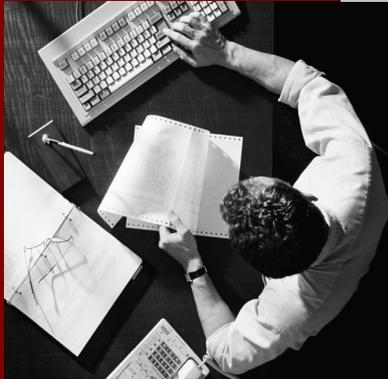## Installation and Update Guide

SAP NetWeaver Standalone Engine Search and Classification TREX 7.10 Single Host

Target Audience

- **System administrators**
- **Technology consultans**

Document Version 3.0 – Januar 01, 2022

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Type Style	Description
Example Text	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options.
	Cross-references to other documentation
Example text	Emphasized words or phrases in body text, graphic titles, and table titles
EXAMPLE TEXT	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
`Example text`	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
`Example text`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example text>`	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
`EXAMPLE TEXT`	Keys on the keyboard, for example, F2 or ENTER.

Icons

Icon	Meaning
⚠	Caution
⚙	Example
💡	Note
⬆	Recommendation
⬩	Syntax

Additional icons are used in SAP Library documentation to help you identify different types of information at a glance. For more information, see *Help on Help → General Information Classes and Information Classes for Business Information Warehouse* on the first page of any version of *SAP Library*

Contents

Installing and Updating TREX – Single Host

Purpose

This guide describes the single-host installation and update of *SAP NetWeaver Search and Classification (TREX).* The target audience for the guide consists of system administrators and consultants.

> Restricted support of global file share functionality by TREX 7.1 installation
>
> TREX 7.0 offers the installation of a TREX central instance on a global file share. The global file share basically consists of the SAP system directory `usr/sap/<sapsid>/sys`. On this global file share you can store SAP profile files centrally, so that they can be accessed by other TREX dialog instances of a distributed landscape. You can use this functionality for setting up distributed TREX landscapes.
>
> By the TREX 7.1 installation the global file share functionality is currently only supported in a restricted manner. During the TREX 7.1 installation the customer can not specify the path to the global file share (SAP system directory `usr/sap/<sapsid>/sys`). The global file share will be installed only once on the host, where TREX 7.1 will be initially installed and can not be placed on other hosts. So there still is a global file share for the TREX 7.1 installation, but it can not be placed independently from the initial TREX 7.1 installation on other hosts of your distributed landscape. TREX is developing the unrestricted global file share functionality for TREX 7.1 for the end of 2008.

The guide is structured as follows:

● The section Implementation Considerations [Page 4] explains what you need to take into account before the installation.

● The section Naming Conventions [Page 10] contains information on special naming conventions used in this guide.

● The section Checklists for the Installation [Page 11] contains a separate checklist for each installation variant, including an overview of the installation steps.

● The section Installation Preparations [Page 21] describes what to do before the installation, especially how to download the TREX software package from SAP Service Marketplace.

● The section Installation and Update [Page 27] describes the necessary TREX installation and update steps, installation screens, and input parameters.

● The section TREX Basic Configuration [Page 34] describes the configuration steps you have to perform after the TREX installation.

● The section Installation Check [Page 51] describes how to check whether the installation of the server software was successful.

● The section Additional Information [Page 53] contains information on troubleshooting problems that might occur during the installation and explains how to control the installation from another host. It also describes how to start, stop, and uninstall TREX.

Constraints

Additional Configuration Steps Depending on the Application

Additional configuration steps may be necessary depending on the application for which you are installing TREX. These additional steps are not described in this guide. You can find them in the documentation on the application in question.

Implementation Considerations

Refer to the following information before starting the installation.

Master Guides

If you are installing TREX as part of a mySAP Business Suite solution, a business scenario, or an IT scenario, familiarize yourself with the relevant master guide before beginning the installation.

Master guides are the central documents for implementing mySAP Business Suite solutions, business scenarios, and IT scenarios. They list the components and third-party applications that are necessary for a business scenario or an IT scenario, and refer to any necessary installation and upgrade guides. They also define the installation sequence.

Integration of TREX and Applications That Use It

TREX is based on a client/server architecture. The client software is integrated into the application that uses the TREX functions, and allows communication with the TREX servers. The TREX servers execute the requests of the clients: They index and classify documents and respond to search queries.

TREX offers an ABAP and a Java client. This allows ABAP and Java applications to use TREX functions. ABAP and Java applications communicate with the TREX servers using different protocols and components.

● ABAP applications communicate with TREX servers using the RFC protocol. Communication takes place using an instance of the SAP Gateway and an RFC server.

For more information, see Connecting TREX with an ABAP Application (RFC Connection) [Page 44].

● Java applications communicate with TREX using the HTTP or HTTPS protocol. This communication takes place using a Web server that is enhanced with TREX-specific functions.

For more information, see Connecting TREX with a Java Application (HTTP Connection) [Page 50].

RFC and Web servers have similar functions: They receive the requests of the application, convert them to a TREX-internal format, and send them on to the responsible TREX server.

The graphic below depicts the interaction between applications and TREX.

☐	Application
☐	TREX components
☐	Other components

💡
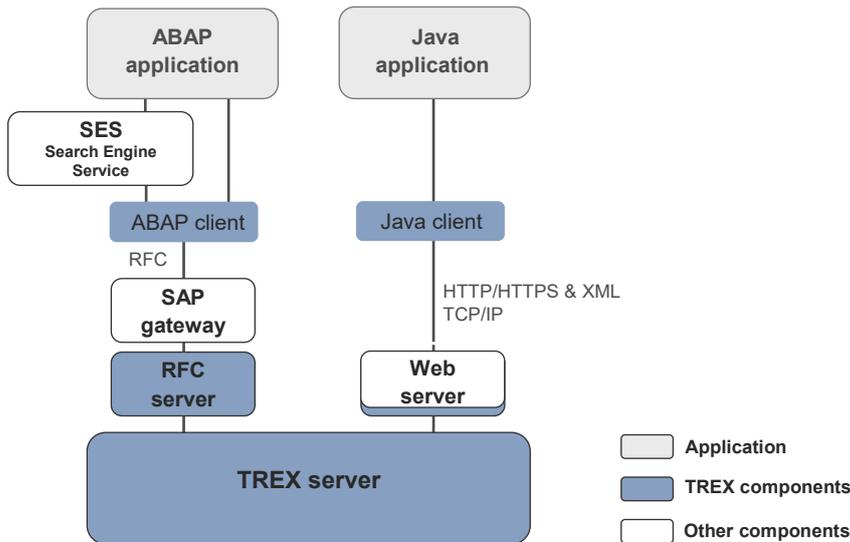
There is no dependency between TREX and the application using TREX with regard to the operating system used. You can install TREX on a different operating system to the application that accesses TREX.

⚠️

Use all installable units within SAP NetWeaver that have the same support package level. Only by using the same support packages you can ensure the integration and smooth collaboration between all systems, stand-alone engines, and clients within SAP NetWeaver.

Connecting TREX to More Than One Application

In principle, you can connect one TREX system to more than one application.

Note the following:

● The TREX system must have appropriate dimensions so that it can process the load of all the applications.

● You must take organizational measures to ensure that the applications use separate index namespaces.

👤 SAP NetWeaver BI Accelerator

SAP NetWeaver BI Accelerator: a Key Functionality for High-Performance Analytics

The BI accelerator is based on TREX technology. It is the aggregation engine for the accelerator functionality of SAP NetWeaver Business Intelligence (BI), a key functionality for high-performance analytics, which belongs to the *Enterprise Data Warehousing* IT scenario.

For more information see the SAP Net Weaver Master Guide on *SAP Service Marketplace* `service.sap.com/instguides`.

A TREX aggregation engine for processing structured business data powers this functionality. The data of the BI InfoCubes is replicated to the TREX engine and stored as TREX indexes. BI accelerator benefits companies that handle large volumes of data. The average response time is significantly improved in comparison with traditional approaches.

The following graphic depicts the relationship between the BI accelerator and the BI System:
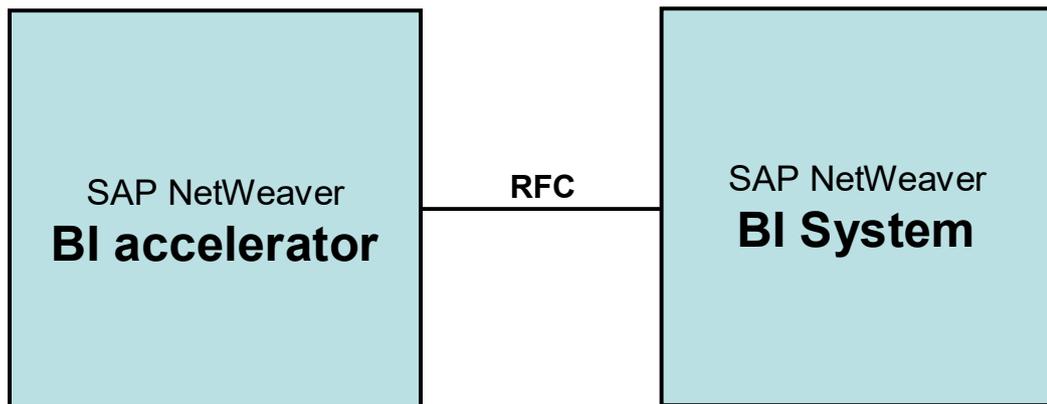
How To Use, Install, and Update the BI Accelerator

● **Use only with BI**

The BI accelerator is based on TREX technology. For the BI accelerator, you require an installation based on a 64-Bit architecture. The hardware partners deliver this variant in preconfigured form as the BI accelerator box. You must note that a TREX installation configured for searching metadata and documents based on a 32-Bit architecture cannot be used for the BI accelerator. In turn, you cannot use a BI accelerator box to search metadata and documents. In order to use both the search functions and the BI accelerator, you require two separate installations.

⚠

You **cannot** use the BI accelerator for the regular TREX search and classification functions.

In order to use the preinstalled BI Accelerator Box, you must enter the fixed RFC destination defined for this purpose (default: TREX_HPA) in table RSADMINA.

● **Installation on preconfigured hardware**

The BI accelerator is a special LINUX 64-Bit version of SAP NetWeaver Search and Classification (TREX), which is delivered on preconfigured hardware. All installation and configuration steps will be done during the preconfiguration of the hardware by the hardware vendor.

● **Download update from SAP Service Marketplace**

BI customers have to update and patch the BI accelerator. They can download the updates and patches for the BI accelerator from the SAP Service Marketplace `service.sap.com/swdc` → *Download* → *Support Packages and Patches* → *Entry by Application Group* → *SAP NetWeaver* → *SAP NETWEAVER* → *SAP NETWEAVER 7.0* → *SAP BI Accelerator* → *SAP BI Acelerator 7.0* → *TREX 7.10* → *Linux on x86 64 64bit*

💡

For more **information** about the BI accelerator, see the following SAP notes:

■ 883726 Central Note BI accelerator

■ 875400 Installing SAP NetWeaver BI accelerator

■ 883725 Updating SAP NetWeaver BI accelerator

■ 902533 HowToGuide Connecting/Operating BI Accelerator Box

■ 984034 BI Accelerator High Availability

See also the SAP NetWeaver Developers Network (SDN) for detailed information about the BI accelerator https://www.sdn.sap.com/irj/sdn/bia.

BI accelerator: Preconfigured Blade System

The BI accelerator is installed on a preconfigured blade system. A blade system consists of hosts in the form of server blades. The server blades are connected to centralized disk storage. This is referred to here as a file server, regardless of the underlying hardware.

The special feature of a TREX installation on a blade system is that both the TREX software and the TREX data can be stored centrally. This means that the software is installed only once on the file server. Maintaining the system is efficient because you have to implement software updates once only.

All server blades on which TREX is running access the same program files. However, each server blade has its own configuration files. The configuration files in the directory <TREX_DIR> are only used as templates. A script creates a separate subdirectory for each server blade and copies the configuration files to this subdirectory. The graphic below depicts how data, programs, and configuration files might be stored in a BI accelerator blade system.

NS = Name Server IS = Index Server
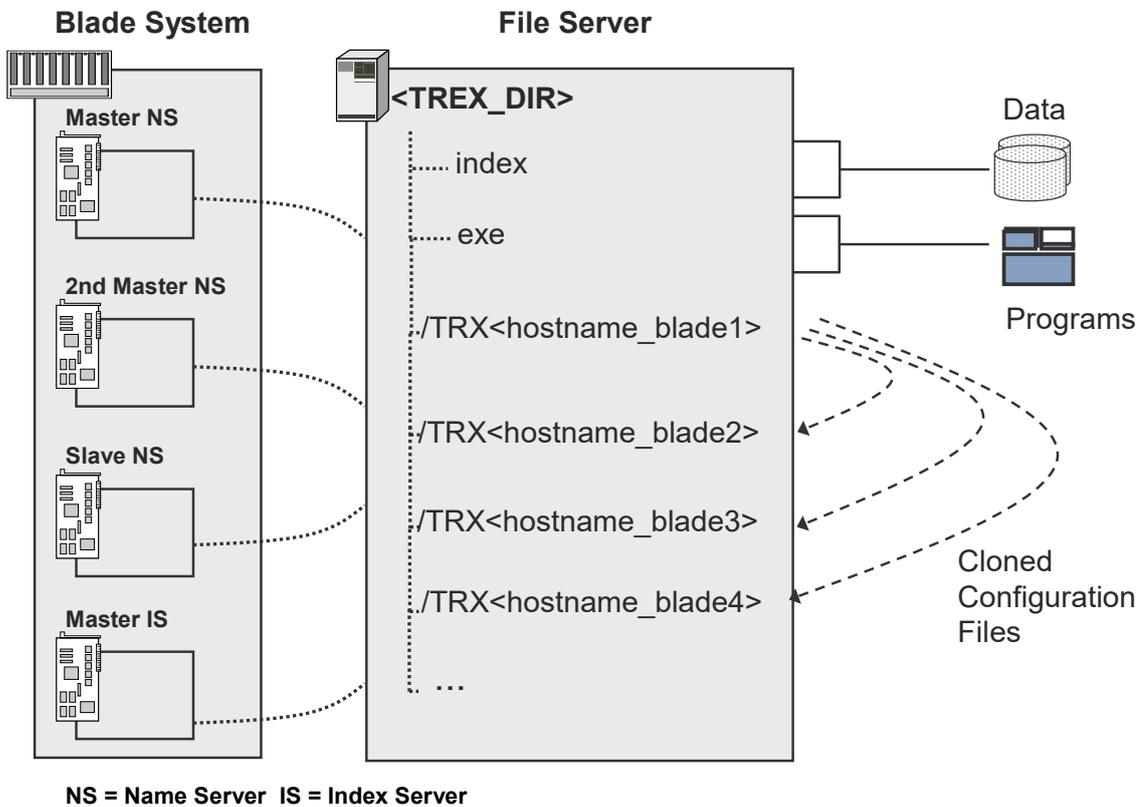
👥 Minimal and Distributed TREX Systems

Minimal TREX System (Single-Host Installation)

A minimal system consists of one TREX instance (**one** installation of the server software). You can use a minimal system as a demo, test, and production system.

⬆️

For a production system, SAP recommends that you install the server software on a single host that is used exclusively for TREX.

⚠️

If TREX is running on the same host as other components, you must make sure of the following:

- ■ There is enough main memory for all components.
- ■ TREX can use the required main memory space exclusively.

Sizing

The required hardware for the server software depends on the following factors:

- ● How many documents of what type are to be indexed?
- ● What quantities of documents are to be indexed initially, and what quantities during routine operation?
- ● How many search queries are expected? How many parallel search queries are expected?

Plan the required number of hosts and the equipping thereof with your SAP hardware partner. Use the information in Hardware,Software and Network Requirements [Page 17] as a basis for this.

Distributed TREX System (Multiple Host Installation)

Search and Classification (TREX) consists of a client component and a server component. The server component is based on a flexible architecture that allows a distributed installation. You can use a distributed installation to achieve the following:

- ● Load balancing

  You can distribute the search and indexing load among several hosts.

- ● High availability

  You can make sure that both indexing and searching are highly available.

  ⚠️

  Your TREX system can quickly reach its performance limit if you install TREX on a single server in a productive scenario with large document sets and a large number of search queries. SAP therefore recommends that you calculate the expected load and availability requirements for your TREX system early on in the planning process and start with a distributed TREX installation immediately if that is what you require.

  ⚠️

  In a distributed scenario, the same TREX version and patch level must run on all TREX hosts. Mixed installations with different TREX versions are not supported.

  💡

  For more information on installing and configuring a distributed TREX system, see the *SAP NetWeaver Distributed Search and Classification (TREX) Systems Installation Guide* on the *SAP Service Marketplace* at `service.sap.com/instguides`.

Installation and Configuration of Server and Client Software

Installation and Configuration of the Server Software

The TREX servers can be used by one or more applications. When you are installing TREX, you need to know the type of application and communication protocol. There are the following possibilities:

● The TREX servers are only used by Java applications.

Since Java applications communicate with the TREX servers using HTTP, you definitely need to carry out the installation and configuration steps that enable an HTTP connection.

For more information, see Connecting TREX with a Java Application (HTTP Connection) [Page 50].

● The TREX servers are only used by ABAP applications.

Since ABAP applications communicate with the TREX servers using RFC, you definitely need to carry out the installation and configuration steps that enable an RFC connection.

For more information, see Connecting TREX with an ABAP Application (RFC Connection) [Page 44].

● The TREX servers are used by Java and ABAP applications.

In this case, execute the installation and configuration steps necessary for an HTTP and an RFC connection.

For more information, see Connecting TREX with a Java Application (HTTP Connection) [Page 50] and Connecting TREX with an ABAP Application (RFC Connection) [Page 44].

The documents to be indexed are sent by an ABAP application to TREX. The search takes place using a Web application (Java application).

This guide contains a checklist with an overview of necessary installation and configuration steps for each case.

Installation and Configuration of the Client Software

● ABAP client

The ABAP client is part of the SAP system, and must not be installed separately. The necessary configuration is described in this guide.

For more information, see Connecting TREX with an ABAP Application (RFC Connection) [Page 44].

● Java client

As a *TREX service*, the Java client is part of the JEE engine of the SAP NetWeaver Application Server and does not have to be installed separately. The necessary configuration is described in this guide.

For more information, see Connecting TREX with a Java Application (HTTP Connection) [Page 50].

⚇ Naming Conventions

The following naming conventions are valid for this documentation:

Terminology

Term	Meaning
TREX host	Host on which the TREX server software is installed
TREX instance	One installation of the TREX server software

Variables

Variable	Meaning
`<SAPSID>`	System ID in uppercase letters
`<sapsid>`	System ID in lowercase letters

`<TREX_DIR>`	Installation directory for TREX. The path to the directory is:
	
	● On UNIX
	`/usr/sap/<sapsid>/trx<instance_number>`
	
	● On Windows
	`<disk_drive>:\usr\sap\<SAPSID>\TRX<instance_number>`

`<TREX_DOWNLOAD>`	Directory for storing the downloaded TREX software package from SAP Service Marketplace
`<SAP_System_Directory>`	SAP system directory: ● On UNIX `/<sapmnt>/<sapsid>/SYS` ● On Windows `<disk_drive>:\usr\sap\<SAPSID>\SYS`
`<OS>`	Name of the operating system in a path.
User `<sapsid>adm`	Operating system user that you log on with to administrate TREX.
User `SAPService<SAPSID>`	Operating system user under which the TREX processes run.
User `<j2eeadm>`	Operating system user that you use to log on to the host on which the J2EE Engine is running.

The following example shows how variables are used.

⚙

Go to the directory `/usr/sap/<sapsid>/trx<instance_number>`.

If the SAP system ID is KB1 and the instance number is 01, you have to go to the directory `/usr/sap/KB1/trx01`.

Path specifications

The forward slash (/) is usually used in path specifications such as `<TREX_DIR>/<host_name>/sapprofile.ini`.

Commands

Commands such as script calls are sometimes distributed over several lines in this documentation. When you execute the commands, enter them in one line.

🖧 Checklists for the Installation

Purpose

Use the tables below as checklists for the installation of the system. All necessary installation phases (planning, preparation, installation, and post-installation activities) are listed in these tables.

Use the links to the general descriptions of actions and to additional information that will help you when executing the actions. By doing this, you ensure that you do not overlook any important information.

Process Flow

1. Print the relevant checklists:

    ○ Installation with HTTP Connection [Page 11]

    ○ Installation with RFC Connection [Page 13]

    ○ Installation with HTTP and RFC Connections [Page 14]

2. Carry out the installation steps in the order specified in the tables.

    ○ When carrying out an obligatory step during the installation, follow the link to the relevant section.

    ○ Then carry out the work steps described there.

    ○ When the installation step has been successfully completed, place a check (✔) next to the relevant entry in the table in order to record your progress.

    ○ Then continue with the next step listed in the table.

🖧 Installation with an HTTP Connection

Server Side

Installation Planning

!	Activity
	Check the Hardware, Software and Network Requirements [Page 17].
	Check which documentation [Page 20] you need for the installation.

Installation Preparations

!	Activity
	If you want to install multiple TREX instances, read the information [Page 25] on this.
	Download the TREX binaries [Page 21].
	Windows: Ensure the required authorization for running the installer [Page 25].

	Check whether there is sufficient disk space [Page 26] for installing the TREX software.

Installation

!	**Activity**
	Install TREX with a Virtual Host Name [Page 30] To make your TREX installation accessible using a virtual host name you change the host name of the host on which you intend to install TREX.
	Install TREX using shell scripts [Page 28].

Post-Installation Configuration

!	**Activity**
	Start the TREX Admin Tool [Page 54] You need the TREX admin tool (stand-alone) for post-installation configuration steps. As of TREX 7.1 the TREX admin tool runs independently of the TREX servers and services.
	TREX starts automatically if you restart the host. If you have not restarted the host, start TREX manually (see Starting and Stopping TREX on UNIX [Page 60]).
	HTTP communication
	Configure the TREX Web Server [Page 36] Java applications communicate with the TREX servers using HTTP/HTTPS by means of the TREX Web server. After installing TREX, you have to configure the TREX Web server so that your Java application can access TREX.
	Configure TREX Proxy Settings [Page 36] If there is a proxy server between the TREX servers and the documents to be indexed, specify the proxy server and define exclusion rules if necessary.
	TREX Languages
	Select Languages for TREX Language Recognition [Page 39] TREX supports the indexing and analysis of documents in different languages. You select languages to be identified by TREX language recognition.
	System Landscape Directory
	Configure TREX for the System Landscape Directory (SLD) [Page 39]
	General Windows Configuration
	Check Performance Settings for the Operating System (Windows) [Page 42] On Windows no further actions are needed to start TREX. The SAP service for the corresponding TREX instance is registered as a Windows service and starts automatically after installation.

Client Side

Configuration

!	**Activity**

	Connecting TREX with a HTTP Application
	Specify the Address of the TREX Name Server [Page 49] Enter the address of the TREX name server in the Java client configuration settings (*TREX service* in the *NetWeaver Administrator* of the JEE).
	Check Proxy Settings [Page 37] If an application is unable to communicate with TREX, it may be due to the application trying to access TREX through a proxy server.
	Wizard-Based Configuration
	Wizard-Based Basic Configuration for TREX [Page 33] The configuration wizard enables automatic configuration of the settings that are required for the application using TREX to communicate with TREX using an HTTP or RFC connection.

⊞ Installation with an RFC Connection

Server Side

Installation Planning

!	Activity
	Check the Hardware, Software and Network Requirements [Page 17].
	Check what documentation [Page 20] you need for the installation.

Installation Preparations

!	Activity
	If you want to install multiple TREX instances, read the information [Page 25] on this.
	Download the TREX software [Page 21].
	Windows: Ensure the required authorization for running the installer [Page 25].
	Check whether there is sufficient disk space [Page 26] for installing the TREX software.

Installation

!	Activity
	Install TREX with a Virtual Host Name [Page 30] To make your TREX installation accessible using a virtual host name you change the host name of the host on which you intend to install TREX.
	Install TREX using shell scripts [Page 28].

Post-Installation Activities

!	Activity
	Start the TREX Admin Tool [Page 54]

	You need the TREX admin tool (stand-alone) for post-installation configuration steps. As of TREX 7.1 the TREX admin tool runs independently of the TREX servers and services.
	TREX starts automatically if you restart the host.

If you have not restarted the host, start TREX manually (see Starting and Stopping TREX on UNIX [Page 60]). |
| | **TREX Languages** |
| | Select Languages for TREX Language Recognition [Page 39]

TREX supports the indexing and analysis of documents in different languages. You select languages to be identified by TREX language recognition. |
	System Landscape Directory
	Configure TREX for the System Landscape Directory (SLD) [Page 39]
	General Windows Configuration
	Check Performance Settings for the Operating System (Windows) [Page 41]

On Windows no further actions are needed to start TREX. The SAP service for the corresponding TREX instance is registered as a Windows service and starts automatically after installation. |
| | **Connecting TREX with an ABAP Application (Configuration of the RFC Connection)** |
| | Create a SAP System User for the TREX Admin Tool (Stand-Alone) [Page 45]

You must create an SAP user that the TREX admin tool (stand-alone) can use to log on to the SAP system. |
| | Determine the SAP System Connection Information [Page 46]

The TREX admin tool requires connection information for the SAP system. You determine the information and specify it in the TREX admin tool. |
| | Configure the RFC Connection in the TREX Admin Tool [Page 47]. |
| | **Wizard-Based Configuration** |
| | Wizard-Based Basic Configuration for TREX [Page 33]

The configuration wizard enables automatic configuration of the settings that are required for the application using TREX to communicate with TREX using an HTTP or RFC connection. |

Client Side

Configuration

!	Activity
	On the client side, no further configuration steps are required.

Installation with HTTP and RFC Connections

Server Side

Installation Planning

!	Activity
	Check the Hardware, Software and Network Requirements [Page 17].
	Check which documentation [Page 20] you need for the installation.

Installation Preparations

!	Activity
	If you want to install multiple TREX instances, read the information [Page 25] on this.
	Download the TREX binaries [Page 21].
	Windows: Ensure the required authorization for running the installer [Page 25].
	Check whether there is sufficient disk space [Page 26] for installing the TREX software.

Installation

!	Activity
	Install TREX with a Virtual Host Name [Page 30] To make your TREX installation accessible using a virtual host name you change the host name of the host on which you intend to install TREX. You do this before you start the TREX installation.
	Install TREX using shell scripts [Page 28].

Post-Installation Configuration

!	Activity
	Start the TREX Admin Tool [Page 54] You need the TREX admin tool (stand-alone) for post-installation configuration steps. As of TREX 7.1 the TREX admin tool runs independently of the TREX servers and services.
	TREX starts automatically if you restart the host. If you have not restarted the host, start TREX manually (see Starting and Stopping TREX on UNIX [Page 60]).
	HTTP communication
	Configure the TREX Web Server [Page 36] Java applications communicate with the TREX servers using HTTP/HTTPS by means of the TREX Web server. After installing TREX, you have to configure the TREX Web server so that your Java application can access TREX.
	Configure TREX Proxy Settings [Page 36] If there is a proxy server between the TREX servers and the documents to be indexed, specify the proxy server and define exclusion rules if necessary.
	TREX Languages
	Select Languages for TREX Language Recognition [Page 39] TREX supports the indexing and analysis of documents in different languages. You select languages to be identified by TREX language recognition.

	System Landscape Directory
	Configure TREX for the System Landscape Directory (SLD) [Page 39]
	TREX starts automatically if you have restarted the host.
	If you have not restarted the host, start TREX manually.
	(See Starting and Stopping TREX on UNIX [Page 60].)
	General Windows Configuration
	Check Performance Settings for the Operating System (Windows) [Page 42]
	On Windows no further actions are needed to start TREX. The SAP service for the corresponding TREX instance is registered as a Windows service and starts automatically after installation.
	Connecting TREX with an ABAP Application (Configuration of the RFC Connection)
	Create a SAP System User for the TREX Admin Tool (Stand-Alone) [Page 45]
	You must create an SAP user that the TREX admin tool (stand-alone) can use to log on to the SAP system.
	Determine the SAP System Connection Information [Page 46]
	The TREX admin tool requires connection information for the SAP system. You determine the information and specify it in the TREX admin tool.
	Configure the RFC Connection in the TREX Admin Tool [Page 47].
	Wizard-Based Configuration
	Wizard-Based Basic Configuration for TREX [Page 33]
	The configuration wizard enables automatic configuration of the settings that are required for the application using TREX to communicate with TREX using an HTTP or RFC connection.

Client Side – Java Application

Installation and Configuration

!	Activity
	Connecting TREX with a HTTP Application
	Specify the Address of the TREX Name Server [Page 49]
	Enter the address of the TREX name server in the Java client configuration settings (*TREX service* in *NetWeaver Administrator* of the JEE).
	Check Proxy Settings [Page 37]
	If an application is unable to communicate with TREX, it may be due to the application trying to access TREX using a proxy server.

Client Side – ABAP Application

Configuration

!	Activity
	On the client side, no further configuration steps are required.

Installation Planning

Purpose

The following sections contain information that is relevant when planning the installation.

Hardware, Software and Network Requirements

The tables below contain the hardware and software requirements for the TREX server software.

> The requirements for hardware and software listed here are valid for a TREX installation on a single host (single-server system). The requirements for a distributed system that supports load balancing and high availability are listed in the guide for the installation and configuration of a distributed TREX system. You can find the *Installation Guide – SAP NetWeaver TREX Multiple Hosts* on the *SAP Service Marketplace* at **service.sap.com/instguides**.

Hardware Requirements

Requirement Type	Requirement

Hard disk capacity:	● Installer work directory
	
	You require the following for the installation software:
	
	○ On UNIX, 500 MB in temporary directories or in a directory of your choice.
	
	○ On Windows, 500 MB in the directory `C:\Program Files`
	
	● SAP system directory
	
	○ On UNIX, at least 1 GB in the directory
	
	`/<sapmnt>/<sapsid>/SYS.`
	
	○ On Windows, at least 1 GB in the directory `<disk_drive>:\usr\sap\<SAPSID>\SYS.`
	
	● TREX directory
	
	You need the following for the TREX software:
	
	○ On UNIX, at least 1 GB in the directory
	
	`/usr/sap/<sapsid>/trx<instance_number>.`
	
	○ On Windows, at least 1 GB in the directory `<disk_drive>:\usr\sap\<SAPSID>\ TRX<instance_number>`
	
	You also need disk space in this directory for the trace files that TREX writes during routine operation
	
	● Index directory
	
	A minimum of 80 GB, depending on the number and type of documents to be indexed.
	
	If documents exist in different formats (Microsoft Word, PDF, and so on), the index needs approximately half as much disk

Requirement Type	Requirement
	space as the documents. For pure HTML documents, the index needs about twice as much disk space as the documents. In addition, the same amount of disk space as for the index is needed temporarily for the optimization process. A document set that consists only of HTML documents and has a total size of 10 GB generates an index size of 20 GB (2 x 10GB). An additional 20 GB disk space is needed temporarily for optimization. Therefore, you need 40 GB disk space altogether: 20 GB permanently and 20 GB temporarily. ● Queue directory The queues require approximately three quarters of the disk space required by the indexes. The documents to be indexed are kept temporarily in the queue directory before being forwarded to actually be indexed. In the case of an installation with an RFC connection, you can use TREX with or without a queue server. If you are not using a queue server, the queue directory is not relevant. SAP Note 658052 contains information on which configuration is suitable for which application. The three directories can be located on different partitions. The index directory and queue directory can also be located on a file server. The TREX host must be able to access the file server as quickly as it can access the local hard drive.
RAM	● Demo or test system: At least 8 GB ● Production system: 64 GB, at least 4 GB per CPU With **two** index servers per TREX instance: At least 4 CPUs The amount of main memory that is actually used depends on several factors. For example, in the case of the index server, influencing factors are index size, number of parallel search requests, and amount of the number of hits.

Windows: Software Requirements

Requirement Type	Requirement
Operating system	TREX supports the following Windows version: Microsoft Windows Server 2012, 2016 and 2019 64BIT (US English version) For security reasons, the supported partition installed on Windows is NTFS (NT file system) not FAT32 (file allocation table). For the most up-to-date information about platform and operating system availability for TREX check the Platform Availability Matrix (PAM) on *SAP Service Marketplace* `service.sap.com/pam`.

Requirement Type	Requirement
Python	Python 3.8. A Python version is part of the delivery. It is installed by the TREX setup program in the directory `<TREX_DIR>\exe\Python`.
Web server	Only relevant for an installation with an HTTP connection. Microsoft Internet Information Server (IIS) ⚠️ The TREX delivery does not contain the Internet Information Server (IIS), so you have to install an IIS on your TREX host before configuring the TREX Web server. You must ensure that the Internet Information Server (IIS) is installed. Also make sure that the IIS is running correctly. Activate the World Wide Web Publishing Service, IIS Admin Service, and HTTP SSL in the Windows Services tool. To do this navigate to *Control Panel → Administrative Tools → Computer Management → Services and Application → Internet Information Services (IIS) Manager.*

UNIX: Software Requirements

Requirement Type	Requirement
Operating system	TREX supports one of the following UNIX version: LINUX SUSE SLES12/15 X86_64 64BIT LINUX REDHAT EL7/EL8 LINUX ORACLE OL7 ⚠️ TREX only supports LINUX distributions that have been released by SAP. For the most up-to-date information about platform and operating system availability for TREX check the Platform Availability Matrix (PAM) on *SAP Service Marketplace* `service.sap.com/pam`.
Python	Python 3.8. A Python version by ActiveState is part of the delivery. It is installed by the TREX setup program in the directory `<TREX_DIR>/exe/Python` directory.
Web server	Only relevant for an installation with an HTTP connection. Apache Web Server 2.4: The Web server is part of the delivery, and is installed by the TREX setup program in the `<TREX_DIR>/exe/Apache` directory.

Network Requirements

Requirement Type	Requirement
Network configuration	The host on which TREX is installed should have an isolated network subnet (different than the one which exposes the application to the outside network), which is shared only with the hosts on which the applications that are using TREX are installed on. No other hosts should have network connection to the TREX

Requirement Type	Requirement
	host.

Required Documentation

You require this installation guide and the following additional documentation for the installation:

● SAP Notes on installation

● Information available on *SAP Service Market Place*

SAP Notes on Installation

You **must** read the SAP Notes on installation **before** you begin the installation. The SAP Notes contain current installation information and corrections to the installation documentation.

Make sure that you use the current version of the SAP Notes. The SAP Notes can be found on the *SAP Service Marketplace* at `service.sap.com/notes`.

Relevant SAP Notes

SAP Note Number	Title	Comments
2460148	TREX 710: supported platforms and OS software requirements and restrictions	List of supported platforms and additional software requirements and restrictions
1003900	TREX 7.1: Central note	Contains information for all TREX 7.1 installations
2199947	TREX 7.10: Upgrade Apache Web Server to revision	Contains information about the most current version of Apache
1007349	TREX 7.0/7.1: Linux Kernel Parameters	Contains information about how to set file handles for Linux adequately
845974	TREX WebServer (IIS) Application Pool disabled after recycle	Contains information about TREX web server and IIS application pool
1856942	Latest Revision for TREX 7.10	Contains information about latest available TREX revision

Information Available in SAP Service Marketplace

Information on the following areas is available in the SAP Service Marketplace.

General Quick Links

Description	Internet Address	Title
SAP Notes	`service.sap.com/notes`	–
Released platforms	`service.sap.com/platforms`	–
System sizing	`service.sap.com/sizing`	*Quick Sizer* tool
Front-end installation	`service.sap.com/instguides`	*Front End Installation Guide*

Security	`service.sap.com/security`	–

Installation Preparations

Purpose

The following sections describe the steps you carry out before the TREX installation.

Downloading the TREX Binaries

Use

You download the most current TREX version from SAP Service Marketplace. You can use the downloaded TREX software package for the following purposes:

● Installing TREX with Shell Scripts [Page 29]

● Updating TREX with Shell Scripts [Page 32]

You use SAPCAR to extract the downloaded TREX software archives.

Prerequisites

Make sure the latest version of the SAPCAR archiving tool is available on each installation host.

You require the SAPCAR archiving tool to be able to unpack software component archives (*.SAR files) which is the format of software life-cycle media and tools that you can download from the SAP software distribution center.

If required, you can download the latest version of SAPCAR from:
http://service.sap.com/swdc → Support Packages and Patches → A – Z Index → S → SAPCAR.

For more information about SAPCAR, see SAP Note 212876

Procedure

Download the TREX Software Package

1. Access the SAP Software Distribution Center on SAP Service Marketplace at
   http://service.sap.com/swdc

2. Navigate to *SAP Software Download Center → Download → Support Packages and Patches → Browse our Download Catalog → SAP NetWeaver and complementary products → SAP NetWeaver → SAP NetWeaver <Release> → Entry by Component → Search and Classif. (TREX) → TREX 7.10 → <operating_system> (Linux_on_X86_64_64bit/Windows Server_on_x64_64bit) → TREX71_<Revision>.SAR*

3. Download the TREX software package from the specified folder on SMP into a temporary folder on your host.

Unpack the TREX Software Packages Using SAPCAR

1. Create a directory **<TREX_DOWNLOAD>** for the TREX software package.

2. Use SAPCAR to extract the downloaded TREX software archive
   `TREX71_<REVISION>.SAR` to the directory.

   > ![lightbulb icon]
   >
   > SAPCAR is installed with each application server based on SAP NetWeaver in
   > the kernel directory. If you do not have access to the currently installed SAPCAR
   > tool, you can download the unpackaged version of the SAPCAR tool at
   > http://service.sap.com/patches → *Entry by Application Group* → *Additional
   > Components* → *SAPCAR*.

1. Go to the directory in which you have downloaded or copied the archive files:

   ○ Linux: **cd /<TREX_DOWNLOAD>**

   ○ Windows: **cd \<TREX_DOWNLOAD>**

2. Start SAPCAR to extract the archive to the current directory:

   ○ Linux: **<path to SAPCAR>/sapcar –xvf <file_name>.SAR**

   ○ Windows: **<path to SAPCAR.EXE>\sapcar.exe –xvf
   <file_name>.SAR**

   > ![lightbulb icon]
   >
   > You can use the option `-R` to specify a specific target directory, for instance,
   > `sapcar -xvf <SAR_file> -R <target_dir>`. Directories in the archive
   > are created as subdirectories of the target directory to retain the directory
   > structure of the archive.

![icon] TREX System and TREX Instances

Purpose

The TREX server software comprises two parts:

● **Installation files for the TREX instance**

These are the TREX program files, configuration files, and so on.

● **Global file system**

This is a directory structure, in which information about the TREX system instances is
stored. For example, this information is required by management tools to start the
TREX system.

The global file system must be highly available. All instances of a TREX system must
have permanent access to it. The global file share basically consists of the SAP system
directory `usr/sap/<sapsid>/sys`.

> ![lightbulb icon]
>
> By the TREX 7.1 installation the global file share functionality is currently only
> supported in a restricted manner. During the TREX 7.1 installation the customer
> can not specify the path to the global file share (SAP system directory
> `usr/sap/<sapsid>/sys`). The global file share will be installed only once on
> the host, where TREX 7.1 will be initially installed and can not be placed on
> other hosts. So there still is a global file share for the TREX 7.1 installation, but it
> can not be placed independently from the initial TREX 7.1 installation on other
> hosts of your distributed landscape. TREX is developing the unrestricted global
> file share functionality for TREX 7.1 for the end of 2008.

TREX Instance and SAP System Profile Directories

During the installation of the TREX system, the following directories are important:

- ● SAP system profile directory in the global file system:
    - ○ On UNIX `/<SAP System Mount Directory>/<sapsid>/SYS/profile`
    - ○ On Windows `<SAPGLOBALHOST>\sapmnt\<SAPSID>\SYS\profile`
- ● Installation directory for the TREX instance:
    - ○ On UNIX `/usr/sap/<sapsid>/trx<instance_number>`
    - ○ On Windows
      `<disk_drive>:\usr\sap\<SAPSID>\TRX<instance_number>`

Installation Procedure

During the TREX installation, when you chose the installation option *Install a TREX system*, both a TREX instances and a global file systems will be installed on your local host. Differing from the TREX 7.0 installation you can not decide where the global file system should be stored.

TREX System

A TREX system consists of the installation of a TREX instance together with a global file system on the a local host where you initially install TREX. Basic information about a TREX landscape is stored in the directory for the SAP system profiles.

Directory structure and files

On Windows the TREX installation creates a directory structure and SAP system profiles as shown in the graphic below:

**Folder Structure on TREX Single Host
(Global File System and TREX Instance)**

```
usr\sap\<SAPSID>\

  SYS\    ← Global File System / SAP System Directory
  ....  ...
  .... profile\   ← SAP Profile Directory
        – DEFAULT.PFL
        – <SAPSID>_TRX<instance_number>_<host>

  TRX<instance_number>\
  ....  ...
  ..... exe\python_support\
  ..... <trex_hostname>\                    TREX Instance/
                                            <TREX_DIR>
                    .....index\
                    .....queue\
```
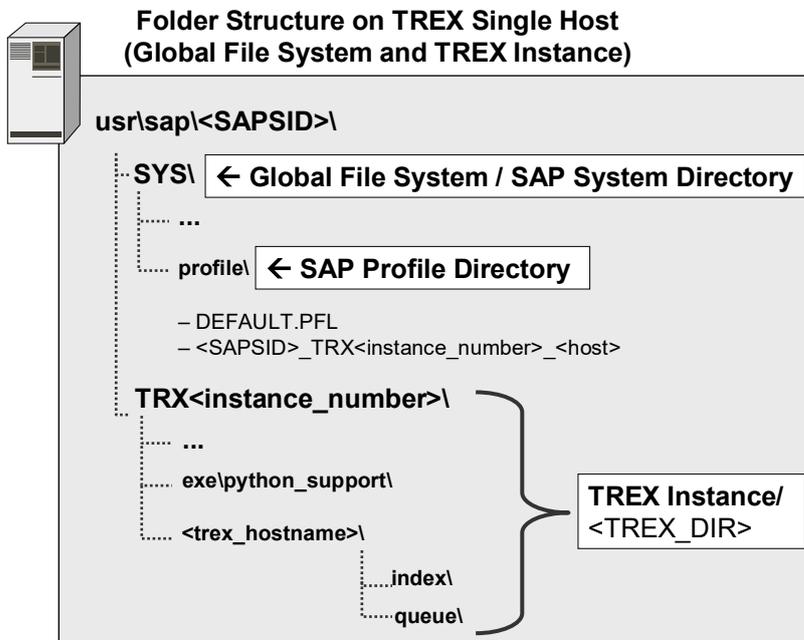
Additional TREX Instance

An additional TREX instance consists of a TREX instance without a global file system on the local host. In this case, the global file system together with the first TREX instance on the one

hand and the newly-installed TREX instance on the other hand form a unit from an administration perspective. This is visible in that they both have the same system ID (<SAPSID>) and use the same global file system.

You install an additional TREX instance by means of a TREX script.

For more information, see

Directory structure and files

On Windows the installation creates directory structures as illustrated in the graphic below:
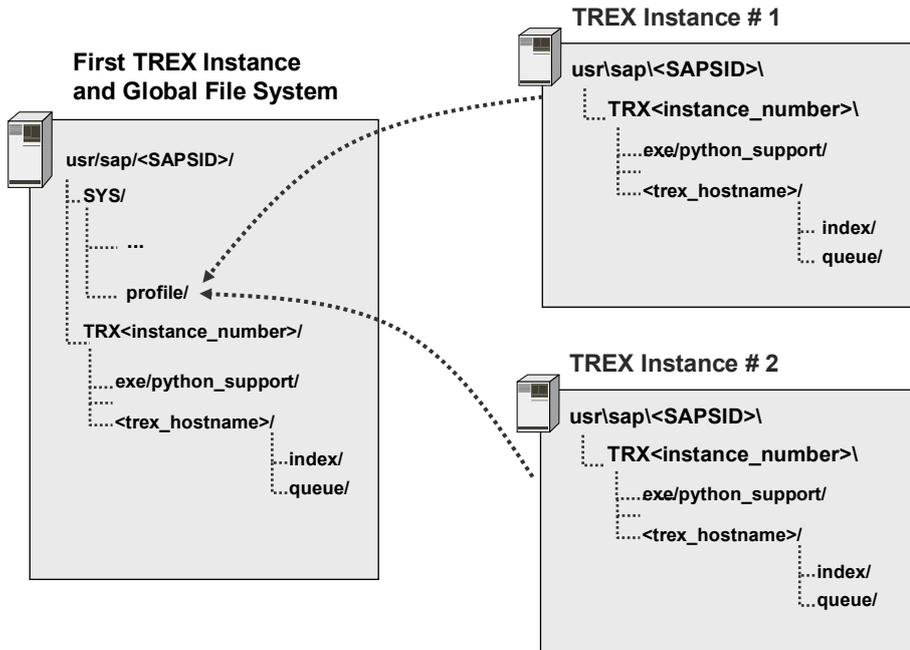
Global File System (SAP System Directory)

You have to ensure that the global file system (SAP system directory `usr/sap/<sapsid>/sys`) is highly available and accessible for all TREX instances at all times.

Directory structure and files

On Windows the installation creates directory structures as illustrated in the graphic below:
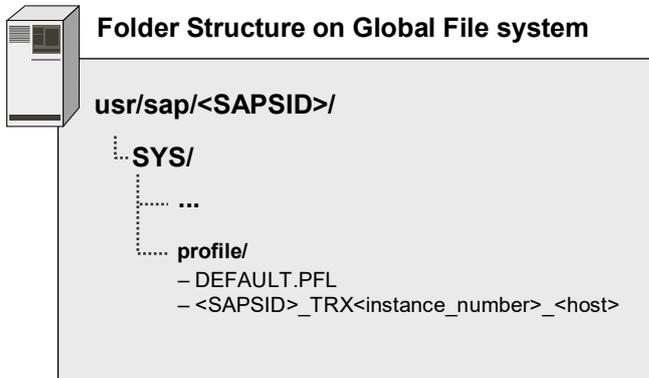
SAP System Profiles for the Global File System

During installation of a TREX system the central directory for the SAP system profiles will be created as part of the global file system (SAP system directory). In the SAP system profiles directory, the system automatically generates an instance profile for the TREX instances installed. System profiles contain information about the configuration of individual SAP instances.

Depending on the entries made during installation, the system creates the following profiles:

● System profile `DEFAULT.PFL`

  The system profile contains settings and information that are important throughout the system. The system profile exists once only in the global file system.

● Instance profile `<SAPSID>_TRX<instance_number>_<host>`

  The instance profile contains specific information about the runtime environment for a TREX instance.

Information on Installing Multiple TREX Instances

You can install several independent TREX instances on the same host. This is useful for test purposes. Note the following:

During the setup

● Give each instance a different instance number.

● Each instance must be installed in its own directory. The TREX setup program ensures this by including the instance number in the directory name.

● Each instance must use a different port. The TREX setup program suggests suitable ports so that they do not clash with other TREX instances on the same host.

After the installation (HTTP connection)

If you are installing TREX on Windows, you must make sure that the Web pages of the individual instances run independently of one another. The following configuration is required for this:

● Microsoft IIS : There must be a separate Web service extension for each instance. Each TREX Web site must also use its own application pool.

The configuration steps are described in this guide.

Windows: Required User Authorization for Running the Installer

Use

Although the installer automatically grants the required rights to the user account used for the installation, you have to check whether this account has the required authorization to perform the installation. The authorization required depends on whether you intend to perform a domain or local installation. If necessary, you have to ask the system administrator to grant the account the necessary authorization before you start the installation. If you attempt the installation with an account that has not the required authorization, the installation aborts.

This section informs you about the authorization required for a domain and a local installation.

⚠️

Do not use the user `<sapsid>adm` for running the installer.

Domain Installation

For a domain installation the account used for the installation needs to be a member of the local Administrators and the domain Admins group of the domain involved. All machines in the system must belong to the same domain. In a domain installation, the user information is stored centrally on the domain controller and can be accessed by all hosts in the system.

If the SAP system is to be distributed across more than one machine, SAP strongly recommends you to perform a domain installation to avoid authorization problems.

⚠️

- If you install a system distributed over several hosts as a local installation, this can lead to authorization problems for the operating system users `<sapsid>adm` and `SAPService<SAPSID>`. It can also lead to problems with the transport directory, which is usually shared by several SAP systems. Therefore, SAP does not support a local installation for a system distributed over several hosts and recommends you to install a system distributed over several hosts as a domain installation.

  If you still want to perform a local installation for a system distributed over several hosts, make sure that:

  o You use the same password for the `<sapsid>adm` or the `SAPService<SAPSID>` user on all hosts.
     The password for the `<sapsid>adm` and `SAPService<SAPSID>` user can differ.

  o You use the same master password on all hosts.

  o All hosts belong to the same Windows work group.

- In a Microsoft failover cluster configuration, you always have to perform a domain installation.

- For performance and security reasons, SAP does not support an SAP system installation on a domain controller.

- If for any reason, the account used for the installation is not a member of the domain Admins group, you can perform the installation with a domain user who is a member of the local Administrators group. However, the domain administrator has to prepare the system appropriately for you.

For a domain installation, you need to:

1. Check that the account used for the installation is a member of the domain Admins group.

2. If required, obtain these rights by asking the system administrator to enter the account as a member of the domain Admins group.

Checking Disk Space

Use

The installer creates the installation directory for the TREX software in the following directory:

● Windows – `<disk_drive>:\usr\sap\<SAPSID>`

● UNIX – `/usr/sap/<sapsid>`

Before the installation starts, make sure that there is enough disk space in this directory for the TREX software. For information on the required disk space, see Hardware and Software Requirements [Page 17].

Procedure on UNIX

Starting Point	Procedure
The directory `/usr` does not yet exist.	For the directory `/usr`, select a partition that has sufficient disk space for the TREX software and other SAP software if necessary.
The directory `/usr` exists, but the directory `/usr/sap` does not.	Choose one of the following options: ● Create a new partition with sufficient disk space for the directory `sap`. Insert the directory `sap` into the directory `/usr`. ● Create the directory `sap` in a file system that has sufficient disk space. Generate a symbolic link to the directory `sap` in the directory `/usr`.
The directory `/usr/sap` already exists.	Go to the directory `/usr/sap` and check the amount of free disk space by executing the following command. **`df –k .`** If there is not enough disk space, proceed as follows: 1. Create the installation directory in a file system that has sufficient disk space. You must assign the installation directory the name `trx<instance_number>`. `<instance_number>` must match the instance number that you specified during the installation. 2. Generate a symbolic link to the installation directory in the directory `/usr/sap`.

Procedure on Windows

On Windows you can choose the target drive during the installation. Use the Windows Explorer to check whether there is sufficient disk space on the target drive.

Installation

Purpose

You can **install** TREX in one of the following ways:

• By running shell scripts [Page 29].

Installing TREX with Shell Scripts

Use

- [Running Shell Scripts on UNIX [Page 29]](#)
- [Running Shell Scripts on Windows [Page 29]](#)

Running Shell Scripts on UNIX

Use

The installation is done by the `install.sh` installation script with specific options.

Prerequisites

You have downloaded and extracted the TREX binaries as described in [Download the TREX binaries [Page 21]](#).

Procedure

1. Log on to the installation host as `root` user.

2. Navigate to the directory `<path to unpack directory>/tx_trex_content/TX_LINUX_X86_64`.

   This directory was created by unpacking the TREX software package using SAPCAR.

3. Call the `install.sh` installation script (depending on your shell) as follows:
   `./install.sh --action=install --sid=<SAPSID> --password=<password for adm/service user> --type=DEFAULT`

   The installation procedure will take less than 15 minutes. You can find more information about using the installation script executing it with the **`--help`** parameter:
   `./install.sh --help`

4. After the installation has finished you need to start TREX:

   Log on as `<sapsid>adm` user.

   - To start TREX type **`TREX start`**.

   - To stop TREX (if necessary), enter **`TREX stop`**.

Running Shell Scripts on Windows

Use

The installation is done by the `install.cmd` installation script with specific options.

Prerequisites

You have downloaded and extracted the TREX binaries as described in Download the TREX binaries [Page 21].

Procedure

1. Log on to the installation host as a user with `administrator` rights.

2. Open a command prompt.

    🔅

    You must run the command prompt as an administrator.

3. Navigate to the directory `<drive>:\<path to unpack directory>\tx_trex_content\TX_WINDOWS_X86_64`.

    This directory was created by unpacking the TREX software package using SAPCAR.

4. Call the `install.cmd` installation script (depending on your shell) as follows:

    `install.cmd --action=install --sid=<SAPSID> --password=<password for adm/service user> --type=DEFAULT`

    The installation procedure will take less than 15 minutes. You can find more information about using the installation script executing it with the **`--help`** parameter:
    `install.cmd --help`

5. After the installation has finished you need to start TREX:

    Open a command prompt and log on as `<sapsid>adm` user.

    -   To start TREX, enter **`TREX start`**.

    -   To stop TREX (if necessary), enter **`TREX stop`**.

⬇ Installing an additional TREX Instance

Use

You install an additional TREX instance by means of the TREX script `addinstance.cmd` (Windows) or `instance.sh` (UNIX).

The TREX system (first TREX instance together with the global file system (SAP system directory)) on the one hand and the newly-installed TREX instance on the other hand form a unit from an administration perspective. This is visible in that they both have the same system ID (<SAPSID>) and use the same global file system.

The script is located in the following directory

○ On UNIX `/<SAP System Mount Directory>/<sapsid>/SYS/global/ trex/install`

○ On Windows `<SAPGLOBALHOST>\sapmnt\<SAPSID>\SYS\global\ trex\install`

⚠️

This directory is part of the global file system (SAP system directory) `usr\sap\<SAPSID>\SYS`, which must be highly available. All instances of a TREX system must have permanent access to it. The global file system must be

accessible from all hosts on which you intend to install additional TREX instances.

Prerequisites

You have mounted (UNIX) or shared (Windows) the directory `<SAPSID>\SYS\global\trex\install` on the host where you intend to install the additional TREX instance so that the directory is accessible from this host.

Procedure

1. Log in as `root` (UNIX) or local `administrator` (Windows) on the host where the additional TREX instance shall be installed and open a command prompt.

2. Navigate to the directory `\...\<SAPSID>\SYS\global\trex\install` which is located on the host where you have installed TREX initially. On UNIX you have to mount this directory manually.

3. Execute the script `addInstance.cmd` (Windows) or `instance.sh` (UNIX) in this directory.

The script will automatically do the following:

- Creating a directory structure for SAPSID and TREX instance
- Creating a `<SAPSID>adm` user
- Configuring the SAP system
- Deploying binaries
- Creating host configuration
- Registering with TREX Landscape
- Registering Service `sapstartsrv` and starting TREX

Result

After executing the script an additional TREX instance was installed on the host. You do not need to do additional configuration steps.

Installing TREX with a Virtual Host Name

Use

You can install TREX with a virtual host name by using shell scripts.

Prerequisites

The virtual host name must be valid at the operating system level and in the network the host is a part of. It can be a new primary host name, an additional alias name, or it's IP address. The host must be accessible with this name using the `ping` command. Only then TREX can monitor itself and can be used by other applications.

Procedure with Shell Scripts

1. Log on to the installation host:

- UNIX: As `root` user.

- Windows: As a user with `administrator` rights.

2. Navigate to the directory to which you unpacked the TREX binary files:

- UNIX: `<path to unpack directory>/tx_trex_content/TX_LINUX_X86_64`.

- Windows: `<drive>:\<path to unpack directory>\tx_trex_content\TX_WINDOWS_X86_64`

This directory was created by unpacking the TREX software package using SAPCAR.

3. Call the `install.sh` installation script (depending on your shell) as follows:

- UNIX: **`./install.sh --action=install --sid=<SAPSID> --password=<password for adm/service user> --type=DEFAULT --host<virtual_hostname>`**

  The installation procedure will take less than 15 minutes. You can find more information about using the installation script executing it with the **`--help`** parameter: **`./install.sh –help`**

- Windows: **`install.cmd --action=install --sid=<SAPSID> --password=<password for adm/service user> --type=DEFAULT --host<virtual_hostname>`**

  The installation procedure will take less than 15 minutes. You can find more information about using the installation script executing it with the **`--help`** parameter: **`./install.sh –help`**

4. After the installation has finished you need to start TREX:

   Log on as `<sapsid>adm` user.

- To start TREX type **`TREX start`**.

- To stop TREX (if necessary), enter **`TREX stop`**.

Update

Purpose

You can **update** TREX in one of the following ways:

- By .

Updating TREX with Shell Scripts

Use

The update software package of TREX is named TREX Revision. The TREX Revision numbers no longer follow the SP stacks. Nevertheless, you download the TREX Revision update from the SP stack download page as described in section in order to get the TREX update packages appropriate to the corresponding SP stack.

Prerequisites

You have installed at least one previous TREX 7.10 release (Version 7.10.XX.XX) :

- ● If you have already installed TREX, refer to the TREX admin tool *Landscape → Hosts → Version* to find the version of your TREX installation (see Starting the TREX Admin Tool [Page 53]).

- ● If you do not have TREX installed at all, install TREX 7.10 from scratch as described in this guide in section Installation and Update [Page 27].

  In a distributed scenario, all TREX systems must have the same TREX release with the same patch level. Mixed installations with different TREX releases are not supported.

- ● You have downloaded and extracted the TREX binaries with the target version to which you want to update your TREX installation. For more information, see Download the TREX binaries [Page 21].

Procedure

1. Log on to the TREX host:

   - UNIX: As `root` user.

   - Windows: As a user with `administrator` rights.

2. Navigate to the directory to which you unpacked the TREX binary files:

   - UNIX: `<path to unpack directory>/tx_trex_content/TX_LINUX_X86_64`.

   - Windows: `<drive>:\<path to unpack directory>\tx_trex_content\TX_WINDOWS_X86_64`

   This directory was created by unpacking the TREX software package using SAPCAR.

3. Call the `install.sh` installation script (depending on your shell) as follows:

   - UNIX: `./install.sh --action=update --sid=<SAPSID> --password=<password for adm/service user> --restart`

     The installation procedure will take less than 15 minutes. You can find more information about using the installation script executing it with the **--help** parameter: `./install.sh –help`

   - Windows: `install.cmd --action=update --sid=<SAPSID> --password=<password for adm/service user> --restart`

     The installation procedure will take less than 15 minutes. You can find more information about using the installation script executing it with the **--help** parameter: `./install.sh –help`

4. If the option restart wasn't used, after the installation has finished you need to restart TREX:

   UNIX: Log on as `<sapsid>adm` user.

   - To stop TREX type **TREX stop**.

   - To start TREX, enter **TREX start**.

   Windows: Log on as `Administrator`.

Restart SAP<TREX SID>_<TREX Instance Number> Service.

TREX Basic Configuration

The TREX basic configuration comprises the following areas:

● Wizard-Based Basic Configuration for TREX [Page 34]

The configuration wizard enables the automatic configuration of the settings that are required if the application using TREX communicates with TREX using an HTTP or RFC connection.

● TREX Post-Installation Configuration [Page 35]

After installing TREX, you carry out various technical configuration steps that are required so that TREX runs correctly with the standard configuration on a single-host system and so that it can be used by an SAP application.

● Connecting TREX with an Application [Page 43]

TREX can communicate with the application using it by means of an HTTP connection or an RFC connection. There are therefore two procedures for connecting TREX with the application using it:

○ Connecting TREX with a Java Application (HTTP Connection) [Page 50]

○ Connecting TREX with an ABAP Application (RFC Connection) [Page 44]

Wizard-Based Basic Configuration for TREX

Use

The configuration wizard enables the automatic configuration of the settings that are required so that the application using TREX can communicate with TREX using an HTTP connection.

Only execute template-based configuration if you have not configured TREX previously.

The wizard-based configuration of the settings that are required to enable the application using TREX to communicate with TREX using an RFC connection is not currently supported. You therefore carry out the configuration steps required for this manually (more information: Connecting TREX with an ABAP Application (RFC Connection) [Page 44]).

Procedure

1. Call the wizard-based configuration tool as described in the Configuration Wizard documentation.

2. Once you have selected the functional units that you want to configure using the configuration wizard, the *Usage Type Overview – Selection of Configuration Flavors* screen appears. Select *Connect TREX* in *Further configuration tasks.*

3. After completing additional configuration steps, you reach the *Specifying the Address of the TREX Name Server* page. Enter the address of one or more TREX name servers. A TREX name server controls and monitors the HTTP connection between TREX and the application using TREX.

Result

You have used the configuration wizard to configure the HTTP connection between TREX and the application using it. You can also carry out the configuration steps of the wizard-based configuration manually.

For information on this, see the following documentation:

● Connecting TREX with an Application [Page 43]

    ○ Connecting TREX with an ABAP Application (RFC Connection) [Page 44]

    ○ Connecting TREX with a Java Application (HTTP Connection) [Page 50]

You carry out these steps manually if you have already carried out the wizard-based basic configuration previously and now want to configure settings at a later time.

TREX Post-Installation Configuration

Purpose

After installing TREX, you carry out various technical configuration steps that are required so that TREX runs correctly with the standard configuration on a single-host system and so that it can be used by an SAP application.

Starting the TREX Admin Tool

Prerequisites

On UNIX: Since the TREX admin tool has a graphical interface, you need an X server. You cannot use a terminal program that only supports text mode, such as `telnet`.

Procedure

1. Log on with the user `<sapsid>adm`.

2. Carry out one of the following steps:

Operating system	Procedure
UNIX	Enter the following: **`cd <TREX_DIR>`** **`./TREXAdmin.sh`**
Windows	Start the TREX admin tool by double-clicking **`<TREX_DIR>\TREXAdmin.bat`** in Windows Explorer.

⬇ Configuring the TREX Web Server

Use

Java applications that use TREX communicate with the TREX servers using HTTP/HTTPS by means of a Web server that has TREX-specific functions. After installing TREX, you have to configure the TREX Web server so that your Java application can access TREX.

Prerequisites

You must have installed a Web server to use a TREX Web server for HTTP communication with the application using TREX:

● UNIX: Apache Web Server

The TREX delivery includes an Apache Web server. The TREX installation process installs this server in the `<TREX_DIR>/Apache` directory.

● Windows: Internet Information Server (IIS)

○ TREX only supports Windows IIS Version 6.0 or higher.

○ The TREX delivery **does not** contain the Internet Information Server (IIS), so you have to install an IIS on your TREX host before configuring the TREX Web server.

⚠

Make sure that the IIS is running correctly. To do so, activate the *World Wide Web Publishing Service, IIS Admin Service,* and *HTTP SSL* in the Windows Services tool. Make sure that the `Default Web Site` runs on the IIS: To check whether this is the case, navigate to *Control Panel →
Administrative Tools → Computer Management → Services and
Application → Internet Information Services (IIS) Manager.*

○ In a distributed TREX landscape, the password for the `<sapsid>adm` user must be identical on all hosts. This is also the case for the `SAPService<SAPSID>` user.

Procedure

1. Start the TREX admin tool (stand-alone).

   (See:).

2. In the *Landscape Connectivity* window, go to the *http* tab page.

3. Choose *Refresh.*

4. Choose *Add HttpServer*.

   The *Set Admin User and Password* window appears.

   💡

   During the subsequent configuration steps, the system repeatedly asks you for the password for the `<SAPSID>adm` user and the SAP system service user (`SAPService<SAPSID>`). These users and corresponding passwords were created during the TREX installation process.

   Various error messages appear in the *Configuration Status* area of the window, telling you that the TREX Web server is not yet fully configured.

5. Choose *Repair All*.

   The *Set Admin User and Password* window appears.

6. Choose *Repair All* again.

   ○ The *Set SAPService <SAPSID>* window appears.

   ○ The *Set Admin User and Password* window appears.

   ○ The *Repair Results* window appears and confirms that the system correctly created a TREX Web site and application pool.

   ○ The *Set Admin User and Password* window appears.

7. Choose *Save* to save your settings. Choose *Reset* to restore the previous settings.

Result

You have successfully configured the TREX Web server when the message `No problems found` appears in the *Configuration Status* area of the screen and a green traffic light appears.

Configuring TREX Proxy Settings

Use

If there is a proxy server between the TREX servers and the documents to be indexed, specify the proxy server and define exclusion rules if necessary. This configuration is important if you want to index the following items:

● Documents on internal servers that can be accessed without a proxy server.

● Web pages on external servers that can only be accessed using a proxy server.

Procedure

1. Start the [TREX admin tool [Page 54]](#).

2. In the *Preprocessor: Admin* window, navigate to the *Proxy Setting* tab page.

   Enter the proxy server in this area of the TREX admin tool. Since the proxy server should not be used for internal addresses, define exclusion rules for internal addresses.

   ○ *Proxy Server* – host name and domain of the proxy server

      Example: `proxy.mylocation.mycompany.com`

   ○ *Proxy Server Port* – port of the proxy server

      Example: `8080`

   ○ *Proxy User* – user name needed to access the proxy server

   ○ *Proxy User Password* – password defined for the user ID

   ○ *Proxy Exclusions* – exclusion rules. These rules define when the proxy server is not to be used. Separate multiple entries using a semicolon.

      Examples of exclusion rules:

      ■ Do not use the proxy server to get URLs that end in mycompany.com:

         `mycompany.com`

      ■ Do not use the proxy server to get IP addresses that start with 10: 10.

      Do not use asterisks as placeholders.

3. Click *Save* to save your settings. Click *Reset* to restore the previous settings.

Result

You have configured the proxy server and the corresponding exclusion rules.

⬇ Checking Proxy Settings

Use

If an application is unable to communicate with TREX, it may be due to the application trying to access TREX using a proxy server. If this is the case, you have to change the configuration so that access does not take place using the proxy server.

The procedure depends on the application concerned:

● SAP Enterprise Portal 6.0 with Content Management

● Other Java applications based on J2EE 6.40

Procedure

SAP Enterprise Portal with Content Management

Check the settings in the portal at *System Administration → System Configuration → Service Configuration → Applications (Content Catalog) → com.sap.portal.ivs.httpservice → Services → proxy.*

If a proxy server is entered there, you have to enter the TREX host in the field *http – Bypass Proxy Servers.*

Other Java applications based on J2EE 6.40

For other Java applications, you have to check the configuration of the J2EE Engine. The proxy settings belong to the Java parameters. If a proxy server is configured in the Java parameters, enter the TREX host in the parameter `nonProxyHosts.` You can choose one of the following options:

● Alternative 1: `D"http.nonProxyHosts=<hostname>.<mydomain>|localhost`

  For `<hostname>.<domain>,` enter the host name and domain (if necessary) of the TREX host.

● Alternative 2: `D"http.nonProxyHosts=*.<mydomain>|localhost`

You can change the Java parameters using the *SAP J2EE Engine GUI Config Tool.* For more information about using this tool, see the SAP Library at the Internet address `help.sap.com` *→ Documentation → SAP NetWeaver*

> ⚠
>
> Note that you have to specify the name of the TREX host in the same way both on TREX side in the TREX configuration files (`topology.ini,` `sapprofile.ini`) and in the configuration of the J2EE Engine as described above. In case you specify the TREX host name as fully qualified (for example `PWDF12345.sap.corp`) you have to do so on both sides. A mixed usage of host names does not work.

Selecting Languages for TREX Language Recognition

Use

TREX supports the indexing and analysis of documents in different languages. You can select languages to be identified by TREX language recognition.

The language of a document is needed so that the document in question can be placed in the correct language version of the index. For each language that you select, TREX creates a separate language index. For example, if you select English, German, and French, TREX creates one English, one German, and one French language index.

Procedure

1. Start the TREX admin tool [Page 54].

2. In the *Preprocessor: Admin* window, navigate to the *Languages* tab page.

   The *Languages for Document Analysis* area contains an overview of languages that TREX supports. In this area, select the languages that you want TREX to identify by means of document analysis.

   Only select the languages that are relevant for your scenario. This optimizes performance during the language recognition process, and therefore during the search and indexing process. The language recognition process gives better results if as few languages as possible are used.

   Languages for which TREX only provides restricted support are indicated by an asterisk (*).

Configuring TREX for the System Landscape Directory (SLD)

Use

A modern computing environment consists of a number of hardware and software components that depend on each other with regard to installation, software updates, and demands on interfaces. The SAP System Landscape Directory (SLD) simplifies the administration of your system landscape.

The SLD is a server application that communicates with a client application using the Hypertext Transfer Protocol (HTTP). The SLD server contains component information, a landscape description, and a name reservation, which are based on the standard Common Information Model (CIM). The CIM standard is a general schema for describing the elements in a system landscape. This standard is independent of any implementation.

The component description provides information about all available SAP software modules, as well as their combination options and dependencies. This includes version numbers, current patch level, and dependencies between landscape components.

   For more information about the *SAP System Landscape Directory*, see

   - *SAP Service Marketplace* `service.sap.com/sld` → *Media Library* → *SLD User Manual SAP NetWeaver*

■ *SAP Help Portal* `help.sap.com/netweaver` → *SAP NetWeaver*
<Release> → *Application Help* → *SAP NetWeaver Library : Function-*
Oriented View → *Solution Life Cycle Management* → *Configuring,*
Working with and Administering System Landscape Dir

To supply data to the SLD that originates from a system other than a J2EE or ABAP system,
the executable `sldreg` is used. The `sldreg` sends data in XML format using a predefined
DTD. For this purpose it uses an HTTP connection, as shown in the figure below:
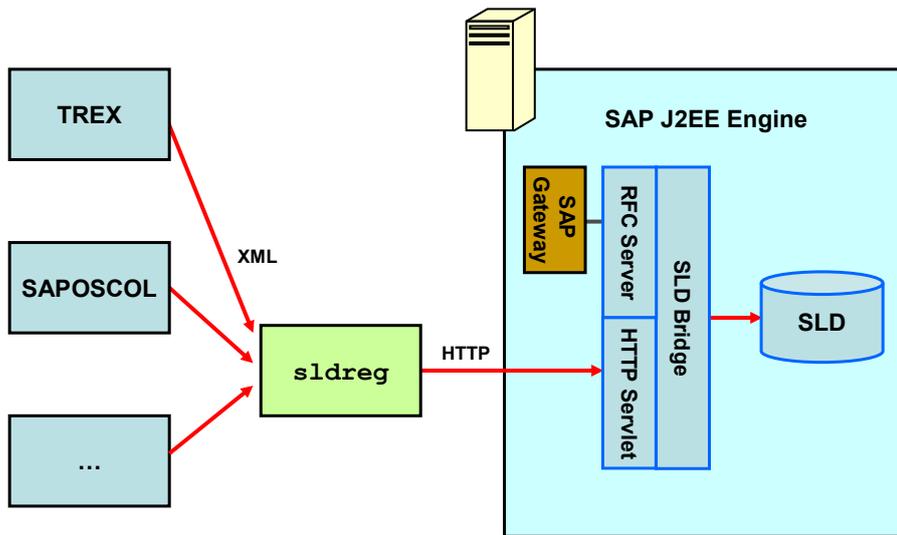
On the TREX host, there is an SLD client, which generates an XML file of this type and which
registers itself with the SLD server using `sldreg`.

Prerequisites

● After the TREX installation, the SLD client and the associated executable files are
located on your TREX host.

● The SLD server is running.

● You or your SLD administrator have generated the SLD configuration files
`slddest.cfg` and `slddest.cfg.key`.

🔔

The `slddest.cfg.key` file is only available if the configuration of `sldreg` was
generated using the – `usekeyfile` parameter.

● The user specified in the SLD configuration file `slddest.cfg` belongs to the
`DataSupplierLD` user role, in order to have permission to send the files to the SLD.

Generating SLD Configuration Files

In case you generate the SLD configuration files (`slddest.cfg` and `slddest.cfg.key`) by
yourself you have to know the host, port, user and password of the SLD server. You generate
these configuration files by using the executable files which are located on your TREX host.

1. Set the environment variables required by TREX by executing the following scripts in a
command prompt in the directory **<TREX_DIR>**:

UNIX

- ○ Bourne shell `sh`, Bourne-again shell `bash`, Korn shell `ksh`:

    . TREXSettings.sh

- ○ C shell `csh`:

    source TREXSettings.csh

Windows

   TREXSettings.bat

2. Execute the following commands:

- ○ Without usekeyfile: **sldreg -configure <path>/slddest.cfg**

- ○ With usekeyfile: **sldreg -usekeyfile -configure <path>/slddest.cfg**

Copying the SLD Configuration Files to the Global SLD Directory

To configure TREX for the *System Landscape Directory (SLD)*, you copy the SLD configuration files `slddest.cfg` and `slddest.cfg.key` (if available) to the global SLD directory on your TREX host.

This directory is called `<disk_drive>:\usr\sap\<SAPSID>\SYS\global` on Windows and `/usr/sap/<SAPSID>/SYS/global` on UNIX. In the case of a distributed TREX installation on Windows, all TREX instances use the configuration files for the TREX global file system with first TREX instance as `\\<host_central_instance>\sapmnt\<SAPSID>\SYS\global`.

Result

By copying the files `slddest.cfg` and `slddest.cfg.key`, you have configured TREX for integration in the System Landscape Directory (SLD).

TREX checks every five minutes whether anything has changed in the TREX system landscape and reports any changes automatically to the SLD server. If nothing has changed, TREX reports every twelve hours to the SLD server. This allows you to see that this landscape is still active.

Display Results

1. To display the information about TREX systems and services navigate to the screen *Content Maintenance*

- ○ In the initial screen for the *System Landscape Directory* → *Development: Content Maintenance*

- ○ In the initial screen for the *System Landscape Directory* → *Administration* → *Content: Content Maintenance*

2. In the screen *Content Maintenance* navigate to *Subset* and choose *All With Instances* in the dropdown list.

3. Navigate to *Class*. In the dropdown list you can display the TREX Services (for example *TREX Index Service*, *TREX Name Service*) and TREX systems known by SLD.

Information Transferred to the SLD Server

TREX transfers the following information to the SLD server:

Information about naming and version

- ● Software component version (for example, `TREX 7.1`)

- SAP name (for example, `TREX)`
- Version (for example, `7.1)`

Information about the TREX servers

- Host name, on which the server is running
- Port number that the server is using
- Type of server, for example, `indexserver`
- Web server URL (instead of the port)
- RFC destination of the RFC server (instead of the port)

Information about the TREX instances on individual hosts

- System ID
- Instance number
- Installation directory
- Version information for the TREX software

Information about the TREX configuration

- Name of the TREX hosts (`Hosts`) that belong to the TREX system landscape
- TREX server roles
  - ○ Roles of the TREX name server (`Name Server Mode`)

    Possible roles are: `1st, 2nd, 3rd Master Name Server, Slave Server`
  - ○ Use as master index server or master queue server
  - ○ Roles of the master, slave, and backup index servers
- TREX preprocessor mode (`Preprocessor Mode`)
- Information about the TREX installation directory (`Base Path`)
- Services that have been started by the TREX daemon (`Services`)

Checking Performance Settings for the Operating System

Use

To optimize the performance of TREX when using the released Windows platform, you need to check your Windows configuration and make changes if necessary.

Optimizing Data Throughput For Network Applications

The Windows installation normally makes caching settings that are optimized for file servers. The operating system then reserves a large part of the main memory for the caching of files. Since this file-system cache impairs performance when indexing, you ought to change these settings.

1. Use the secondary mouse button to click on *My Network Places* on the Windows desktop, and choose *Properties.*

2. Use the secondary mouse button to click on the local network connection and choose *Properties.*

3. Select the entry *File and Printer Sharing for Microsoft Networks* and choose *Properties.*

4. Select *Maximize data throughput for network applications*.

5. Choose *OK* twice.

Optimizing Performance for Background Processes

Programs such as Microsoft SQL Server and Microsoft Exchange make the setting described below automatically when they are installed. If you have installed one of these programs, you do not need to make any changes.

The setting is only relevant if TREX is running as a Windows service.

Windows

1. Use the secondary mouse button to click on *This PC* and choose *Properties.*

2. Choose the *Advanced system settings* , and then choose *Advanced.*

3. Select *Background services* under Adjust *for best performance of*.

4. Choose *OK* twice.

Connecting TREX with an Application

Procedure

TREX can communicate with the application using it by means of an HTTP connection or an RFC connection:

● An ABAP application accesses TREX by means of an ABAP client (RFC connection)

As a rule, ABAP applications communicate with the TREX servers by means of the TREX ABAP client using the RFC/SNC protocol. Communication takes place using an instance of the SAP Gateway and an RFC server.

● A Java application accesses TREX by means of a Java client (HTTP connection)

As a rule, Java applications communicate with the TREX servers by means of the TREX Java client using the HTTP or HTTPS protocol. This communication takes place using a Web server that is enhanced with TREX-specific functions.
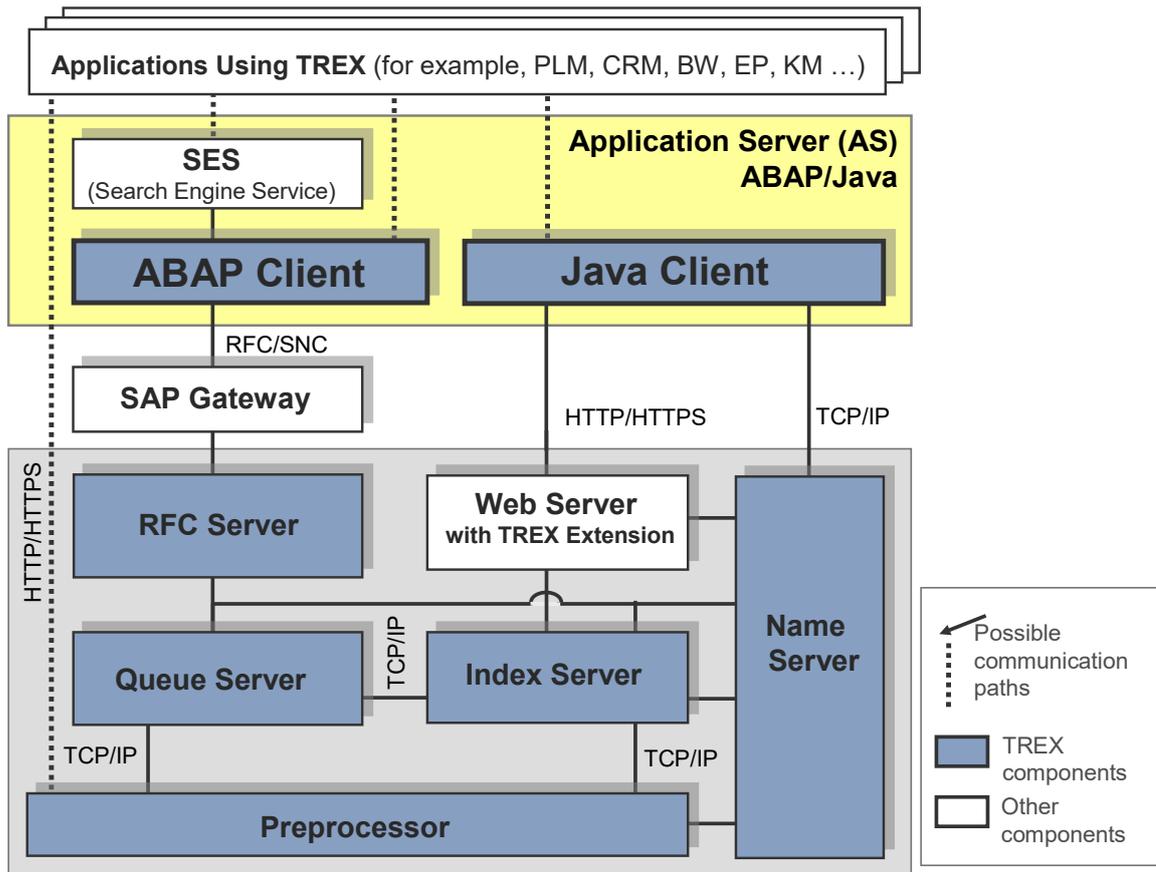
There are therefore two procedures for connecting TREX with the application using it:

● Connecting TREX with an ABAP Application (RFC Connection) [Page 44]

● Connecting TREX with a Java Application (HTTP Connection) [Page 50]

Connecting TREX with an ABAP Application (RFC Connection)

As a rule, ABAP applications communicate with the TREX servers by means of the TREX ABAP client using the RFC/SNC protocol. Communication takes place using an instance of the SAP Gateway and an RFC server. You configure the RFC connection using the TREX admin tool (stand-alone).

Creating a SAP System User for the TREX Admin Tool (Stand-Alone)

Use

You must create an SAP user that the TREX admin tool (stand-alone) can use to log on to the SAP system. In addition, the SAP user is required so that the TREX alert server has permission to regularly test and check the RFC configuration. When doing this, the user can

have been created in the default client or in another client. In this case, make sure that you enter the associated client for the user during the configuration of the RFC connection in the TREX admin tool [Page 47].

The TREX admin tool (stand-alone) is used to configure and monitor TREX. You also use this admin tool to configure the RFC connection between TREX and the ABAP application that is using TREX. To use the TREX admin tool (stand-alone) to create the RFC destination, the admin tool requires an SAP system user that you create based on the predefined role `SAP_BC_TREX_ADMIN`. This user then has the authorization required to configure the RFC connection.

> For more information about the `SAP_BC_TREX_ADMIN` role, see SAP Note 766516.

Overview of the Permissions Assigned by the `SAP_BC_TREX_ADMIN` Role

Type and Scope of the Permission	Activity	Explanation
Permission check for RFC access	Execute	Name of the RFC object to be protected: `SYST`, `TREX_ARW_ADMINISTRATION`
Administration for the RFC destination	Add or generate, change, display, delete, extended maintenance	Type of entry in `RFCDES`: Start of an external program using TCP/IP
Check on the transaction code at transaction launch		Transaction code: `SM59`, `TREXADMIN`, `TREXADMIN_AUTH`
Administrating TREX	Change, display, execute	
ABAP: Program run checks	Schedule programs for background processing, execute ABAP program, maintain variants for and execute ABAP program	
ALV standard layout	Maintain	
Application log	Display, delete	

More Information

Configuring the RFC Connection in the TREX Admin Tool [Page 45]

Procedure

Create an SAP system user for the TREX admin tool (stand-alone) and assign the `SAP_BC_TREX_ADMIN` role to this user.

1. Launch transaction `SU01` (user maintenance) or choose *Administration → System Administration → User Maintenance → User* in the SAP menu. The *User Maintenance: Initial Screen* appears.

2. Enter a new user name and choose *Create*.

3. On the *Address* tab page, enter the personal data for the user.

4. On the *Roles* tab page, assign the `SAP_BC_TREX_ADMIN` role and thus the permission to access the SAP system to the SAP system user for the TREX admin tool (stand-alone).

Result

This user for the TREX admin tool (stand-alone) now has the authorization required to configure the RFC connection.

Determining the SAP System Connection Information

Use

The TREX admin tool (stand-alone) can connect to an SAP system in two ways.

● Through a specific application server of the SAP system (variant A)

● Through the message server of the SAP system (variant B)

This variant uses the load-balancing function for the SAP system. The message server assigns the request from the TREX admin tool to any application server.

Depending on the variant used, the TREX admin tool requires different connection information for the SAP system. You must determine the connection information and specify it later in the TREX admin tool.

SAP recommends using variant B. Variant A has the disadvantage that the connection does not work if the application server is not available.

Procedure

1. Open the SAP Logon.

SAP Logon is the program that you use to log on to an SAP system.

2. Note the following connection information:

Connection Setup Type	Required Connection Information
Through an application server (variant A)	● SAP system ID (SID) ● System number ● Application server host name
Through the message server (variant B)	● SAP system ID (SID) ● Logon group, such as `PUBLIC` ● Message server host name

Configuring the RFC Connection in the TREX Admin Tool

Use

You work through the steps below using the TREX admin tool (stand-alone).

⚠️

Configuration of the RFC connection with the TREX admin tool (stand-alone) is only available as of SAP Basis Component SAP_BASIS 6.20 SP58, 6.40 SP16, and 7.0 SP6. If you are using TREX with an SAP system based on an earlier support package, you have to configure the RFC connection manually as described in the SAP NetWeaver 04 Installation Guide for Search and Classification (TREX) 6.1. You can find this guide on the SAP Service Marketplace at `service.sap.com/instguides` → *SAP NetWeaver* → *Released 04* → *Installation* → *Cross-NW* → *Installation Guide Search and Classification TREX 6.1.*

Creating a Connection

1. On the *RFC: Current* tab page in the *Landscape: Connectivity* window, choose the *Create Connection* function.

2. Choose connection type A or B. Specify the connection data for the SAP system (see Determining the SAP System Connection Information [Page 46]).

3. Specify the SAP system user, the associated password, and the client that the TREX admin tool is to use to log on (see Creating a SAP System User for the TREX Admin Tool (Stand-Alone) [Page 45]).

   💡

   If the SAP system user in question exists in the default client, you do not need to specify the client.

Creating an RFC Destination

1. To do this, use the *Create: RFC Destination (SM59)* function on the *RFC: Current* tab page in the *Landscape: Connectivity* window.

2. Enter the following parameters:

Field	Entry
SAP System	SAP system that you want to set up the connection to. The list contains all SAP systems that you have registered using *Create Connection*.
RFC Destination	Name of the RFC destination.
Description	Meaningful description of the purpose

The program ID determines under which name the TREX RFC server registers with the SAP gateway. The program ID must be unique for each SAP gateway. The TREX admin tool ensures this by generating the program ID.

3. Decide which SAP gateway you want to use. You have the following options:

Option	Comment
Gateway local (Default setting)	Use local SAP gateways for the application servers.

Gateway central	Use the central SAP gateway. 💡 We advise against using a central SAP gateway for distributed TREX systems. The central SAP gateway is a "single point of failure." If you choose this option, enter the following additional parameters: ● Host name (with domain name if necessary) or the IP address of the host on which the gateway is installed. ● Name of the SAP gateway in the form `sapgw<instance_number>`

💡

We advise against creating the RFC destination directly in the SAP system. The name of the RFC destination and the program ID must satisfy certain naming conventions. The TREX admin tool ensures that these are fulfilled.

If you nevertheless create the RFC destination directly in the SAP system, note the following:

● We recommend starting the name of the RFC destination with `TREX_`.

● Choose the activation type *Registered Server Program*.

● Choose a program ID that is unique for the SAP gateway used.

● Use the *RFC Destinations* function to register the RFC destination in the TREX admin tool.

Completing the RFC Configuration

1. On the *RFC: Current* tab page in the *Landscape: Connectivity* window, choose the *Connect Admin Tool* function.

   The TREX admin tool creates the connection to all SAP systems that are known to it. Because the RFC configuration is still incomplete, the configuration status is 🔺 yellow or 🔴 red.

2. Choose *Repair All*.

   The TREX admin tool completes the RFC configuration and starts the TREX RFC server.

   This can take several minutes. During this time, the configuration status remains 🔺 yellow or 🔴 red. After completion of the configuration process, the status changes to 🟩 green.

   💡

   Do not choose *Repair All* several times in quick succession. This would trigger the configuration process more than once and delay it.

3. Check the progress by choosing *Refresh* to update the display.

Connecting TREX with a Java Application (HTTP Connection)

As a rule, Java applications communicate with the TREX servers by means of the TREX Java client using the HTTP or HTTPS protocol. This communication takes place using a Web server that is enhanced with TREX-specific functions. The TREX Java client needs to know the address of the TREX name server in order to communicate with the TREX servers. You specify the address of the TREX name server, and, in the case of a distributed TREX installation, of the TREX backup name server, in the SAP NetWeaver Administrator.

Specifying the Address of the TREX Name Server

Use

TREX provides APIs (Application Programming Interfaces) for the languages Java and ABAP, which allow access to all TREX functions. The Java interface (TREX Java client) is part of the SAP Web AS Java as *TREX service*. The TREX Java client needs to know the address of the TREX name server in order to communicate with the TREX servers.

The following procedure describes how you determine the TREX name server address and how you specify it in the *SAP NetWeaver Administrator*.

> The TREX Java client communicates with the TREX server by HTTP and TCP/IP. Make sure that the TCP port that the name server uses is open.

Procedure

You have to specify the address of the TREX name server in the *SAP NetWeaver Administrator* by naming the following values
`<host_name_of_trex_host>:<name_server_port>`:

- `<host_name_of_trex_host>:` name of the host on which TREX is installed and where the TREX name server runs.

- `<name_server_port>:` port of the TREX name server

1. You can determine the TREX name server address in two ways:

    a. Start the TREX admin tool (see [Starting the TREX Admin Tool [Page 54]](#)) and determine the address of the name server using *Landscape → Tree → topology → globals → all_masters*.

       For example: `mytrexhost:34801`

    b. Determine the port of the TREX name server by means of the following rule:
       `<name_server_port>:` **3**`<instance_number>`**01**

       > The value `<instance_number>` signifies the TREX instance number which had been specified during the TREX installation:

       Installation directory for TREX

■ On UNIX `/usr/sap/<sapsid>/trx<instance_number>`

■ On Windows
`<disk_drive>:\usr\sap\<SAPSID>\TRX<instance_number>`

The value for `<host_name_of_trex_host>` you know from the host where TREX is installed (`mytrexhost`).

2. Use the user `<j2eeadm>` to log onto the host on which the Application Server Java is running.

3. Start the *SAP NetWeaver Administrator* and log on to the AS Java .

   💡

   For more information about using and starting the *SAP NetWeaver Administrator*, see SAP NetWeaver Administrator documentation on SAP Help Portal **help.sap.com**.

4. Navigate to *Configuration Management* → *Infrastructure Management* → *Java System Properties.*

5. In the new screen go to the tabulator *Services* in the screen area *Details* and type in **trex.service** to filter the available services*.*

6. In the *Extended Details* area under the tabulator *Properties* enter the address of the TREX name server into the parameter `nameserver.address`:

   tcpip://<host_name_of_trex_host>:<name_server_port>

   You enter only the host name or the host name and the domain depending on your network environment.

   ⚙

   `tcpip://mytrexhost:34801` or `tcpip://mytrexhost.mydomain:34801`

   ⚠

   The address of the TREX name server must be configured for all server processes of the cluster. Otherwise the connection between the AS Java and TREX cannot be established.

7. In case of a multiple host scenario for a distributed TREX landscape you enter the addresses of the TREX backup name servers in the parameter `nameserver.backuplist`. Specify the address of the TREX backup name servers, separated by comma in the format:
   tcpip://<host1>:<port1>,tcpip://<host1>:<port1>, …

   ⚠

   For a TREX single-host installation you do not need to specify backup name servers.

8. Save your changes and confirm the restart of the service.

🔲 Installation Check

Purpose

If you have carried out all the steps described, TREX is ready for operation. You can carry out checks to ascertain whether the installation was successful.

⬇️ Checking Processes

Use

You can check on operating systems whether the TREX daemon is running and whether the required process has started.

Procedure

On UNIX

Log on with the user `<sapsid>adm`. Use **`ps –fu <sapsid>adm`**, to check whether the following processes are running. If TREX had been successfully installed, you can use the command TREX info to display all currently running TREX processes.

Process	HTTP Connection	RFC Connection
`httpd`	✔	
`TREXDaemon.x` 💡 For the process TREXDaemon.x the symlink `trx.sap<SAPSID>_TRX<instance_number>` will be shown. This is a symlink to `usr/sap/<SAPSID>/TRX<instance_number>/exe/TREXDaemon.x`	✔	✔
`TREXIndexServer.x`	✔	✔
`TREXNameServer.x`	✔	✔
`TREXPreprocessor.x`	✔	✔
`TREXQueueServer.x`	✔	✔
`TREXRfcServer.x`		✔

On Windows

Open the Task Manager and check whether the following programs are running:

Process	HTTP Connection	RFC Connection
`TREXDaemon.exe`	✔	✔
`TREXIndexServer.exe`	✔	✔
`TREXNameServer.exe`	✔	✔
`TREXPreprocessor.exe`	✔	✔
`TREXQueueServer.exe`	✔	✔
`TREXRfcServer.exe`		✔

⬇ Executing an Installation Test Script

Use

TREX delivers a Python script that you can use to test the basic functions of TREX. If the Python script is executed successfully, you know that TREX has been installed properly, the configuration files contain the necessary entries, and the TREX servers are running.

Procedure on UNIX

1. Log on with the user `<SAPSID>adm`.

2. Go to the TREX directory.

   `cd  /usr/sap/<SAPSID>/trx<instance_number>`

3. Set the environment variables required by TREX by executing one of the following scripts.

   ○ Bourne shell `sh`, Bourne-again shell `bash`, Korn shell `ksh`:

   `. TREXSettings.sh`

   ○ C shell `csh`:

   `source TREXSettings.csh`

4. Go to the directory in which the test script is located:

   `cd  /usr/<SAPSID>/trx<instance_number>/exe/python_support`

5. To run the test script, enter the following:

   `python runInstallationTest.py`

Procedure on Windows

1. Log on with the user `<SAPSID>adm`.

2. Go to the TREX directory.

   `cd  /usr/sap/<SAPSID>/TRX<instance_number>`

3. Set the environment variables required by TREX by executing the following script:

   `TREXSettings.bat`

4. Go to the directory where the installation test script is located in:
   `<disk_drive>:\usr\sap\<SAPSID>\TRX<instance_number>\exe\python_support.`

5. Run the test script in this directory:

   `python runInstallationTest.py`

Result

The script carries out the following tests:

● Deleting any test indexes that were generated for a previous script run

● Creating a test index

● Indexing documents

● Testing search functions

   ○ Exact, error-tolerant (fuzzy), and linguistic searches

   ○ Search using Boolean operators such as AND and OR

The results are displayed at the end of the script run. You see the tested calls and their statuses (`OK` or `Failed`).

When you run the script for the first time, the call "Delete Index" has the status `Failed`. This is because there was no existing text index to be deleted. If this is the only cell with the status `Failed`, the test was successful.

Additional Information

Purpose

The sections below contain information on the following topics:

● Starting the TREX admin tool

● Starting and stopping TREX

● Uninstalling TREX

Starting the TREX Admin Tool

Prerequisites

On UNIX: Since the TREX admin tool has a graphical interface, you need an X server. You cannot use a terminal program that only supports text mode, such as `telnet`.

Procedure

1. Log on with the user `<sapsid>adm`.

2. Carry out one of the following steps:

Operating system	Procedure

UNIX	Enter the following:
	
	`cd <TREX_DIR>`
	
	`./TREXAdmin.sh`

Windows	Start the TREX admin tool by double-clicking `<TREX_DIR>\TREXAdmin.bat` in Windows Explorer.

Starting and stopping TREX

You use the following methods to start and stop TREX:

Windows

● TREX admin tool (standalone)

● The executable files startsap.exe and stopsap.exe

● The SAP Management Console

⚠

As of TREX 7.10, the SAP Management Console is a snap-in in the Microsoft
Management Console (MMC) and is no longer part of the TREX installation. To
start TREX with the SAP Management Console, you must have installed the
console in your TREX system first.

UNIX

● TREX admin tool (standalone)

● The shell scripts startsap and stopsap

Starting and Stopping the TREX Web Server and Individual TREX Servers

When administrating TREX, you may need to stop (and then restart) the TREX Web server
(Windows: IIS/UNIX: Apache) and individual TREX servers. The procedures differ depending
on whether you are using Windows or UNIX.

Starting and Stopping TREX on Windows

Purpose

The following sections explain how to start and stop TREX on Windows:

On Windows, you can use the following methods to start and stop TREX:

● TREX admin tool (standalone)

● The executable files startsap.exe and stopsap.exe

● The SAP Management Console (SAP MC)

● The SAP Microsoft Management Console (MMC)

⚠

As of TREX 7.10, the SAP Management Console is a snap-in in the Microsoft
Management Console (MMC) and is no longer part of the TREX installation. To
start TREX with the SAP Management Console, you must have installed the
console in your TREX system first.

The executable files startsap.exe and stopsap.exe

You use the executable files `startsap.exe` and `stopsap.exe` to start and stop TREX.
Following the installation of the TREX instance, these files are located in the
`<TREX_DIR>\exe` directory and are executed from that directory.

The SAP Management Console

The SAP Management Console (SAP MC) provides a common framework for centralized
system management. It allows you to monitor and perform basic administration tasks on the
SAP system centrally, which simplifies system administration.

The SAP MC is a Java applet that can be run from any Web browser supporting Java. You
can therefore administer remote systems without needing a local installation.

⬆

For more information about the SAP Management Console, see the online
application help and the SAP Library in the *SAP Help Portal* at

        help.sap.com/netweaver → *SAP NetWeaver <Release> → Application Help → SAP NetWeaver : Function-Oriented View → Solution Lifecycle Management → SAP Management Console*

The SAP Microsoft Management Console

You use the SAP Microsoft Management console, a snap-in in the Microsoft Management Console (MMC), to start and stop SAP systems and TREX instances. The snap-in consists of a root node of the SAP system, below which the various SAP systems and their TREX instances appear as subnodes. The system displays detailed information about the processes, the current status, and open alerts for the instances.

> A newly-installed MMC allows you only to start a locally-installed SAP instance on the host that you are logged on to. If the MMC is configured for central system administration, you can start and stop the entire SAP system from a single host.

> For more information about the SAP Management console and the snap-in for the MMC, see the online application help and the SAP Library in the *SAP Help Portal* at **help.sap.com/netweaver** → *SAP NetWeaver <Release> → Application Help → SAP NetWeaver : Function-Oriented View → Solution Lifecycle Management → SAP Microsoft Management Console Windows*

As part of the installation of the global file system, the SAP service for the corresponding TREX instance (`SAP<sapsid>_TRX<instance_number>`) is registered as a Windows service. The service is configured so that it starts automatically when the host is started up, and stops automatically when the host is shut down. You can start and stop the service manually if necessary. You can also start the TREX servers individually for test purposes or troubleshooting.

Prerequisites

During the installation of the global file system, a SAP Management console has been installed on your host machine.

Starting TREX

The following sections describe in detail how to start TREX in the different ways listed above.

Starting TREX with the TREX Admin Tool

1. Log on with the user `<sapsid>adm`.

2. Start the TREX admin tool by double-clicking `<TREX_DIR>\TREXAdmin.bat` in Windows Explorer.

3. In the TREX admin tool, navigate to the *Landscape Services* area and then go to the *MMC* tab.

4. You can start TREX by clicking the *SAP System: Start* button or by selecting the TREX host, opening its context menu with the secondary mouse button, and selecting the relevant option. You can start *Selected Hosts* or *All Hosts* for a landscape.

Starting TREX with startsap.exe

1. Log on with the user `<sapsid>adm`.

2. In Windows Explorer, double-click the **`<TREX_DIR>/TREXSettings.bat`** batch file to set the environment variables correctly.

3. Go to the **`<TREX_DIR>/exe`** directory and enter the following:

   `startsap.exe name=<SAPSID> nr=TRX<instance_number> SAPDIAHOST =<host>`

   In the `SAPDIAHOST` parameter, you specify the host name on which the TREX instance should be started.

   `startsap.exe name=ABC nr=TRX77 SAPDIAHOST =p123456`

Starting TREX with the SAP Management Console

Starting the Web-Based SAP Management Console

1. Start a Web browser and enter the following URL:
   `http://<hostname>:5<instance_number>13`

   If the instance number is `53`and the host name is `saphost06`, you enter the following URL: `http://saphost06:55313`

   This starts the SAP MC Java applet.

   If your browser displays a security warning message, choose the option that indicates that you trust the applet.

2. Choose Start.

   The SAP Management Console appears.

   When you start the SAP MC for the first time for a newly installed SAP system, you have to register your system as described in Registering Systems and Instances below. After you have done this, the instances installed on the host you have connected to are already present in the SAP Management Console when you next start the SAP MC.

Registering Systems and Instances in the SAP Management Console

You can extend the list of systems and instances displayed in the SAP MC, so that you can monitor and administer all systems and instances from a single console. You can configure the SAP MC startup view to display the set of systems and instances you want to manage.

1. In the SAP MC, choose *File → New*.

2. In the New System dialog box, enter the required data.

   If you have already registered systems in the SAP MC, they are stored in the history. To open the System's History dialog box, choose the browsing button next to the Instance Nr. field. Select an instance of the system that you want to add and choose *OK.*

3. Choose *Finish.*

Starting a TREX Instance

1. In the navigation pane, open the tree structure and navigate to the system node that you want to start.

2. Select the system or instance and then, from the context menu, choose *Start*.

3. In the *Start SAP System(s)* dialog box, choose the required options.

4. Choose *OK*.

   The SAP MC starts the specified system or system instances.

   💡

   The system might prompt you for the SAP system administrator credentials. To complete the operation, you require administration permissions. Log in as user <sapsid>adm.

5. Start the TREX instance.

Starting TREX with the SAP Microsoft Management Console

1. Log on with the user `<sapsid>adm`.

2. Launch the SAP Management console by double-clicking the program icon on your desktop or by choosing *Start → Programs → SAP Management Console*.

3. In the tree structure, choose the node for the central SAP instance *<SAPSID>* and navigate to the subnode for the TREX instance *<host>_<instance_number> (*for example, *p123456_77)*.

4. Use the secondary mouse button to access the context menu.

5. Choose *Start*.

Stopping TREX

The following sections describe in detail how to stop TREX in the different ways listed above.

Stopping TREX with the TREX Admin Tool

1. Log on with the user `<sapsid>adm`.

2. Start the TREX admin tool by double-clicking **<TREX_DIR>\TREXAdmin.bat** in Windows Explorer.

3. In the TREX admin tool, navigate to the *Landscape Services* area and then go to the *MMC* tab.

4. You can stop TREX by clicking the *SAP System: Stop* button or by selecting the TREX host, opening its context menu with the secondary mouse button, and selecting the relevant option. You can stop *Selected Hosts* or *All Hosts* for a landscape.

Stopping TREX with stopsap.exe

1. Log on with the user `<sapsid>adm`.

2. In Windows Explorer, double-click the <TREX_DIR>/**TREXSettings.bat** batch file to set the environment variables correctly.

3. Go to the **<TREX_DIR>/exe** directory and enter the following:

   stopsap.exe name=<SAPSID> nr=TRX<instance_number> SAPDIAHOST =<host>

In the `SAPDIAHOST` parameter, you specify the host name on which the TREX instance is to be stopped.

⚙️

stopsap.exe name=ABC nr=TRX77 SAPDIAHOST =p123456

⚠️

Do not use the Task Manager to stop the SAP service or the individual TREX servers. Otherwise, data can be lost. Affected indexes can be irreparably damaged.

Certain processing steps, for example, writing an index, cannot be interrupted. Such steps are completed before TREX is stopped. This process can take a while to complete. With large indexes, it can take up to a few hours to stop the TREX servers if lots of documents are currently being indexed.

Stopping TREX with the SAP Management Console

1. Start the SAP Management Console as described in [Starting the Web-Based SAP Management Console [Page 55]](#)

2. Select the TREX instance you want to stop and choose *Stop* from the context menu.

3. In the *Stop SAP System(s)* dialog box, choose the required options.

4. Choose OK.

   The SAP MC stops the specified TREX instance.

   💡

   The system might prompt you for the SAP system administrator credentials. To complete the operation, you require administration permissions. Log in as user `<sapsid>adm`.

Stopping TREX with the SAP Microsoft Management Console

1. Log on with the user `<sapsid>adm`.

2. Launch the SAP Management console by double-clicking the program icon on your desktop or by choosing *Start → Programs → SAP Management Console*.

3. In the tree structure, choose the node for the central SAP instance *<SAPSID>* and navigate to the subnode for the TREX instance *<host>_<instance_number> (*for example, *p123456_77)*.

4. Use the secondary mouse button to access the context menu.

5. Choose *Shutdown*.

   ⚠️

   The *Shutdown* command only stops the TREX processes once any running processes have been completed. Do not use the *Stop* command, as this command terminates the TREX processes immediately, which means that there is a risk of data loss.

Starting and Stopping Individual TREX Servers

Use

You can start individual TREX servers for test purposes and for troubleshooting. You can then track the program output on the screen.

Starting the TREX Servers

1. Stop TREX (see Stopping TREX [Page 56]).

2. Open a separate prompt for each TREX server.

3. Go to the TREX directory and start the TREX server.

TREX Server	Command
Index server	`TREXIndexServer.exe`
Name server	`TREXNameServer.exe`
Preprocessor	`TREXPreprocessor.exe`
Queue server	`TREXQueueServer.exe`
Only relevant for an RFC connection: RFC server	`TREXRfcServer.exe -r`

⚠️

In the properties of the prompt, deactivate the *QuickEdit Mode* option.

Leave the prompt open. If you want, you can minimize the window so that it is shown as a pushbutton in the Windows task bar.

Stopping the TREX Servers

1. Display the window in which you started the TREX server.

2. Use `CTRL + C` or close the window.

Certain processing steps, for example, writing an index, cannot be interrupted. Such steps are completed before the TREX servers are stopped. This process can take a while to complete.

With large indexes, it can take up to a few hours to stop the TREX servers if lots of documents are currently being indexed.

⚠️

Do not use the Task Manager to stop the TREX servers. Otherwise, data can be lost. Affected indexes can be irreparably damaged.

Starting the Web Server

Procedure

1. choose *Start → Administrative Tools → Services*.

2. Select *IIS Admin Service* and choose *Start* from the context menu.

If the World Wide Web Publishing Service does not run even though you have started it, try to start it using a prompt:

1. Open a prompt.

2. Execute the following command:

   net start w3svc

Stopping the Web Server

Procedure

1. choose *Start* → *Administrative Tools* → *Services*.

2. Select *IIS Admin Service* and choose *Stop* from the context menu.

Starting and Stopping TREX on UNIX

Purpose

The following sections explain how to start and stop TREX on UNIX.

On UNIX, you use the **startsap** and **stopsap** shell scripts or the TREX admin tool (standalone) to start and stop TREX.

Starting TREX

Starting TREX with the TREX Admin Tool

> On UNIX: Since the TREX admin tool has a graphical interface, you need an X server. You cannot use a terminal program that only supports text mode, such as telnet.

1. Log on with the user `<sapsid>adm`.

2. Start the TREX admin tool by entering the following:

   cd <TREX_DIR>

   ./TREXAdmin.sh

3. In the TREX admin tool, navigate to the *Landscape Services* area and then go to the *MMC* tab.

4. You can start TREX by clicking the *SAP System: Start* button or by selecting the TREX host, opening its context menu with the secondary mouse button, and selecting the relevant option. You can start *Selected Hosts* or *All Hosts* for a landscape.

Starting TREX with the Shell Script

1. Log on locally to the host on which the TREX instance is installed with the user `<sapsid>adm`.

2. Execute the **startsap** script in any directory:

    a. To start a single TREX instance, enter the following:

      `startsap TRX<instance_number>`

      In the parameter `TRX<instance_number>`, you specify which TREX instance is to be started.

    b. To start all SAP instances – including all TREX instances – on a host, enter the following:

      `startsap`

⬇ Stopping TREX

Stopping TREX with the TREX Admin Tool

⚠

On UNIX: Since the TREX admin tool has a graphical interface, you need an X server. You cannot use a terminal program that only supports text mode, such as telnet.

1. Log on with the user `<sapsid>adm`.

2. Start the TREX admin tool by entering the following:

    `cd <TREX_DIR>`

    `./TREXAdmin.sh`

3. In the TREX admin tool, navigate to the *Landscape Services* area and then go to the *MMC* tab.

4. You can stop TREX by clicking the *SAP System: Stop* button or by selecting the TREX host, opening its context menu with the secondary mouse button, and selecting the relevant option. You can stop *Selected Hosts* or *All Hosts* for a landscape.

Stopping TREX with the stopsap Shell Script

1. Log on locally to the host on which the TREX instance is installed with the user `<sapsid>adm`.

2. Execute the **`stopsap`** script in any directory:

    a. To start a single TREX instance, enter the following:

      `stopsap TRX<instance_number>`

      In the parameter `TRX<instance_number>`, you specify which TREX instance is to be stopped.

    b. To stop all SAP instances – including all TREX instances – on a host, enter the following:

      `stopsap`

⬇ Starting and Stopping Individual TREX Servers

Use

You can start individual TREX servers for test purposes and for troubleshooting. You can then track the program output on the screen.

Starting the TREX Servers

1. Log on with the user `<sapsid>adm`.

2. Stop TREX (see [Stopping TREX [Page 70]](#)).

3. Go to the TREX directory.

4. Start each TREX server in a separate shell.

TREX Server	Command
Index server	`TREXIndexServer.x`
Name server	`TREXNameServer.x`
Preprocessor	`TREXPreprocessor.x`
Queue server	`TREXQueueServer.x`
Only relevant for an RFC connection: RFC server	`TREXRfcServer.x -r`

Stopping the TREX Servers

1. Display the window in which you started the TREX server.

2. Use `CTRL + C` or close the window.

Certain processing steps, for example, writing an index, cannot be interrupted. Such steps are completed before the TREX servers are stopped. This process can take a while to complete.

With large indexes, it can take up to a few hours to stop the TREX servers if lots of documents are currently being indexed.

⚠️

Do not stop the TREX server using `kill - 9`, as this can lead to data loss. Affected indexes can be irreparably damaged.

🔲 Uninstall

Purpose

You can **uninstall** TREX:

- By [running shell scripts [Page 72]](#).

Uninstalling TREX with Shell Scripts

Use

You can uninstall TREX on the released platforms using the installation scripts that are contained in the package with the TREX binaries.

Prerequisites

You have downloaded and extracted the TREX binaries as described in Download the TREX binaries [Page 21].

Procedure

1. Log on to the TREX host:

   - UNIX: As `root` user.

   - Windows: As a user with `administrator` rights.

2. Navigate to the directory to which you unpacked the TREX binary files:

   - UNIX: `<path to unpack directory>/tx_trex_content/TX_LINUX_X86_64`.

   - Windows: `<drive>:\<path to unpack directory>\tx_trex_content\TX_WINDOWS_X86_64`

   This directory was created by unpacking the TREX software package using SAPCAR.

3. Call the `install.sh` installation script (depending on your shell) as follows:

   - UNIX: **`./install.sh --action=remove --sid=<SAPSID> --password=<password for adm/service user> --type=DEFAULT`**

     The installation procedure will take less than 15 minutes. You can find more information about using the installation script executing it with the **`--help`** parameter: **`./install.sh –help`**

   - Windows: **`install.cmd --action=remove --sid=<SAPSID> --password=<password for adm/service user> --type=DEFAULT`**

     The installation procedure will take less than 15 minutes. You can find more information about using the installation script executing it with the **`--help`** parameter: **`./install.sh –help`**

4. After the installation has finished you need to start TREX:

   Log on as `<sapsid>adm` user.

   - To start TREX type **`TREX start`**.

   - To stop TREX (if necessary), enter **`TREX stop`**.