

Installing Retrieval and Classification (Portal Environment)



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Icons in Body Text

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 the any version of *SAP Library*.

Typographic Conventions

Type Style	Description
<i>Example text</i>	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.

Contents

Installing Retrieval and Classification (Portal Environment).....	6
TREX Overview.....	8
Search and Text Mining	8
Classification	8
File Formats.....	9
Languages.....	9
Components	9
Java Client	10
Web Server with TREX Extension	10
Queue Server	11
Preprocessor	11
Index Server	11
Name server	12
TREX Daemon	12
Python Support and Python Extensions.....	12
Scalability	12
Security.....	13
Administration.....	13
Checklist for the Installation	14
Installation Process.....	16
Planning.....	16
Choosing an Installation Scenario	16
Checking Prerequisites.....	17
UNIX Only: Preparation.....	21
Creating a TREX User	21
Creating the TREX Directory	22
Installation	23
Input Parameters for the TREX Installation	23
Installing TREX on UNIX	28
Installing TREX on Windows	29
Post Installation	30
Post-Installation Tasks on All Platforms	30
Copying vpd.properties to the TREX Directory	31
Registering TREX Hosts with Content Management.....	32
Post-Installation Tasks on UNIX.....	33
Configuring Automatic Start	33
Setting Environment Variables.....	35
Checking UNIX Kernel Parameters	36

Post-Installation Tasks on Windows	38
Checking Performance Settings for the Operating System	39
Configuring IIS 6.0	40
Enabling Access to the TREX Directory	41
Changing the User for the TREX Service	44
Only EP 6.0: Changing the Address of the TREX Web Server	45
Installation Check.....	46
Checking TREX Processes	47
Executing an Installation Test Script	48
Checking the Status of TREX Services in the Portal	50
Additional Information	51
Troubleshooting.....	51
Creating a Web Site Manually (Only Windows).....	52
Changing Proxy Settings for the Portal	53
Starting and Stopping TREX on UNIX	54
Starting and Stopping TREX.....	54
Starting and Stopping Individual TREX Servers.....	55
Starting and Stopping the TREX Daemon in Debug Mode	56
Starting and Stopping the Web Server	57
Starting and Stopping TREX on Windows	58
Starting and Stopping the TREX Service	58
Starting and Stopping Individual TREX Servers.....	59
Starting and Stopping the TREX Daemon in Debug Mode	60
Starting and Stopping the Web Server	61
Deinstalling TREX on UNIX.....	62
Deinstalling TREX on Windows.....	64



Installing Retrieval and Classification (Portal Environment)

Purpose

This guide describes the installation of Retrieval and Classification (TREX) 6.0 SP1 in a portal environment.

This guide describes how you plan, prepare, and carry out the TREX installation, and the steps that you have to take after the installation in order to use TREX. The target group of the guide consists of system administrators and consultants.

Implementation Considerations

Operating System Platforms

TREX 6.0 is available for UNIX and Windows platforms. The AIX and Windows 2003 version is only available from TREX 6.0 SP1 Patch 2. For more information, see the *SAP Service Marketplace* under service.sap.com/ep60 → *Platform Availability Matrix*.



Only the Windows 2000 version of TREX has been released for EP 5.0. Both the UNIX and Windows versions of TREX have been released for EP 6.0.

Distributed and Non-Distributed TREX Systems

TREX offers a flexible architecture that can be modified to different requirements. You can scale TREX if necessary. Your options range from a minimal system with one host, to a large distributed server landscape.

A minimal TREX system consists of a single host that provides all TREX functions (indexing, classification, and searching). You can use a minimal system as a demo and test system as well as as a productive system.



For a productive system, we recommend that you install TREX on a single host that is used exclusively for TREX.



If you are installing TREX together with other components, you have to make sure that you have enough main memory space for all components. All TREX processes together can take up a **maximum** of 6 GB main memory. Make sure that TREX has exclusive use of the required main memory space.

We assume that you set up a minimal TREX system initially, and then scale TREX later on. This guide only describes how to install TREX on a single host. For information on a distributed installation, see the *SAP Service Marketplace* at service.sap.com/ep60 → *Documentation & More* → *Installation* → *SAP Enterprise Portal Installation Guide* → *Scaling Retrieval and Classification (TREX)*.

SAP Notes on Installation



Read the SAP Notes on installation before you begin. The SAP Notes contain current installation information and corrections to the installation documentation.

Make sure that you use the current version of SAP Notes. You can find the SAP Notes in the SAP Service Marketplace (service.sap.com/notes) or in SAPNet → *R/3 Frontend*.

Relevant SAP Notes

SAP Note Number	Title
565347	TREX 6.0: Central Note
631390	TREX 6.0: Additional Languages

Integration

TREX and Content Management form the Knowledge Management Platform. This is a sub-component of SAP Enterprise Portal.



TREX Overview

The following sections provide an overview of the central features and concepts of TREX.



Search and Text Mining

The TREX search functions allow users to search in document content and properties. The text-mining functions offer support when viewing the search results and refining search queries.

TREX provides the following features:

Search

- Boolean search with the operators AND and OR
- Exact, error-tolerant, and linguistic search
- Attribute search (search in document properties)
- Phrase search
- Alternative search terms ('Did you mean ...?')
- Ranking (determining relevancy)
- HTML version with highlighting

Text-Mining

- Extraction of key words
- Generation of text extracts (content snippets)
- Search for similar documents (See Also)
- Search for related terms



Classification

You can structure large document collections clearly using taxonomies. A taxonomy is a hierarchical ordering of categories to which documents can be assigned automatically (classification).

TREX offers two classification procedures:

- Query-based
- Example-based

With query-based classification, documents are assigned to a category in a taxonomy if they exactly match a particular search query.

With example-based classification, the entire content of a document is compared with the categories. A document is assigned to the category whose content it matches most closely. The categories of the taxonomy are defined in advance using example documents. This process is called training.



File Formats

TREX can process all common file formats, such as Microsoft Word, Microsoft PowerPoint, PDF, and HTML. The filters that are integrated into TREX convert the files into text before they are processed.



SAP note 663630 contains a list of the supported file formats.



Languages

TREX supports the following languages for the indexing and searching processes:

- European languages – English, German, French, Spanish, Portuguese, Dutch, Swedish, Finnish, Danish, Bokmal and Nynorsk (Norwegian languages) and Italian.
- Asian languages – Korean, Simplified Chinese, Traditional Chinese, and Japanese.



For information on additional languages supported by TREX, see SAP Note *631390 TREX 6.0: Additional Languages*.



Components

TREX includes the following central components:

- Java Client
- Web-Server with TREX Extension
- Queue Server
- Preprocessor
- Index Server
- Name Server



Queue Server

The queue server enables the asynchronous indexing of documents. It has a separate queue for each index. It gathers documents to be indexed into one of the queues. It transfers documents to the index server for the actual indexing process at regular intervals. You can use the queue parameters to control when and how many documents are transmitted. This allows you to schedule indexing for times at which the index server does not receive a large amount of search requests.

The queue server forwards the documents to the preprocessor before transmitting them to the index server.



Preprocessor

The preprocessor has two tasks:

- When TREC processes search requests, the preprocessor carries out a linguistic analysis of search queries. The preprocessor passes the results of the analysis to the index server, which then processes the query further.
- When TREC receives documents to be indexed, the preprocessor prepares the documents for the actual indexing process. The preparation consists of the following steps:

- Loading the document

In the portal, documents are not normally transferred directly to TREC. Instead, they are forwarded in the form of a URI that references the storage location of the document in question. The preprocessor resolves the URI and collects the actual document from the repository.

- Filtering the document

Documents can exist in various formats (Microsoft Word, Microsoft PowerPoint, PDF, and so on). The preprocessor filters the documents, that is, it extracts the text content and converts it to Unicode format UTF 8 for further processing.

- Analyzing the document linguistically

The preprocessor uses a lexicon that analyzes texts in various languages.



Index Server

The index server is responsible for indexing, classifying, and searching. It receives requests and forwards them to the TREC engines. The engines provide the actual core functions of TREC. These are:

- The search engine is responsible for standard search functions such as exact, error-tolerant, linguistic, Boolean, and phrase search.
- The text-mining engine is responsible for classification, searching for similar documents ('See Also'), the extraction of key words, and so on.
- The attribute engine is responsible for searching in documents properties such as author, creation date, change date, and so on.



Name server

The name server is used with large distributed TREX installations. It uses its database to store and coordinate system-wide information. It also ensures that the TREX servers can communicate with each other and that TREX can communicate with Content Management. The name server is also responsible for distributing the system load if more than one TREX server is capable of carrying out a task.

In a distributed scenario, you can install several name servers to ensure that a name server is always available. A replication procedure ensures that the databases of the different name servers are synchronized.



TREX Daemon

After the TREX installation, a TREX daemon runs on each host. The daemon is a central service that starts the actual TREX servers (index server, queue server, and so on) and monitors them during routine operation. If a server becomes unavailable, it is automatically restarted by the daemon.

In the standard configuration, the daemon starts all servers that have to run for a minimal TREX system. For a distributed installation, you can use the daemon's configuration file to control which servers the daemon starts on individual hosts.



Python Support and Python Extensions

TREX provides Python scripts whose functions can be divided into two groups.

- Python support
- Python extensions

Python support includes scripts that are used to test TREX functions. For example, you can test creating indexes as well as indexing and searching documents. Python support also includes a tool for administrating the name server (name server administration). Some name server functions can only be administrated using this script.

Python extensions are scripts that enhance standard TREX functions with optional features. Index replication is one of these optional features.



Scalability

TREX provides a flexible architecture that allows a distributed installation and means that you can modify TREX to your own requirements.

A minimal system consists of a single host that provides all TREX functions. You then have numerous options for scaling TREX. You can distribute TREX components among several hosts and install individual components in multiple. You can also configure automatic index replication so that indexes are available on multiple search servers.

You can use a scaled scenario to distribute the search and indexing load among several hosts and to ensure the availability of TREX.

 **Security**

Content Management and TREX can communicate with each other using a secure connection or a non-secure connection. SSL with client authentication is used for a secure connection.

 **Administration**

TREX provides several administration tools:

- TREX Monitor iView
- Queue Client
- Name Server Administration

TREX Monitor iView

You can use the TREX Monitor iView to monitor the queue server and name server in the portal.

Queue Client

The queue client is a stand-alone tool that you can use to access the queue server of the portal. In the portal environment, the queue client is mainly used by TREX Support, in particular for test purposes and trouble shooting.

Name Server Administration

Name server administration is also a stand-alone tool. You can use name server administration to configure the name server and to display information that the name server has stored in its databasis. Name server administration is normally used for large distributed installations with several name servers.



Checklist for the Installation

Use

Use the tables below as a checklist for the installation of the system and to navigate through the installation procedure.

All necessary installation phases (planning, installation, and post installation) are listed in this table.

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 oversee any important information.

Prerequisites

We recommend that you proceed as follows when installing TREX.

1. Print out the tables below.
2. Carry out the installation 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 ✓ next to the relevant entry in the table in order to record your progress.
 - Then continue with the next step listed in the table.

Planning

✓	Action
	Choose an installation scenario [Page 16]
	Check the prerequisites [Page 17]

UNIX Only: Preparation

✓	Action
	Create a TREX user [Page 21]
	Create the TREX directory [Page 22]

Installation

✓	Action
	Note input parameters for the TREX installation [Page 23]
	Install TREX on UNIX [Page 28] or install TREX on Windows [Page 29]

Post Installation

✓	Action
	On all operating platforms:
	Copy the vpd.properties file to the TREX Directory [Page 31]
	Only if you did not specify the TREX host during the Content Management installation: Register the TREX host with Content Management [Page 32]
	Only on UNIX:
	Configure automatic start [Page 33]
	Set environment variables [Page 35]
	Check UNIX kernel parameters [Page 36] Changes only take effect when you restart the host.
	The TREX daemon starts automatically after the host has been restarted. If you have not restarted the host, you can start TREX manually as explained below. <ol style="list-style-type: none"> 1. Log on with the TREX user (normally <code>trexadm</code>). 2. Go to the TREX directory, and call up the <code>TREX</code> script using the <code>start</code> option. <pre>cd <TREX_Directory> TREX start</pre> See also: Starting and Stopping TREX [Page 54]
	Only on Windows:
	If you restarted the host, the core TREX service (the TREX daemon) starts automatically. If you did not restart the host, you can start the TREX daemon using a prompt. Open a new prompt , go to the directory, and enter <code>TrexDaemon.exe</code> .  You have to use a new prompt (one opened after the installation). Otherwise, the required environment variables are not set, and the TREX daemon cannot start. The TREX daemon starts without notifying you. You can check whether it is running by displaying the processes in the Task Manager. You can minimize the prompt but not close it. If you close the prompt, the TREX daemon stops.
	Check performance settings for the operating system [Page 39]
	Configure IIS 6.0 [Page 40]
	Enable access to the TREX directory [Page 41]
	Change the user for the TREX service [Page 44]
	Only EP 6.0: Change the address of the TREX Web server [Page 45]



Installation Process

Purpose

The TREX installation process consists of four phases: Planning, preparation, installation, and post installation.



Planning

Purpose

During the planning phase you decide which of the following systems to implement:

- A demo, test, or productive system
- A non-distributed or distributed TREX system

You then check the hardware and software requirements, and prepare an installation host.



Choosing an Installation Scenario

Use

TREX offers a flexible architecture that can be modified to different requirements. You can scale TREX if necessary. Your options range from a minimal system with one host, to a large distributed server landscape.

A minimal TREX system consists of a single host that provides all TREX functions (indexing, classification, and searching). You can use a minimal system as a demo and test system, or as a productive system.

Procedure

1. Decide whether you want to implement a demo, test, or productive system.



For a productive system, we recommend that you install TREX on a single host that is used exclusively for TREX.

For EP 6.0, Refer to the information in the master guide *mySAP Enterprise Portal – Using SAP Enterprise Portal 6.0*.



If you are installing TREX together with other components, you have to make sure that you have enough main memory space for all components. All TREX processes together can take up a **maximum** of 6 GB main memory. Make sure that TREX has exclusive use of the required main memory space.

2. Decide whether you want to implement a distributed or non-distributed TREX system.

Note the following if using a distributed TREX system:

- All TREX hosts need to run on the same operating platform. Mixed installations (for example, one TREX host on HP-UX and another on Windows) are not permitted.
- The same TREX release needs to run on all hosts.

For more information on distributed TREX systems, see *Scaling Retrieval and Classification (TREX)* in the *SAP Enterprise Portal Installation Guide*. You can find this guide under <http://service.sap.com/ep60> → *Documentation & More* → *Installation*.



Checking Prerequisites

Procedure

Make sure that the installation host fulfills the following prerequisites:



The TREX Java client and *TREX Monitor* iView require additional software. However, these prerequisites are not relevant for the TREX installation, since both components are installed as part of the Content Management installation.

On UNIX

Hardware Prerequisites

Prerequisite Type	Prerequisite
Hard disk capacity:	<ul style="list-style-type: none"> • For the TREX software, a minimum of 800 MB in the target directory, and 800 MB in a temporary directory (by default /tmp or /var/tmp, depending on the operating system). The TREX setup program temporarily copies the installation files to the temporary directory and deletes them again when the installation is complete. • For the indexes, 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 space as the documents. For pure HTML documents, the index needs about 1.5 times as much disk space as the documents. • For the queues, 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. • If you want to implement index replication or a backup/restore procedure, you need disk space for the backup copies of the indexes. The backup copies require approximately 1.5 times as much disk space as the indexes themselves.

Prerequisite Type	Prerequisite
RAM	<ul style="list-style-type: none"> • A minimum of 1 GB (demo and test system) • Recommended: 2 - 6 GB (productive system)  <p>The index server, queue server, and preprocessor can each need up to 2 GB main memory. This means that all TREX processes together need up to 6 GB.</p> <p>If TREX runs on one host together with other components, make sure that TREX has exclusive use of the necessary memory space.</p>
Processor	<ul style="list-style-type: none"> • For AIX: <ul style="list-style-type: none"> ○ At least 2 POWER3 processors each with 375 MHz clock speed ○ Recommended: 2 POWER4 processors each with 1 GHz clock speed • For HP-UX: <ul style="list-style-type: none"> ○ At least 2 PA-RISC processors each with 360 MHz ○ Recommended: 2 PA-RISC processors each with 750 MHz clock speed • For Sun Solaris: <ul style="list-style-type: none"> ○ At least 2 Ultra SPARC II processors each with 300 MHz clock speed ○ Recommended: 2 Ultra SPARC III processors each with 700 MHz clock speed

Software Prerequisites

Prerequisite Type	Prerequisite
Operating system	<ul style="list-style-type: none"> • AIX 5.2 64 Bit • HP-UX 11.0 and 11i (11.11) 64 bit, with patches PHCO_27740, PHNE_28089, PHSS_26560, and PHSS_26946 • Sun Solaris 8 and 9 64 bit
Web server	Apache Web Server 1.3.26: The Web server is part of the delivery, and is installed by the TREX setup program in the <TREX_Directory>/Apache directory.
Python	Python 2.1.3. A Python version from ActiveState is part of the delivery and is installed by the TREX setup program in the <TREX_Directory>/Python directory.
Only AIX – Java Virtual Machine (JVM)	<p>JVM 1.3.1 (IBM). By default, an appropriate JVM is installed on UNIX. The JVM is required so that the TREX setup can run.</p>  <p>JVMs for the other UNIX platforms are part of the delivery.</p>

On Windows

Hardware Prerequisites

Prerequisite Type	Prerequisite
Hard disk capacity:	<ul style="list-style-type: none"> • For the TREX software, a minimum of 600 MB. • For the indexes, 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 space as the documents. For pure HTML documents, the index needs about 1.5 times as much disk space as the documents. • For the queues, 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. • If you want to implement index replication or a backup/restore procedure, you need disk space for the backup copies of the indexes. The backup copies require approximately 1.5 times as much disk space as the indexes themselves.
RAM	<ul style="list-style-type: none"> • A minimum of 1 GB (demo and test system) • Recommended: 2 - 6 GB (productive system) <div style="text-align: center;">  <p>The index server, queue server, and preprocessor can each need up to 2 GB main memory. This means that all TREX processes together need up to 6 GB.</p> <p>If TREX runs on one host together with other components, make sure that TREX has exclusive use of the necessary memory space.</p> </div>
Processor	<ul style="list-style-type: none"> • At least 2 Pentium III processors, each with a minimum of 1 GHz clock speed • Recommended: 2 Pentium IV processors, each with a minimum of 2 GHz clock speed

Software Prerequisites

Prerequisite Type	Prerequisite
Operating system	<ul style="list-style-type: none">• Microsoft Windows 2000<ul style="list-style-type: none">○ At least Microsoft Windows 2000 Server (US English version) with service pack (SP) 3 or higher○ Recommended: Microsoft Windows 2000 Advanced Server (US English version) with SP 3 or higher• Windows Server 2003 32 bit (US English version)
Web server	Microsoft Internet Information Server (IIS) 5.0 or 6.0
Python	Version 2.1.3. A Python version by ActiveState is part of the delivery, and is installed by TREX setup



UNIX Only: Preparation

Purpose

This section describes the actions you carry out on UNIX before the installation.



Creating a TREX User

Use

You need a separate UNIX user for TREX. You use this user to install and upgrade TREX. Note that:

- The TREX user is not allowed to have root permissions.
- You can choose any user name, ID, group name, and group ID.



We recommend that you use the name `trexadm` in order to simplify support for a TREX system. If the group `sapsys` is available, we recommend that you assign the TREX user to this group.

If you are implementing a distributed TREX system with index replication, the masters make the indexes to be replicated available in replication directories. The slaves then have to access these directories using the Network File System (NFS). We recommend that you create the same TREX user on involved hosts in order to simplify administration and support. You should use the same user ID and group on all hosts.

Procedure

When creating the user, proceed as described in the documentation for your UNIX platform.



Creating the TREX Directory

Use

You specify the directory in which TREX is to be installed during the TREX installation. If you want to specify a directory that does not belong to the TREX user, you have to create this directory and define the TREX user as the owner.



If you want the TREX directory to be in a directory that belongs to the TREX user (for example, his home directory), you don't have to create it first.

Procedure

1. Log on as root.
2. Create the TREX directory. For optimum performance, this directory needs to be on a local hard disk.



Make sure that there is enough disk space available for the TREX software, indexes, queues, and any necessary backup copies of the indexes (see [Checking Prerequisites \[Page 17\]](#)).

Example: `mkdir /my_path/TREX_60`

3. Define the TREX user as the owner of the directory:

```
chown <TREX_User>:<Group> <TREX_Directory>
```

Example: `chown trexadm:sapsys /my_path/TREX_60`



Installation

Purpose

Note the input parameters that you will need for the installation process before starting the setup. This helps to avoid unnecessary delays and errors.

Process Flow

1. Prepare the input parameters.
See: [Input Parameters for the TREX Installation \[Page 23\]](#)
2. Start the setup program in order to install TREX.
See: [Installing TREX on UNIX \[Page 28\]](#) or [Installing TREX on Windows \[Page 29\]](#)



Input Parameters for the TREX Installation

Procedure

To prepare for the input phase of the TREX installation, we recommend that you note down the necessary entries **before** starting the setup program. If you prepare the necessary information in advance, you can avoid unnecessary delays and errors.

The table below shows the names of the windows that are displayed during the TREX installation process, and the entries that you need to make.

Window	Entry
Welcome	Choose <i>Next</i> .
TREX Directory	<p>Select the target directory in which TREX is to be installed. For optimum performance, this directory needs to be on a local hard disk.</p> <p style="text-align: center;"></p> <p style="text-align: center;">Make sure that there is enough disk space available for the TREX software, indexes, queues, and any necessary backup copies of the indexes (see Checking Prerequisites [Page 17]).</p> <p>Note the following operating system dependencies:</p> <ul style="list-style-type: none"> • Windows – You can select an existing directory or create a new directory. • UNIX – If you created a directory during the preparation phase, select this directory. If you want to create a new directory, the TREX user has to have authorization to create subdirectories in the superordinate directory. <p style="text-align: center;"></p> <p style="text-align: center;">You want to install TREX on UNIX in the directory <code>/opt/SAP/TREX_60</code>, but the directories <code>SAP</code> and <code>TREX_60</code> are not yet available. The TREX user has to have authorization to create directories in the <code>/opt</code> directory.</p>

Window	Entry
Windows only: Required Third-Party Software, Python Directory	<p>The setup program checks whether an applicable Python version has been installed. If a suitable version of Python is not installed, you can choose the target directory for the Python installation.</p> <p>Note the following:</p> <ul style="list-style-type: none"> • The directory name must contain the character string <code>Python</code> with the exact capitalization used here. • The directory name cannot contain spaces. <p> C:\Python21, D:\Programs\Python21, D:\Programs\TREX_Python21.</p> <p> On UNIX, Python is to be installed in the directory <TREX_Directory>/Python in all cases.</p>
Setup Type	<p>Choose <i>Typical</i>.</p> <p> Choose this option even if you want to implement a distributed system. After the installation, you can configure TREX so that only the required servers run on the host in question.</p> <p>For information on a distributed installation, see the <i>SAP Service Marketplace</i> at service.sap.com/ep60 → <i>Documentation & More</i> → <i>Installation</i> → <i>SAP Enterprise Portal Installation Guide</i> → <i>Scaling Retrieval and Classification (TREX)</i>.</p>

Window	Entry
Proxy Settings	<p>If there is a proxy server between the portal and the documents to be indexed, specify the proxy settings.</p>  <p>You want to index the following:</p> <ul style="list-style-type: none"> • 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. <p>Specify the proxy server and define the exclusion rules for the internal addresses.</p> <ul style="list-style-type: none"> • <i>Proxy Server Name</i> – host name and domain of the proxy server Example: <code>proxy.mylocation.mycompany.com</code> • <i>Proxy Server Port</i> Example 8080 • <i>Proxy User Name</i> – user name needed to access the proxy server • <i>Proxy User Password</i> – password defined for the user • <i>Proxy Exclusions</i> These rules define when the proxy server is not to be used. Separate multiple entries using a semicolon.  <p>Examples of exclusion rules:</p> <ul style="list-style-type: none"> • Do not use the proxy server to get URLs that end in <code>mycompany.com</code>: <code>mycompany.com</code> • Do not use the proxy server to get IP addresses that start with 10 : 10.  <p>Do not use asterisks as placeholders.</p>

Window	Entry
Index Server, Queue Server, Preprocessor, Name Server, HTTP Server SAP System Number	<p data-bbox="512 253 1158 282">Check the host names and ports of the TREX servers.</p> <ul data-bbox="549 304 1305 389" style="list-style-type: none"><li data-bbox="549 304 1305 389">• If you are not using a DNS (domain name system) server, replace the host name of the host on which you are carrying out the installation with its IP address. <div data-bbox="675 409 724 454" style="text-align: center;"></div> <p data-bbox="675 477 1321 562" style="text-align: center;">Do not use the name <code>localhost</code>. Communication using <code>localhost</code> is much slower than using the host name or IP address.</p> <ul data-bbox="549 589 1219 846" style="list-style-type: none"><li data-bbox="549 589 1219 618">• The TREX servers use the following ports by default:<ul data-bbox="628 633 1059 846" style="list-style-type: none"><li data-bbox="628 633 884 663">○ Index server 8351<li data-bbox="628 678 900 707">○ Queue server 8352<li data-bbox="628 723 900 752">○ Preprocessor 8357<li data-bbox="628 768 900 797">○ Name server 8355<li data-bbox="628 813 1059 846">○ Web server (HTTP server) 8353 <p data-bbox="592 869 1273 898">If these ports are already used, change the port numbers.</p> <div data-bbox="675 913 724 958" style="text-align: center;"></div> <p data-bbox="675 981 1267 1010" style="text-align: center;">The SAP system number is not currently relevant.</p>

Window	Entry
Document Languages	<p>TREX supports the following languages for indexing and searching:</p> <ul style="list-style-type: none"> • European languages – English, German, French, Spanish, Portuguese, Dutch, Swedish, Finnish, Danish, Bokmal and Nynorsk (the two Norwegian languages) and Italian. • Asian languages – Japanese, Korean, Simplified Chinese, and Traditional Chinese. <p>Because the document language is not known in the portal, TREX has to carry out a language recognition process before indexing takes place. You can select the languages that you want TREX to recognize.</p> <p style="text-align: center;"></p> <p>Only select the languages that are relevant. This optimizes performance during the language recognition process, and during the search and indexing process. The language recognition process gives better results if as few languages as possible are used.</p> <p style="text-align: center;"></p> <p>However, TREX can also index documents whose language is not specified here. TREX then inserts the documents in question into the index for the default language (normally English). For example, if you select English and German and a document in Spanish is then indexed, the document is inserted into the English index.</p> <p>This affects the documents in question in the following manner:</p> <ul style="list-style-type: none"> • A linguistic search is not possible. • TREX may extract key words (document features) that are not characteristic of the document. <p>You can also change settings for the language recognition process after installation. For more information, see the <i>Knowledge Management Platform</i> section of the <i>SAP Enterprise Portal Administration Guide</i> at help.sap.com/ep → <i>SAP Enterprise Portal Administration Guide</i>..</p>
Settings	<p>The setup program displays the chosen settings. To start the installation, choose <i>Next</i>.</p>



Installing TREX on UNIX

Procedure

1. Log on to the installation host with the TREX user.



Do **not** execute the installation as **root**.

2. Mount the CD that contains the TREX software.



Mount the CD locally. We recommend that you **not** use the Network File System (NFS).

3. Start the setup program.

AIX: <Path_to_installation_CD>/setupaix.bin

HP-UX: <Path_to_installation_CD>/setuphp11x.bin

Sun Solaris: <Path_to_installation_CD>/setupsolarisSparc.bin



If the setup program tells you that there is not enough free disk space, start it with the following option:

```
-is:tempdir <Your_temporary_directory>
```

You have to have at least 800 MB available in your temporary directory. You can check the free disk space using `df -k`.



If the setup program tells you that it is not able to run in graphical mode, the `DISPLAY` variable is not set. Select one of the following options:

- Start the setup program with the option `-console`, so that it runs in text mode
- or
- Set the `DISPLAY` variable.

Bourne Shell, Bourne Again Shell, Korn Shell:

```
DISPLAY=<hostname>:0.0; export DISPLAY
```

C Shell: `setenv DISPLAY <hostname>:0.0`

Start the setup program again.

4. Follow the instructions of the setup program. You can find the required input parameters under [Input Parameters for the TREX Installation \[Page 23\]](#).
5. The installation starts when you have entered all necessary data. Choose *Finish* at the end of the installation.



Installing TREX on Windows

Prerequisites

If you deinstalled TREX previously, you restarted the host after the deinstallation.

Procedure

1. Log on to the installation host **with administrator permissions**.
2. Windows 2000 only: Choose *Start* → *Settings* → *Control Panel* → *Regional Options* → *General* tab page. Make sure that the option *Western Europe and United States (Default)* is selected under *Language settings for the system*.
3. Enter the CD that contains the TREX software into the CD disk drive.
4. Start the TREX setup program by executing `setupW2k.exe` from the CD.
5. Follow the instructions of the setup program. You can find the required input parameters under [Input Parameters for the TREX Installation \[Page 23\]](#).
6. At the end of the installation, choose whether to restart the host now or later on.
7. Choose *Finish*.



Post Installation

Purpose

After the installation has taken place, you carry out additional steps to put TREX in operation. The sections below describe

- The actions you always carry out, regardless of the operating system platform on which you have installed TREX
- The actions that you carry out either only on UNIX or only on Windows



Post-Installation Tasks on All Platforms

Purpose

You always carry out the following actions, regardless of the operating system platform on which you have installed TREX

- [Copy the vpd.properties file to the TREX Directory \[Page 31\]](#)
- If you have not specified a TREX host during the Content Management installation, you have to register it later on. For more information, see [Registering TREX Hosts with Content Management \[Page 32\]](#).



Copying vpd.properties to the TREX Directory

Use

The TREX setup program enters the TREX components installed into the file `vpd.properties`. Whenever you update TREX, the TREX setup program accesses the information in this file.

For security reasons, we recommend that you copy the file `vpd.properties` to the TREX directory **every time** you install or update TREX.

Procedure

You find the file `vpd.properties` in the following location:

- On Windows 2000, in the directory `C:\WINNT`
- On Windows Server 2003, in the directory `C:\Windows`
- On AIX, in the directory `/usr/lib/objrepos` or in the home directory of the TREX user.
- On HP-UX and Sun Solaris, in the home directory of the TREX user.

Copy the file to the TREX directory.

Result

If problems occur during the installation or upgrade of TREX, TREX support can use this copy for troubleshooting.



Other applications also enter information into the file `vpd.properties`. Therefore, do not copy the file in the TREX directory back to the original directory. If you do so, the functionality of other applications can be impaired. Only TREX support may use the copy in the TREX directory for troubleshooting.



Registering TREX Hosts with Content Management

Use

If you do not specify the TREX host during the Content Management installation, you have to register it later on. To do this, you enter it into the configuration file `config_local.properties`.

If you specified the TREX host during the Content Management installation, you do not need to make any changes.

Prerequisites

The portal and Content Management have been installed.

Procedure

1. On the portal host, edit the configuration file `config_local.properties`. The information below gives the respective locations of the file:

- EP 5.0:

Servlet Engine	Directory
JRun	<JRun-Directory>\WEB-INF\plugins\portal\services\knowledgemanagement\lib
SAP J2EE Engine	<SAP-J2EE-Directory>\alone\services\servlet_jsp\work\jspTemp\irj\root\WEB-INF\plugins\portal\services\knowledgemanagement\lib

- EP 6.0:

```
<SAP_J2EE_Directory>>\cluster\server\services\servlet_jsp\work\jspTemp\irj\root\WEB-INF\portal\portalapps\com.sap.km.application\lib
```

2. Insert the following line:

```
trexserver=<hostname>.<domain>
```

Example: `trexserver=mytrexhost.mydomain.com`

3. Restart the servlet engine.



Post-Installation Tasks on UNIX

Purpose

You carry out the following actions only on UNIX.

- [Configure automatic start \[Page 33\]](#)
- [Set environment variables \[Page 35\]](#)
- [Check UNIX kernel parameters \[Page 36\]](#)
- If you do not want to restart the host, start TREX manually (see [Starting and Stopping TREX \[Page 54\]](#)).



Configuring Automatic Start

Use

In the TREX directory, there is a script that stops and starts the TREX daemon. If you want the TREX daemon to start automatically when the host is started and stop automatically when the host is stopped, proceed as follows.

Procedure

AIX

1. Log on as root.
2. Add the following start instruction to the configuration file `/etc/inittab`:

```
trex:2:once:<TREX_Directory>/TREX start
```
3. Check whether the file `/etc/rc.shutdown` is available. If it is not yet available, create it. Add the following stop instruction to the file:

```
<TREX_Directory>/TREX stop
```

HP-UX and Sun Solaris

1. Log on as root.
2. Copy the TREX script to the `init.d` directory:
HP-UX: `cp <TREX_Directory>/TREX /sbin/init.d`
Sun Solaris: `cp <TREX_Directory>/TREX /etc/init.d`
3. In the appropriate `rc<run-level>.d` directories, create two links to the TREX script:
 - o A link to start the TREX daemon
 - o A link to stop the TREX daemon



Choose the `rc` directory that corresponds to the run level for normal multi-user operation for the start instruction. With Sun Solaris and HP-UX, this is normally run level 3, corresponding to the directory `rc3.d`. If your installation varies from the standard installation, modify the appropriate `rc` directory.



The prefix in the script name determines the sequence in which the scripts are started or stopped when the run level is reached.

- For the start instruction, we recommend choosing the prefix `S90` for Sun Solaris and `S900` for HP-UX. The script name will therefore be called `S90TREX` (Sun Solaris) or `S900TREX` (HP-UX). If you choose a different sequence, make sure that the network layer is started before the TREX script.
- For the stop instruction, we recommend choosing the prefix `K10` for Sun Solaris and `K100` for HP-UX. The script name will therefore be called `K10TREX` (Sun Solaris) or `K100TREX` (HP-UX).

HP-UX:

```
ln /sbin/init.d/TREX /sbin/rc3.d/S900TREX
```

```
ln /sbin/init.d/TREX /sbin/rc0.d/K100TREX
```

Sun Solaris:

```
ln /etc/init.d/TREX /etc/rc3.d/S90TREX
```

```
ln /etc/init.d/TREX /etc/rc0.d/K10TREX
```



Setting Environment Variables

Use

You have to set certain environment variables so that TREX can run. If you start TREX using the `TREX` script, these variables are set automatically. You have to set the environment variables manually in the following cases:

- You are starting the TREX daemon in debug mode.
- You are starting individual TREX servers.
- You are executing the Python test script.

The TREX directory contains two Shell scripts that you can use to set the environment variables.

- `TREXSettings.sh` (Bourne-Shell `sh`, Bourne-again-Shell `bash`, Korn-Shell `ksh`)
- `TREXSettings.csh` (C-Shell `csh`)

We recommend that you enter the scripts into the login profile of the `TREX` user, so that the environment variable are set when the user logs on.

Procedure

1. Log on with the TREX user (normally `trexadm`).
2. Add the following call to the file `<TREX-User_Home-Directory>/ .profile`:

```
. <TREX_Directory>/TREXSettings.sh
```
3. Add the following call to the file `<TREX-User_Home-Directory>/ .login`:

```
source <TREX_Directory>/TREXSettings.csh
```

If you want to execute the script and set the environment variables directly, proceed as follows.

1. Go to the TREX directory.
2. Execute the appropriate script-
 - Bourne-Shell `sh`, Bourne-again-Shell `bash`, Korn-Shell `ksh`:

```
. TREXSettings.sh
```
 - C Shell `csh`:

```
source TREXSettings.csh
```



Checking UNIX Kernel Parameters

Use

Check the following UNIX kernel parameters and modify them if necessary:

- Number of open files per process
- Only HP-UX – process size

Number of open files per process

On UNIX platforms, each process may only have a certain number of files open at once. If you create a large number of indexes and queues during routine operation, the TREX processes, in particular the queue server and index server, open a lot of files.

With many UNIX installations, the value for the maximum number of files that the processes are allowed to have open is too low. This number should be **at least 2048**.

Only HP-UX – process size

The process size should be at least 2GB.



The process size is not limited for AIX and Sun Solaris.

Checking Kernel Parameters

The TREX directory contains a test program that you can use to check whether the kernel parameter is set at a suitable level.

1. Log on with the TREX user (normally `trexadm`).
2. Go to the TREX directory.
3. Set the environment variables required by TREX:
 - Bourne Shell `sh`, Bourne-again Shell `bash`, Korn Shell `ksh`:
`. TREXSettings.sh`
 - C Shell `csh`:
`source TREXSettings.csh`

4. Test the number of open files per process:

```
portlibtester.x -file
```

This command creates test files in the directory `/tmp/portlibtester`. The test must output the value `2000 files` at least. If it does not, you should change the kernel parameters.

5. Only HP-UX – Test the possible process size:

```
portlibtester.x -mem
```

This command calls upon as much main memory as possible. The test must output the value `1900 files` at least. If it does not, you should change the kernel parameters.

Changing Kernel Parameters

AIX

1. Log on as root.
2. Carry out the following steps as appropriate, depending on whether you are working with or without a Network Information System (NIS).

- (Without NIS) Execute the following command:
`chuser nofiles=2000 <TREX_User>`
- (With NIS) Add the following entry to the file `/etc/security/limits:`

```
<TREX_User>:
    nofiles=2000
trexadm:
    nofiles=2000
```

HP-UX

1. Log on as root.
2. Open the administration tool SAM (`usr/sbin/sam`).
3. Set at least the following values in the dialog box *kernel configuration/configurable*.

Kernel Parameter	Lowest Acceptable Value
Process Size	
<code>maxdsiz</code>	0X80000000 or 2147483648
<code>maxtsiz</code>	0X40000000 or 1073741824
Number of Open Files	
<code>maxfiles</code>	2048
<code>maxfiles_lim</code>	2048
<code>nfile</code>	20000

Sun Solaris

1. Log on as root.
2. Add the following lines to the configuration file `/etc/system`.

```
set rlim_fd_max=2048
set rlim_fd_cur=2048
```

Result

You have to restart the host using `reboot` in order for the changes to take effect. Then execute `portlibtester.x -file` again. If the number of open files is still too low, the UNIX system administrator must have restricted this parameter in another way. Contact the UNIX system administrator to remove this restriction.



Post-Installation Tasks on Windows

Purpose

You carry out the following actions only on Windows.

- If you restarted the host, the central TREX service (the TREX daemon) starts automatically.

If you did not restart the host, you can start the TREX daemon using a prompt. Open a **new prompt**, go to the directory, and enter `TrexDaemon.exe`.



You have to use a new prompt (one opened after the installation). Otherwise, the required environment variables are not set, and the TREX daemon cannot start.

The TREX daemon starts without notifying you. You can check whether it is running by displaying the processes in the Task Manager. You can minimize the prompt but not close it. If you close the prompt, the TREX daemon stops.

- [Check performance settings for the operating system \[Page 39\]](#)
- [Configure IIS 6.0 \[Page 40\]](#)
- [Enable access to the TREX directory \[Page 41\]](#)
- [Change the user for the TREX service \[Page 44\]](#)
- [Only EP 6.0: Change the address of the TREX Web server \[Page 45\]](#)



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. Display the properties of *My Network Places*:
 - Windows 2000: Use the secondary mouse button to choose *My Network Places* from the Windows desktop, and choose *Properties*.
 - Windows Server 2003: Double click on *NetWorker Group* on the Windows desktop. Use the secondary mouse button to click on *My Network Places* 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 2000

1. Use the secondary mouse button to click on *My Computer* on the Windows desktop, and choose *Properties*.
2. Choose the *Advanced* tab, and then choose *Performance Options*.
3. Under *Application Response*, choose the *Background Services* field.
4. Choose *OK* twice.

Windows Server 2003

1. Double click on *NetWorker Group* on the Windows desktop. Use the secondary mouse button to click on *My Computer* and choose *Properties*.
2. Choose the *Advanced* tab, and then choose *Performance* → *Advanced*.
3. Select *Background services* under *Adjust*.
4. Choose *OK* twice.



Configuring IIS 6.0

Use

If you are using Microsoft IIS 6.0, you have to configure the IIS for TREX.

Procedure

1. Choose:
 - Windows 2000: *Start* → *Programs* → *Administrative Tools* → *Internet Information Services (IIS) Manager*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Internet Information Services (IIS) Manager*.
2. Choose *Web Service Extensions*.
3. Add a new extension with the following data:

Field	Entry
<i>Extension name</i>	TREXHTTPServer
<i>Required files</i>	<TREX_Directory>\TrexHttpServer.dll
<i>Set extension status to Allowed</i>	Select this field.



Enabling Access to the TREX Directory

Use

The TREX setup creates the Web site `SAP_TREX` on the Web server. This causes an anonymous user for anonymous access to the Web site to be defined. This anonymous user is called `IUSR_<name>` by default.

The anonymous user needs to have Full Control permission for the TREX directory. There are the following ways of ensuring this:

- Variant 1: You determine the anonymous user entered in the properties for the Web site `SAP_TREX`. You give this user Full Control access to the TREX directory and to all contained files and sub-directories.
- Variant 2: You change the access permissions for the TREX directory so that all users have Full Control access.
- Variant 3: You change the anonymous user in the properties for the Web site `SAP_TREX`. Instead of using the default setting `IUSR_<name>`, you enter a local user that has Full Control access for the TREX directory.

Variant 1: Giving the Anonymous User Full Control Access

Determining the anonymous user

Microsoft IIS 5.0

1. Choose:
 - Windows 2000: *Start → Programs → Administrative Tools → Internet Services Manager.*
 - Windows Server 2003: *Start → Administrative Tools → Internet Services Manager.*
2. Use the secondary mouse button to click on the `SAP_TREX` Web site. Choose *Properties → Directory Security.*
3. In the *Anonymous access and authentication control* area, choose *Edit.*
4. In the *Anonymous access* area, choose *Edit.*
5. Select the name that is entered in the *Username* field, and copy it using CTRL+C.
6. Close the Internet Services Manager.

Now give the determined user full access to the TREX directory.

Microsoft IIS 6.0

1. Choose:
 - Windows 2000: *Start* → *Programs* → *Administrative Tools* → *Internet Information Services (IIS) Manager*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Internet Information Services (IIS) Manager*.
2. Use the secondary mouse button to click on the `SAP_TREX` Web site. Choose *Properties* → *Directory Security*.
3. In the *Authentication and access control* area, choose *Edit*.
4. Select the name that is entered in the *Username* field, and copy it using CTRL+C.
5. Close the Internet Information Services Manager.

Now give the determined user full access to the TREX directory.

Giving full access control to the determined user

Windows 2000

1. Use the secondary mouse button to click on the TREX directory. Choose *Properties* → *Security*.
2. Choose *Add*.
3. Select your local host under *Look in*.
4. Add the copied user name using CTRL+V To check the validity of the user name, choose *Check Names*.
5. Choose *OK*.
6. Select the user, and give it *Full Control* access permission.
7. Choose *Advanced*.
8. Select the user again.
9. Select *Allow inheritable permissions from parent to propagate to this object and Reset permissions on all child objects and enable propagation of inheritable permissions*.
10. Choose *OK* twice.

Windows Server 2003

1. Use the secondary mouse button to click on the TREX directory. Choose *Properties* → *Security*.
2. Choose *Add*.
3. Select your local host using *Locations*.
4. Add the copied user name using CTRL+V To check the validity of the user name, choose *Check Names*.
5. Choose *OK*.
6. Select the user, and give it *Full Control* access permission.
7. Choose *Advanced*.
8. Select the user again.
9. Select *Allow inheritable permissions from the parent to propagate to this object and Replace permission entries on all child objects*.
10. Choose *OK* twice.

Variant 2: Giving all users full control access

1. Use the secondary mouse button to click on the TREX directory. Choose *Properties* → *Security*.
2. Select *Everyone*, and give them *Full Control* access permission.
3. Choose *Advanced*.
4. Select *Everyone*.
5. Select the following according to your operating system:
 - Windows 2000: *Allow inheritable permissions from parent to propagate to this object and Reset permissions on all child objects and enable propagation of inheritable permissions.*
 - Windows Server 2003: *Allow inheritable permissions from the parent to propagate to this object and Replace permission entries on all child objects.*
6. Choose *OK* twice.

Variant 3: Entering a local user with full control access as the anonymous user

Microsoft IIS 5.0

1. Choose:
 - Windows 2000: *Start* → *Programs* → *Administrative Tools* → *Internet Services Manager*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Internet Services Manager*.
2. Use the secondary mouse button to click on the SAP_TREX Web site. Choose *Properties* → *Directory Security*.
3. In the *Anonymous access and authentication control* area, choose *Edit*.
4. In the *Anonymous access* area, choose *Edit*.
5. In the *Username* field, enter a **local** user that has *Full Control* access to the TREX directory and all contained files and sub-directories.
6. Choose *OK* and close the Internet Services Manager.

Microsoft IIS 6.0

1. Choose:
 - Windows 2000: *Start* → *Programs* → *Administrative Tools* → *Internet Information Services (IIS) Manager*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Internet Information Services (IIS) Manager*.
2. Use the secondary mouse button to click on the SAP_TREX Web site. Choose *Properties* → *Directory Security*.
3. In the *Authentication and access control* area, choose *Edit*.
4. In the *Username* field, enter a **local** user that has *Full Control* access to the TREX directory and all contained files and sub-directories.
5. Choose *OK* and close the Internet Information Services Manager.



Changing the User for the TREX Service

Use

The TREX service needs to run with a user that has access permissions for the network so that TREX can load documents from file servers, for example. After the TREX installation, you have to change the user that the service uses to log on. The `LocalSystem` user is used by default. It has no access permissions for the network.

Prerequisites

A user has been set up that has read and write access for the network.

Procedure

1. Choose:
 - Windows 2000: *Start* → *Programs* → *Administrative Tools* → *Services*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Services*.
2. Display the properties for `Trex Service`.
3. Choose the *Log On* tab.
4. Select *This account*.
5. Enter the name of the user and give the password twice.
6. Choose *OK*.

Result

You have to stop and then restart the TREX service before the changes take effect.



Only EP 6.0: Changing the Address of the TREX Web Server

Use

If you have installed TREX on Windows, you have to change the address of the TREX Web server in Content Management.



You do not need to modify the addresses of the other TREX servers.

The following description assumes that you are not using SSL communication between Content Management and TREX.

Prerequisites

- You have installed EP 6.0 with Content Management
- You are able to log on to the portal and are assigned to a system administrator role.

Procedure

1. Log on to the portal, and choose *System Administration* → *System Configuration* → *KM Configuration* → *TREX* → *TREX Java Client* from the top-level navigation bar.
2. Choose *Default HTTP Server*. Edit the *Default* entry as follows:

Parameter	Entry
SSL Configuration File	Adopt the default setting.
HTTP Server	<p>If you are running TREX on Windows, modify the address of the Web server as follows:</p> <pre>http://<%trexserver%>:8353/TREXHttpServer/TREXHttpServer.dll?</pre> <p>If you specified another port for the Web server during the installation, change the port too.</p>  <p><%trexserver%> is a variable for the host name of the TREX host. The actual host name is stored on the portal host in the <code>config_local.properties</code> configuration file.</p>
Protocol	<code>http</code>
Search Engine	<code>DRFUZZY</code>

3. Choose *HTTP Server*. Edit the *admin.httpserver.0* entry as follows:

Parameter	Entry
Address	Modify the address of the Web server again. <code>http://<%trexserver%>:8353/TREXHttpServer/TREXHttpServer.dll?</code>
Active	Make sure that this field is checked.
Access Count	Adopt the default setting.

4. Restart the servlet engine.



Installation Check

Purpose

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

Process Flow

1. Check that the TREX processes are running.
See [Checking TREX Processes \[Page 47\]](#)
2. Execute a Python test script to test the underlying TREX functions.
See [Executing an Installation Test Script \[Page 48\]](#)
3. Navigate in the portal to the TREX Monitor. Check that the TREX services are available in the portal.
See [Checking the Status of TREX Services in the Portal \[Page 50\]](#)



Checking TREX Processes

Procedure

With UNIX

1. Log on with the TREX user (normally `trexadm`).
2. Use `ps -fu <TREX_User>` to check whether the following processes are running:
 - o `httpd`
 - o `TREXDaemon.x`
 - o `TREXIndexServer.x`
 - o `TREXQueueServer.x`
 - o `TREXPreprocessor.x`

With Windows

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

- `TREXDaemon.exe`
- `TREXIndexServer.exe`
- `TREXQueueServer.exe`
- `TREXPreprocessor.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

With UNIX

1. Log on with the TREX user (normally `trexadm`).
2. Go to the TREX directory.

```
cd <TREX_Directory>
```
3. Set the environment variables required by TREX by calling 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 Python scripts are located:

```
cd python_support/test_tools/lib
```
5. Execute the script `runInstallationTest.py`.
 - If you are using the default ports of the TREX servers, execute the script without arguments:

```
python runInstallationTest.py
```
 - If you changed the default ports during the installation of TREX, execute the script with the following arguments:

```
python runInstallationTest.py -- indexServer=<hostname>:<port> -- queueServer=<hostname>:<port>
```

With Windows

1. Open a prompt and go to the directory in which the Python scripts are located:

```
cd <TREX_Directory>\python_support\test_tools\lib
```
2. Execute the script `runInstallationTest.py`.
 - If you are using the default ports of the TREX servers, execute the script without arguments:

```
runInstallationTest.py
```
 - If you changed the default ports of the TREX servers, execute the script without arguments:

```
runInstallationTest.py -- indexServer=<hostname>:<port> -- queueServer=<hostname>:<port>
```

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 with the Boolean operators AND and OR

After the script run the Web browser is started and a table is displayed with the results 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.



If the Web browser is not started automatically, you can display the results of the script run by opening the following file with the Web browser:

```
<TREX_Directory>\python_support\test_tools\lib\script_results\log  
_first_test_index\<current_date>\start.html
```



Checking the Status of TREX Services in the Portal

Use

You should check that the TREX services are available in the portal before creating an index and indexing documents.

Prerequisites

Content Management is installed and running. You are able to log on to the portal and are assigned to the following role:

- EP 5.0: KM admin
- EP 6.0: System administrator

Procedure

1. Log on to the portal and choose the following path (starting from the top-level navigation bar):
 - EP 5.0: *KM Admin* → *Monitor* → *TREX Monitor*
 - EP 6.0: *System Administration* → *Monitoring* → *TREX Monitor*
2. Check the status of the TREX services.

Result

If the TREX services are not available, check the proxy settings for the portal.

See:

[Changing Proxy Settings for the Portal \[Page 53\]](#)



Additional Information

Purpose

The sections below contain information on the following topics:

- Troubleshooting
- Starting and stopping the TREX daemon and individual TREX servers
- Deinstalling TREX



Troubleshooting

Purpose

The following sections contain information on trouble shooting.

Process Flow

- [Creating the Web Site Manually \(Only Windows\) \[Page 52\]](#)
- If the TREX monitor in the portal shows that the TREX services are not available, this can be due to the proxy settings on the portal host. Change the proxy settings if necessary.

See: [Changing Proxy Settings for the Portal \[Page 53\]](#)



Creating a Web Site Manually (Only Windows)

Use

The TREX setup creates the Web site `SAP_TREX` on the Web server. If the Web site is not created, you have to create it manually.

Procedure

1. Open the Internet Services Manager (Microsoft IIS 5.0) or the Internet Information Services Manager (Microsoft IIS 6.0).
 - Windows 2000: Choose *Start* → *Programs* → *Administrative Tools* → *Internet Services Manager* or *Internet Information Services (IIS) Manager*.
 - Windows Server 2003: Choose *Start* → *Administrative Tools* → *Internet Services Manager* or *Internet Information Services (IIS) Manager*.
2. Use the secondary mouse button to click on the computer symbol, and choose *New* → *Web Site*.
3. A wizard that helps you with the creation process is started. Enter the information from the table below, and adopt the default settings for all other fields.

Field	Entry
<i>Description</i>	SAP_TREX
<i>TCP Port</i>	8353 Choose another port if this one is already used.
<i>Path</i>	TREX directory, usually C:\Program Files\SAP\TREX_6 .
<i>Permissions (Read, Run scripts, and so on)</i>	None. Make sure that no field is checked.

4. When you have created the Web site, you have to create a virtual directory. Use the secondary mouse button to click on `SAP_TREX` Web site, and choose *New* → *Virtual Directory*.
5. A wizard that helps you with the creation process is started. Enter the following data:

Field	Entry
<i>Alias</i>	TREXHTTPServer
<i>Directory</i>	TREX directory, usually C:\Program Files\SAP\TREX_6 .
<i>Permissions (Read, Run scripts, and so on)</i>	Select <i>Execute (such as ISAPI applications or CGI)</i> . Remove the selection for the other permissions.

6. Display the properties of the virtual directory `TREXHTTPServer`. Choose the *Virtual Directory* tab, and remove the selection for *Log visits* and *Index this resource*.
7. Display the properties of the Web site `SAP_TREX`. Choose the *Web Site* tab, and remove the selection for the *Enable Logging* field.



Changing Proxy Settings for the Portal

Use

If the TREX monitor in the portal shows that the TREX services are not available, this can be due to the proxy settings on the portal host. The servlet engine might try to access the TREX host using a proxy server. In this case, change the settings as explained below.

Procedure

1. Display the proxy settings on the portal host.

For information on displaying proxy settings, see the following documentation:

- For EP 5.0, the *SAP Enterprise Portal Installation Guide* under <http://service.sap.com/epinstall> → *Installation, Upgrades & Patches*
- For EP 6.0, the *SAP Enterprise Portal Administration Guide* under <http://help.sap.com/ep>

2. Enter one of the following alternatives as a Java argument in the Java settings:

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

For `<hostname>.<domain>`, enter the host name and domain (if necessary) of the TREX host. Enter the TREX host exactly as you entered it during the Content Management installation (that is, fully qualified with host name and domain, or only with host name).



```
D"http.nonProxyHosts=trexserver.mydomain.com|localhost
```

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



```
D"http.nonProxyHosts=*.mydomain.com|localhost
```

3. Restart the servlet engine.
4. Only EP 6.0: Check the settings in the portal under *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*.



Starting and Stopping TREX on UNIX

Purpose

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

In the TREX installation directory, there is a `TREX` script that stops and starts the TREX daemon. During the installation you made sure that TREX would be started and stopped automatically. You can also call up the `TREX` script manually, for example, if you want to stop TREX temporarily and then restart it.

For test purposes and troubleshooting, you can also

- Start and stop the TREX server and Web server individually
- Stop and start the TREX daemon in debug mode



Starting and Stopping TREX

Use

You can start and stop the TREX daemon manually by calling up the `TREX` script with the appropriate option.

Starting TREX

1. Log on with the user `trexadm`.
2. Go to the TREX installation directory, and call up the `TREX` script using the `start` option.

```
cd <TREX_Installation_Directory>
TREX start
```

Stopping TREX

1. Log on with the user `trexadm`.
2. Go to the TREX installation directory, and call up the `TREX` script using the `stop` option.

```
cd <TREX_Installation_Directory>
TREX stop
```



Do not stop the TREX daemon using `kill -9`, and do not stop the individual child processes that the daemon has started. Doing so can lead to the loss of data. 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. Therefore, it can take a certain amount of time to stop TREX.

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



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 TREX user (normally `trexadm`).
2. Stop the TREX daemon (see [Starting and Stopping TREX \[Page 54\]](#)).
3. Go to the TREX directory.
4. Select the TREX servers that you need. Start each server in a separate shell.
 - If you have a non-distributed installation, start the index server, preprocessor, and queue server.
 - If you have a distributed installation, start the servers that are to run on the host in question.

TREX Server	Command
Index server	<code>TREXIndexServer .x</code>
Preprocessor	<code>TREXPreprocessor .x</code>
Queue server	<code>TREXQueueServer .x</code>
Only for a distributed system: Name server	<code>TREXNameServer .x</code>

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. Therefore, it can take a certain amount of time to stop the servers.

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



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



Starting and Stopping the TREX Daemon in Debug Mode

Use

If you start the TREX daemon in debug mode, you can track the program output on the screen. You do this for test purposes and troubleshooting.

Starting the TREX Daemon

1. Log on with the TREX user (normally `trexadm`).
2. Stop the TREX daemon (see [Starting and Stopping TREX \[Page 54\]](#)).
3. Open a shell and go to the TREX directory.

```
cd <TREX_Directory>
```

4. Execute the following command:

```
TREXDaemon.x -d
```

Stopping the TREX Daemon

1. Display the window in which you started the TREX daemon.
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 daemon is stopped. Therefore, it can take a certain amount of time to stop the daemon.

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



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



Starting and Stopping the Web Server

Use

You can start and stop the Apache Web server manually if necessary.

Starting the Web Server

1. Log on with the TREX user (normally `trexadm`).
2. Go to the Apache installation directory, and call up the `apachectl` script using the `start` option.

```
cd <TREX_Directory>/Apache
apachectl start
```

Stopping the Web Server

1. Log on with the TREX user (normally `trexadm`).
2. Go to the Apache installation directory, and call up the `apachectl` script using the `stop` option.

```
cd <TREX_Directory>/Apache
apachectl stop
```



Starting and Stopping TREX on Windows

Purpose

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

The TREX setup registers the TREX daemon as a service. The TREX service is configured so that it starts automatically when the host is started up, and stops automatically when the host is shut down. If the TREX service and the Web server are running, TREX is ready to use.

You can also start and stop the TREX service and Web server manually. For test purposes or troubleshooting, you can also:

- Stop and start the TREX servers individually
- Stop and start the TREX daemon in debug mode



Starting and Stopping the TREX Service

Use

The TREX setup registers the TREX daemon as a service. The TREX 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 TREX service manually if necessary.

Prerequisites

You restarted the host after you installed TREX.

Starting the TREX Service Manually

Choose:

- Windows 2000: *Start* → *Programs* → *SAP TREX* → *TREX Service* → *start*.
- Windows Server 2003: *Start* → *All Programs* → *SAP TREX* → *TREX Service* → *start*.

Stopping the TREX Service Manually

Choose:

- Windows 2000: *Start* → *Programs* → *SAP TREX* → *TREX Service* → *stop*.
- Windows Server 2003: *Start* → *All Programs* → *SAP TREX* → *TREX Service* → *stop*.

Certain processing steps, for example, writing an index, cannot be interrupted. Such steps are completed before the TREX service 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 service if lots of documents are currently being indexed.



Starting and Stopping Individual TREX Servers

Use

TREX is ready to use when the TREX service and Web server are running. 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 the TREX service (see [Starting and Stopping the TREX Service \[Page 58\]](#)).
2. Open a separate prompt for each TREX server.
3. Go to the TREX installation directory.
4. Select the TREX servers that you need.
 - If you have a non-distributed scenario, start the index server, preprocessor, and queue server.
 - If you have a distributed installation, start the servers that are to run on the host in question.

TREX Server	Command
Index server	<code>TREXIndexServer.exe</code>
ISAPI register (only in a distributed installation, and only on the Web server)	<code>TREXISAPIRegister.exe</code>
Name server (only in a distributed installation)	<code>TREXNameServer.exe</code>
Preprocessor	<code>TREXPreprocessor.exe</code>
Queue server	<code>TREXQueueServer.exe</code>



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 servers.
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. Therefore, it can take a certain amount of time to stop the servers.

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



Do not use the Task Manager to stop the TREX servers. Doing so can lead to the loss of data. Affected indexes can be irreparably damaged.



Starting and Stopping the TREX Daemon in Debug Mode

Use

The TREX daemon is the program that is registered as the service. If you start the TREX daemon in debug mode, you can track the program output on the screen. You do this for test purposes and troubleshooting.

Starting the TREX Daemon

1. Stop the TREX service (see [Starting and Stopping the TREX Service \[Page 58\]](#)).
2. Open a prompt and go to the TREX installation directory.
3. Execute the following command:

```
TREXDaemon.exe -d
```

Stopping the TREX Daemon

1. Display the window in which you started the TREX daemon.
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 daemon is stopped. Therefore, it can take a certain amount of time to stop the daemon.

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



Do not use the Task Manager to stop the TREX daemon. Doing so can lead to the loss of data. Affected indexes can be irreparably damaged.



Starting and Stopping the Web Server

Use

If necessary, you can start, restart, and stop the Web server (Microsoft IIS) manually.

Starting the Web Server

1. Choose:
 - Windows 2000: *Start* → *Settings* → *Control Panel* → *Administrative Tools* → *Services*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Services*.
2. Select *IIS Admin Service* and choose *Start* from the context menu.

If the World Wide Web publishing service doesn't 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
```

Restarting the Web Server

If problems occur during routine operation, you may need to restart the Web server.

Microsoft IIS 5.0

1. Choose:
 - Windows 2000: *Start* → *Programs* → *Administrative Tools* → *Internet Services Manager*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Internet Services Manager*.
2. Select the local host and choose *Action* → *Restart IIS*.

Microsoft IIS 6.0

1. Choose:
 - Windows 2000: *Start* → *Programs* → *Administrative Tools* → *Internet Information Services (IIS) Manager*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Internet Information Services (IIS) Manager*.
2. Select the local host and choose *Action* → *All Tasks* → *Restart IIS*.

Stopping the Web Server

1. Choose:
 - Windows 2000: Choose *Start* → *Settings* → *Control Panel* → *Administrative Tools* → *Services*.
 - Windows Server 2003: *Start* → *Administrative Tools* → *Services*.
2. Select *IIS Admin Service* and choose *Stop* from the context menu.



Deinstalling TREX on UNIX

Procedure

1. Log on with the TREX user (normally `trexadm`).
2. Stop TREX (see [Starting and Stopping TREX \(Page 54\)](#)).

It can take quite a long time to stop the TREX processes and the Web server. Make sure that all of the TREX processes have stopped before you start the deinstallation process. In particular, check that the Web server (HTTP daemon) has stopped. You can use the following command to do this:

```
ps -fu <TREX_User> | grep httpd
```

3. Go to the directory `<TREX_Directory>/_uninst`.
4. Start the deinstallation program.

```
uninstaller.bin Or TREXUninstaller
```



If the deinstallation program tells you that it is not able to run in graphical mode, the `DISPLAY` variable is not set. Select one of the following options:

- Start the deinstallation program with the option `-console`, so that it runs in text mode

or

- Set the `DISPLAY` variable:

Bourne Shell, Bourne Again Shell, Korn Shell:

```
DISPLAY=<hostname>:0.0; export DISPLAY
```

C Shell: `setenv DISPLAY <hostname>:0.0`

Start the setup program again.

5. Choose *Next* three times.
6. Check whether you want to keep or delete the configuration files `bartho.ini`, `imsconfig.cfg`, `TREXConfigMgr.ini`, `TREXIndexServer.ini`, `TREXQueueServer.ini`, and `TREXTcpipClient.ini`
 - If you do not want to use the existing indexes after the deinstallation, you can delete these configuration files.
 - If you want to reinstall TREX after the deinstallation, and continue to use the existing indexes, you must keep these configuration files.



Rename the configuration files after the deinstallation, for example, `old_TREXIndexServer.ini`.

The configuration files contain index information that you have to transfer to the new configuration files after installing TREX. Only carry out this step in consultation with TREX Support.

7. Choose *Finish*.
8. Log on as root.

9. Carry out the following steps:

- AIX – remove the start and stop instructions for the TREX script from the files `/etc/inittab` and `/etc/rc.shutdown`.
- HP UX or Sun Solaris – Remove the links to the TREX script.

HP-UX:

```
rm /sbin/init.d/TREX
rm /sbin/rc3.d/S900TREX
rm /sbin/rc0.d/K100TREX
```

Sun Solaris:

```
rm /etc/init.d/TREX
rm /etc/rc3.d/S90TREX
rm /etc/rc0.d/K10TREX
```



If the TREX script is started or stopped in a different run level or sequence, you have to modify the `rm` command accordingly.

Result

For security reasons, not all files are deleted when the deinstallation is carried out. No indexes, queues, or trace files are deleted. If you want to completely deinstall TREX, delete the rest of the content in the TREX directory manually.



Deinstalling TREX on Windows

Procedure

1. Stop the TREX service (see [Starting and Stopping the TREX Service \[Page 58\]](#)). Stop the Web server.
2. Choose:
 - Windows 2000: *Start* → *Settings* → *Control Panel* → *Add/Remove Programs*.
 - Windows Server 2003: *Start* → *Control Panel* → *Add/Remove Programs*.

The dialog box that now appears shows a list of programs that can be removed automatically from the host.

3. Select the entry *KM Platform - Retrieval & Classification (TREX)*.
4. Choose *Change/Remove*.

This starts the TREX deinstallation program.

5. Choose *Next* three times.
6. Check whether you want to keep or delete the configuration files `bartho.ini`, `imsconfig.cfg`, `TREXConfigMgr.ini`, `TREXIndexServer.ini`, `TREXQueueServer.ini`, and `TREXTcpipClient.ini`
 - If you do not want to use the existing indexes after the deinstallation, you can delete these configuration files.
 - If you want to reinstall TREX after the deinstallation, and continue to use the existing indexes, you must keep these configuration files.



Rename the configuration files after the deinstallation, for example, `old_TREXIndexServer.ini`.

The configuration files contain index information that you have to transfer to the new configuration files after installing TREX. Only carry out this step in consultation with TREX Support.

7. Choose *Finish*.
8. Restart the host.

Result

For security reasons, not all files are deleted when the deinstallation is carried out. No indexes, queues, or trace files are deleted. If you want to completely deinstall TREX, delete the rest of the content in the TREX directory manually.