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SAP Web IDE for SAP HANA - Installation and Upgrade Guide

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Content

1 SAP Web IDE for SAP HANA - Installation and Upgrade Guide

This guide provides the installation, post-installation and upgrade instructions for SAP Web IDE for SAP HANA 2.0 SPS 05.

SAP Web IDE for SAP HANA is a comprehensive browser-based IDE for the development of complex applications comprised of web-based or mobile UIs, business logic, and extensive SAP HANA data models. SAP Web IDE is tightly integrated with the SAP HANA database explorer, the SAP HANA deployment infrastructure (HDI), the Application Lifecycle Management tools (ALM), and the runtime platform of SAP HANA extended application services, advanced model (XS Advanced).

You have the following installation options:

Option	Tools
Install or update the SAP Web IDE software components using the XSA Application Lifecycle Management GUI.	XSA Application Lifecycle Management GUI
Install or update the SAP Web IDE software components on top of an installed XS Advanced using the product installer tool (`xs install` command) of the XS Advanced command line interface (CLI).	`xs install` command
Install or update XS Advanced together with the SAP Web IDE components using the SAP HANA database lifecycle manager (HDBLCM) tools.	HDBLCM tools

For additional release-specific information and known issues, see the SAP Note 2871926.

2 What's New in SAP Web IDE for SAP HANA

This document contains the list of features that were released for SAP Web IDE for SAP HANA SPS05.

New

Role Editor

The new Role Editor allows you to create new roles and edit existing roles. You can grant or revoke roles or object, schema, analytic and system privileges from new or existing roles. To access the Role Editor, right-click any `.hdbrole` file and click *Open Role Editor*.

New

MTA Extension file

You can now use the MTA extension files (`*.mtaext`) to deploy MTA archives to the SAP Cloud Foundry environment or to the SAP HANA XS Advanced Model (XS Advanced) systems. See Packaging and Deploying Applications.

Updated

MTA Archive Location

When you build an MTA project, the resulting MTA archive file (`<ID>_<version>.mtar` file) is generated within the project's *mta_archives* folder. See Packaging and Deploying Applications.

New

Control deploy permission

There is a new role template to revoke MTAR deployment permissions. See Manage the SAP Web IDE Roles [page 25].

New

Using MTA Extension file (`dev.mtaext`) in development

When running a Java or Node.js module, or building an SAP HANA database module, you can override the module's settings in the `mta.yaml` file by configuring the required settings in an extension file that will be used when running the module.

See Build an HDB Module, Run Node.js Modules, and Run a Java Module.

Updated

SAP HANA Service Connection

The SAP HANA Service Connection dialog now enables you to search for user-provided services in the organization and space, and to test the connection the SAP HANA database. See Connect to an External HDB Service.

Updated

DI-Builder installation

There is a new environment variable that will prevent developers from installing the di-builder. See Optional: Customizing the Environment [page 17].

New

Annotation modeler

Annotation modeler provides the following new features:

- You can now identify and work with experimental annotations and annotation properties from the vocabularies. You can also identify deprecated annotations and annotation properties.
- You can now directly navigate to a referenced annotation by using an icon next to the value assigned in the annotation path. See Edit Annotations.
- You can now define an annotation property of complex type as a path that references an annotation of the same type. Complex annotation properties that can be defined as a path to an annotation of the same type (such as *SelectionVariant* and *DataPoint* properties in *UI.KPI* annotation or *SelectionVariant* and *PresentationVariant* properties in *SelectionPresentationVariant*) now have a combo box to define properties inline (blank) or as a path.

Calculation View Editor

New

The Calculation View Editor provides the following new features:

- **Using Value Help in Expression Editor**: When you define an expression involving a value for a column, you can now use the Value Help available for attributes and calculated columns to see the list of possible values.
- **Renaming Multiple Columns**: You can now use the Find and Replace capability to find output columns with a specific string and replace them with the required string. The possible search settings are `Contains`, `Equals`, and `Regex`.
- **Extracting Execution Hints**: If you have defined execution hints in the underlying views, you can now extract them and use the execution hints to execute the target (consuming) calculation view.
- **Encrypted Columns**: You can now identify whether a column is encrypted or not with a warning indicator icon.
- **Using Functions in Expression Editor for Restricted Columns**: You can now use functions while defining expressions for restricted columns.
- **Static Cache Handling**: You can now cache the results of calculation views for reuse. Static cache allows the query result of a view to be cached in memory and refreshed only periodically. See Static Cache.
- **Extracting Hierarchies from Shared Dimension**: You can now extract hierarchies from the underlying star-join views.
- **Model Health Check**: You can now check the health of analytical models using the CHECK_ANALYTICAL_MODEL procedure.
- **Java-API to Generate Calculation Views**: You can now develop calculation views using a Java API. See SAP HANA Calculation View API.

Updated

The Calculation View Editor provides the following updated features:

- **Adding Multiple Columns**: You can now select multiple columns and drag and drop the selected columns to the mapping pane.
- **Including Comments to Generate Document**: You can now include notes on individual columns while generating object documentation.
- **Column Lineage in Outline View**: The lineage of columns is now highlighted in the Outline pane.
- **Support for BIGINT and DATE in pruning**: You can now define pruning criteria for the columns of type "BIGINT" and "Date" as well.
- **Support for Additional Data Types in Data Masking**: Data masking of columns is now supported for “CHAR” and “SHORTTEXT” data types as well.

To see all the new features in SAP HANA 2.0 SPS 05, see SAP HANA Platform 2.0 SPS 05 Features.

2.1 SAP Web IDE for SAP HANA SPS 04

This document contains the list of features that were released for SAP Web IDE for SAP HANA SPS04.

New

Annotation modeler

Annotation modeler now also supports applying annotations to the following targets: Entity Container, Functions, Actions, Action Imports. See Architecture.

New

Beautify HDB Code Files

You can now beautify your HDB JSON files.

In the code editor, open the context menu and select *Beautify*.

New

Update Service

In the Resource Manager, you can now update a service instance from the runtime environment based on the design time configuration.

See Resource Manager.

New

Service Provisioning

SAP Web IDE now automatically creates the required service instance for the `com.sap.xs.uaa` resource type.

See MTA Service Provisioning.

New

Import of Python Modules

You can now import or clone projects containing a Python module to SAP Web IDE for SAP HANA.

You can also create an MTA Archive build for these projects.

New

Visual Editor for SAP HANA Streaming Analytics Plugin

You can now create and edit streaming analytics projects using a visual editor rather than simply being able to view projects in the graphical viewer. There are a number of additional capabilities that come with this change. See SAP Web IDE Enhancements (New).

Enhancement

Compare Editor

You can now manually resolve conflicts when the automated merge cannot make a determination using the 3-Way Merge comparison editor. See Compare and Merge Code.

Enhancement

Create Virtual Table Wizard

The *New Virtual Table* dialog box has been enhanced to become the *Create Virtual Table* wizard.

Enhancement

Business Application Projects With SAP Cloud Platform Application Programming Model

You can now use the HTML5 repository in business application projects.

Business application projects now support different SAP HANA target system release levels.

Enhancement (Calculation View Editor)

Working with Rank Node

The calculation view editor provides additional functions in the Rank view node to users to perform ranking operations for various use cases.

Generating Hierarchies

Support for more generators functions (Hierarchy Leveled, Hierarchy Span Tree, and Hierarchy Temporal) in the Hierarchy Function view node to generate hierarchies.

Anonymizing Data

- Users can use external calculation views to define generalization hierarchies for k-Anonymity.
- Support for additional parameters such as, Loss, Weighted Quasi-Identifiers, and Minimum and Maximum Levels for Quasi-Identifiers to refine results of anonymized data.

Filtering Using Fuzzy Search Parameters

Users can create and use fuzzy search parameters to filter attribute columns in the projection view nodes.

Using Session Variables

Users can use both predefined or user-defined session variables in the filter expression or calculated columns. The session variables provide information on the current context.

To see all the new features in SAP HANA 2.0 SPS 04, see SAP HANA Platform 2.0 SPS 04 Features.

2.2 SAP Web IDE for SAP HANA SPS 03

This document contains the list of features that were released for SAP Web IDE for SAP HANA SPS03 Feature Revision (October 2018).

Enhancement (Database Explorer)

SQL Console

The content of your SQL console is now saved even after the browser is closed. Additionally, the SQL console saves 30 seconds after your last keystroke, and when you perform the following actions:

- When you use any of the *Run* menu options.
- When your console is connected to a database.
- When you close your console.

All saved SQL consoles are re-opened with their content (but not result sets) when you next open database explorer.

New (Database Explorer)

SQLScript Code Coverage

The *Analyze* menu of the SQL console now includes the *Report Code Coverage* option, which gathers position (line, column, start, end) coverage information for SQLScript procedures, functions, and anonymous blocks.

Enhancement (Database Explorer)

Catalog

The catalog browser tree now shows the following new object types to support SAP HANA smart data integration:

Data Provisioning Agents	Monitor the basic system information of an agent (such as CPU, memory, timestamps) and the time it last connected with the Data Provisioning server.
Remote Subscriptions	Monitor basic information for your remote subscriptions, such as the schema in the remote source, the number of messages received and applied by the Data Provisioning server, and the times the last message was received and applied.
Tasks	View information about your data provisioning tasks, such as the realtime design time object, the create time and the memory size.

For more information about smart data integration, visit the *SAP HANA Smart Data Integration and SAP HANA Smart Data Quality* guide.

New (Database Explorer)

The SQL analyzer offers the following new functionality:

- You can now view details on the query compilation process in the *Compilation Summary* section.
- Recommendations on how to improve the performance of SQL-related operations are now provided in the overview, with more details given in the *Recommendations* section.

New

Builder Installation

You can now install a builder into the development space directly from your project settings.

For more information, see Select a space for a Project.

New

SAP HANA Database Application projects

You can now create SAP HANA Database Application projects from the dedicated project template. This template creates a multi-target application (MTA) project with an SAP HANA Database (HDB) module.

To use this template, make sure you have enabled the SAP HANA Database Development Tools feature.

New

Inactive sign

Database artifacts that haven't yet been built are marked by the [Inactive] sign displayed next to the artifact's name in the project.

New

Database Artifact dialog

You can now create database artifacts of different supported types with the New Database Artifact dialog for HDB modules.

For more information, see Developing Database Artifacts.

New

Resource Manager tool

The Resource Manager tool enables you to view information about all the resources (services) required by the modules in a multi-target application project, as well as delete the service instances.

For more information, see Resource Manager.

Enhanced

Annotation modeler

Annotation modeler can now use metadata containing multiple schemas. For more information, see OData Service.

New

Data Replication

Use the Replication Editor to replicate data from several objects in a remote source to tables in SAP HANA. For more information, see Modeling Guide for SAP HANA Smart Data Integration and SAP HANA Smart Data Quality.

Enhancement

Debugger for Node.js Modules

- Set/get properties
- Expansion of array variables

For more information, see Debug Node.js Modules.

New

Support of SAP Cloud Platform application programming model

With SAP Web IDE for HANA 2 SPS03 you can now create, build and run SAP Cloud Platform Business Applications like in SAP Web IDE Full-Stack

For more information, see Developing SAP Cloud Platform Business Applications.

- Tutorial group in the Tutorial Navigator
- Introducing the new Application Programming Model for SAP Cloud Platform
- Develop SAP Cloud Platform Business Applications with SAP Web IDE

To see all the new features in SAP HANA 2.0 SPS 03, see SAP HANA Platform 2.0 SPS 03 Features.

3 Software Installation Matrix

A list of the compatible versions and installation information of all the components required to set up and smoothly run your system.

SAP Web IDE for SAP HANA is tightly integrated with the SAP HANA database, SAP HANA extended application services, advanced model (XS Advanced), and SAP HANA database explorer (formerly known as SAP HANA runtime tools (HRTT)).

Each of these components has its own versioning and release cycle.

LATEST RELEASED VERSIONS

Component	Version	Technical Version	Release Date
SAP Web IDE for SAP HANA	4.5.0	4.5.8	June 26, 2020

SAP WEB IDE FOR SAP HANA DOWNLOAD INFORMATION

VERSION COMPATIBILITY

SAP HANA Database	XS Advanced Runtime	SAP HANA Runtime Tools (HRTT)	Data Warehouse Foundation
Min Version: HANA 1.0 SPS 12 Max Version: HANA 2.0 SPS 05	1.0.127	SP12 Patch20221	2.5.1 **i Note** Not compatible with HANA 1.0.

DOWNLOAD AND INSTALLATION

Product	Software Center	Installation Guide	Release Note
SAP Web IDE for SAP HANA	Download	SAP Web IDE for SAP HANA - Installation and Upgrade Guide	Note 2871926
SAP HANA XS Advanced Model	Download	Installing an SAP HANA System Including the XS Advanced Runtime	Note 2928914
SAP HANA Runtime Tools	Download	Note 2623850	Note 2840297
SAP Data Warehouse Foundation	Download	Installation Guide	Note 2622888 Note 2435452

Related Information

SAP Web IDE for SAP HANA

4 Installing SAP Web IDE

Prerequisites and overview of the installation process.

Prerequisites

Prerequisites for Installation with the XS Install Command

- There are no other installations of SAP Web IDE in the same Organization (same machine) as described in SAP Note 2507070
- Your machine is compatible for XSA/SAP Web IDE installation. Verify using the following command:

```
XSA diagnose
```

- You have access to an installed XS Advanced 2.0 SPS 04 or higher.
- You have an SAP HANA database user assigned to the following roles:
  - The `SpaceDeveloper` role for your organization and the SAP space.
  - The `XS_CONTROLLER_ADMIN` role collection. This allows installation in all spaces.
- You have installed the command line interface (CLI) of XS Advanced on your local machine.
- You are compliant with all the SAP HANA prerequisites listed in SAP Note 2235581

> **i Note**
>
> SAP Web IDE for SAP HANA does not support big Endian in SAP HANA 1.0 SPS 12.

- You have installed the SAP HANA Runtime Tools.
- You have installed SAP Web IDE and the SAP HANA Runtime Tools in the *SAP*.

> **⚠ Caution**
>
> **Do not install any Core application (such as SAP Web IDE and the SAP HANA Runtime Tools in a space other than the *SAP* space.**

- You have installed the SAP HANA cockpit.

Prerequisites for Installation with the HDBLCM Tools

For information about the prerequisites to install XS Advanced, see Installing XS Advanced Runtime.

Security Prerequisites

Secure XS Advanced environment. If a secure configuration of the SAP Web Dispatcher has not been performed during the installation of XS Advanced, follow the procedure described in SAP Notes 2110020 and 510007 (section 7).

For more information about the XS Advanced security concepts, see Security for SAP HANA Extended Application Services, Advanced Model.

Performance Prerequisites

- Make sure your SAP HANA Workload is configured as described in SAP Note 2222250.
- Make sure your XSA platform sizing is configured according to the information in the Platform Sizing in XS Advanced topic and in SAP Note 2618752.
- After you have installed SAP Web IDE, make sure the sizing is configured according to the Sizing Note.
- Run the `XSA diagnose` command to make sure the machine performance is acceptable.

Browser Support

The following browsers are supported:

> **i** Note
>
> Unless specifically stated, only the latest browser version is supported.

- Microsoft Internet Explorer (version 11)
- Microsoft Edge
- Mozilla Firefox
- Google Chrome
- Safari (on iOS platforms only)

4.1 Obtaining the Software Components

Obtain the SAP Web IDE software components from the installation medium or SAP Support Portal.

If you are using the HDBLCM tools, the software components are supplied on the installation medium, and are automatically discovered by the installation tools.

If you are using the `xs install` command, you can obtain the software components in one of the following ways:

- Copy from the installation medium.
- Download from the SAP Support Portal.

Copy the Software Components from the Installation Medium

The following table lists the software components (SCVs) and their locations on the installation medium:

SCV	Description	Relative Path
`SAP WEB IDE 2`	SAP Web IDE for SAP HANA Web Client	`DATA_UNITS \XSAC_SAP_WEB_IDE_20\XSACSAPWEBIDE<SP>_<Patch>.ZIP`

SCV	Description	Relative Path
`SAP HANA RUNTIME TOOLS 2.0`	SAP HANA Runtime Tools	`DATA_UNITS \XSAC_HRTT_20\XSACHRTT<SP>_<Patch>.ZIP`
XS COCKPIT 1	XS Cockpit 1	DATA_UNITS\XSA_CONTENT_10\XSACXSACOCK-PIT<SP>_<Patch>.ZIP

Download the Software Components from the SAP Support Portal

Procedure

1. Navigate to the SAP Support Portal at https://support.sap.com/swdc and choose *Support Packages and Patches*.
2. Choose *Software Downloads*, and close the *What's New* popup page that appears.
3. Choose *By Alphabetical Index (A-Z)* > *H* > *SAP HANA PLATFORM EDITION 2.0* > *SAP HANA PLATFORM EDITION 2.0*.
4. Choose *Support Packages and Patches* > *DOWNLOADS* > *SAP WEB IDE 2* > *OS Independent* > *SAP HANA Database*.
5. Select the latest version and patch of the item, and add it to the download basket.
6. Navigate back to *SAP HANA PLATFORM EDITION 2.0*, and choose *Support Packages and Patches* > *DOWNLOADS* > *SAP HANA RUNTIME TOOLS 2.0*. Repeat step 5.
7. Navigate back to *SAP HANA PLATFORM EDITION 2.0*, and choose *Support Packages and Patches* > *DOWNLOADS* > *XS MONITORING 1*. Repeat step 5.
8. Choose *Download Basket*, select the components you have added, and choose *Download Manager*.
9. Follow the instructions to save the components to a location on the SAP HANA host.
10. If you intend to customize your SAP Web IDE environment, download the `.mtaext` file from SAP Note #2510063 to a location in the SAP HANA host, preferably where you have saved the components.

Related Information

Software Download

4.2 Optional: Customizing the Environment

If required, you can customize your SAP Web IDE for SAP HANA environment.

You might want to do this in the following cases:

- Your developers are using a corporate npm registry.
- Your developers are using a Git repository outside of the firewall, for which you need to configure proxy settings.
- Your developers are using Java development tools.
- You need to set the `JAVA_OPTS` environment variable for SAP HANA JVM.
- You expect your build will take longer than the configured default timeout (5 minutes).

Otherwise, you can skip this step and proceed to Installing the Software Components [page 21].

Download the `.mtaext` file from SAP Note #2510063 to a location in the SAP HANA host, preferably where you have saved the components.

This file enables you to provide additional information about your environment, which is applied during component installation.

You can customize your environment by configuring options in the `.mtaext` as explained below, and installing the components with a parameter pointing to this file. If you decide to customize your environment at a later point, you can do so by reinstalling the `SAP Web IDE` component, as described further in this guide.

Modify the file as follows:

- **If you want to prevent build timeout:**
  Add the following section to your `.mtaext` file. You can change the value for the execution time as needed:
  For example:

```
resources:
  - name: di-builder-configuration
    properties:
      BUILDER_MAX_EXECUTION_TIME: 600
```

- **If your developers are using an npm registry:**
  Make SAP Web IDE aware of it by configuring the `UPSTREAM_LINK` property for the `di-local-npm-registry` module. The property value should be set to the URL of the npm registry that developers are going to use as the upstream repository for the local cache held by SAP Web IDE.
  If the developers consume the SAP-scoped packages (package names starting with `@sap/`) from an npm registry, set the `SAPUPSTREAM_LINK` property to the URL of the registry in which the packages are located:
  - SAP public npm registry: **`https://npm.sap.com`**
    For more information, see the topic *The SAP NPM Registry* in *SAP HANA Developer Guide*.
  - Another registry: URL of this registry.

  For example:

```
modules:
    - name: di-local-npm-registry
      properties:
         UPSTREAM_LINK: "http://registry.npmjs.org/"
         SAPUPSTREAM_LINK: "https://npm.sap.com"
```

Note

If you are reinstalling this component, and want to use another upstream repository, perform the following steps:

1. Discover the name of the file system service used by `di-local-npm-registry` by running the command `xs services`.
2. In the displayed table of services, look for a line with `fs-storage` in the service column and `di-local-npm-registry` in the bound app column. The name column contains the `<service name>`.
3. Delete the service by running the command `xs delete-service <service name>`. This will remove all npm modules fetched from the previous upstream repository from the local npm cache.
4. Recreate the service by running the command `xs create-service <service name>`.
5. Bind the service to the `di-local-npm-registry` app.
6. Restage and restart `di-local-npm-registry` app.

For example:

```
xs unbind-service di-local-npm-registry devx-npm-cache-fs
xs delete-service devx-npm-cache-fs

xs create-service fs-storage free devx-npm-cache-fs
xs bind-service  di-local-npm-registry devx-npm-cache-fs
xs restage di-local-npm-registry
xs restart di-local-npm-registry
```

If a proxy is needed to access the upstream repository, you should also define the `HTTP_PROXY`, `HTTPS_PROXY` and `NO_PROXY` properties for the `di-local-npm-registry module`, using the following format:

Code Syntax

```
modules:
    - name: di-local-npm-registry
      properties:
        UPSTREAM_LINK: # upstream registry URL
        HTTP_PROXY:  # <proxy for http communication>
        HTTPS_PROXY: # <proxy for https communication>
        NO_PROXY:    # <host names that shouldn't go through a proxy>
```

For example:

```
modules:
  - name: di-local-npm-registry
    properties:
      UPSTREAM_LINK: "http://registry.npmjs.org/"
      HTTP_PROXY: "http://proxy.example.com:8080"
      HTTPS_PROXY: "http://proxy.example.com:8080"
      NO_PROXY: "xsa_hostname, xsa_host_name.example.com, localhost,
localhost.localdomain"
```

Note

If either of the `HTTP_PROXY` and `HTTPS_PROXY` properties are set, define the `NO_PROXY` property to include both short and fully qualified host names that should not go through a proxy, as in the above example.

Make sure that the access to localhost is always direct rather than via a proxy.

If the specified upstream registry uses SSL certificates that are not trusted publicly, you should provide an SSL certificate for connecting to the registry in the `UPSTREAM_CERTIFICATE` property. The value should be in PEM format, preceded by ">". For example:

```
modules:
- name: di-local-npm-registry
  properties:
    UPSTREAM_LINK: https://some.registry.com/
    UPSTREAM_CERTIFICATE:  >
      -----BEGIN CERTIFICATE-----
      MIIDxTCCAq2gAwIBAgIQAqxcJmoLQJuPC3nyrkYldzANBgkqhkiG9w0BAQUFADBs
      MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGlnaUNlcnQgSW5jMRkwFwYDVQQLExB3
      d3cuZGlnaWNlcnQuY29tMSswKQYDVQQDEyJEaWdpQ2VydCBIaWdoIEFzc3VyYW5j
      …
      -----END CERTIFICATE-----
```

- **If your developers are using a Git repository or developing Java applications which require a proxy to be accessed, you must perform the following:**
  1. Open the SAP HANA XS Advanced Cockpit URL.
  2. Select your Organization name and the SAP space.
  3. Inside the SAP space, you will find the `di-core` application. Click on it.
  4. In the side bar, click *User-provided variables*.
  5. Search for `JBP_CONFIG_JAVA_OPTS`. If it exists, edit it, if not, create a new variable.
     The Key should be `JBP_CONFIG_JAVA_OPTS`
  6. Copy and paste the line below and replace the relevant values:

     ```
     [java_opts: -Dhttp.proxyHost=<your proxy server> -Dhttp.proxyPort=<your
     proxy port> -Dhttps.proxyHost=<your proxy server> -Dhttps.proxyPort=<your
     proxy port> "-Dhttp.nonProxyHosts=<host1 to exclude>|<host2 to exclude>|
     localhost|127.0.0.1|*.<domain to exclude 1>|<domain to exclude 2>"]
     ```

     For example:

     ```
     [java_opts: -Dhttp.proxyHost=proxy.example.com -Dhttp.proxyPort=8080 -
     Dhttps.proxyHost=proxy.example.com -Dhttps.proxyPort=8080 "-
     Dhttp.nonProxyHosts=host1|host2|localhost|127.0.0.1|*.domain1|domain2]
     ```

     The following format contains the proxy authentication option:

     ```
     [java_opts: -Dhttp.proxyHost=<your proxy server> -Dhttp.proxyPort=<your
     proxy port> -Dhttp.proxyUser=<proxy user> -Dhttp.proxyPassword=<proxy
     password> -Dhttps.proxyHost=<your proxy server> -Dhttps.proxyPort=<your
     proxy port> -Dhttps.proxyUser=<proxy user> -Dhttps.proxyPassword=<proxy
     password> "-Dhttp.nonProxyHosts=<host1 to exclude>|<host2 to exclude>|
     localhost|127.0.0.1|*.<domain to exclude 1>|<domain to exclude 2>"]
     ```

     For example:

     Sample Code

     ```
     [java_opts: -Dhttp.proxyHost=proxy.example.com -Dhttp.proxyPort=8080 -
     Dhttp.proxyUser=user -Dhttp.proxyPassword=pass1234 -
     Dhttps.proxyHost=proxy.example.com -Dhttps.proxyPort=8080 -
     Dhttps.proxyUser=user -Dhttps.proxyPassword=pass1234 "-
     Dhttp.nonProxyHosts=host1|host2|localhost|127.0.0.1|*.domain1|domain2]
     ```

  7. Restage and restart the di-core application either from the cockpit or from the command line.

> **i Note**
>
> - If either of the `http.proxyHost` and `https.proxyHost` properties are set, define the `http.nonProxyHosts` property to include both short and fully qualified host names that should not go through a proxy, as in the above example.
> - Make sure that the access to localhost is always direct rather than via a proxy.

- **If you need to set the `JAVA_OPTS` environment variable for SAP HANA JVM:**

Configure the `JBP_CONFIG_JAVA_OPTS` property for the `di_core` module in the following format:

```
JBP_CONFIG_JAVA_OPTS: "[java_opts: \" <JAVA_OPTS environment settings> \"]"
```

For example, to specify proxy settings, set `JBP_CONFIG_JAVA_OPTS` as follows:

```
modules:
  - name: di-core
    parameters:
      port: 53030
      memory: 512M
    properties:
      JBP_CONFIG_JAVA_OPTS: "[java_opts: \" -Dhttp.maxRedirects=20 \"]"
```

> **→ Remember**
>
> The `.mtaext file` is written in YAML, which has strict requirements regarding the syntax. For indentation, you must use spaces rather than tabs. We recommend that you validate the file after modification using one of the publicly available YAML validators, such as *http://www.yamllint.com* or *http://codebeautify.org/yaml-validator*.

- **If you want to hide the *Install Builder* button, set the `DISABLE_DI_BUILDER_INSTALLATION` environment variable to `true`.**
  You can do this in one of the following ways:
  - From the CLI shell, run the following command line:

    ```
    xs t -s SAP; xs set-env di-core DISABLE_DI_BUILDER_INSTALLATION true; xs
    restart di-core
    ```

  - From the cockpit:
    1. From the Navigation pane, select *Organizations* and choose the relevant organization for your.
    2. In the *Spaces* page, select *SAP*.
    3. In the *Application* page, select the `di-core` application.
    4. From the Naviation bar, select *User-Provided Variables*.
    5. Click *Add Variables*.
    6. In the *Key* field, enter `DISABLE_DI_BUILDER_INSTALLATION`.
    7. In the *Value* field, enter `true`
    8. Save your changes.
    9. From the bread-crumbs navigaction, click *di-core*.
    10. Click *Restart*.
  - In the `mtaext` extension file, configure the `di-core` section as follows:

    ```
    modules:
      - name: di-core
    ```

```
    properties:
      DISABLE_DI_BUILDER_INSTALLATION: 'true'
```

4.3 Installing the Software Components

Install the SAP Web IDE components by using the XSA Application Lifecycle Management GUI, the `xs install` command, or the HDBCLM tools.

> **i** Note
>
> If you are using an `.mtaext` to customize the environment, make sure that its root name is the same as that of the `SAP WEB IDE` component. If it is different, rename the file in the directory that contains MTA extensions.

Install Using the XSA Application Lifecycle Management GUI

Install the downloaded SAP Web IDE components in XS Advanced using the XSA Application Lifecycle Management GUI. It is important to install them in the following order:

1. XS Cockpit 1
2. SAP HANA Runtime Tools
3. SAP Web IDE for SAP HANA Web Client

Related Information

Installing and Updating Using the XS Advanced Application Lifecycle Management Graphical User Interface

Install with the XS Install Command

Procedure

1. Log on to XS Advanced.
2. Install the downloaded components into the predefined SAP space in XS Advanced in the following order: `SAP HANA RUNTIME TOOLS, SAP WEB IDE`.

   To make sure that you install them into the SAP space, run the following command:

   ```
   xs target -s SAP
   ```

The installation commands include relative paths to the component locations on the SAP HANA host. For example:

```
xs install sap_xsac_hrtt-2.1.21.zip
xs install sap_xsac_sap_web_ide-2.1.11.zip
xs install XSACMONITORING03_0.ZIP
```

If you are using the `.mtaext` file to customize your environment, add the `- e <filename>.mtaext` option to the command, for example:

```
xs install sap_xsac_sap_web_ide-2.1.11.zip -e
sap_xsac_sap_web_ide-2.1.11.mtaext
```

Related Information

Installing an SAP HANA System Including the XS Advanced Runtime

Install with the HDBLCM Tools

When installing or updating XS Advanced using the HDBLCM tools, you need to specify the SAP Web IDE component names.

- If you are using the GUI or Web UI tool, select the corresponding component names (`XS Monitoring`, `SAP Web IDE Web Client`, `SAP HANA Runtime Tools`).

  > **i** Note
  >
  > The technical version number for `SAP Web IDE Web Client` is 4.000.0, which matches the actual software component version 2.0.

- If you are using the CLI tool, specify them as `xs_components` parameters. For example:
  - To install a new SAP HANA system with XS Advanced and SAP Web IDE

    ```
    ./hdblcm --action=install --components=server,xs --
    xs_components=xsac_monitoring,xsac_hrtt,xsac_sap_web_ide
     --xs_components_cfg=<path to directory with mta extensions>
    ```

  - To update XS Advanced and SAP Web IDE

    ```
    ./hdblcm --action=update --components=server,xs --
    xs_components=xsac_monitoring,xsac_hrtt,xsac_sap_web_ide
    --xs_components_cfg=<path to directory with mta extensions>
    ```

If you are using the `.mtaext` file, supply the file path to the HDBLCM tools:

- If you are using the CLI and GUI tool: in the `xs_components_cfg` parameter.
- If you are using the Web UI tool: in the advanced configuration dialog on the first page of the wizard.

5 Post-Installation Administration Tasks

Perform these administration tasks after installing SAP Web IDE, or later as required.

5.1 Access the SAP Web IDE Administration and Development Tools

Enable browser access to the SAP Web IDE and its administration tools.

Check Installation Succeeded

- Validate the environment installation using the *check-webide* diagnostic tool for the SAP Web IDE for SAP HANA server environment. See Installation Validation.
- Make sure all applications are *Started (1/1)* except for those ending with `*-db`.
- For SPS03 or higher, the memory allocation is 2GB for the `di-core` and the `di-runner`, and 1GB and for the `di-builder`.

Obtain the URLs of SAP Web IDE and Administration Tools

Run the following commands in the CLI of XS Advanced:

Command	Description
`xs app webide --urls`	Returns the SAP Web IDE URL, which can be opened in a supported browser. Pass this URL on to the developers who will be using SAP Web IDE.
`xs app xsa-cockpit --urls`	Returns the URL of *SAP HANA XS Advanced Cockpit*. **i Note** You can access the cockpit directly from SAP Web IDE by choosing *Tools* > *SAP HANA XS Advanced Cockpit* from the main menu.
`xs app di-space-enablement-ui --urls`	Returns the URL of the *Space Enablement* admin tool.

Command	Description
`xs app di-cert-admin-ui --urls`	Returns the URL of the *SAP Web IDE SSL Certificate Management* admin tool (deprecated).

Enable Browser Access to the Administration Tools

Certain browsers require additional actions to enable access to the *Space Enablement* administration tool.

Context

For Firefox, modify the browser proxy settings by adding the XS Advanced hostname to the *No Proxy for* field under *Manual proxy configuration*.

For both Firefox and Internet Explorer, perform the following steps:

Procedure

1. Open *SAP HANA XS Advanced Cockpit*, and choose *Organizations* > *myorg* > *SAP*.
2. In the *Space: SAP - Applications* page, locate the *devx-ui5* application, and copy its URL from the context menu.
3. Ignore the security certificate warnings, choose to continue to the website, and allow to open the site.

5.2 Roles and Permissions for Administration and Development

Roles and role collections required to access the tools and perform the administration and development tasks.

Function	Role/Role Collections	Description
Administration Development	`XS_CONTROLLER_USER` role collection	Grants read-write permissions within the assigned organization or space.
Administration Development	`SpaceDeveloper` role	Assigned per space in XS Advanced. Enables users to access the shared resources of the space, and to deploy, build, and run applications.

Function	Role/Role Collections	Description
Administration	A role collection containing the `WebIDE_Administrator` role template	Enables users to access the SAP Web IDE administration tools, such as SSL management and space enablement.
Administration	`XS_AUTHORIZATION_ADMIN` role collection	Enables users to access the XS Advanced administration tools.
Development	A role collection containing the `WebIDE_Developer` role template	Enables users to develop applications using SAP Web IDE and SAP HANA database explorer.

5.3 Manage the SAP Web IDE Roles

To grant users access to the administration and development tools, assign the SAP Web IDE role templates to the respective role collections.

Context

SAP Web IDE supplies the following predefined role templates: `WebIDE_Administrator` and `WebIDE_Developer`.

You can assign these templates to existing role collections for administrators or developers, or to role collections newly created for this purpose. Assigning the supplied templates to these collections will grant the relevant SAP Web IDE permissions to the users in the respective roles.

You can create new role collections for SAP Web IDE users and assign the predefined templates to the role collections in the *Role Collections* tool available in *SAP HANA XS Advanced Cockpit*. To access this tool, you need the authorization scopes defined in the `XS_AUTHORIZATION_ADMIN` role collection.

Procedure

1. Open *SAP HANA XS Advanced Cockpit*.
2. In the home navigation pane, choose *Security* > *Role Collections*.
3. To create a new role collection, choose *New Role Collection*.
4. Enter a name, for example, **`WEBIDE`**, and optionally a description for the role collection, and click *Save*.

   The newly created role collection appears in the list of roles.
5. To assign a role to a role collection, click the collection in the list, and choose *Add Role*.
6. Add the necessary roles by making selections from the respective dropdown boxes in the *Add Role* dialog box:

- *Application Identifier*: `webide!i1`, and the relevant *Role Template* and *Role*: `WebIDE_Administrator`, `WebIDE_Developer`, or `WebIDE_Developer_Denied_Deployment`.

  > **i Note**
  >
  > - `WebIDE_Administrator` = The user can deploy the builder from the `di-space-enablement-ui` application. (Administrators cannot access SAP Web IDE.)
  > - `WebIDE_Developer` = The user can build applications (This is the most common developer mode)
  > - `WebIDE_Developer_Denied_Deployment` = The user can build MTA applications but cannot deploy them.
  >
  > .

- *Application Identifier*: `sap-xsac-hrtt!i1`, and the relevant *Role Template*and *Role*.

> **i Note**
>
> If you have any open sessions, log out and log back in for the role assignlent to take effect.

7. Click *Home* to return to the *Role Collections* page.

Related Information

Maintaining Security in XS Advanced

5.4 Grant Developer Permissions to Users

To enable users to develop applications with SAP Web IDE for SAP HANA, create the necessary SAP HANA database users, and assign them to the development role collections.

Procedure

1. Open *SAP HANA XS Advanced Cockpit*.
2. In the home navigation pane, choose *User Management*.
3. Select the user to whom you want to assign a role collection, and click  (Assign Role Collections).
4. In the *Assign Role Collections* dialog box, click *Add*, select the role collections that you want to assign, and save. You can also delete the unnecessary collections.

Related Information

Roles and Permissions for Administration and Development [page 24]
Manage Users

5.5 Create and Manage Spaces in XS Advanced

Create spaces in XS Advanced for different development teams in your organization.

1. Open *SAP XS Advanced Cockpit*.
2. In the home navigation pane, choose *Organizations*, and choose an organization tile.
3. Choose *Members*, and add members to the organization.
4. Choose *Spaces*.
5. Create and manage the spaces required for your development teams as described in the Maintain Users in a Space topic in the *SAP HANA Administration Guide for SAP HANA Platform*.

Related Information

Maintaining Organizations and Spaces in XS Advanced

5.6 Enable Spaces for Development

To support the isolation of development environment, SAP Web IDE allows developers to use dedicated spaces in XS Advanced for building and running their projects.

To enable a space for development, you need to install the builder application in your space. The builder must be installed in every space you are working in and upgraded after each time you upgrade SAP Web IDE.

You can install the builder in one of the following ways:

- Using the Space Enablement tool. (For administrators only.)
- Using the XS Client command line interface. (For administrators only.)
- From the SAP Web IDE Project Settings.

Space Enablement Administration Tool

To obtain the URL of the tool, run the command `xs app di-space-enablement-ui --urls`.

The *Space Enablement* tool allows you to enable spaces for development by installing the builder component in each space. In this tool, you can view the status and builder version of all the spaces defined in your organization, and perform the required actions:

- If the status is *Enabled*, the current builder up-to-date, and no action is required.
- If the status is *Not Enabled*, the space has just been created. Click *Enable* to install the builder in the space.
- If the status is *Outdated*, click *Redeploy* to update the builder.

The process steps are displayed in the *Log* window. You can view the latest log for each space by clicking the  icon in the space row in the table.

XS Advanced Client CLI Tool

1. Install the XS Advanced Client CLI tool in your system.
   1. Download the `space_enablement.zip` file from `https://<SAP Web IDE URL>/watt/admin_tools/xs/plugins/space_enablement.zip` and save it in your system.
   2. Go to the location where you saved the file and execute the following command:

      ```
      xs install-plugin space_enablement.zip
      ```
2. Get the `SPACE_ID` of the available spaces by running the followng command:

   ```
   xs get-spaces [-u USERNAME] [-p USER_PASSWORD] [-url DI_CORE_URL:PORT]
   ```
3. Install the builder in a space by running the following command:

   ```
   xs install-builder [-u USERNAME] [-p USER_PASSWORD] [-url DI_CORE_URL:PORT] [-s SPACE_ID]
   ```

SAP Web IDE Project Settings

1. Right-click the root node of your project.
2. Select *Project* > *Project Settings*.
3. Under *Project*, select *Space*.
4. From the *Space* dropdown list, select the space where you want to install the builder.
5. Click *Install Builder*.
6. If you updated your SAP Web IDE version, click *Reinstall Builder* to update the builder version as well.

> **Note**
>
> If you change the space for your project, you must click *Save* before exiting the Project Settings.

5.7 Manage SSL Certificates

Manage SSL certificates for remote Git repositories, whose SSL certificates are not trusted publicly.

Procedure

1. Create and manage new SSL certificates using the *Trust Certificates* tool in *SAP HANA XS Advanced Cockpit*.

   For detailed instructions, see *Related Information*.

   > **i Note**
   >
   > This tool replaces the previuosly available SAP Web IDE SSL Certificate Management tool, which is deprecated as of SAP HANA 2.0 SPS 03. However, you have to use it for managing the existing certificates. We recommend to recreate all your certificates using the new tool.

2. After creating, updating or deleting a certificate, run the following commands in the CLI of XS Advanced:

   ```
   xs restage di-core
   xs restart di-core
   ```

Related Information

ManagingTrustCertificatesinXSAdvanced

6 Upgrading From Previous Versions

You can upgrade your previously installed version of SAP Web IDE to the current version by performing the tasks listed below.

Task	Upgrade Path
Before an upgrade: If developers want to continue using the data created in the previous version of SAP Web IDE, they need to export their database tables before the upgrade.	Only from 1.0 SPS11
If you are upgrading to SPS03 or above, there is no need to use the `.mtaext` file to install SAP Web IDE. **i Note** To keep the custom configuration settings from the previous installation, copy these settings from the previously used `.mtaext file` to the new `.mtaext` file that you are using for the upgrade.	SPS03 or above
Follow the installation procedure, as described in Installing SAP Web IDE [page 14]. **i Note** If you upgrade to a newer patch of the same SPS, you should add the `-o ALLOW_SC_SAME_VERSION` parameter to the installation command. For example: `xs install XSACSAPWEBIDE22_8-70001256.ZIP -o ALLOW_SC_SAME_VERSION`	Any
Revoke the previously granted `SpaceDeveloper` role for the `SAP` space.	Only from 1.0 SPS 11
Assign the SAP Web IDE role templates to the role collections, as described in Access the SAP Web IDE Administration and Development Tools [page 23].	Only from 1.0 SPS 11 and SPS 12
Create and manage spaces in XS Advanced, as described in Enable Spaces for Development [page 27]. **i Note** When upgrading from 1.0 SPS12, to continue using an already existing space, deploy the newer version of the builder in this space by choosing *Enable*.	Only from 1.0 SPS 11 and SPS 12
Grant developer permissions to users, as described in Access the SAP Web IDE Administration and Development Tools [page 23].	Only from 1.0 SPS 11 and SPS 12

> **i Note**
>
> After upgrading from versions prior to 1.0 SPS 12 Patch 1, developers will not be able to build or run existing projects, because no space is selected. Developers need to select a space for each project in *Project Settings*.

7 Uninstalling SAP Web IDE

How to uninstall SAP Web IDE components.

Log in to the XS Advanced. To uninstall the components, run the following command:

```
xs uninstall XSAC_SAP_WEB_IDE
```

If you also need to uninstall the HRTT, run the following command:

```
xs uninstall XSAC_HRTT
```

8 Backup and Restore SAP Web IDE Data

As an administrator, you can backup and restore your SAP Web IDE data if necessary to ensure data safety and a recovery option.

You can backup your data in sereval ways:

- Using Git source control. This is the best development practise when working with shared code.
- Storing the data found in the storage path. This will backup your SAP Web IDE projects.
  1. Identify your file system storage path.
     1. Open the command line (CLI).
     2. Run `xs env di-core`
     3. in the output, search for `fs-storage: storage path`

        > **Note**
        >
        > You can get the direct storage path by running the following command:
        >
        > ```
        > xs env di-core | grep "storage-path"
        > ```

     For more information, see How to Find My Workspace on the Physical Disk
  2. Copy your workspaces and save in a different location.
- Export all projects from all spaces in all organizations. Right-click each project and select *Export*.

When working on SAP Web IDE for SAP HANA, your data is stored in 2 locations:

- SAP HANA Database stores the information regarding configurations, settings, users, roles, etc.
- XS Advanced file system stores your workspace content.

To backup the information located in the SAP HANA Database, you must follow the procedure described in the SAP HANA Database Backup and Recovery topic.

To backup your workspace content:

1. Follow the backup and restore instructions for the XS advanced file system as described in the Backup and Recovery in XS Advanced topic.

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