



Introscope Version 5.3.2 Installation Guide For SAP

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1 Installing and Configuring Introscope Components

This chapter covers the installation and configuration of Introscope in the following sections:

- [Introscope Overview](#)
- [Reviewing Installation and Configuration Process](#)
- [Installing Introscope](#)
- [Installing Introscope Agent with SAP NetWeaver](#)
- [Introscope-enabling SAP NetWeaver](#)

Introscope Overview

You are installing Introscope to give SAP support better visibility into technical issues you may experience.

Introscope® is a system management application created to help manage Java Application performance. Unlike development tools, Introscope® is designed to scale with minimal performance impact. This allows you to monitor and manage your application performance in live production environments.

You will be installing several applications. You should already have information on where to install each Introscope component.

Reviewing Installation and Configuration Process

You will be installing the following Introscope components:

- Introscope Enterprise Manager
- Introscope Agent
- Introscope WebView (which will run in SAP NetWeaver Web Application Server)

The Installation Process

The Introscope installation process consists of the following steps:

1. Check SAP Note 797147 for latest updates to the installation procedure and to this document.
2. Download Updates from SAP Service Marketplace.
3. Install the Introscope Enterprise Manager.
4. Install the Introscope Agent.
5. Configure the Introscope Agent and Introscope-enable your Java application(s).
6. Deploy WebView for SAP NetWeaver.
7. Start up everything and confirm the Enterprise Manager is running and the Agent is reporting.

Obtain the Latest File Versions

Installation CD

The installation files are located on the CD "Introscope 5.3 SAP End User Edition".

Note: The Introscope version originally shipped with NW 04 SR 1 (5.3) has been updated to version 5.3.2. This new version can only be downloaded from the Service Marketplace. See below for download links.

Installation Tools

Details on the used installation tools (sapcar and SDM) can be found in the "Support Package Stack Guide": <http://service.sap.com/instguidesNW04> -> Operations

SAP Note 797147

SAP Note 797147 is the central entry point for up to date information regarding the installation of Wily Introscope 5.3.2 for SAP End User. Review the latest version of this note before you start installation. You may also find references to later versions of this document in the Note.

Download the Latest Updates from the Service Marketplace

Use the following path: <http://service.sap.com/swdc> Download → Support Packages and Patches → Entry by Application Group; navigate to SAP Netweaver → SAP NETWEAVER → SAP NETWEAVER 04 → Entry by Component → Central Admin → ...

- WILY INTROSCOPE AGENT 5.3 → OS independent → SAPIAGENT53_*.SAR Agent installation including SAP instrumentation
- WILY INTROSCOPE ENTPR MGR 5.3 → (your OS) →
 - introscope5.3.2(OS).SAPEndUser.bin or introscope5.3.2windows.SAPEndUser.exe
 - installer.properties
 - SAPI53MM53_*.SAR Management Modules to be added to the Enterprise Manager
- WILY INTROSCOPE WEBVIEW 5.3 → OS independent → WebView5.3.2NetWeaver.ear

Installing Introscope Enterprise Manager

To install the Introscope Enterprise Manager, you will run the installer file to install Introscope.

Enterprise Manager Installer Files

The installer files for the Enterprise Manager are located on the CD "Introscope 5.3.2 SAP End User Edition" in the subdirectory `enterprisemgr`. There is one installer file per supported platform. Furthermore, the file `installer.properties` is located in the same directory.

The following table details the names of the Introscope installer files.

Operating System	Installer Filename
Windows	introscope5.3.2windows.SAPEndUser.exe
Solaris	introscope5.3.2solaris.SAPEndUser.bin
HP-UX	introscope5.3.2hpux.SAPEndUser.bin
AIX	introscope5.3.2aix.SAPEndUser.bin
Linux	introscope5.3.2linux.SAPEndUser.bin

Running the Introscope Installer

The Introscope 5.3.2 installer will perform an automated install of Introscope components. The Introscope installer is invoked from the command line and runs “silently,” getting its input from a specified response file. The installer runs in the background as it installs Introscope components, and doesn’t provide feedback as it runs.

After installation, you can check the results in the installer logs.

When launching the installer, make sure the `installer.properties` file is in the same directory as the `.exe / .bin` file!

Optional: Configuring the Installation Directory

The installation of the Enterprise Manager by default goes to the following directories:

- Windows: `C:\usr\sap\ccms\wilyintroscope`
- Unix: `/usr/sap/ccms/wilyintroscope`

If you want to change this directory, e.g., because your SAP installation is located on a different Windows drive, use one of the following alternatives.

Note: Use slash (/) as path separator for all platforms, including Windows!

Alternative 1: Set the Installation Directory via Command Line Option

1. Open a command prompt and go to the directory where the installer file and the file `installer.properties` are located.
2. Add the option `-DUSER_INSTALL_DIR=<installation directory>` to the invocation of the installer (see below), e.g.,

```
introscope5.3.2windows.SAPEndUser.exe
-DUSER_INSTALL_DIR=d:/usr/sap/ccms/wilyintroscope.
```

Alternative 2: Edit installer.properties

1. Copy the file `installer.properties` to a writable directory and open it in a text editor.
2. Locate the `USER_INSTALL_DIR` property.
 To change the install directory location, enter the desired location in the `USER_INSTALL_DIR` property.

Note: The instructions in this guide will use examples relative to the default installation directory.

Start the Installer

1. Launch the installer for your platform using the appropriate command:
 - For Windows, double-click on the `introscope5.3.2windows.SAPEndUser.exe`, or launch from command-line with the following command:

```
introscope5.3.2windows.SAPEndUser.exe
```

- For any other platform, use the command in the following example. You may have to set the right permission before you can launch the installation:

```
chmod 777 introscope5.3.2solaris.SAPEndUser.bin
./introscope5.3.2solaris.SAPEndUser.bin
```

Note: In any case, the configuration file `installer.properties` must be located in the current directory where you launch the installer. You can avoid copying the installation file itself by using the complete path to the executable.

2. Verify installation using instructions in the following section, Verifying Installation.

Verifying Installation

The installer does not give confirmation of successful installation. To confirm installation was successful:

1. Verify that the Introscope directory exists at:
 - C:\usr\sap\ccms\wilyintroscope (Windows)
 - /usr/sap/ccms/wilyintroscope/ (Unix)OR the location you specified.
2. Open the file,
`\usr\sap\ccms\wilyintroscope\install\Introscope_InstallLog.log`.
3. Verify that the following lines appear at the top of the file:

```
Installation: Successful.
```

```
166 SUCCESSES
```

```
0 WARNINGS
0 NONFATAL ERRORS
0 FATAL ERRORS
```

Note: The number of successes may be different than what is shown in this example.

Install the SAP Management Modules

Extract the file `SAPIS53MM.SAR` in the home directory of the Enterprise Manager installation, e.g., `/usr/sap/ccms/wilyintroscope/`.

Example:

```
cd /usr/sap/ccms/wilyintroscope
sapcar -xvf SAPIS53MM.SAR
```

As a result you will find one or more `.jar` files in the subdirectory `config/modules`.

Launch Enterprise Manager as Windows Service

To launch the Enterprise Manager automatically at system restart, you should register it as Windows service or run it as a Unix background process. On Windows, perform the following:

1. In the Windows Explorer double-click the file `RegisterEMService.bat`.
2. Open the Services Control Panel (Start Menu → Control Panel → Administrative Tools → Services) and check that the service "Introscope Enterprise Manager" has been created.
3. Start the service if it is not yet running.

Manually Starting Enterprise Manager

After configuration, you can start the Enterprise Manager.

Note: Make sure the Enterprise Manager has both read access and write access to the `/usr/sap/ccms/wilyintroscope/config` directory, so that configuration changes will be properly saved.

On Windows

Start the Enterprise Manager using one of the following methods:

- from the **Start** menu, **Introscope > Administration > Introscope Enterprise Manager**.

OR

- run **Introscope Enterprise Manager.exe** (located in the `<Introscope home>` directory, by default `/usr/sap/ccms/wilyintroscope`).

On Other Platforms

On other platforms, switch to the `<Introscope home>` directory, then launch the Enterprise Manager with the command:

```
./Introscope_Enterprise_Manager.
```

Checking That Introscope Is Running Properly

After you have started up the Enterprise Manager and your application, you will need to verify that the Introscope Agent is communicating with the Enterprise Manager.

1. Locate the Enterprise Manager log at `<Introscope home>\logs\EMservice.log`.
2. Check that the Enterprise Manager has started. Look for the following line in the logfile:

```
11/05/04 11:22:19 AM PST [INFO] [Manager] Introscope Enterprise Manager started.
```

3. Check that the Introscope Agent has connected to the Enterprise Manager and is reporting. Look for lines similar to the following in the logfile:

```
11/22/04 05:21:58 PM PST [INFO] [Manager.Agent] Processing  
connection at: Socket [addr=/172.27.8.75,port=2448,localport=6001]
```

```
11/22/04 05:21:58 PM PST [INFO] [Manager.Agent] Configuring limit  
on input queue to 102400 11/22/04 05:21:58 PM PST [INFO]  
[Manager.Agent] Connected to Agent "SuperDomain|qwsap05|SAP  
EP|UnknownAgent" at  
qwsap05|"Socket [addr=/172.27.8.79,port=2448,localport=6001]"  
using Agent protocol revision 19.0
```


2 Introscope-Enabling SAP J2EE Systems

Installing Introscope Agent with SAP NetWeaver

After you have installed the Enterprise Manager, you are ready to install and configure the Introscope Agent and Introscope-enable your Java Applications. The following instructions are valid for both SAP J2EE versions 6.20 and 6.40.

The instructions in the following section work on both Windows and Unix systems, but the examples show Windows convention (backslashes in the paths).

Note: Always use forward slashes (/) as path separators for Introscope config files and for JVM parameters on all platforms including Windows. This avoids the need to escape the Windows path separator backslash (\) by doubling it.

Configuring Introscope with SAP NetWeaver Application Servers Overview

The following steps are required to install and configure the Introscope Agent to report information to the Enterprise Manager:

- install the Introscope Agent
- configure basic Introscope Agent settings
- Introscope-enable the application code

Installing Introscope Agent

To install the Introscope Agent:

1. Identify the Agent installer file for your platform. They are located in the directory `agent` of the CD "Introscope 5.3.2 SAP End User Edition"
 - For Windows, use:
`SAPISAGENTWIN53.SAR`
 - For all other platforms, use:
`SAPISAGENTUNIX53.SAR`
2. Extract the installer file into the NetWeaver CCMS directory, usually:
`<drive>:\usr\sap\ccms.`

3. Confirm the Agent was installed correctly by checking for the existence of the `/wily` directory in the `<drive>:\usr\sap\ccms` directory.

Configuring Introscope Agent Settings

The following section details how to configure the Introscope Agent. The Agent configuration settings are found in the file, `/usr/sap/ccms/wily/sap_IntroscopeAgent.profile`. This guide will refer to the `sap_IntroscopeAgent.profile` file as the **Agent profile**. Note that this file contains SAP-specific customization.

You will need to configure the host name or IP address and port of the machine where the Enterprise Manager resides.

To configure the Introscope Agent:

1. Open the `<drive>:\usr\sap\ccms\wily\sap_IntroscopeAgent.profile` file.
2. Locate the property,
`introscope.agent.enterprisemanager.transport.tcp.host.DEFAULT.`

Enter either the host name or IP address of the machine where Enterprise Manager resides.

3. Locate the property,
`introscope.agent.enterprisemanager.transport.tcp.port.DEFAULT.`

The value should be the port on which the Enterprise Manager listens for Agent connections.

Default setting is `6001`.

4. Save changes to the `sap_IntroscopeAgent.profile`.

Introscope-enabling SAP NetWeaver

A Java application is monitored by adding Probes to the bytecode (called "Introscope-enabling" your application). The Probes then report information to the Introscope Agent, and the Agent reports that information to the Enterprise Manager. The method you will be configuring, JVM AutoProbe, will install probes dynamically into application code as it is loaded.

Configuring JVM AutoProbe

There are two steps required to configure and use JVM AutoProbe with Sun or IBM JVM:

- create an AutoProbe connector that will work with your JVM
- run the AutoProbe Connector by modifying the classpath with the location of the AutoProbe connector and Introscope Agent.

Note: You will have to re-create the AutoProbe connector you update the JVM that is used for the SAP J2EE nodes, even if you just change the patch level, e.g., from `1.4.2_04` to

1.4.2_05! For this reason it is also important that you specify exactly the same JVM that is actually used by the SAP J2EE nodes.

The following section details how to configure JVM AutoProbe.

Creating an AutoProbe Connector

Use the `CreateAutoProbeConnector.jar` tool to create a connector specific to the JVM used to run the application server. There are two ways to specify the JVM:

- use the JVM that is running the tool
- pass the JVM directory on the command line to the tool

1. Change the working directory to `wily\connectors`.
2. Run the Create AutoProbe Connector tool using the following command:
 - Make sure to specify exactly the JVM that is used for launching the J2EE node by passing the JVM directory `<jvm_path>` on the command line:

```
java -jar CreateAutoProbeConnector.jar -jvm <jvm_path> -output
connector.jar
```

3. The output is the file:

```
<drive>:\usr\sap\ccms\wily\connectors\connector.jar
```

Running the AutoProbe Connector

After you have created the AutoProbe Connector, you must modify the boot class path by adding JVM options. Typically, you will only want to activate the agent on the SAP J2EE *server* nodes, not on dispatchers and state controllers.

Note that for class path and directory paths, you can use forward slashes (/) on all platforms, even on Windows. For SAP J2EE 6.40, you even cannot use backslash (\) on Windows. Furthermore, note the difference between Unix and Windows in the class path: The entries are separated by ; on Windows, but by : on Unix.

Using SAP J2EE 6.20

The procedure to add JVM options depends on the startup method for the J2EE nodes. Check SAP Note 697062 for instructions to set JVM options for your specific startup method. The following procedure is an example in case you use SAP J2EE startup framework for J2EE 6.20:

1. Open the file:

```
\usr\sap\<J2EE_ENGINE_ID>\j2ee\j2ee_<INSTANCE>\configtool\service.ini
```

2. Append the following commands to **JavaParameters** (Windows example):

```
-Xbootclasspath/p:<drive>:/usr/sap/ccms/wily/connectors/connector.jar;<drive>:/usr/sap/ccms/wily/Agent.jar
-Dcom.wily.introscope.agentProfile=<drive>:/usr/sap/ccms/wily/sap_IntroscopeAgent.profile
-Dcom.wily.introscope.agent.agentName=<yourAgentName>
```

As Agent name, we recommend to use an identifier that uniquely identifies the J2EE node in your landscape, e.g., <hostName>_<server0> or similar.

Unix example:

```
-Xbootclasspath/p:/usr/sap/ccms/wily/connectors/connector.jar:/usr/sap/ccms/wily/Agent.jar
-Dcom.wily.introscope.agentProfile=/usr/sap/ccms/wily/sap_IntroscopeAgent.profile
-Dcom.wily.introscope.agent.agentName=<yourAgentName>
```

3. Restart SAP server.

Using NetWeaver 04 / SAP J2EE 6.40

Note: Do not activate the Introscope Agent on the NetWeaver installation that will run WebView!

1. Run the SAP J2EE Configtool.
2. Select the server to modify.
3. In the **Java Parameters** field, add the following new java parameters (Windows example):

```
-Xbootclasspath/p:<drive>:/usr/sap/ccms/wily/connectors/connector.jar;<drive>:/usr/sap/ccms/wily/Agent.jar
-Dcom.wily.introscope.agentProfile=<drive>:/usr/sap/ccms/wily/sap_IntroscopeAgent.profile
-Dcom.wily.introscope.agent.agentName=<yourAgentName>
```

Note: Note that for NetWeaver 6.40 on Windows, the slashes for these java parameters must go forwards.

Unix example:

```
-Xbootclasspath/p:/usr/sap/ccms/wily/connectors/connector.jar:/usr/sap/ccms/wily/Agent.jar
-Dcom.wily.introscope.agentProfile=/usr/sap/ccms/wily/sap_IntroscopeAge
```

```
nt.profile
-Dcom.wily.introscope.agent.agentName=<yourAgentName>
```

4. Click the disk button to save.
5. Repeat steps 2 - 4 for each server.
6. Restart SAP server.
7. To verify that Config tool changes were made, open the file:

```
<drive>:\usr\sap\ccms\<SID>\<instance>\j2ee\cluster\instance.properties
```

8. Check for a line beginning with ID<server_id>.JavaParameters, and see if it contains the lines you entered in the step above.

Checking that the Agent is Running

1. Check that the SAP J2EE nodes start up correctly after the restart and that the J2EE applications are available as before.
2. Search for an Agent log file in the J2EE node working directory, e.g., in the directory C:\usr\sap\SID\j2ee\j2ee_00\cluster\server or C:\usr\sap\SID\JC00\j2ee\cluster\server0. The file will be named IntroscopeAgent.<agentName>.log, where <agentName> is the name that you assigned via the JVM parameter above. Open the text file with a text editor and check the last lines. You will probably find warnings that the connection to the Enterprise Manager failed – since you have not yet started the Enterprise Manager.

EXAMPLE

The last few lines of the agent log file should similar to the following:

```
12/05/04 07:27:17 PM CET [INFO] [IntroscopeAgent] The Agent will connect to the
Introscope Enterprise Manager using: TCP read buffer size: 1024 write buffer size: 32768

12/05/04 07:27:17 PM CET [INFO] [IntroscopeAgent] The Agent will attempt to connect to
Introscope Enterprise Manager DEFAULT target: localhost:6001 [1]

12/05/04 07:27:17 PM CET [INFO] [IntroscopeAgent] Using Agent protocol revision 19.0

12/05/04 07:27:18 PM CET [WARN] [IntroscopeAgent] Failed to connect to the Introscope
Enterprise Manager at localhost:6001 (1).
```

Next Steps

Continue to the next chapter, [Chapter 3, Installing WebView](#).

3 Installing and Configuring WebView with SAP NetWeaver 6.40

This chapter describes installing and deploying WebView with SAP NetWeaver version 6.40. Information is provided in the following sections:

- [System and Version Requirements](#)
- [Reviewing Installation and Configuration Process](#)
- [Installing and Configuring WebView with SAP NetWeaver 6.40](#)

System and Version Requirements

Introscope Version

Introscope WebView version 5.3.2 is compatible with Introscope version 5.3.2.

Application Server versions

Check the following link for a list on supported operating systems, JVMs, and browser versions:

http://www.wilytech.com/pdf/product/ProdAvailMatrix_WilyIntroscope_041130.pdf

Reviewing Installation and Configuration Process

After you've checked the system requirements and collected the appropriate access and configuration information for your deployment, you're ready to start installing and configuring WebView. This process consists of the following steps:

1. Modify JVM options of J2EE server nodes for WebView.
2. Deploy the WebView .EAR file in the SAP NetWeaver application server through which you will be running WebView.

Installing and Configuring WebView with SAP NetWeaver 6.40

Installation Prerequisites

Before you begin WebView installation, ensure that you have:

- installed and configured the Introscope Enterprise Manager and Agent

- Introscope-enabled your managed application (using JVM AutoProbe)
- installed SAP NetWeaver 6.40. Consult your SAP NetWeaver documentation for instructions on installing SAP NetWeaver
- installed a supported JVM.

Configuring SAP NetWeaver for WebView Deployment

Depending on the platform you have to add special JVM options for running WebView. Use the table below to choose the right options and revisit SAP Note 797147 to check for latest updates.

Platform and JVM	Required Options
Windows	-Dsun.java2d.noddraw=true Make sure that -Djava.awt.headless=true is not set!
Solaris	-Djava.awt.headless=true -Dswing.volatileImageBufferEnabled=false
Linux	-Djava.awt.headless=true -Dswing.volatileImageBufferEnabled=false
HP UX	-Djava.awt.headless=true -Dswing.volatileImageBufferEnabled=false
AIX	-Djava.awt.headless=true -Dswing.volatileImageBufferEnabled=false

To configure SAP NetWeaver for WebView deployment:

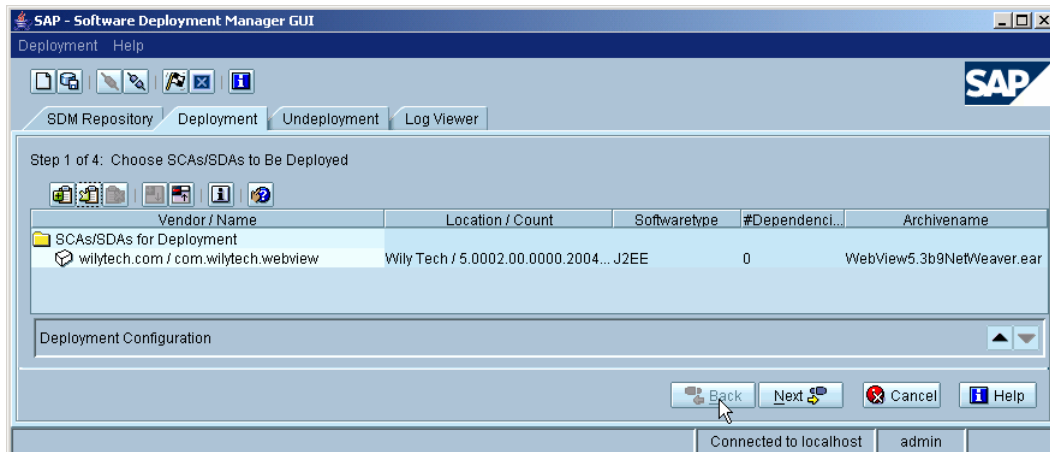
1. Open the SAP J2EE config tool.
2. Select the server to modify.
3. In the **Java Parameters** field, add the parameters from the table above for your operating system.
4. Click the disk icon to save.

Deploying the WebView Package

1. Start SDM via the command `/usr/sap/<SID>/JC00/SDM/program/RemoteGui.`
2. Connect to the running SDM server.

Select the deployment tab.

3. From the Introscope CD, add the file `WebView5.3.2netweaver.ear` for deployment. The file is located in the folder `webview`. The SDM screen should look similar to the screenshot below.



4. Start deployment.

Note: These instructions assume you are installing WebView on the same machine as the IntroScope Enterprise Manager.

Verifying Successful WebView Deployment

After deploying WebView, verify that WebView has connected to the Enterprise Manager.

1. Make sure that the Enterprise Manager is running (see the section, [Checking That IntroScope Is Running Properly](#)).
2. Locate the Enterprise Manager log at
`/usr/sap/ccms/wilyintroscope/IntroScopeEnterpriseManager.log`.
3. Check that WebView has connected to the Enterprise Manager. Look for the following message in the logfile:

```
11/22/04 05:21:52 PM PST [INFO] [Manager.Authentication] IntroScope
WebView connections are enabled.
12/05/04 07:53:45 PM CET [INFO] [Manager.Authentication] User
"WilyWebView" logged in successfully from host "127.0.0.1"
```

WebView Installation Is Complete!