CUSTOMER
On-premise/Private Cloud
2023-09-22

Configuring the ABAP Back-end for ABAP Development Tools for Eclipse

THE BEST RUN SAP

Content

1 About This Configuration Guide

The installation of front-end components includes all steps that you must perform in order to work smoothly with ABAP Development Tools for Eclipse (in short: ADT) on the ABAP back-end system. It includes the completion of the subsequent activities for each back-end system you want to work with.

Scope of Documentation

This documentation describes how to configure an ABAP back-end system in order to enable ABAP Development Tools for Eclipse.

Target Audience

ABAP system administrators who configure the ABAP server for each back-end system in order to connect them with ABAP Development Tools for Eclipse.

Validity of Documentation

This documentation belongs to ABAP development tools for Eclipse with the client version **3.36** and refers to the range of functions that have been shipped as part of the standard delivery for:

- *Home* On-premise/Private Cloud shipments:
  - SAP NetWeaver 7.3 EHP1 **SP04 and higher**
  - SAP NetWeaver 7.4 **SP02 and higher**
  - SAP NetWeaver 7.5 **SP00 and higher**
  - SAP NetWeaver AS for ABAP 7.51 innovation package **SP00 and higher**
  - SAP NetWeaver AS for ABAP 7.52 **SP00 and higher**
  - SAP S/4HANA 1809 **FPS 00 and higher**
  - SAP S/4HANA 1909 **FPS 00 and higher**
  - SAP S/4HANA 2020 **FPS 00 and higher**
  - SAP S/4HANA 2021 **FPS 00 and higher**
  - SAP S/4HANA 2022 **FPS 00 and higher**
  - SAP S/4HANA 2023 **FPS 00 and higher**
- *Cloud* SAP BTP ABAP environment

2 Providing Roles and User Authorizations

The assignment of authorizations to back-end system users is based on roles that are predefined in the ABAP system. As a system administrator, you assign one or more roles to these back-end system users. The roles are based – at a technical level – on authorization objects.

When you are assigning user authorizations in an ABAP system for access to repository objects from within an ABAP project, we strongly recommend using the standard roles and authorization default values that are provided for working with ABAP Development Tools.

Procedure

Use one of the standard SAP roles below as a master copy to assign users of the ABAP Development Tools in your organization.

Related Information

User and Role Administration of Application Server ABAP

2.1 Standard Roles and Authorization Objects

The table below shows the standard roles. Assign one of them to the users of ABAP Development Tools (ADT), depending on the required authorizations:

> **i** Note
>
> Since the first ADT release was shipped with SAP NetWeaver 7.4 SP02 and SAP NetWeaver 7.3 EHP1 SP04, the subset of the following roles has changed. To provide all required authorization roles, refresh this role.

List of Predefined Standard Roles

Role	Description
SAP_BC_DWB_ABAPDEVELOPER	Role that is relevant for ABAP developers who work in ABAP Workbench and with ADT.

Role	Description
SAP_BC_ABAP_DEVELOPER_5	Role that is relevant for ABAP developers who mainly work with ADT in order to build and run Cloud-ready and upgrade-stable ABAP custom code. → Recommendation SAP recommends that you only assign one of these roles to an user. This means, either SAP_BC_DWB_ABAPDEVELOPER **or** SAP_BC_ABAP_DEVELOPER_5. For more information, see Configure Authorizations
SAP_BC_DWB_WBDISPLAY	Role that contains all authorizations to display and browse development objects in the back end and ADT. i Note Users are not allowed to modify ABAP development objects.

These standard roles are linked with the following authorization objects that are also required to use ABAP Development Tool:

- S_ADT_RES: Resource access by ABAP Development Tools [page 5] that is the standard authorization object which you can use to check a random incoming URI against a predefined list of allowed URIs
- S_RFC: Authorization check for RFC access [page 9]
)
- S_ TCODE: Transaction codes check at transaction start [page 10]
)

2.1.1 URI Prefixes for the Authorization Object S_ADT_RES

In accordance to the relevant SAP NetWeaver Release, ABAP Development Tools (ADT) uses the following URI prefixes for the **S_ADT_RES** authorization object:

List of the Relevant URI Prexfixes for Enabling ADT

URI Prefix	Enables Access for Resources of	Available since Back-End Version
/sap/bc/adt/abapsource/*	ABAP source code functionalities (for example, ABAP source code formatter, ABAP Doc export)	7.31 SP04
/sap/bc/adt/abapunit/*	ABAP Unit	7.31 SP04

URI Prefix	Enables Access for Resources of	Available since Back-End Version
`/sap/bc/adt/acm/dcl/*`	ABAP Data Control Language (DCL) source code	7.40 SP10
`/sap/bc/adt/activation` `/sap/bc/adt/activation/*`	Activation of development objects	7.31 SP04
`/sap/bc/adt/amdp/debugger/*`	Debugger for ABAP Managed Database Procedures (AMDP)	7.31 SP04
`/sap/bc/adt/apireleases/*`	API state of a development object	7.53 SP00
`/sap/bc/adt/bo/*`	Behavior definitions	7.54 FPS00
`/sap/bc/adt/bopf/*`	Business objects	7.50 SP00
`/sap/bc/adt/businessservices/*`	Service binding	7.54 SP00
`/sap/bc/adt/atc/*`	ABAP Test Cockpit (ATC)	7.31 SP06
`/sap/bc/adt/checkruns` `/sap/bc/adt/checkruns/*`	Consistency checks (for example, syntax check)	7.40 SP02
`/sap/bc/adt/classifications` `/sap/bc/adt/classifications/*`	Classifications	7.50 SP00
`/sap/bc/adt/communication/batch`	Batch Requests **Note** A batch request consists of inner requests which are checked additionally.	7.40 SP20 7.50 SP12 7.51 SP07 7.52 SP03 7.53 SP00
`/sap/bc/adt/compatibility/*`	ADT compatibility: Feature graph	7.31 SP04
`/sap/bc/adt/core/discovery`	ADT compatibility: Core discovery resource	7.40 SP02
`/sap/bc/adt/crosstrace/*`	ABAP Cross Trace	7.56 SP00
`/sap/bc/adt/cts/*`	Change and Transport System (CTS) **Note** This URI prefix replaces `/sap/bc/cts/*`. For further information, see SAP note 2047506	7.31 SP04

URI Prefix	Enables Access for Resources of	Available since Back-End Version
`/sap/bc/adt/datapreview/*`	Data preview	7.40 SP05
`/sap/bc/adt/ddic/*`	ABAP Dictionary	7.40 SP02
`/sap/bc/adt/debugger` `/sap/bc/adt/debugger/*`	ABAP Debugger	7.31 SP04
`/sap/bc/adt/discovery`	ADT compatibility: discovery resource	7.31 SP04
`/sap/bc/adt/dlp/*`	Dynamic Log Points	7.50 SP00
`/sap/bc/adt/docu/*`	Documentation (for example, ABAP language help and DDL language help)	7.31 SP04
`/sap/bc/adt/documentation/*`	ABAP long text repository (for example, ATC problem long texts)	7.31 SP04
`/sap/bc/adt/enhancements/*`	Enhancement Framework	7.31 SP11 or 7.4 SP05
`/sap/bc/adt/error/*`	Error handling in ADT	7.31 SP04
`/sap/bc/adt/feeds` `/sap/bc/adt/feeds/*`	Feed reader	7.31 SP04
`/sap/bc/adt/filestore/ui5-bsp/*`	UI5 team provider	7.31 SP04
`/sap/bc/adt/fpm/*`	Floorplan Manager	7.31 SP11
`/sap/bc/adt/functions/*`	ABAP function modules and function groups	7.31 SP04
`/sap/bc/adt/hota/*`	HDI Namespace	7.52 SP02
`/sap/bc/adt/includes/*`	ABAP includes	7.31 SP04
`/sap/bc/adt/logs/*`	Log files (for example, the DDIC activation log)	7.40 SP05
`/sap/bc/adt/messageclass` `/sap/bc/adt/messageclass/*`	Message classes	7.31 SP06
`/sap/bc/adt/navigation/*`	ABAP navigation	7.31 SP04
`/sap/bc/adt/nhi/*`	Integration of native SAP HANA artifacts (for example, external views, database procedures, or delivery units)	7.31 SP05

URI Prefix	Enables Access for Resources of	Available since Back-End Version
/sap/bc/adt/objectrelations/*	Relation explorer	7.54 FPS00
/sap/bc/adt/oo/*	ABAP classes and interfaces	7.31 SP04
/sap/bc/adt/packages **/sap/bc/adt/packages/***	ABAP packages	7.31 SP04
/sap/bc/adt/programs **/sap/bc/adt/programs/***	ABAP programs	7.31 SP04
/sap/bc/adt/quickfixes/*	Quick fixes	7.31 SP06
/sap/bc/adt/refactorings **/sap/bc/adt/refactorings/***	Refactorings	7.31 SP06
/sap/bc/adt/repository/*	ABAP respository metadata	7.31 SP04
/sap/bc/adt/runtime/dumps **/sap/bc/adt/runtime/dumps/***	ABAP short dumps	7.31 SP04
/sap/bc/adt/runtime/systemmessages **/sap/bc/adt/runtime/systemmessages/***	System messages	7.31 SP04
/sap/bc/adt/runtime/traces **/sap/bc/adt/runtime/traces/***	ABAP runtime traces (for example, profiling)	7.4 SP02
/sap/bc/adt/uc_object_type_group/sapc **/sap/bc/adt/uc_object_type_group/sapc/***	ABAP Push Channels	7.51 SP00
/sap/bc/adt/uc_object_type_group/samc **/sap/bc/adt/uc_object_type_group/samc/***	ABAP Messaging Channels	7.52 SP00
/sap/bc/adt/vit/wb*	Properties of the development objects that have no native integrated editor in ADT	7.51 SP00

URI Prefix	Enables Access for Resources of	Available since Back-End Version
`/sap/bc/adt/runtime/workprocesses` `/sap/bc/adt/runtime/workprocesses/*`	Access on resources that terminate no more required SAP GUI sessions	7.51 SP00
`/sap/bc/adt/security/*`	Security (for example, re-entrance tickets)	7.31 SP04
`/sap/bc/adt/sqlm/*`	SQL Monitor	7.50 SP00
`/sap/bc/adt/sscr/*`	Developer and object registration services	7.31 SP08
`/sap/bc/adt/st05/trace/*`	Performance traces (for example, SQL trace)	7.54 SP00
`/sap/bc/adt/system/*`	System clients and users	7.31 SP04
`/sap/bc/adt/urifragmentmappings`	URI Fragment Mapper	7.31 SP14 or 7.4 SP08
`/sap/bc/adt/wdy` `/sap/bc/adt/wdy/*`	Web Dynpro	7.31 SP07
`/sap/bc/adt/xslt/*`	XSLT transformations	7.50 SP00
`/sap/bc/esproxy` `/sap/bc/esproxy/*`	ABAP connectivity and integration development tools	7.40 SP02

> **i** Note
>
> The wildcard "*" is used for the subpaths of the URI.

2.1.2 Remote Access to Function Modules (Specified in the Authorization Object S_ RFC)

ABAP Development Tools requires remote access to the following function modules that are specified for the authorization object **S_ RFC**:

List of function modules, specified for the authorization object S_RFC

Activity [ACTVT]	Name of RFC Object That Can Be Accessed [RFC_NAME]	Type of RFC Object That an Be Accessed [RFC_TYPE]
16 (Execute)	DDIF_FIELDINFO_GET	FUNC (Function module)
	RFCPING	

Activity [ACTVT]	Name of RFC Object That Can Be Accessed [RFC_NAME]	Type of RFC Object That an Be Accessed [RFC_TYPE]
	RFC_GET_FUNCTION_INTERFACE	
	SADT_REST_RFC_ENDPOINT	
	SUSR_USER_CHANGE_PASSWORD_RFC	
	SYSTEM_RESET_RFC_SERVER	

2.1.3 Transaction Code Check at Transaction Start (Specified in the Authorization Object S_ TCODE)

ABAP Development Tools (ADT) has to start certain transactions in order to enable the SAP GUI integration in Eclipse. To do this, users need the authorization object `S_ TCODE` with the following field values:

- `SADT_START_TCODE`
- `SADT_START_WB_URI`

> **i** Note
>
> These transactions are **not** intended to be started directly in SAP GUI. They are automatically started in a parameterized fashion by ADT.

3 Activating ICF Services in Development Systems

In the Internet Communication Framework (ICF), an ICF service is an endpoint that enables the IDE-based front-end client to communicate with the server.

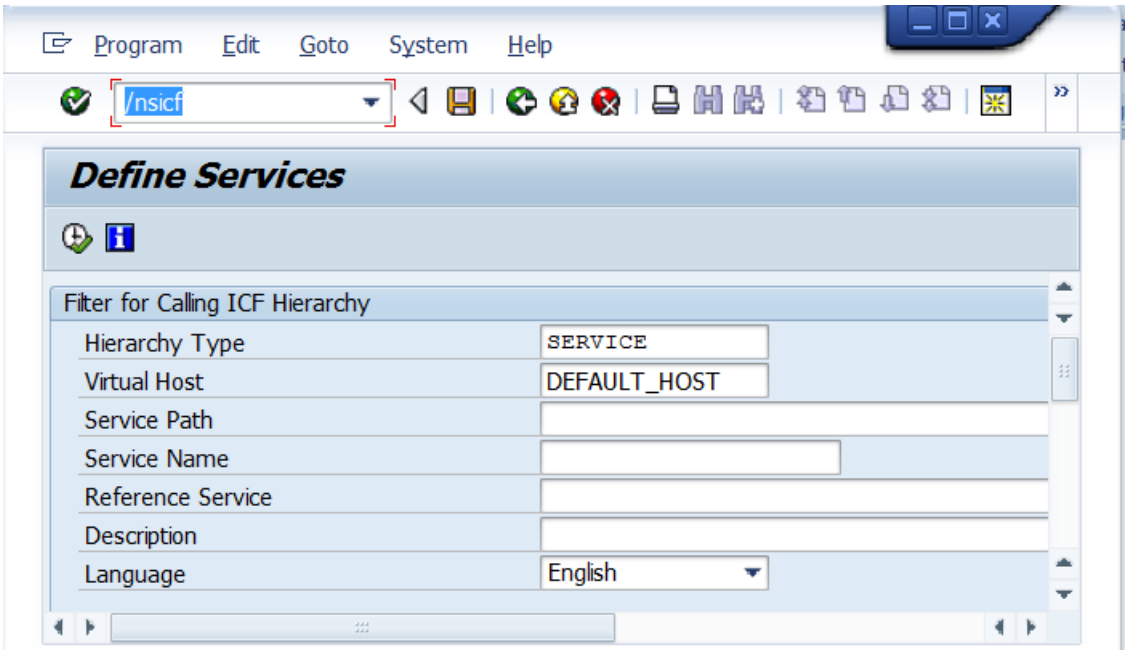
Context

In an ABAP system, ICF services are inactive by default. To enable the full functionality of ABAP Development Tools in a development system, the system administrator needs to activate the set of ICF services listed below for each system.

The ICF services are activated on the *Maintain Services* page. In the subsequent sections, you will find information about activating the specific ICF services to enable a certain functionality.

Procedure

1. Call the transaction `SICF` in the relevant back-end system.
2. In the *Virtual Host* entry field, enter **DEFAULT_HOST**.



Entry page of the SICF transaction

3. Press F8 or use the *Execute* icon from the toolbar to display the services tree.

Results

The *Maintain Service* page is opened and displays the available virtual hosts and services. From here, you navigate to the corresponding ICF service that you want to activate.

Related Information

Providing Access to Documentation [page 12]
Sharing HTTP Links [page 14]
Web Dynpro ABAP Development [page 15]

3.1 Providing Access to Documentation

To make documentation available to ABAP developers (for example, in the *ABAP Keyword Documentation*, *ABAP Problem Description*, and *ABAP Element Info* views), you need to activate all the involved ICF services.

Prerequisites

> **i** Note
>
> **As of** Application Server ABAP 7.55, the documentation in the system can be accessed **without** activating ICF nodes. Therefore, there are **no** more steps required to activate the ICF nodes for documentation manually.
>
> In ABAP system **lower** than Application Server ABAP 7.55, you **still** need to proceed the following steps and enable the relevant ICF nodes manually.

Context

Different ICF nodes are used to provide the following documentation:

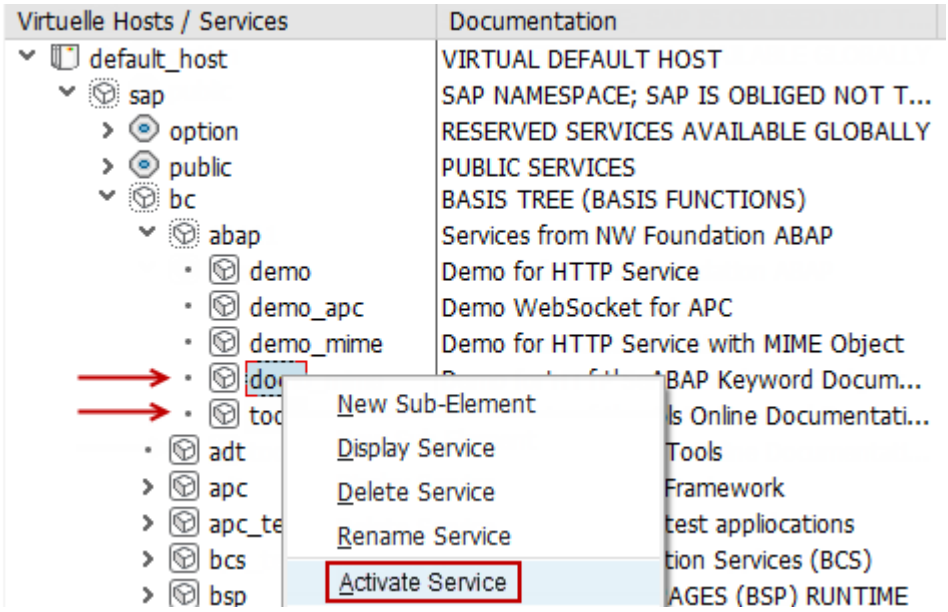
1. For the *ABAP - Keyword Documentation* view
   - *default_host* > *sap* > *public* > *bc* > *abap* > *docu*
   - *default_host* > *sap* > *bc* > *abap* > *docu*
2. For the *ABAP Problem Description* and *ABAP Element Info* views
   - *default_host* > *sap* > *public* > *bc* > *abap* > *toolsdocu*
   - *default_host* > *sap* > *bc* > *abap* > *toolsdocu*

To activate these ICF nodes, you have the following two options:

- Since SAP NetWeaver AS for ABAP 7.51 innovation package, you can activate all nodes at once as follows:
  1. Launch the `RS_DOCU_ADT_ACTIVATE_ICF_NODES` ABAP program in transaction `SE38`.
     All the relevant ICF nodes are listed on the *ADT Documentation: Activate ICF Nodes* page.
  2. To activate, choose `F8` or the *Activate Inactive Nodes* button from the toolbar.
- You can activate each node manually in transaction `SICF` as follows:

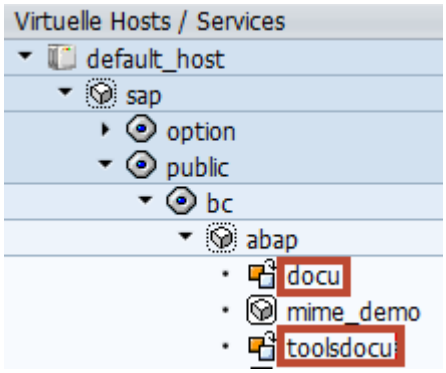
Procedure

1. On the *Maintain service* page, expand the *default_host* > *sap* > *bc* > *abap* > ICF node.
   The subtree displays the subnodes.
2. Select the **docu** subnode and choose *Activate Service* from the context menu.



Nodes for activating the abap/docu ICF service

3. Activate the public ICF node: *default_host* > *sap* > *public* > *bc* > *abap* > *docu*



Nodes in the public subtree for activating the docu and toolsdocu ICF services

> **i Note**
>
> For the public ICF node, no user name and password are required to access this documentation.
>
> Access to the target documentation is fully configured when both of the above nodes are activated. If not, a warning is displayed whenever ABAP developers try to display this documentation.

4. Activate the **toolsdocu** ICF nodes in the same way as for **docu**.

> **i Note**
>
> When proceeding, just select the relevant **toolsdocu** ICF nodes.

Results

All inactive documentation-relevant ICF services are now activated and can be accessed using HTTP.

Related Information

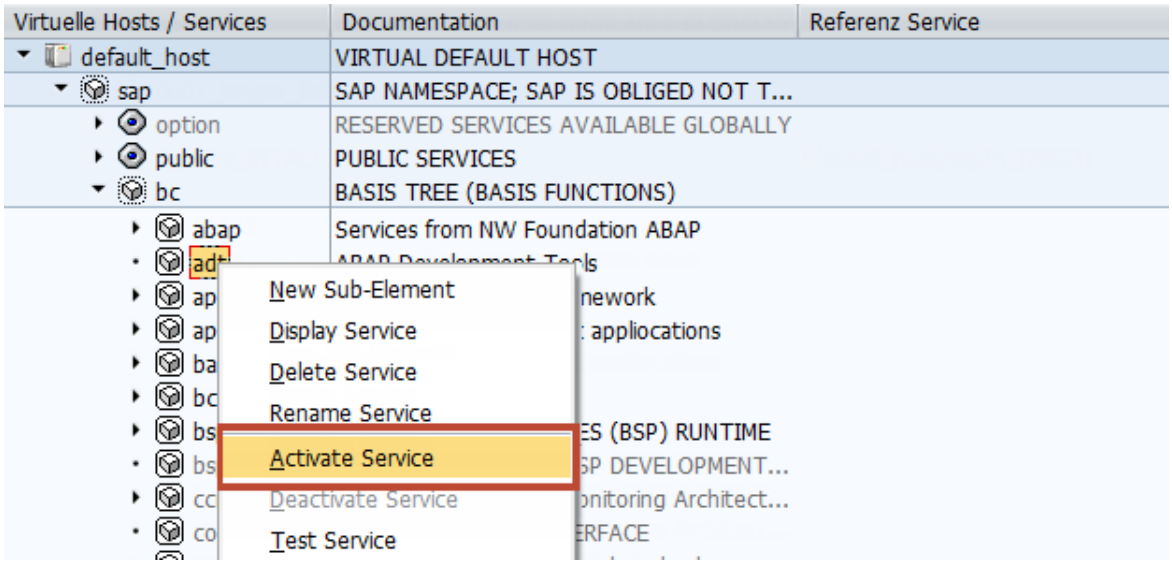
Enabling Linking From The ABAP Keyword Documentation to The SAP Help Portal [page 21]

3.2 Sharing HTTP Links

To enable your ABAP developers to share HTTP links between themselves, you can activate the adt ICF service. The receiver of the link can then render the target development object in his or her default Web browser.

Procedure

1. On the *Maintain service* page, expand the *default_host* > *sap* > *bc* node.
2. Select the **adt** ICF service.
3. Choose *Activate Service* from the context menu.



Nodes for activating the adt ICF service

Results

This ICF service can now be accessed using HTTP from external. This means that the ABAP developers can create shortcuts that refer to development objects in the current ABAP system.

3.3 Web Dynpro ABAP Development

The *Web Dynpro View Controller Editor* provides a preview of the user interface at design time only if the preview service is active.

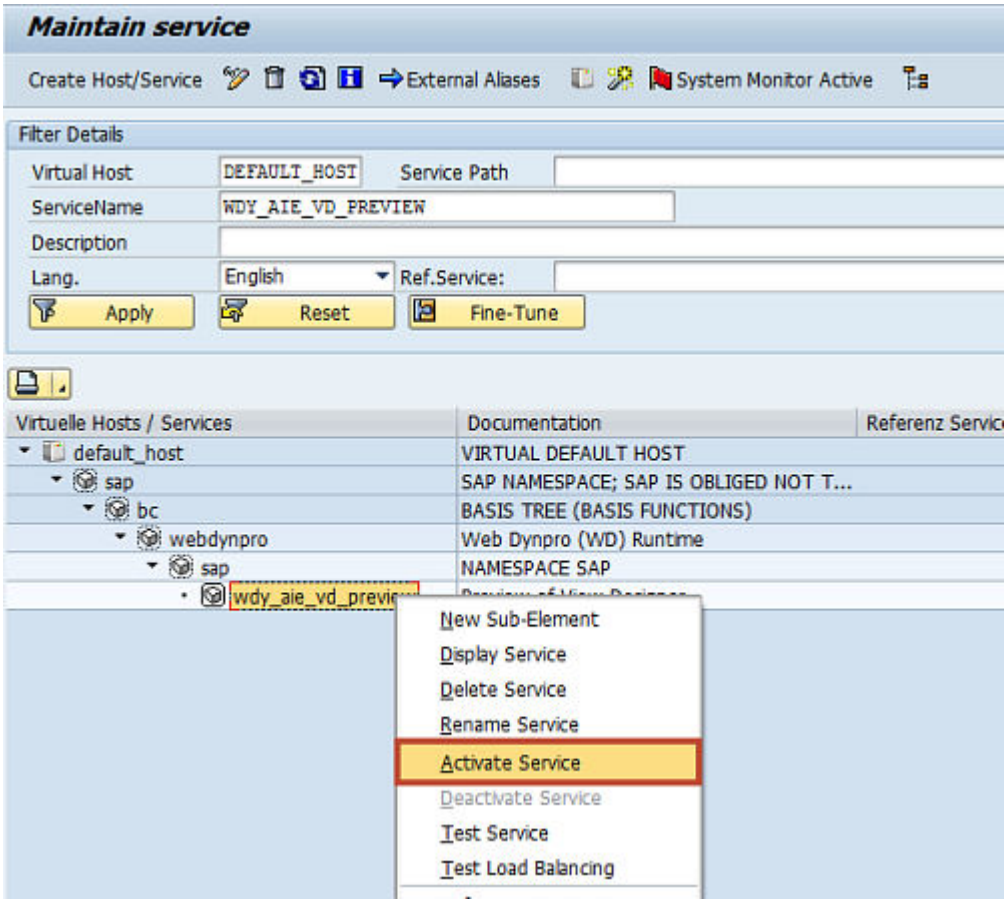
Context

If you plan to use Web Dynpro in ABAP Development Tools, you have to activate the preview service to access the Layout page of the*Web Dynpro View Controller Editor*.

> **i** Note
>
> For further information, see also SAP Note 1088717 - Active Services for Web Dynpro ABAP in Transaction SICF.

Procedure

1. On the *Maintain service* page, expand the *default_host* > *sap* > *bc* > *webdynpro* > *sap* node.
   The sub-tree displays several service items.
2. Select the **wdy_aie_vd_preview** service.
3. From the context menu, choose *Activate Service*.



Nodes for activating the wdy_aie_vd_preview ICF service

Results

This ICF service can now be accessed using HTTP from external. This means that developers can send requests to the back-end to create source code for Web Dynpro components.

3.4 Enabling Server Events

As of SAP S/4HANA 2023 FPS 00, ABAP development tools for Eclipse (ADT) can receive server events through an additional WebSocket connection. This allows ADT to receive progress messages such as `Compiling ...`.

Prerequisites

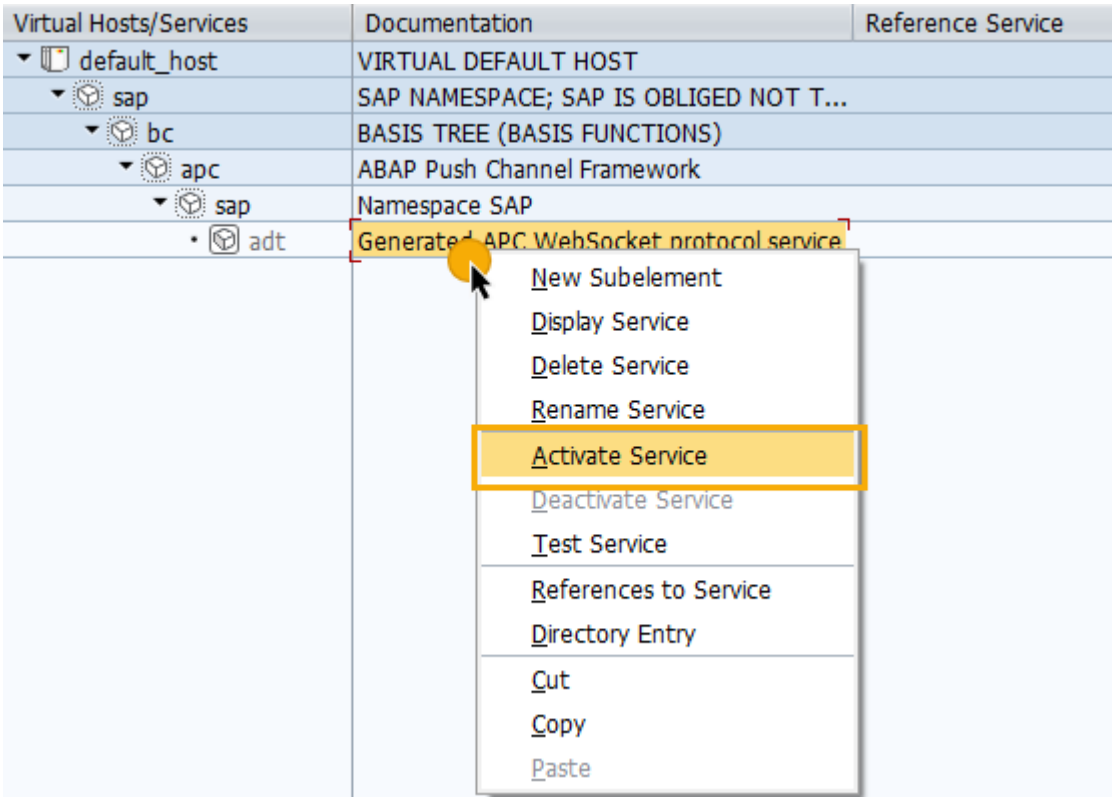
This feature is supported as of SAP S/4HANA 2023 FPS 00

Context

As an SAP administrator, you want to improve developers' perceived responsiveness of ADT clients by enabling the clients to receive progress message from the AS ABAP.

Procedure

1. On the *Maintain service* page, expand the *default_host* > *sap* > *bc* > *apc* > *sap* node.
   The sub-tree displays several service items.
2. Select the *adt* node.
3. From the context menu, choose *Activate Service*.



Enabling the adt node for server events using WebSocket connections

Results

This ICF service can now be accessed by ABAP development tools for Eclipse using WebSocket connections.

4 Configuring Profile Parameters

In addition to logon tickets, ABAP systems can also issue the more restricted assertion tickets when accessing system services. This might be important to meet maximum security requirements when you are using the integrated SAP GUI in ABAP Development Tools. Instead of asking for the password, the back-end system checks the validity of the assertion ticket to allow the user access to system services.

Context

Use the following settings to configure your ABAP system in such a way that it only issues the assertion tickets (without logon).

→ Recommendation

Assertion tickets provide the highest level of security when creating an RFC or HTTP connection and easiest usability for working with an ABAP system. We therefore recommend that you use assertion tickets to allow ABAP developers to log onto an ABAP system. To do so, check that the profile parameters listed below are set as recommended. If the profile parameters are set differently, you need to set all connected components to the values belowto ensure connectivity. For more information, see Authentication Assertion Tickets

Procedure

1. In your ABAP system, open transaction `RZ11`.
2. Check which values are set for the relevant parameters.

   ℹ Note

   If you are using assertion tickets, check that the values of these parameters are defined as follows:

   List of Profile Parameters

Parameter	Value	Description
login/create_sso2_ticket	3	This parameter value means that the ABAP system to issue only assertion tickets (no logon tickets).
login/accept_sso2_ticket	1	This parameter value configures the ABAP system to accept assertion tickets.

For more information about the values, choose the **Display docu** button. This displays the value help for the selected parameter.

5 Enabling Linking From The ABAP Keyword Documentation to The SAP Help Portal

To enable linking from help content (provided in the ABAP Keyword Documentation) to help content (provided on the SAP Help portal), the SAP system administrator needs to configure back-end help links for each back-end system in addition.

For more information, see the SAP S/4HANA installation guide, chapter *User Assistance Settings*.

Related Information

Providing Access to Documentation [page 12]

6 [Optional:] Enabling the ABAP Source Search

The ABAP Source Search functionality enables ABAP developers to find text that is contained in source-based repository objects (like classes, programs, function pools, and so on) as well as message classes of an ABAP project.

Prerequisites

Relevant for SAP HANA Database Connections:

- Ensure to have enough free database space for creating an index file. This index file will consume between 10 to 100 GB depending on the number of sources stored in the ABAP system. Therefore, ensure that the required space is available before you activate the corresponding business function.
- You have activated the `SRIS_SOURCE_SEARCH` business function with the `SFW5` transaction code in each ABAP system. To do this, you require the `S_SWITCH` authorization object with the following activities:
  - **02** (Change) with the **SFBF** and **SFBS** object types
  - **07** (Activate)
- You are working with SAP NetWeaver 7.4 SP05 or higher.

Relevant for IBM Db2 Database Connections:

You are working with SAP NetWeaver AS for ABAP 7.51 innovation package or higher.

Context

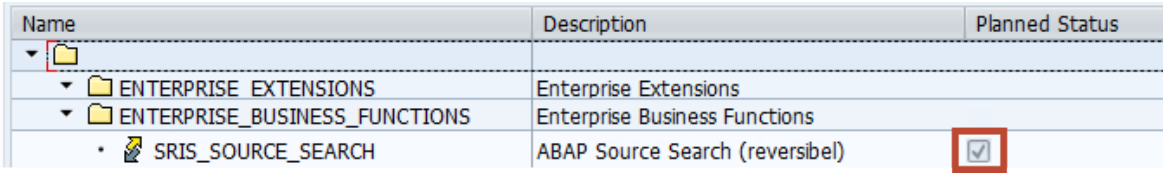
To enable the ABAP Source Search for:

- IBM Db2-based database connection, you will find all relevant information in SAP note 2241079
- SAP HANA-based database connection, you will find all relevant information in the subsequent procedure:

> ⚠ Caution
>
> In the latter case, an index will be created. The creation might last a few seconds or several hours. To create the index, activate the `SRIS_SOURCE_SEARCH` business function only.
>
> For more information, see Switching on Business Functions

Procedure

1. In the back end of your ABAP system, open Switch Framework Customizing with the `SFW5` transaction code.
2. In the *ENTERPRISE_BUSINESS_FUNCTIONS* tree, select the `SRIS_SOURCE_SEARCH` business function and select the empty checkbox in the *Planned Status* column.



Activated SRIS_SOURCE_SEARCH business function

> **i** Note
>
> The checkbox is only displayed if your user is assigned the `S_SWITCH` authorization object. Otherwise a text is displayed.

3. In the toolbar, choose the Activate Changes **Activate Changes** button.

Results

The creation and activation of the index file is started.

> **i** Note
>
> To check the status of the index creation, you can run the `SRIS_CODE_SEARCH_PREPARATION` report. It also checks another index on the `TADIR` table, which is usually updated regularly with the where-used index. If this `TADIR` index is incomplete, you can also schedule an index rebuild with this report.
>
> After executing these reports, we recommend that you wait at least two hours before executing the ABAP Source Search for the first time.

7 Support Case

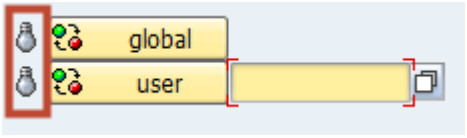
7.1 Running ADT in Protected Mode

Context

In SAP NetWeaver 7.4 SP08 and higher, the transaction `SADT_PROTECTED_MODE` is provided to display and maintain protected mode for ABAP Development Tools (ADT).

Protected mode is only required in the case of a support where there is a support issue in order to keep certain functionalities of ADT running.Protected mode can be applied to all (global) users, but can also be overruled for a specific user.

The light bulbs in front of the global or user button indicate the activation status for protected mode. When activated, the light bulb glows.



Example of a deactivated protected mode

Procedure

1. Press the **Global** button to toggle the status for all users in the system.
2. [Optional] If you want to overrule the global activation status for a specific user, toggle the user-specific activation state by pressing the **User** button for the specified user in question.

> **i** Note
>
> Only use this transaction if SAP support instructs you to enable protected mode for ADT. In all other cases, protected mode should be deactivated for global and specific users.

Important Disclaimers and Legal Information

Hyperlinks

Some links are classified by an icon and/or a mouseover text. These links provide additional information.
About the icons:

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