task

Draft Space is one of the two applications that are grouped under the name Collective Spaces.

Procedure

1. In a Powershell command shell, enter the following command:

```
Enable-ISHUICollectiveSpaces -DraftSpace -ISHDeployment ISHDEPLOYMENT
```

where *ISHDEPLOYMENT* is the deployment you want to use. (If you have only one deployment, you can omit the `-ISHDeployment` parameter and its value.)

2. Enable Draft Space from the Organize Space user interface by doing the following:
 - a. On the top tab level, select the **Settings** tab.
 - b. On the second tab level, select the **System** tab.
 - c. On the third tab level, select the **Default Settings** tab.
 - d. In the **Optional features** area, select **Draft Space (paid)**.
 - e. Select **Save** to apply your changes.

Results

You now have access to Draft Space for web browser-based content authoring.

Enabling Review Space

Enable Review Space by running an ISHDeploy command and setting the **Enable Review Space** flag in the Organize Space user interface.

Before you begin

To learn how to access and use ISHDeploy, refer to the section on "" on page 0.

About this task

Review Space is one of the two applications that are grouped under the name Collective Spaces.

Procedure

1. In a Powershell command shell, enter the following command:

```
Enable-ISHUICollectiveSpaces -ReviewSpace -ISHDeployment ISHDEPLOYMENT
```

where *ISHDEPLOYMENT* is the deployment you want to use. (If you have only one deployment, you can omit the *-ISHDeployment* parameter and its value.)

2. Enable Review Space from the Organize Space user interface by doing the following:
 - a. On the top tab level, select the **Settings** tab.
 - b. On the second tab level, select the **System** tab.
 - c. On the third tab level, select the **Default Settings** tab.
 - d. In the **Optional features** area, select **Review Space (paid)**.
 - e. Select **Save** to apply your changes.

Results

You now have access to Review Space for web browser-based content reviewing.

Enabling Document History for Draft Space

Enable Document History for Draft Space by running an ISHDeploy command and setting the **Enable Draft Space Document History** flag in the Organize Space user interface.

Before you begin

In order to be able to use Document History for Draft Space, Draft Space must be enabled.

To learn how to access and use ISHDeploy, refer to the section on "" on page 0.

About this task

Document History is a Collective Spaces feature. It lets you trace the history of each document in detail, but you should only enable it if you have the required license for this feature.

Procedure

1. In a Powershell command shell, enter the following command:

```
Enable-ISHUICollectiveSpaces -DocumentHistoryForDraftSpace  
-ISHDeployment ISHDEPLOYMENT
```

where *ISHDEPLOYMENT* is the deployment you want to use. (If you have only one deployment, you can omit the `-ISHDeployment` parameter and its value.)

2. Enable Document History for Draft Space from the Organize Space user interface by doing the following:
 - a. On the top tab level, select the **Settings** tab.
 - b. On the second tab level, select the **System** tab.
 - c. On the third tab level, select the **Default Settings** tab.
 - d. In the **Optional features** area, select **Draft Space document history (paid)**.
 - e. Select **Save** to apply your changes.

Results

You now have access to Document History for web browser-based content authoring. The **Show Changes** option is now enabled for documents in Draft Space.

Enabling Document History for Review Space

Enable Document History for Review Space by running an ISHDeploy command and setting the **Enable Review Space Document History** flag in the Organize Space user interface.

Before you begin

In order to be able to use Document History for Review Space, Review Space must be enabled.

To learn how to access and use ISHDeploy, refer to the section on "" on page 0.

About this task

Document History is a Collective Spaces feature. It lets you trace the history of each document in detail, but you should only enable it if you have the required license for this feature.

Procedure

1. In a Powershell command shell, enter the following command:

```
Enable-ISHUICollectiveSpaces -DocumentHistoryForReviewSpace  
-ISHDeployment ISHDEPLOYMENT
```

where *ISHDEPLOYMENT* is the deployment you want to use. (If you have only one deployment, you can omit the `-ISHDeployment` parameter and its value.)

2. Enable Document History for Review Space from the Organize Space user interface by doing the following:
 - a. On the top tab level, select the **Settings** tab.
 - b. On the second tab level, select the **System** tab.
 - c. On the third tab level, select the **Default Settings** tab.
 - d. In the **Optional features** area, select **Review Space document history (paid)**.
 - e. Select **Save** to apply your changes.

Results

You now have access to Document History for web browser-based content reviewing. The **Show Changes** option is now enabled for documents in Review Space.

Setting the Collective Spaces URL for your accounts

Before you begin

As of SDL Tridion Docs 14 SP2, Publication Manager users can copy the Draft Space URL or Review Space URL of each topic to the clipboard. To enable this feature for an account, the Collective Spaces URL must be configured in the account settings.

Procedure

1. Start Publication Manager.
2. Select **Tools > Accounts**.
3. In the **Repository** tab, find the **Collective Spaces address** property.
4. Fill in the Collective Spaces URL and select **OK**.

Enabling services

After the upgrade has completed, services will not start automatically, since the database is not guaranteed to be in the right state until you run the DBUT tool. Also, you might decide not to start some services on the specific installation depending on the server role. To enable typical services, you can locate and run the `Enable-DefaultServices.ps1` script.

Before you begin

- The ISHDeploy module is installed.
- DBUT completed successfully.
- The Administrator setup completed successfully.
- The TRANSLATORSERVICE role is created and the translation status transitions have been assigned to it.
- You have System Administrator rights.

Procedure

1. Run the script `\App\Setup\Manage\Enable-DefaultServices.ps1`.
Typical services are started and the startup type is set to "Automatic (Delayed Start)".
The following are some of the typical services:
 - Trisoft InfoShare
 - Crawler One
 - Trisoft InfoShare SolrLucene
 - Trisoft InfoShare BackgroundTask One
 - Trisoft InfoShare TranslationBuilder One

Configure Security Token Service for authenticating WCF .SVC web services (deprecated)

The WCF .SVC web services require that you configure a Security Token Service (STS) for authentication, which uses ISHSTS as the default identity provider.

Using ISHDeploy is an alternative to the manual tasks described in this section.

Security Token Service for externalized authentication and Single Sign-On is deprecated as of Tridion Docs 15. Prior to Tridion Docs 15, the Content Manager user interfaces also used Security Token Service; however, these applications now use Tridion Access Management. At this time, only the WCF .SVC web services continue to use the deprecated Security Token Service.

Web Services requirements for Security Token Service

The WCF .SVC web services (ISHCM) require identifiers and certificates to configure Security Token Service.

Profile

WCF .SVC web services rely on an *Active profile* to do *Federated Authentication*. The profile refers to SOAP-based web services implementing the WS Trust protocol. Token encryption is mandatory.

Identifiers and encryption certificates

The web service ISHCM expects specific identifiers in combination with an encryption certificate to be configured on a Security Token Service.

The encryption certificate is the public key of the certificate referenced through the `servicecertificatethumbprint` input parameter.

The identifiers are as follows:

- <https://example.com/ISHWS/>
- <https://example.com/ISHWS/Wcf/API25/Application.svc>
- <https://example.com/ISHWS/Wcf/API25/Baseline.svc>
- <https://example.com/ISHWS/Wcf/API25/DocumentObj.svc>
- <https://example.com/ISHWS/Wcf/API25/EDT.svc>
- <https://example.com/ISHWS/Wcf/API25/EventMonitor.svc>
- <https://example.com/ISHWS/Wcf/API25/Folder.svc>
- <https://example.com/ISHWS/Wcf/API25/ListOfValues.svc>
- <https://example.com/ISHWS/Wcf/API25/MetadataBinding.svc>
- <https://example.com/ISHWS/Wcf/API25/OutputFormat.svc>
- <https://example.com/ISHWS/Wcf/API25/PublicationOutput.svc>
- <https://example.com/ISHWS/Wcf/API25/Search.svc>
- <https://example.com/ISHWS/Wcf/API25/Settings.svc>
- <https://example.com/ISHWS/Wcf/API25/TranslationJob.svc>
- <https://example.com/ISHWS/Wcf/API25/TranslationTemplate.svc>
- <https://example.com/ISHWS/Wcf/API25/User.svc>
- <https://example.com/ISHWS/Wcf/API25/UserGroup.svc>
- <https://example.com/ISHWS/Wcf/API25/UserRole.svc>
- <https://example.com/ISHWS/Wcf/API20/Application.svc>
- <https://example.com/ISHWS/Wcf/API20/DocumentObj.svc>
- <https://example.com/ISHWS/Wcf/API20/EDT.svc>
- <https://example.com/ISHWS/Wcf/API20/EventMonitor.svc>
- <https://example.com/ISHWS/Wcf/API20/Folder.svc>
- <https://example.com/ISHWS/Wcf/API20/MetaDataAssist.svc>
- <https://example.com/ISHWS/Wcf/API20/OutputFormat.svc>
- <https://example.com/ISHWS/Wcf/API20/Publication.svc>
- <https://example.com/ISHWS/Wcf/API20/PublicationOutput.svc>

- `https://example.com/ISHWS/Wcf/API20/Reports.svc`
- `https://example.com/ISHWS/Wcf/API20/Search.svc`
- `https://example.com/ISHWS/Wcf/API20/Settings.svc`
- `https://example.com/ISHWS/Wcf/API20/Workflow.svc`
- `https://example.com/ISHWS/Wcf/API/Application.svc`
- `https://example.com/ISHWS/Wcf/API/ConditionManagement.svc`

ISHSTS with Windows Authentication

You need to perform several settings before ISHSTS can provide Windows Authentication. Both server and SQL server database must be properly configured. You can either make these settings manually or use the scripts provided with the package.

ISHSTS is automatically configured through the installation.

InstallTool creates an application pool such as `TrisoftAppPoolISHSTS` based on the input parameter `infosharestswebappname`. The application pool is assigned an identity based on the input parameter `osuser`. This user is responsible for hosting the endpoints provided by ISHSTS

For Windows Authentication endpoints to work, the following changes based on the requirements of `Service Principal Names` defined in the Active Directory must be made, either manually or through a script.

Note: The following needs to be applied per installation server and are valid only for deployments that do not include network balanced front end servers

Application pool identity

A change of the application pool identity in order to use the integrated `ApplicationPoolIdentity`. This changes the user who hosts the endpoints to an account that the correct `Service Principal Names` is assigned to. The expected `Service Principal Names` are

- `http/baseurl`
- `host/baseurl`

Note: The new user is identified locally as `IIS AppPool\infosharestswebappname` and it requires certain permissions to access resources. When this user accesses network resources it is identified as the computer account `Domain\ Computer$` where the `Domain` and `Computer` are netbios based. e.g. `TESTDOMAIN\SERVER01$`

Read permissions

Read permissions to the token signing certificate's private key are assigned to the `IIS AppPool\infosharestswebappname`. The token signing certificate in ISHSTS is configured through the InstallTool parameter `issuercertificatethumbprint`

Read/write permissions to the three target installation paths defined in the input parameters are assigned to the `IIS AppPool\infosharestswebappname`:

- `webpath`
- `datapath`

- apppath

Integrated authentication

If the database is SQL Server and the connection string utilizes integrated authentication then we grant the computer account permissions to the database.

The only permission required is `SELECT`

Configure application server for Windows Authentication

Here is how you execute the script that configures the server for ISHSTS with Windows Authentication.

Before you begin

This task requires a PowerShell session that with `Execution Policy` set to `Unrestricted`.

If it is not set, you need to set it permanently by executing the following:

```
Set-ExecutionPolicy Unrestricted
```

The task requires administrator privileges.

Note: InstallTool has already transformed the script based on the input parameters.

Procedure

1. Locate the PowerShell script `SDL.ISH-ISHSTS-Configure for Windows Authentication.ps1` in the folder `\InfoShare\App\Setup\STS\ISHSTS\Scripts`
2. Open PowerShell with elevated administrator privileges. `Run As Administrator`.
If the PowerShell session is not running with administrator privileges, the script will launch a new session and administrator privileges will be requested to the user.
3. Navigate to the script folder `\InfoShare\App\Setup\STS\ISHSTS\Scripts`
 - a. `cd \InfoShare\App\Setup\STS\ISHSTS\Scripts`
4. Execute script `SDL.ISH-ISHSTS-Configure for Windows Authentication.ps1`
 - a. `.\SDL.ISH-ISHSTS-Configure for Windows Authentication.ps1`

PowerShell session

```
cd \InfoShare\App\Setup\STS\ISHSTS\Scripts
& '.\SDL.ISH-ISHSTS-Configure for Windows Authentication.ps1'
```

Configuring the Content Manager SQL Server database for Windows Authentication

Here is how you execute the script that allows the server's computer account to access a SQL Server database.

Before you begin

The task applies for SQL Server database when the connection string used integrated authentication.

The task requires sysadmin rights on the SQL Server.

Note: InstallTool has already transformed the script based on the input parameters.

Procedure

1. Locate the script `GrantComputerAccountPermissions.sql` in the `\InfoShare\App\Database\InfoShareCM\Common\` folder. Depending on your version of SQL Server:
 - For SQL Server 2019, the script path is `\InfoShare\AppPROJECTSUFFIX\Database\InfoShareCM\Common\SQLServer2019\Tools\GrantComputerAccountPermissions.sql`
 - For SQL Server 2017, the script path is `\InfoShare\AppPROJECTSUFFIX\Database\InfoShareCM\Common\SQLServer2017\Tools\GrantComputerAccountPermissions.sql`

where *PROJECTSUFFIX* is a suffix string.

2. Execute the script on the target SQL server instance.

SQL Server script that grants necessary permissions

If the target database is INFOSHAREDDB and the computer account is TESTDOMAIN\SERVER01\$ then the script looks like this:

```
USE [master]
GO
CREATE LOGIN [TESTDOMAIN\SERVER01$] FROM WINDOWS WITH DEFAULT_DATABASE=
[INFOSHAREDDB]
GO
USE [INFOSHAREDDB]
GO
CREATE USER [GLOBAL\MEDEVASARAFIA01$] FOR LOGIN [TESTDOMAIN\SERVER01$]
GO
USE [INFOSHAREDDB]
GO
GRANT SELECT TO [TESTDOMAIN\SERVER01$]
GO
```

Verifying the upgrade

Conduct some testing to verify critical parts of your upgraded system.

Verifying URLs

If your environment includes reverse proxy servers, after you install Content Manager, you need to check that certain URLs are accessible.

Procedure

1. Using an internet browser, ensure that you can reach the following URLs:
 - *BaseURL*/ISHWS/Application.asmx?wsdl
 - *BaseURL*/ISHWS/Application.asmx?disco where *BaseURL* is the value specified for the `baseurl` parameter, and *ISHWSWS* is the value specified for the `infosharewebsbappname` parameter. These parameters are set in the `inputparameter.xml` file that is used by the Content Manager installer.
2. If you cannot access the URLs, verify that the reverse proxy servers are correctly configured. See the documentation for the reverse proxy servers.

Verify read access to the database by viewing an inbox

To verify read access to the database, request to view an inbox in Organize Space.

Procedure

1. Open an internet browser and enter the address for Organize Space.

Note: The Organize Space address is a combination of two parameter values in the parameters in the `inputparameters.xml` file, `baseurl` and `infosharecswebappname`, followed by the string `/OrganizeSpace/`

For example, if:

```
<param name="baseurl">  
<currentvalue>https://example.corp</currentvalue>
```

and

```
<param name="infosharecswebappname">  
<currentvalue>ISHCS</currentvalue>
```

then the URL is:

```
https://example.corp/ISHCS/OrganizeSpace/
```

Enter a Content Manager username and password. If you are not sure about the login/password and you imported the default database you can use **admin/admin** to login.

2. On the top tab level, select the **Content** tab.
3. On the second tab level, select the **Inbox** tab.

4. In the left pane, select an inbox. For example, select **Reviewer**.
If no objects are in the inbox, an empty inbox is displayed; **There are no items to show** is reported in the content pane.
If there are objects in the inbox, a list of objects is displayed in the content pane.

Verify read and write access to the database by creating a folder

Create, modify, and delete actions are handled through transactions and verifies read and write access to the database.

Procedure

1. Sign in to Organize Space as an existing user, for example as the administrator user.
2. On the top tab level, select the **Content** tab.
3. On the second tab level, select the **Structured Content** tab.
4. Select the **General** node and select **Add new > Folder**.
An Add new folder dialog opens.
5. Enter a name in the **Folder Name** field. For example, enter the folder name **Test**.
6. Under **Content type**, select **None**.
7. Select **OK**.
The folder is created and displayed in the left pane.

What to do next

You can remove the test folder by selecting it in the list and then selecting **Delete** in the button toolbar. You are asked to confirm the delete action, select **Delete** to confirm and delete the folder.

Creating an account and connecting to the Repository

Before you can use Content Importer, you need to set up your user account. If you installed Content Importer on a system where Publication Manager is already installed, the user account settings are recognized.

Before you begin

You must create the user account and configure the connection to the Repository to allow a user to connect and access data in the Content Manager Repository. Use this procedure to create a new user account for testing purposes.

To create the account and connect to the Repository, you need the URL of the Content Manager web services.

Procedure

1. In Content Importer, select **Create an account**.
The account window is displayed.
2. Enter an **Account Name** and the URL of the Content Manager **Web Service**.
3. Select **Next**.
4. If necessary, select the **Authentication Method**.
5. Enter the username and password.
Check **Remember password** if you do not want to enter the information each time you use the application.
6. Select **Next**.
Content Manager validates the account and synchronizes files.

Running a client tool

When started, the client tools verify availability of the synchronization website and web services.

Before you begin

- A desktop client workstation must be installed with the client tools. If not done, refer to the section for installing desktop clients.
- The client tool must be configured with a user login and account.
- To fully test the client, the database should contain data.

Procedure

1. If necessary, create an account and connection to the repository.
2. Start a client tool such as Publication Manager, Condition Manager or Authoring Bridge from the **Start** menu or desktop shortcut.

If you can view and access the repository through the client tool, and can view or preview a topic in the repository then web services, synchronization, and network availability have been successfully verified.

Testing publishing

You can test the publish functionality if your database contains topics, maps and publications, and it is configured to render an output type.

Before you begin

If your database is not configured to render an output, refer to the [Content Manager Information Portal](#) documentation for information about adding output formats.

Procedure

1. Sign in to Organize Space as an existing user, say, the administrator.
2. On the top tab level, select the **Content** tab.
3. On the second tab level, select the **Structured Content** tab.
4. In the folder tree, navigate to a folder that contains a publication you want to publish.
5. In the list, double-click the publication.
A detail view of the publication appears.
6. Expand the version of the publication that you want to publish, and select language and output for the publication version.
7. Select **Publish** in the button toolbar at the top.
A dialog reports that publishing has started, and invites you to see event details.
8. To display progress, select **View event details** or select **Refresh** in the button toolbar above the list.
When viewing event details, verification is complete when the Event Description is **Publish Process ended** and the status says **SUCCESS**.

Executing the full text search

You can test the search functionality if the database contains content.

Procedure

1. Sign in to Organize Space.
2. On the top tab level, select the **Content** tab.
3. On the second tab level, select the **Search** tab.
4. Think of a word that frequently occurs in your content, enter that word in the **Search for** field and press **Enter** (or select **Apply**).
If there is no search result, verify if a rebuild of the full-text-index collection is required. Note that the full-text-index collection is not immediately available after installation since it takes some time to build.

Verifying customer specific components

If you requested customizations of the out-of-the-box Content Manager software, a check that they were delivered is recommended at this time.

About this task

Customizations of the delivered software may be, for example, PDF stylesheets, extra metadata, or extra development to integrate with other systems such as SDL-TMS, PLMs, SingleSignOns.

If you contracted for additional customizations, check that they were delivered and functioning as required.

Advanced topics for upgrade

These advanced topics deal with firewalls and blocked ports.

Firewalls and blocked ports

There is a variety of possibilities regarding network and firewall configurations. Only some of typical firewall configurations are described. A user knowledgeable about networking can infer the required ports and protocol settings needed for more complex configurations.

Note: The following description is intended to guide you in your network and firewall configuration. Its intention is not to be a complete how-to guide for setting up firewalls. Several settings are subject to change in newer software versions. Be certain to refer to the latest reference materials.

Network configuration using a single firewall

The first firewall is located between the Internet and the internal network

This is the first line of protection from the world wide web. All information passed through the Content Manager web sites or web services are based on the HTTPS protocol.

The techniques described in the section for HTTPS (SSL) could be required depending on the task of the Content Manager server.

Network configuration using two firewalls

The first firewall is located between the Internet and the DMZ as described above and the second is located between the DMZ and the intranet

The second line of protection protects servers which are open to the general public from the more critical company intranet servers. The zone between the first and second line of protection is also called the DMZ (DeMilitarized Zone).

The following techniques could be required depending on the task of the Content Manager server

- SMTP - when SMTP communication is required
- Database engines
 - Microsoft SQL Server access is required
 - Oracle database access is required

- HTTP(S)

SMTP

Ports and protocols used by the Simple Mail Transfer Protocol (SMTP).

Simple Mail Transfer Protocol (SMTP) is the standard for e-mail transmissions across the internet. Formally SMTP is defined in RFC 821 (STD 10) as amended by RFC 1123 (STD 3) chapter 5. The protocol used today is also known as ESMTP, and it is defined in RFC 2821.

Used by:

- Content Manager Publishing components
- Content Manager Author components

Settings:

What	Protocol	Port	Direction
SMTP	TCP	25	IN/OUT

For more information, refer to:

- <http://msdn2.microsoft.com/en-us/library/ms942998.aspx>
- <http://en.wikipedia.org/wiki/SMTP>

Microsoft SQL Server ports

Ports and protocols used by Microsoft SQL Server database engine (SQLServer).

About this task

Microsoft SQL Server is a relational database management system (RDBMS) produced by Microsoft. Its primary query language is Transact-SQL, an implementation of the ANSI/ISO standard Structured Query Language (SQL) which is used by Microsoft. You need to allow distant users to connect to the SQL server so they can address it their queries.

SQL Server is used by:

- Content Manager End User components;
- Content Manager Author components;
- Content Manager Database.

Note: The first step of this procedure is sufficient in most cases. Go through the other steps if you encounter any issue.

Procedure

1. Enable remote connections to your SQL Server.
 - a. Open **SQL Server Management Studio**.
 - b. Right-click your server's name and select **Properties**.
 - c. Tick the checkbox **Allow remote connections to this server**.
 - d. Select **OK**.

Microsoft SQL Server by default uses TCP 1433 but this can be changed using **SQL Server Enterprise Manager** or the database **Management Studio**.

2. Enable TCP/IP.
 - a. Open the **SQL Server Configuration Manager**.
 - b. In **SQL Server Network Configuration** select **Protocols for [yourServerInstance]**.
 - c. In the right-hand pane, make sure that **TCP/IP** is **Enabled**.
3. Open the 1433 port in your firewall.
 - a. In the **SQL Server Configuration Manager**, right-click **TCP/IP** and select **Properties**.
 - b. Select the **IP Addresses** tab and make sure the **TCP Port** for **IP1** is **1433**.
4. If you are using a named instance, create an extra rule in your firewall with the port 1434.

Note: For a named SQL Server instance (e.g. [yourServerInstance] \ SQL2012SP2), the firewall needs an extra rule on the UDP protocol with the specific port 1434. Without this rule the system will return the exception error: 26 - Error Locating Server/Instance Specified.

- a. Display the firewall advanced settings by navigating to **Control Panel > System and Security > Windows Firewall > Advanced settings**.
- b. Select **Inbound Rules** in the left-hand pane, then click **New Rule** in the right-hand pane.
- c. In the **New Inbound Rule Wizard, Rule Type step**, select **Port**.
- d. **Protocols and Ports** step, select **UDP** and set **Specific local ports** to **1434**.
- e. **Action** step, select **Allow the connection**.
- f. **Profile** step, tick the **Domain** checkbox.
- g. **Name** step, enter a name for this rule, e.g. **Named instance port 1434**.
- h. Select **Finish**.

What to do next

For more information, refer to:

- <http://support.microsoft.com/kb/287932>
- <http://msdn.microsoft.com/en-us/library/ms942998.aspx>

Oracle ports and protocols

Ports and protocols used by Oracle.

Oracle Database or simply Oracle is a relational database management system (RDBMS) software product released by Oracle Corporation that has become a major feature of database computing.

Used by:

- Content Manager End User components
- Content Manager Author components
- Content Manager Database

The Oracle database server communicates with the Content Manager application server using a port, so make sure this port is opened IN/OUT in your firewall. The port by default is 1521.

What	Protocol	Port	Direction
Listener (runs on the database server)	TCP	1521 (default)	IN/OUT

HTTPS (SSL)

Ports and protocols used by Microsoft Internet Information Server (IIS).

HTTPS is a URI scheme used to indicate a secure HTTP connection. It is syntactically identical to the `http://` scheme normally used for accessing resources using HTTP. The `https:` URL indicates that HTTP is to be used but with a different default TCP port (443) and an additional encryption/authentication layer between the HTTP and TCP.

HTTPS is not a separate protocol, but refers to the combination of a normal HTTP interaction over an encrypted Secure Sockets Layer (SSL). An `https:` URL may specify a TCP port. If it does not, the connection uses port 443.

Used by:

- Content Manager End User Website
- Content Manager Author Website
- Content Manager WebServices

Settings:

What	Protocol	Port	Direction
HTTPS	TCP	443	IN/OUT



Acknowledgments

Tridion Docs products include open source or similar third-party software.

[@ant-design/cssinjs](#)

Component level cssinjs solution used in ant.design. It's a subset of Emotion with design token logic wrapper.

[@ant-design/icons](#)

The abstract trees of the Ant Design SVG icons.

[@ant-design/icons-svg](#)

The abstract node of the Ant Design SVG icons.

[@ant-design/react-slick](#)

Carousel component built with React. It is a react port of slick carousel

[@emotion/hash](#)

A MurmurHash2 implementation

[@emotion/is-prop-valid](#)

Check whether a prop is valid for HTML and SVG elements

[@emotion/unitless](#)

An object of css properties that don't accept values with units

[@ljharb/through](#)

Easy way to create a Stream that is both readable and writable.

[@monaco-editor/react](#)

Monaco Editor for React

[@popperjs/core](#)

Tooltip & Popover Positioning Engine

[@rc-component/context](#)

React way perf context selector

[@rc-component/mini-decimal](#)

A mini decimal calculator which only supports add, multi or compare operation for mini bundle size.

[@rc-component/mutate-observer](#)

MutateObserver for React.

[@rc-component/portal](#)

React 18 supported Portal Component.

[@rc-component/tour](#)

React 18 supported Tour Component.

[@types/hoist-non-react-statics](#)

This package contains type definitions for hoist-non-react-statics

[@types/prop-types](#)

This package contains type definitions for prop-types

[@types/react](#)

This package contains type definitions for react

[@types/scheduler](#)

This package contains type definitions for scheduler

[@types/stylis](#)

This package contains type definitions for stylis

[@types/use-sync-external-store](#)

This package contains type definitions for use-sync-external-store

[7zip](#)

Is a file archiver with a high compression ratio. 7-zip is delivered under the GNU LGPL License.

7zip SFX Modified Module

The SFX Modified Module is a plugin for creating self-extracting archives. It is compatible with three compression methods (LZMA, Deflate, PPMd) and provides an extended list of options. Reference website <http://7zsfx.info/>.

[Akka](#)

Akka is a toolkit and runtime for building highly concurrent, distributed, and fault tolerant event-driven applications on the JVM.

[Amazon Ion Java](#)

Amazon Ion Java is a Java streaming parser/serializer for Ion. It is the reference implementation of the Ion data notation for the Java Platform Standard Edition 8 and above.

[Amazon SQS Java Messaging Library](#)

This Amazon SQS Java Messaging Library holds the Java Message Service compatible classes, that are used for communicating with Amazon Simple Queue Service.

[Animal Sniffer Annotations](#)

Animal Sniffer Annotations provides Java 1.5+ annotations which allow marking methods which Animal Sniffer should ignore signature violations of.

[ansi-escapes](#)

ANSI escape codes for manipulating the terminal

[ansi-styles](#)

ANSI escape codes for styling strings in the terminal

[ANTLR](#)

ANTLR is a powerful parser generator that you can use to read, process, execute, or translate structured text or binary files.

[Apache ActiveMQ](#)

Apache ActiveMQ is the most popular and powerful open source messaging and Integration Patterns server.

[Apache Ant](#)

Apache Ant is a Java library and command-line tool whose mission is to drive processes described in build files as targets and extension points dependent upon each other. The main known usage of Ant is the build of Java applications. Ant supplies a number of built-in tasks allowing to compile, assemble, test and run Java applications. Ant can also be used effectively to build non Java applications, for instance C or C++ applications. More

generally, Ant can be used to pilot any type of process which can be described in terms of targets and tasks.

[Apache Commons BeanUtils](#)

The Java language provides *Reflection* and *Introspection* APIs (see the `java.lang.reflect` and `java.beans` packages in the JDK Javadocs). However, these APIs can be quite complex to understand and utilize. The *BeanUtils* component provides easy-to-use wrappers around these capabilities.

[Apache Commons Codec](#)

Apache Commons Codec (TM) software provides implementations of common encoders and decoders such as Base64, Hex, Phonetic and URLs.

[Apache Commons Collections](#)

The Java Collections Framework was a major addition in JDK 1.2. It added many powerful data structures that accelerate development of most significant Java applications. Since that time it has become the recognized standard for collection handling in Java.

[Apache Commons Compress](#)

The Apache Commons Compress library defines an API for working with ar, cpio, Unix dump, tar, zip, gzip, XZ, Pack200, bzip2, 7z, arj, lzma, snappy, DEFLATE, lz4 and Z files.

[Apache Commons Configuration](#)

The Commons Configuration software library provides a generic configuration interface which enables a Java application to read configuration data from a variety of sources. Commons Configuration provides typed access to single, and multi-valued configuration parameters.

[Apache Commons DBCP \(Database Connection Pools\)](#)

Many Apache projects support interaction with a relational database. Creating a new connection for each user can be time consuming (often requiring multiple seconds of clock time), in order to perform a database transaction that might take milliseconds. Opening a connection per user can be unfeasible in a publicly-hosted Internet application where the number of simultaneous users can be very large. Accordingly, developers often wish to share a "pool" of open connections between all of the application's current users. The number of users actually performing a request at any given time is usually a very small percentage of the total number of active users, and during request processing is the only time that a database connection is required. The application itself logs into the DBMS, and handles any user account issues internally. There are several Database Connection Pools already available, both within Apache products and elsewhere. This Commons package provides an opportunity to coordinate the efforts required to create and maintain an efficient, feature-rich package under the ASF license.

[Apache Commons FileUpload](#)

The Commons **FileUpload** package makes it easy to add robust, high-performance, file upload capability to your servlets and web applications.

[Apache Commons HttpClient](#)

HttpClient was started in 2001 as a subproject of the Jakarta Commons, based on code developed by the Jakarta Slide project.

[Apache Commons IO](#)

Commons IO is a library of utilities to assist with developing IO functionality.

Apache Commons JEXL (Java EXpression Language)

JEXL is a library intended to facilitate the implementation of dynamic and scripting features in applications and frameworks written in Java.

JEXL implements an Expression Language based on some extensions to the JSTL Expression Language supporting most of the constructs seen in shell-script or ECMAScript. Its goal is to expose scripting features usable by technical operatives or consultants working with enterprise platforms.

Apache Commons Lang

The standard Java libraries fail to provide enough methods for manipulation of its core classes. Apache Commons Lang provides these extra methods.

Lang provides a host of helper utilities for the java.lang API, notably String manipulation methods, basic numerical methods, object reflection, concurrency, creation and serialization and System properties. Additionally it contains basic enhancements to java.util.Date and a series of utilities dedicated to help with building methods, such as hashCode, toString and equals.

Apache Commons Logging

The Logging package is an ultra-thin bridge between different logging implementations. A library that uses the commons-logging API can be used with any logging implementation at runtime. Commons-logging comes with support for a number of popular logging implementations, and writing adapters for others is a reasonably simple task.

Apache Commons Net

Apache Commons Net™ library implements the client side of many basic Internet protocols. The purpose of the library is to provide fundamental protocol access, not higher-level abstractions.

Apache Commons Pool

Pool provides an Object-pooling API, with three major aspects:

1. A generic object pool interface that clients and implementers can use to provide easily interchangeable pooling implementations.
2. A toolkit for creating modular object pools.
3. Several general purpose pool implementations.

Apache FOP

Apache FOP (Formatting Objects Processor) is a print formatter driven by XSL formatting objects (XSL-FO) and an output independent formatter. It is a Java application that reads a formatting object (FO) tree and renders the resulting pages to a specified output. Output formats currently supported include PDF, PS, PCL, AFP, XML (area tree representation), Print, AWT and PNG, and to a lesser extent, RTF and TXT. The primary output target is PDF.

Apache Geronimo

Apache Geronimo is an open source server runtime that integrates the best open source projects to create Java/OSGi server runtimes that meet the needs of enterprise developers and system administrators.

Apache HttpClient

Although the java.net package provides basic functionality for accessing resources via HTTP, it doesn't provide the full flexibility or functionality needed by many applications. HttpClient seeks to fill this void by providing an efficient, up-to-date, and feature-rich package implementing the client side of the most recent HTTP standards and recommendations.

Designed for extension while providing robust support for the base HTTP protocol, HttpClient may be of interest to anyone building HTTP-aware client applications such as web browsers, web service clients, or systems that leverage or extend the HTTP protocol for distributed communication.

[Apache HttpComponents](#)

The Apache HttpComponents™ project is responsible for creating and maintaining a toolset of low level Java components focused on HTTP and associated protocols.

Within the HttpComponents project, [HttpCore](#) is a set of low level HTTP transport components that can be used to build custom client and server side HTTP services with a minimal footprint. HttpCore supports two I/O models: blocking I/O model based on the classic Java I/O and non-blocking, event driven I/O model based on Java NIO

[Apache Log4j](#)

Apache Log4j 2 is an upgrade to Log4j that provides significant improvements over its predecessor, Log4j 1.x, and provides many of the improvements available in Logback while fixing some inherent problems in Logback's architecture.

[Apache Lucene, SOLR](#)

The Apache Lucene™ project develops open-source search software.

[Apache Tomcat, Tomcat Embed](#)

Apache Tomcat is an open source software implementation of the Java Servlet and JavaServer Pages technologies.

[Apache XBean :: Spring](#)

XBean :: Spring provides a schema-driven proprietary namespace handler for Spring contexts.

[Apache Xerces](#)

The Apache Xerces Project is responsible for software licensed to the Apache Software Foundation intended for the creation and maintenance of:

- XML parsers
- related software components

[Apache XML](#)

The Apache XML Project used to be the home for many XML-related subprojects, many of which have moved to top-level project status recently or are currently in migration. The Apache XML Project slowly transforms into an place where you can find pointers to XML-related projects here in The Apache Foundation.

[Apache XML Commons External Components](#)

The External Components portion of xml-commons contains interfaces that are defined by external standards organizations.

[archiver](#)

A streaming interface for archive generation.

[archiver-utils](#)

A streaming interface for archive generation.

array-tree-filter

Filter by keys in array tree

ASM

ASM is an all purpose Java bytecode manipulation and analysis framework. It can be used to modify existing classes or dynamically generate classes, directly in binary form. Provided common transformations and analysis algorithms allow to easily assemble custom complex transformations and code analysis tools.

AspectJ

AspectJ is a seamless aspect-oriented extension to the Java programming language. It is Java platform compatible easy to learn and use.

Async

Async is a utility module which provides straight-forward, powerful functions for working with asynchronous JavaScript.

async-validator

Validate form asynchronous. A variation of <https://github.com/freeformsystems/async-validate>

AWS SDK for Amazon SQS

The AWS Java SDK for Amazon SQS module holds the client classes that are used for communicating with Amazon Simple Queue Service.

AWS SDK for Java Core

The AWS SDK for Java - Core module holds the classes that are used by the individual service clients to interact with Amazon Web Services. Users need to depend on aws-java-sdk artifact for accessing individual client classes.

b4a

Buffer for Array (B4A) provides a set of functions for bridging the gap between the Node.js Buffer class and the Uint8Array class. A browser compatibility layer is also included, making it possible to use B4A in both Node.js and browsers without having to worry about whether you're dealing with buffers or typed arrays.

base64-js

base64-js does basic base64 encoding/decoding in pure JS.

bl

A Node.js Buffer list collector, reader and streamer thingy.

buffer

The buffer module from node.js, for the browser.

buffer-crc32

crc32 that works with binary data and fancy character sets, outputs buffer, signed or unsigned data and has tests.

Byte Buddy

Byte Buddy is a code generation and manipulation library for creating and modifying Java classes during the runtime of a Java application and without the help of a compiler.

[camelize](#)

recursively transform key strings to camel-case

[CDI APIs](#)

APIs for CDI (Contexts and Dependency Injection for Java).

[cglib](#)

cglib is a powerful, high performance and quality Code Generation Library, It is used to extend JAVA classes and implements interfaces at runtime.

[chalk](#)

Terminal string styling done right

[chardet](#)

Chardet is a character detection module written in pure JavaScript (TypeScript). Module uses occurrence analysis to determine the most probable encoding.

[Checker Qual](#)

Checker Qual is the set of annotations (qualifiers) and supporting classes used by the Checker Framework to type check Java source code.

[ClassMate](#)

ClassMate is a library for introspecting generic type information of types, member/static methods, fields. Especially useful for POJO/Bean introspection.

[classnames](#)

classnames is a simple JavaScript utility for conditionally joining classNames together.

[cli-cursor](#)

Toggle the CLI cursor. The cursor is gracefully restored if the process exits.

[cli-spinners](#)

70+ spinners for use in the terminal

[cli-width](#)

Get stdout window width, with four fallbacks, tty, output.columns, a custom environment variable and then a default.

[commander](#)

The complete solution for node.js command-line interfaces.

[CommandLineParser](#)

C# command line parser that brings standardized *nix getopt style, for .NET. Includes F# support.

[compress-commons](#)

Compress Commons is a library that defines a common interface for working with archive formats within node.

[Config \(Typesafe\)](#)

A configuration library for JVM languages.

[crc-32](#)

Standard CRC-32 algorithm implementation in JS (for the browser and nodejs). Emphasis on correctness, performance, and IE6+ support.

crc32-stream

crc32-stream is a streaming CRC32 checksumer. It uses the crc module behind the scenes to reliably handle binary data and fancy character sets. Data is passed through untouched.

cross-spawn

A cross platform solution to node's spawn and spawnSync.

css-color-keywords

A list of all CSS color keywords.

css-to-react-native

Convert CSS text to a React Native stylesheet object

csstype

Strict TypeScript and Flow types for style based on MDN data

date-fns

date-fns provides the most comprehensive, yet simple and consistent toolset for manipulating JavaScript dates in a browser & Node.js

dayjs

Day.js is a minimalist JavaScript library that parses, validates, manipulates, and displays dates and times for modern browsers with a largely Moment.js-compatible API. If you use Moment.js, you already know how to use Day.js.

decamelize

Convert a camelized string into a lowercased one with a custom separator. Example: unicornRainbow → unicorn_rainbow

diff

A JavaScript text differencing implementation.

DITA-OT

The DITA Open Toolkit is a Java-based implementation of the OASIS DITA Technical Committee's specification for DITA DTDs and schemas. It contains ANT, SAXON,...

DockPanel Suite

.Net Docking Library for Windows Forms

dom4j

dom4j is an easy to use, open source library for working with XML, XPath and XSLT on the Java platform using the Java Collections Framework and with full support for DOM, SAX and JAXP.

dsinfo

The dsinfo library enables you to easily use Scala-side information in implementations of embedded (internal) domain-specific languages. dsinfo is implemented using Scala macros which are an experimental feature of Scala 2.10 and 2.11.

dsprofile

The dsprofile library provides general facilities to implement domain-specific profiling in Scala and Java programs.

edtFTPj/Free

Free Java FTP library gives Java developers extensive FTP functionality.

Ehcache

Ehcache is an open source, standards-based cache for boosting performance, offloading your database, and simplifying scalability. It's the most widely-used Java-based cache because it's robust, proven, and full-featured. Ehcache scales from in-process, with one or more nodes, all the way to mixed in-process/out-of-process configurations with terabyte-sized caches.

Elasticsearch RESTful client

A RESTful client for the Elasticsearch search engine.

emoji-regex

emoji-regex offers a regular expression to match all emoji symbols and sequences (including textual representations of emoji) as per the Unicode Standard. It's based on emoji-test-regex-pattern, which generates (at build time) the regular expression pattern based on the Unicode Standard. As a result, emoji-regex can easily be updated whenever new emoji are added to Unicode.

Error Prone

Error Prone is a static analysis tool for Java that catches common programming mistakes at compile-time.

excss

ExCSS (Pronounced Excess) is a CSS 2.1 and CSS 3 parser for .NET. The goal of ExCSS is to make it easy to read and parse stylesheets into a friendly object model with full LINQ support.

external-editor

A node module to edit a string with a users preferred text editor using \$VISUAL or \$ENVIRONMENT.

fast-fifo

A fast fifo implementation similar to the one powering nextTick in Node.js core. Uses a linked list of growing fixed sized arrays to implement the FIFO to avoid allocating a wrapper object for each item.

FastInfoSet

Fast Infoset (or FI) is an international standard that specifies a binary encoding format for the XML Information Set (XML Infoset) as an alternative to the XML document format. It aims to provide more efficient serialization than the text-based XML format.

Fast Serialization

Fast Serialization reimplements Java Serialization with focus on speed (up to 10 times faster), size and compatibility. This allows the use of FST with minimal code change.

figures

Unicode symbols with fallbacks for older terminals

Fizzler

Fizzler is a W3C Selectors parser and generic selector framework for document hierarchies.

fn-name

Get the name of a named function. There is a name property on functions, but it's not supported in all browsers. This module tries that property then falls back to extracting the name from the function source.

Font Awesome

Font Awesome gives you scalable vector icons that can instantly be customized - size, color, drop shadow, and anything that can be done with the power of CSS.

Fonto Editor

Fonto is an online XML editor designed for people with no knowledge of XML or any other technology that comes with structured content authoring.

fs-extra

fs-extra adds file system methods that aren't included in the native fs module and adds promise support to the fs methods. It also uses graceful-fs to prevent EMFILE errors. It should be a drop in replacement for fs.

fs.realpath

A backwards-compatible fs.realpath for Node v6 and above. In Node v6, the JavaScript implementation of fs.realpath was replaced with a faster (but less resilient) native implementation. That raises new and platform-specific errors and cannot handle long or excessively symlink-looping paths. This module handles those cases by detecting the new errors and falling back to the JavaScript implementation. On versions of Node prior to v6, it has no effect.

GeckoFX

Gecko is a free and open source layout engine used in many applications developed by the Mozilla Foundation and the Mozilla Corporation (notably the Firefox web browser).

geckofx45.64

library that allows embedding gecko in C# applications.

glob

glob functionality for node.js

globalize

JavaScript globalization and localization. Formats and parses strings, dates and numbers in over 350 cultures.

GNU Aspell

GNU Aspell is a Free and Open Source spell checker designed to eventually replace Ispell. It can either be used as a library or as an independent spell checker. Its main feature is that it does a superior job of suggesting possible replacements for a misspelled word than just about any other spell checker out there for the English language. Unlike Ispell, Aspell can also easily check documents in UTF-8 without having to use a special dictionary. Aspell will also do its best to respect the current locale setting. Other advantages over Ispell include support for using multiple dictionaries at once and intelligently handling personal dictionaries when more than one Aspell process is open at once.

Specifically we are using GNUASpell dictionaries for de-CH, de-DE, en-CA, en-GB, en-US, es-ES, fr-FR, fr-CH, nl-NL.

google-code-prettify

google-code-prettify is a Javascript module and CSS file that allows syntax highlighting in an html page.

google-gson

google-gson is a Java library to convert JSON to Java objects and vice-versa.

Google Guava

The Guava project contains several of Google's core libraries that we rely on in our Java-based projects: collections, caching, primitives support, concurrency libraries, common annotations, string processing, I/O, and so forth.

Google J2ObjC

J2ObjC is an open-source command-line tool from Google that translates Java source code to Objective-C for the iOS (iPhone/iPad) platform. This tool enables Java source to be part of an iOS application's build, as no editing of the generated files is necessary.

graceful-fs

graceful-fs functions as a drop-in replacement for the fs module, making various improvements. The improvements are meant to normalize behavior across different platforms and environments, and to make filesystem access more resilient to errors.

GraphQL-Java

The Java implementation of GraphQL.

HdrHistogram

A High Dynamic Range Histogram that supports recording and analyzing sampled data value counts across a configurable integer value range with configurable value precision within the range. Value precision is expressed as the number of significant digits in the value recording, and provides control over value quantization behavior across the value range and the subsequent value resolution at any given level.

Hibernate

Hibernate is a high-performance Object/Relational persistence and query service. The most flexible and powerful Object/Relational solution on the market, Hibernate takes care of the mapping from Java classes to database tables and from Java data types to SQL data types. It provides data query and retrieval facilities that significantly reduce development time. Hibernate's design goal is to relieve the developer from 95% of common data persistence-related programming tasks by eliminating the need for manual, hand-crafted data processing using SQL and JDBC.

HK2 Framework

HK2 is a light-weight and dynamic dependency injection framework.

HSQldb (HyperSQL DataBase)

HSQldb (HyperSQL DataBase) is the leading SQL relational database engine written in Java. It offers a small, fast multithreaded and transactional database engine with in-memory and disk-based tables and supports embedded and server modes. It includes a powerful command line SQL tool and simple GUI query tools.

Hunspell

Hunspell is the spell checker of LibreOffice, OpenOffice.org, Mozilla Firefox 3 & Thunderbird, Google Chrome, and it is also used by proprietary software packages, like Mac OS X, InDesign, MemoQ, Opera and Trados Studio.

i18next-http-backend

This is a simple i18next backend to be used in Node.js, in the browser and for Deno. It will load resources from a backend server using the XMLHttpRequest or the fetch API.

[i18next-intervalplural-postprocessor](#)

This is a i18next postProcessor enabling interval based plurals.

[iconv-lite](#)

Convert character encodings in pure javascript.

[IdentityModel](#)

A .NET standard helper library for claims-based identity, OAuth 2.0 and OpenID Connect.

[IdentityModel OidcClient](#)

A C#/NetStandard OpenID Connect Client Library for native Applications.

[ieee754](#)

Read/write IEEE754 floating point numbers from/to a Buffer or array-like object.

[inflight](#)

Add callbacks to requests in flight to avoid async duplication

[inherits](#)

Easy simple tiny inheritance in JavaScript

[inquirer](#)

A collection of common interactive command line user interfaces.

[InstallAnywhere](#)

InstallAnywhere is the leading multi-platform development solution for application producers who need to deliver a professional and consistent cross installation experience for physical, virtual and cloud environments. From a single project file and build environment, InstallAnywhere creates reliable installations for on-premises platforms - Windows, Linux, Apple OS X, Solaris, AIX , HP-UX, and IBM iSeries - and enables you to take existing and new software products to a virtual and cloud infrastructure.

[is-fullwidth-code-point](#)

Check if the character represented by a given Unicode code point is fullwidth

[is-interactive](#)

Check if stdout or stderr is interactive

[is-unicode-supported](#)

Detect whether the terminal supports Unicode

[Jackson tooling](#)

Inspired by the quality and variety of XML tooling available for the Java platform (StAX, JAXB, etc.), the Jackson is a multi-purpose Java library for processing JSON data format. Jackson aims to be the best possible combination of fast, correct, lightweight, and ergonomic components for developers.

[Jakarta Activation API](#)

The JavaBeans Activation Framework API JAR.

[Jakarta XML Bind API](#)

Jakarta's XML bind API.

[Java API for RESTful web services \(javax.ws.rs\)](#)

Java API for RESTful Web Services.

JavaBeans Activation Framework

With the JavaBeans Activation Framework standard extension, developers who use Java technology can take advantage of standard services to determine the type of an arbitrary piece of data, encapsulate access to it, discover the operations available on it, and to instantiate the appropriate bean to perform said operation(s).

JavaBeans Validation

Bean Validation (JSR-303) API.

Javassist (*Java Programming Assistant*)

Javassist (*Java Programming Assistant*) makes Java bytecode manipulation simple. It is a class library for editing bytecodes in Java; it enables Java programs to define a new class at runtime and to modify a class file when the JVM loads it. Unlike other similar bytecode editors, Javassist provides two levels of API: source level and bytecode level. If the users use the source-level API, they can edit a class file without knowledge of the specifications of the Java bytecode. The whole API is designed with only the vocabulary of the Java language. You can even specify inserted bytecode in the form of source text; Javassist compiles it on the fly. On the other hand, the bytecode-level API allows the users to directly edit a class file as other editors.

javax.annotation

JSR 250 Common Annotations For The Java Platform.

javax.cache

Caching Java API

javax.Expression Language

Expression Language Java API

javax.inject

Dependency Injection Java API

javax.validation

Bean Validation API

javax.jms

The Java Message Service (JMS) API is a messaging standard that allows application components based on the Java 2 Platform, Enterprise Edition (J2EE) to create, send, receive, and read messages. It enables distributed communication that is loosely coupled, reliable, and asynchronous.

JAXB

The goal of the JAXB project is to develop and evolve the code base for the Reference Implementation (RI) of JAXB, the Java Architecture for XML Binding. The JAXB specification is developed through the Java Community Process following the process described at jcp.org. This process involves an Expert Group with a lead that is responsible for delivering the specification, a reference implementation (RI) and a Technology Compatibility Kit (TCK). The primary goal of an RI is to support the development of the specification and to validate it. Specific RIs can have additional goals; the JAXB RI is a production-quality implementation that is used directly in a number of products by Oracle and other vendors.

JBoss Java Annotation Indexer (Jandex)

A Java Annotation Indexer for JBoss

JBoss Logging Framework

The JBoss Logging Framework.

jedis

A blazingly small and sane Redis Java client.

Jersey RESTful WS

Developing RESTful Web services that seamlessly support exposing your data in a variety of representation media types and abstract away the low-level details of the client-server communication is not an easy task without a good toolkit. In order to simplify development of RESTful Web services and their clients in Java, a standard and portable JAX-RS API has been designed. Jersey RESTful Web Services framework is open source, production quality, framework for developing RESTful Web Services in Java that provides support for JAX-RS APIs and serves as a JAX-RS (JSR 311 & JSR 339) Reference Implementation.

Jettison

Jettison is a collection of Java APIs (like STaX and DOM) which read and write JSON. This allows nearly transparent enablement of JSON based web services in services frameworks like CXF or XML serialization frameworks like XStream.

Jetty

The Jetty Web Server provides an HTTP server and Servlet container capable of serving static and dynamic content either from a standalone or embedded instantiations. Starting from Jetty version 7, the Jetty webserver and other core components are hosted by the Eclipse Foundation.

JLine

JLine is a Java library for handling console input. It is similar in functionality to BSD editline and GNU readline. People familiar with the readline/editline capabilities for modern shells (such as bash and tcsh) will find most of the command editing features of JLine to be familiar.

JMESPath Java

JMESPath is a query language for JSON. You can extract and transform elements from a JSON document. This is a Java implementation

Joda-Convert

Joda-Convert provides a small set of classes to provide round-trip conversion between Objects and Strings. It does not tackle the wider problem of Object to Object transformation.

Joda-Time

Joda-Time provides a quality replacement for the Java *date* and *time* classes. The design allows for multiple *calendar* systems, while still providing a simple API. The 'default' calendar is the http://www.joda.org/joda-time/cal_iso.html standard which is used by XML. The Gregorian, Julian, Buddhist, Coptic, Ethiopic and Islamic systems are also included, and we welcome further additions. Supporting classes include time zone, duration, format and parsing.

JOL (Java Object Layout)

JOL (Java Object Layout) is the tiny toolbox to analyze object layout schemes in JVMs. These tools are using Unsafe, JVMTI, and Serviceability Agent (SA) heavily to decoder the *actual* object layout, footprint, and references.

[jQuery](#)

jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of people write JavaScript.

[jQuery CheckBoxTree](#)

A jQuery based checkbox tree plugin that displays your hierarchical data in a tree structure with checkboxes.

[jquery-cookie](#)

jQuery plugin for reading, writing and deleting cookies.

[jquery.datatables](#)

DataTables is a plug-in for the jQuery Javascript library. It is a highly flexible tool, based upon the foundations of progressive enhancement, which will add advanced interaction controls to any HTML table.

[jquery.dataTables.columnFilter](#)

Adds advanced filter capabilities to the DataTables. JS file.

[jQueryFileUpload](#)

File Upload widget with multiple file selection, drag&drop support, progress bar, validation and preview images, audio and video for jQuery.

[jquery.TypeScript.DefinitelyTyped](#)

TypeScript Definitions (d.ts) for jquery.

[jQuery.Gantt](#)

Draw Gantt charts with the famous jQuery ease of development.

[jQuery Highlight](#)

Highlights the search keywords/terms in a preview.

[jQuery UI](#)

jQuery UI is a set of user interface interactions, effects, widgets, and themes built on top of the jQuery JavaScript Library.

[json2mq](#)

Generate media query string from JSON or javascript object

[jsonfile](#)

Easily read/write JSON files in Node.js. Note: this module cannot be used in the browser.

[JSON-js](#)

JSON is a light-weight, language independent, data interchange format. See <http://www.JSON.org> / The files in this collection implement JSON encoders/decoders in JavaScript. JSON became a built-in feature of JavaScript when the ECMAScript Programming Language Standard - Fifth Edition was adopted by the ECMA General Assembly in December 2009. Most of the files in this collection are for applications that are expected to run in obsolete web browsers. For most purposes, json2.js is the best choice.

[Json.NET](#)

Json.NET is a popular high-performance JSON framework for .NET.

[jsoup](#)

jsoup is a Java library for working with real-world HTML. It provides a very convenient API for extracting and manipulating data, using the best of DOM, CSS, and jquery-like methods.

[JTA \(Java Transaction API\)](#)

The `javax.transaction` package. It is appropriate for inclusion in a classpath, and may be added to a Java 2 installation.

[Kiama](#)

The Kiama test library contains a collection of examples, tests that use those examples, and useful test support code.

[Knockout JavaScript library](#)

Knockout is a JavaScript library that helps you to create rich, responsive display and editor user interfaces with a clean underlying data model. Any time you have sections of UI that update dynamically (e.g., changing depending on the user's actions or when an external data source changes), KO can help you implement it more simply and maintainably.

[Kryo](#)

Kryo is a fast and efficient binary object graph serialization framework for Java. The goals of the project are high speed, low size, and an easy to use API. The project is useful any time objects need to be persisted, whether to a file, database, or over the network.

Kryo can also perform automatic deep and shallow copying/cloning. This is direct copying from object to object, not object to bytes to object.

[kXML 2](#)

kXML is a small XML pull parser, specially designed for constrained environments such as Applets, Personal Java or MIDP devices. In contrast to kXML 1, kXML 2 is based on the XML pull API.

[LatencyUtils](#)

The LatencyUtils package includes useful utilities for tracking latencies. Especially in common in-process recording scenarios, which can exhibit significant coordinated omission sensitivity without proper handling.

[lazystream](#)

Create streams lazily when they are accessed (read from/written to).

[lodash.isequalwith](#)

A modern JavaScript utility library delivering modularity, performance, & extras.

[lodash-es](#)

A modern JavaScript utility library delivering modularity, performance, & extras.

[Logback](#)

Logback is intended as a successor to the popular log4j project, picking up where log4j leaves off.

[log-symbols](#)

Colored symbols for various log levels

[loose-envify](#)

Fast (and loose) selective process.env replacer using js-tokens instead of an AST. Works just like envify but much faster.

[MapStruct](#)

MapStruct is a code generator that greatly simplifies the implementation of mappings between Java bean types based on a convention over configuration approach. The generated mapping code uses plain method invocations and thus is fast, type-safe and easy to understand.

[MathJAX](#)

MathJax is an open-source JavaScript display engine for LaTeX, MathML, and AsciiMath notation that works in all modern browsers. It was designed with the goal of consolidating the recent advances in web technologies into a single, definitive, math-on-the-web platform supporting the major browsers and operating systems.

[Micrometer](#)

Micrometer provides a simple facade over the instrumentation clients for the most popular monitoring systems, allowing you to instrument your JVM-based application code without vendor lock-in. Think SLF4J, but for metrics.

[Microsoft.Bcl.AsyncInterfaces](#)

Provides the `IAsyncEnumerable<T>` and `IAsyncDisposable` interfaces and helper types for .NET Standard 2.0. This package is not required starting with .NET Standard 2.1 and .NET Core 3.0.

[microsoft.extensions.configuration.abstractions](#)

Provides abstractions of key-value pair based configuration. Interfaces defined in this package are implemented by classes in `Microsoft.Extensions.Configuration` and other configuration packages.

[microsoft.extensions.dependencyinjection](#)

Supports the dependency injection (DI) software design pattern which is a technique for achieving Inversion of Control (IoC) between classes and their dependencies.

[microsoft.extensions.dependencyinjection.abstractions](#)

Supports the lower-level abstractions for the dependency injection (DI) software design pattern which is a technique for achieving Inversion of Control (IoC) between classes and their dependencies.

[microsoft.extensions.logging](#)

`Microsoft.Extensions.Logging` is combined with a core logging abstraction under `Microsoft.Extensions.Logging.Abstractions`. This abstraction is available in our basic built-in implementations like console, event log, and debug (`Debug.WriteLine`) logging.

[microsoft.extensions.logging.abstractions](#)

`Microsoft.Extensions.Logging.Abstractions` provides abstractions of logging. Interfaces defined in this package are implemented by classes in `Microsoft.Extensions.Logging` and other logging packages. This package includes a logging source generator that produces highly efficient and optimized code for logging message methods.

microsoft.extensions.options

Microsoft.Extensions.Options provides a strongly typed way of specifying and accessing settings using dependency injection and acts as a bridge between configuration, DI, and higher level libraries. This library is the glue for how an app developer uses DI to configure the behavior of a library like HttpClient Factory. This also enables user to get a strongly-typed view of their configuration. Within this package, you'll find an options validation source generator that generates exceptionally efficient and optimized code for validating options.

microsoft.extensions.primitives

Microsoft.Extensions.Primitives contains isolated types that are used in many places within console or ASP.NET Core applications using framework extensions.

microsoft.extensions.dependencyinjection

Supports the dependency injection (DI) software design pattern which is a technique for achieving Inversion of Control (IoC) between classes and their dependencies.

microsoft.identitymodel.abstractions

A package containing thin abstractions for Microsoft.IdentityModel.

microsoft.identitymodel.jsonwebtokens

Includes types that provide support for creating, serializing and validating JSON Web Tokens. This is a newer, faster version of System.IdentityModel.Tokens.Jwt that has additional functionality.

microsoft.identitymodel.logging

Includes Event Source based logging support.

microsoft.identitymodel.protocols

Provides base protocol support for OpenIdConnect and WsFederation.

microsoft.identitymodel.protocols.openidconnect

Includes types that provide support for OpenIdConnect protocol.

microsoft.identitymodel.tokens

Includes types that provide support for SecurityTokens, Cryptographic operations: Signing, Verifying Signatures, Encryption.

Microsoft JDBC Driver for SQL Server

Microsoft provides a Java Database Connectivity (JDBC) driver for use with SQL Server, and Azure SQL Database. The driver provides Java database connectivity from any Java application, application server, or Java-enabled applet. This driver is a Type 4 JDBC driver that provides database connectivity through the standard JDBC application program interfaces (APIs).

microsoft-windowsapicodpack-core

This is a fork of the Microsoft Windows API Code Pack, based on a repository created by Aybe. Due to the lack of updates to the original package, this fork was created to include all open pull requests on the original repository, apply fixes and add support for all current .NET Framework and .NET Core versions.

microsoft-windowsapicodpack-shell

This is a fork of the Microsoft Windows API Code Pack, based on a repository created by Aybe. Due to the lack of updates to the original package, this fork was created to include all open pull requests on the original repository, apply fixes and add support for all current .NET Framework and .NET Core versions.

[minimatch](#)

A minimal matching utility. This is the matching library used internally by npm. It works by converting glob expressions into JavaScript RegExp objects.

[minimist](#)

parse argument options

[Minlog](#)

MinLog is a tiny Java logging library.

[mute-stream](#)

Bytes go in, but they don't come out (when muted). This is a basic pass-through stream, but when muted, the bytes are silently dropped, rather than being passed through.

[MXP1](#)

MXP1 is a stable XmlPull parsing engine that is based on ideas from XPP and in particular XPP2 but completely revised and rewritten to take the best advantage of latest JIT JVMs such as Hotspot in JDK 1.4+.

[nanoid](#)

A tiny (124 bytes), secure, URL-friendly, unique string ID generator for JavaScript

[neo-async](#)

Neo-Async is thought to be used as a drop-in replacement for Async, it almost fully covers its functionality and runs faster

[NHunspell](#)

NHunspell brings the spell checking, hyphenation and thesaurus to the Microsoft® .NET Framework. NHunspell is C# library and wraps native libraries for Hunspell, Hyphen and MyThes. One design goal of this library and wrapper is to keep the source code of the included libraries as unmodified as possible. New versions of the base libraries can therefore easily adopted to NHunspell.

The integrated libraries are used in OpenOffice and they work with the dictionaries published on OpenOffice.org.

[NLog](#)

NLog is a flexible and free logging platform for various .NET platforms, including .NET standard. NLog makes it easy to write to several targets. (database, file, console) and change the logging configuration on-the-fly.

[nlog.extensions.logging](#)

NLog.Extensions.Logging makes it possible to use NLog together with Microsoft ILogger-abstraction and Dependency Injection.

[NLog.WindowsEventLog](#)

NLog.WindowsEventLog provides access to the EventLog-target for NetStandard

[normalize-path](#)

Normalize slashes in a file path to be posix/unix-like forward slashes. Also condenses repeat slashes to a single slash and removes and trailing slashes, unless disabled.

[Objenesis](#)

Objenesis is a small Java library that serves one purpose: to instantiate a new object of a particular class.

okhttp

An HTTP+HTTP/2 client for Android and Java applications.

okio

A modern I/O API for Java.

once

Run a function exactly one time

ora

Elegant terminal spinner

Oracle JDBC Drivers

Drivers used for making a JDBC connection from Java to an Oracle database.

Oracle PKI (Public Key Infrastructure)

Oracle public key infrastructure (PKI) is used by Oracle Enterprise Security Manager, LDAP-enabled Oracle Enterprise Manager, Oracle's Secure Socket Layer (SSL) authentication, Oracle Database, and Oracle Application Server.

Oracle Security Developer Tools (OSDT)

Oracle Security Developer Tools provide you with the cryptographic building blocks necessary for developing robust security applications, ranging from basic tasks like secure messaging to more complex projects such as securely implementing a service-oriented architecture. The tools build upon the core foundations of cryptography, public key infrastructure, web services security, and federated identity management.

path-key

Get the PATH environment variable key cross-platform

Path-to-RegExp

Turn a path string such as `/user/:name`` into a regular expression.

PATRICIA Trie in Java

An implementation of the Practical Algorithm to Retrieve Information Coded in Alphanumeric (PATRICIA).

picocolors

The tiniest and the fastest library for terminal output formatting with ANSI colors.

Postal.Mvc5

Generate emails using ASP.NET MVC views

postcss

PostCSS is a tool for transforming styles with JS plugins. These plugins can lint your CSS, support variables and mixins, transpile future CSS syntax, inline images, and more.

postcss-value-parser

Transforms CSS declaration values and at-rule parameters into a tree of nodes, and provides a simple traversal API.

Project Reactor

Reactor is a fourth-generation Reactive library for building non-blocking applications on the JVM based on the Reactive Streams Specification.

[property-expr](#)

Tiny property path utilities, including path parsing and metadata and deep property setters and getters

[PS Cmdlet Help Editor](#)

PowerShell Cmdlet Help Editor is the tool that helps you to create and edit XML-based help files for your PowerShell modules and PSSnap-Ins.

[qrcode.react](#)

A React component to generate QR codes for rendering to the DOM.

[queue-tick](#)

Next tick shim that prefers process.nextTick over queueMicrotask for compat

[rc-align](#)

React Align Component. Wrapper around <https://github.com/yiminghe/dom-align>.

[rc-cascader](#)

React Cascader Component. Cascade select in one box

[rc-checkbox](#)

Checkbox ui component for react.

[rc-collapse](#)

React Collapse / Accordion. rc-collapse ui component for react

[rc-dialog](#)

react dialog component

[rc-drawer](#)

React Drawer

[rc-dropdown](#)

react dropdown component

[rc-field-form](#)

React Performance First Form Component.

[rc-image](#)

React Image.

[rc-input](#)

React Input Component

[rc-input-number](#)

React Input Number

[rc-mentions](#)

React Mentions

[rc-menu](#)

React menu component. port from <https://github.com/kissyteam/menu>

[rc-motion](#)

React lifecycle controlled motion library.

[rc-notification](#)

React Notification UI Component

[rc-overflow](#)

Auto collapse box when overflow

[rc-pagination](#)

React Pagination Component.

[rc-picker](#)

All Date Pickers you need.

[rc-progress](#)

React Progress Bar

[rc-rate](#)

React Rate Component

[rc-resize-observer](#)

Resize observer for React.

[rc-segmented](#)

React Segmented Control.

[rc-select](#)

React Select

[rc-slider](#)

Slider UI component for React

[rc-steps](#)

React steps component.

[rc-switch](#)

Switch ui component for react.

[rc-table](#)

React table component with useful functions.

[rc-tabs](#)

React Tabs component.

[rc-textarea](#)

Pretty Textarea react component used in ant.design.

[rc-tooltip](#)

React Tooltip

[rc-tree](#)

Tree component.

[rc-tree-select](#)

React TreeSelect Component

[rc-trigger](#)

React Trigger Component

rc-upload

React Upload

rc-util

Common Utils For React Component.

rc-virtual-list

React Virtual List Component which worked with animation.

react-dom

React package for working with the DOM.

react-fast-compare

The fastest deep equal comparison for React.

react-i18next

react-i18next implements internationalization for react using the i18next i18n ecosystem.

react-is

React is a JavaScript library for building user interfaces.

Reactive Streams

A Protocol for Asynchronous Non-Blocking Data Sequence

ReactJS

React is a JavaScript library for building user interfaces.

Reactor Core

Reactor Core is a non-blocking reactive foundation for the JVM.

react-popper

Official React library to use Popper, the positioning library

react-scrollbar-size

React hook to calculate the size of browser scrollbars.

readable-stream

Node-core streams for userland. This package is a mirror of the streams implementations in Node.js 18.19.0.

readdir-glob

Recursive fs.readdir with streaming API and glob filtering.

Red Hat Linux

Red Hat Enterprise Linux OpenStack Platform delivers an integrated foundation to create, deploy, and scale a secure and reliable public or private OpenStack cloud. Red Hat Enterprise Linux OpenStack Platform combines the world's leading enterprise Linux and the fastest-growing cloud infrastructure platform to give you the agility to scale and quickly meet customer demands without compromising on availability, security, or performance.

ReflectASM

ReflectASM is a very small Java library that provides high performance reflection by using code generation. An access class is generated to set/get fields, call methods, or create a new instance. The access class uses bytecode rather than Java's reflection, so it is much faster. It can also access primitive fields via bytecode to avoid boxing.

[resolve-pathname](#)

Resolve URL pathnames using JavaScript

[run-async](#)

Utility method to run function either synchronously or asynchronously using the common ``this.async()`` style.

[Rx .NET](#)

Reactive Extensions for .NET library used to validate entered values

[Scala](#)

The Scala programming language fuses object-oriented and functional programming in a statically typed programming language. It is aimed at the construction of components and component systems.

[Scallop](#)

Scallop is a command line parser.

[scheduler](#)

React is a JavaScript library for building user interfaces.

[scroll-into-view-if-needed](#)

`Element.scrollIntoView` ponyfills for things like "if-needed" and "smooth"

[shallowequal](#)

Performs a shallow equality comparison between two values (i.e. value and other) to determine if they are equivalent.

[shebang-command](#)

Get the command from a shebang

[SitemapGen4j](#)

SitemapGen4j is a library to generate XML sitemaps in Java.

[SLF4J](#)

The Simple Logging Facade for Java (SLF4J) serves as a simple facade or abstraction for various logging frameworks (e.g. java.util.logging, logback, log4j) allowing the end user to plug in the desired logging framework at deployment time.

[SnakeYAML](#)

YAML is a data serialization format designed for human readability and interaction with scripting languages. SnakeYAML is a YAML parser and emitter for the Java programming language.

[SNMP4J](#)

SNMP4J is an enterprise class free open source and state-of-the-art SNMP implementation for Java™ 2SE 1.4 or later. SNMP4J supports command generation (managers) as well as command responding (agents). Its clean object oriented design is inspired by SNMP++, which is a well-known SNMPv1/v2c/v3 API for C++.

[source-map](#)

This is a library to generate and consume the source map format described here.

[source-map-js](#)

Difference between original source-map: TL;DR: it's fork of original source-map@0.6, but with performance optimizations.

[SpringFox](#)

Automated JSON API documentation for API's built with Spring.

[Spring Framework](#)

The Spring Framework provides a comprehensive programming and configuration model for modern Java-based enterprise applications - on any kind of deployment platform. A key element of Spring is infrastructural support at the application level: Spring focuses on the "plumbing" of enterprise applications so that teams can focus on application-level business logic, without unnecessary ties to specific deployment environments.

[StAX](#)

StAX is a standard XML processing API that allows you to stream XML data from and to your application. This StAX implementation is the standard pull parser implementation for JSR-173 specification.

[streamx](#)

An iteration of the Node.js core streams with a series of improvements.

[string_decoder](#)

Node-core v8.9.4 string_decoder for userland

[strip-ansi](#)

Strip ANSI escape codes from a string

[styled-components](#)

styled-components are visual primitives for the component age, enabling you to use ES6 and CSS to style your apps.

[supports-color](#)

Detect whether a terminal supports color

[SVG.NET](#)

Public fork of the C# SVG rendering library. This started out as a minor modification to enable the writing of proper SVG strings. But now after almost two years we have so many fixes and improvements that we decided to share our current codebase to the public in order to improve it even further.

[Swagger](#)

Swagger is a simple yet powerful representation of your RESTful API. With the largest ecosystem of API tooling on the planet, thousands of developers are supporting Swagger in almost every modern programming language and deployment environment. With a Swagger-enabled API, you get interactive documentation, client SDK generation and discoverability.

[Swashbuckle.Core](#)

Seamlessly adds a Swagger to WebApi projects.

[synchronous-promise](#)

A prototypical animal which looks like an A+ Promise but doesn't defer immediately, so can run synchronously, for testing

[system.configuration.configurationmanager](#)

Provides types that support using XML configuration files (app.config). This package exists only to support migrating existing .NET Framework code that already uses System.Configuration. When writing new code, use another configuration system instead, such as Microsoft.Extensions.Configuration.

[system.diagnostics.diagnosticsource](#)

Provides Classes that allow you to decouple code logging rich (unserializable) diagnostics/telemetry (e.g. framework) from code that consumes it (e.g. tools)

[system.diagnostics.eventlog](#)

This package provides types that allow applications to interact with the Windows Event Log service. When an error occurs in a Windows machine, the system administrator or support representative must determine what caused the error, attempt to recover any lost data, and prevent the error from recurring. It is helpful if applications, the operating system, and other system services record important events, such as low-memory conditions or excessive attempts to access a disk. The system administrator can then use the Windows Event Log to help determine what conditions caused the error and identify the context in which it occurred.

[system.identitymodel.tokens.jwt](#)

Includes types that provide support for creating, serializing and validating JSON Web Tokens. As of IdentityModel 7x, this is a legacy tool that should be replaced with Microsoft.IdentityModel.JsonWebTokens.

[system.memory](#)

Provides types for efficient representation and pooling of managed, stack, and native memory segments and sequences of such segments, along with primitives to parse and format UTF-8 encoded text stored in those memory segments.

[system.runtime.compilerservices.unsafe](#)

Provides the System.Runtime.CompilerServices.Unsafe class, which provides generic, low-level functionality for manipulating pointers.

[system.security.accesscontrol](#)

Provides base classes that enable managing access and audit control lists on securable objects.

[system.security.permissions](#)

Provides types supporting Code Access Security (CAS).

[system.security.principal.windows](#)

Provides classes for retrieving the current Windows user and for interacting with Windows users and groups.

[system.servicemodel.http](#)

Provides the types that permit SOAP messages to be exchanged using Http (example: BasicHttpBinding).

[system.servicemodel.primitives](#)

Provides the common types used by all of the WCF libraries.

[system.text.encodings.web](#)

Provides types for encoding and escaping strings for use in JavaScript, HyperText Markup Language (HTML), and uniform resource locators (URL).

[system.text.json](#)

Provides high-performance and low-allocating types that serialize objects to JavaScript Object Notation (JSON) text and deserialize JSON text to objects, with UTF-8 support built-in. Also provides types to read and write JSON text encoded as UTF-8, and to create an in-memory document object model (DOM), that is read-only, for random access of the JSON elements within a structured view of the data.

tar-stream

tar-stream is a streaming tar parser and generator.

Thinkecture IdentityModel

Helpers and client libraries for OpenID Connect, OAuth 2.0 and claims-based Identity.

Thinkecture IdentityServer

Front-end Secure Token Service to serve SAML tokens.

throttle-debounce

Throttle and debounce functions.

tmp

Temporary file and directory creator for node.js

TwelveMonkeys Common

TwelveMonkeys Common library contains common utility classes relating to languages, I/O and images.

TwelveMonkeys ImageIO

TwelveMonkeys ImageIO is a collection of plugins and extensions for Java's ImageIO. These plugins extends the number of image file formats supported in Java, using the `javax.imageio.*` package. The main purpose of this project is to provide support for formats not covered by the JRE itself.

TXW2

TXW is a library that allows you to write XML documents.

ua-parser

A multi-language port of Browserscope's user agent parser.

universalify

Make a callback- or promise-based function support both promises and callbacks.

use-sync-external-store

React is a JavaScript library for building user interfaces.

util-deprecate

The Node.js `util.deprecate()` function with browser support

valid-filename

Check if a string is a valid filename

value-equal

value-equal determines if two JavaScript values are equal using `Object.prototype.valueOf`.

warning

A mirror of Facebook's Warning

wcwidth

Port of C's `wcwidth()` and `wcswidth()`

WebGrease

Web Grease is a suite of tools for optimizing javascript, css files and images.

which

Like which(1) unix command. Find the first instance of an executable in the PATH.

WiX

The WiX toolset builds Windows installation packages from XML source code. The tool-set integrates seamlessly into build processes.

Woodstox

Woodstox is a high-performance validating namespace-aware StAX-compliant (JSR-173) Open Source XML-processor written in Java.

wordwrap

Wrap your words.

wrap-ansi

Wordwrap a string with ANSI escape codes

wrappy

Callback wrapping utility

Xalan-Java

Xalan-Java is an XSLT processor for transforming XML documents into HTML, text, or other XML document types. It implements XSL Transformations (XSLT) Version 1.0 and XML Path Language (XPath) Version 1.0 and can be used from the command line, in an applet or a servlet, or as a module in other program.

Xerces Java Parser

The Xerces Java Parser 1.4.4 supports the XML 1.0 recommendation and contains advanced parser functionality, such as support for the W3C's XML Schema recommendation version 1.0, DOM Level 2 version 1.0, and SAX Version 2, in addition to supporting the industry-standard DOM Level 1 and SAX version 1 APIs.

XML Pull Parsing

An XML Pull Parsing API.

XStream

XStream is a simple library to serialize objects to XML and back again.

XULRunner

XULRunner is a runtime environment developed by the Mozilla Foundation to provide a common back-end for previewing.

zip-stream

zip-stream is a streaming zip archive generator based on the ZipArchiveOutputStream prototype found in the compress-commons project.

