

ITCAM for SOA
Version 7.2 Fix Pack 1

Tools

IBM

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IBM

Note

Before using this information and the product it supports, read the information in "Notices" on page 75.

Edition Notice

This edition applies to version 7.2 Fix Pack 1 of IBM Tivoli Composite Application Manager for SOA Tools Guide and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this publication

IBM® Web Services Navigator provides a set of capabilities for visualizing the characteristics of Web services in a *services-oriented architecture* (SOA). It is shipped with IBM Tivoli® Composite Application Manager for SOA. This publication describes the planning, installation, and configuration steps needed to install this tool and use it to visualize your Web services environment. After installation completes, see the online information included with the product for more information about tasks that you can perform with this tool.

What this publication contains

This publication contains the following chapters:

- Chapter 1, “Introduction,” on page 1
Provides an introduction to the IBM Web Services Navigator.
- Chapter 2, “Planning for installation,” on page 5
Provides information and considerations for planning to install and use the IBM Web Services Navigator.
- Chapter 3, “Installing the Tools,” on page 11
Provides the procedures for installing, configuring, and verifying the IBM Web Services Navigator installed in your environment.
- Chapter 4, “Retrieving Web services data from the warehouse database,” on page 29
Provides information and examples on setting up database connections and retrieving data from the database to display in the IBM Web Services Navigator.
- Chapter 5, “Retrieving local metric and content log files,” on page 47
Provides information about using the import function wizard that accompanies IBM Web Services Navigator, for converting log files for display in the IBM Web Services Navigator user interface.
- Chapter 6, “Uninstalling IBM Tivoli Composite Application Manager for SOA Tools,” on page 57
Provides procedures for removing the IBM Web Services Navigator installation.
- Chapter 7, “Troubleshooting,” on page 59
Provides information about common problems or limitations that you might encounter while using the IBM Web Services Navigator, along with recovery procedures.

Additional reference information that is displayed while using the IBM Web Services Navigator is included in the Appendix A, “Messages,” on page 67 section of this publication. Also, the “Notices” on page 75 section provides IBM, Tivoli, and other company notices as they apply to the product.

Intended audience

This publication is for services architects, system administrators, software developers of Web service implementations, services application support personnel, test personnel, and others who are installing, configuring, and testing Web services in a test or production environment.

Readers must be familiar with the supported versions of the IBM Eclipse environment, into which you can install IBM Web Services Navigator. Eclipse is an award-winning, open source platform for the construction of powerful software development tools and rich desktop applications. Leveraging the Eclipse plug-in framework to integrate technology on the desktop saves technology providers time and money by enabling them to focus their efforts on delivering differentiation and value for their offerings. Full details on Eclipse are available at the following website: <http://www.eclipse.org>

Publications

This section lists publications in the product library and other related documents. It also describes how to access Tivoli publications online and how to order Tivoli publications.

ITCAM for Applications library

The following publications are included in the ITCAM for Applications library, available in the ITCAM for Applications Information Center:

- *IBM Tivoli Composite Application Manager for SOA Installation Guide*
Provides an overview of the IBM Tivoli Management Services environment and the planning information and procedures you need to install and upgrade the application support files and the monitoring agent in a distributed operating system environment.
This guide also includes procedures for configuring support for the service-to-service topology function, including creating databases and configuring SOA Domain Management Server and Tivoli Common Object Repository in your Tivoli Enterprise Portal Server environment.
This guide also includes procedures for enabling and disabling the various supported runtime environments for data collection by the ITCAM for SOA, version 7.2 or later monitoring agent, and optional administrative tasks to further configure your installation.
- *IBM Tivoli Composite Application Manager for SOA User's Guide*
Provides information on monitoring and managing resources in the Tivoli Enterprise Portal environment, including details about Take Action commands, situations, workspaces and views, including service-to-service topology workspaces and views. Some problem determination information about the various components of ITCAM for SOA is also provided, as well as information about log files and informational, warning, and error messages. This publication complements the Tivoli Enterprise Portal online help information for this monitoring agent.
- *IBM Tivoli Composite Application Manager for SOA Tools*
Provides information about installing and using the IBM Web Services Navigator, an Eclipse based plugin for extracting services information that has been collected by monitoring agents and stored, either locally or in a historical database. This tool provides the capability to retrieve historical metric data from a connected database, or assemble several locally stored metric and content log files, and display the resulting data in several views to assist a services architect in visualizing relationships between services.
- *IBM Tivoli Composite Application Manager for Discovery Library Adapters Guide*
Provides information about installing and running the following discovery library adapters (DLAs) provided with ITCAM for SOA: WebSphere® Service Registry and Repository Discovery Library Adapter, Business Process Execution

Language for Web Services Discovery Library Adapter, and IBM Tivoli Composite Application Manager for SOA Discovery Library Adapter.

- *IBM Tivoli Composite Application Manager for SOA Troubleshooting Guide*
Provides information about recovering from problems that you might encounter while installing, configuring, and using the product. Typical problem scenarios are described, and recovery procedures are provided. Error messages for the product are also documented in this guide.
- *IBM Tivoli Composite Application Manager for SOA WSRR Integration Guide*
Provides information about integrating ITCAM for SOA version 7.2 with WebSphere Services Registry and Repository version 7.5 or later. The procedure for subscribing to WSRR events related to service-level definitions and the procedure for creating and deploying an SDMS configuration file is documented. The configuration file defines the rules for processing WSRR events in SDMS. Based on these rules, situations are automatically created, updated, or deleted by IBM Tivoli Monitoring when a lifecycle changes notification is received from WSRR.
- *IBM Tivoli Composite Application Manager for SOA BPM Monitoring Deployment Guide*
Provides information about implementing an IBM BPM monitoring solution.
- *IBM Tivoli Composite Application Manager for SOA Reports Guide*
Provides information about installing and using ITCAM for SOA Reports.

Related publications

The following documentation also provides useful information:

- IBM Tivoli Documentation Central:
Information about IBM Tivoli Documentation is provided on the following website:
https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli_Documentation_Central
- IBM WebSphere Application Server:
Information about IBM WebSphere Application Server is provided on the following website:
<http://www.ibm.com/software/webservers/appserv/was/library/>
- ITCAM for Application Diagnostics library:
Information about ITCAM for Application Diagnostics Managing Server is provided on the following website:
http://publib.boulder.ibm.com/infocenter/tivihelp/v24r1/index.jsp?topic=%2Fcom.ibm.itcamfad.doc_7101%2Fic-homepage.html
- IBM DB2®:
Information about IBM DB2 is provided on the following website:
<http://www.ibm.com/software/data/sw-library/>

Accessing terminology online

The IBM Terminology website consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology website at <http://www.ibm.com/software/globalization/terminology> .

Accessing publications online

The documentation CD contains the publications that are in the product library. The format of the publications is PDF, HTML, or both.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli Documentation Central website at [https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli Documentation Central](https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli_Documentation_Central)

Tip: If you print PDF documents on other than letter-sized paper, set the option in the **File** → **Print** window that allows Adobe Reader to print letter-sized pages on your local paper.

Ordering publications

You can order many Tivoli publications online at the following website:

<http://www.elink.ibm.com/publications/servlet/pbi.wss>

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications. To locate the telephone number of your local representative, perform the following steps:

1. Go to <http://www.elink.ibm.com/publications/servlet/pbi.wss>
2. Select your country from the list and click **Go**.
3. Click **About this site** in the main panel to see an information page that includes the telephone number of your local representative.

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

For additional information, see Appendix B, “Accessibility,” on page 69.

Application Performance Management community on Service Management Connect

Connect, learn, and share with Service Management professionals: product support technical experts who provide their perspectives and expertise.

Access Service Management Connect at <https://www.ibm.com/developerworks/servicemanagement/apm/index.html>. Use Service Management Connect in the following ways:

- Become involved with transparent development, an ongoing, open engagement between other users and IBM developers of Tivoli products. You can access early designs, sprint demonstrations, product roadmaps, and prerelease code.

- Connect one-on-one with the experts to collaborate and network about Tivoli and the Application Performance Management community.
- Read blogs to benefit from the expertise and experience of others.
- Use wikis and forums to collaborate with the broader user community.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education website:

<http://www.ibm.com/software/tivoli/education>

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

Online

Access the IBM Software Support site at <http://www.ibm.com/software/support/probsub.html>.

Troubleshooting Guide

For more information about resolving problems, see the *IBM Tivoli Composite Application Manager for SOA Troubleshooting Guide*.

Conventions used in this guide

This guide uses several conventions for special terms and actions, operating system-dependent commands and paths.

Typeface conventions

This guide uses the following typeface conventions:

Bold

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multi-column lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:**, **Attention:**, and **Operating system considerations:**)
- Keywords and parameters in text

Italic

- Words defined in text
- Emphasis of words to signify importance
- New terms in text (except in a definition list)
- Variables and values you must provide

Monospace

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user

- Text that the user must type
- Values for arguments or command options

Resolving directory path variables

This section describes directory path naming conventions used in this guide.

The IBM Tivoli Monitoring home directory

Throughout this guide, reference is made to the *ITM_home* variable, which is the directory location where IBM Tivoli Monitoring is installed. The default value for this variable on a Windows system is `C:\IBM\ITM`.

If you installed IBM Tivoli Monitoring in a different directory location, substitute your install path location for *ITM_home*.

The IBM Tivoli Composite Application Manager for SOA home directory

Throughout the product library, reference is made to the *ITCAM4SOA_Home* variable, which is the directory location where IBM Tivoli Composite Application Manager for SOA monitoring agent is installed in the IBM Tivoli Monitoring environment. The default value for this variable on Windows systems is `ITM_home\TMAITM6`.

Chapter 1. Introduction

This chapter introduces you to the IBM Web Services Navigator provided with this release of IBM Tivoli Composite Application Manager for SOA.

Important: Starting in version 7.2, managed SCA mediation primitives are no longer provided for insertion into mediation flow components of applications built with IBM WebSphere Integration Developer. The promotable properties of mediation primitives in IBM WebSphere Integration Developer provide a similar role.

IBM Web Services Navigator

IBM Web Services Navigator is used to visualize the characteristics of Web services, Service Component Architecture (SCA) components, and IBM WebSphere Message Broker flows in a service-oriented architecture (SOA). Metric information about Web services requests and responses is intercepted by IBM Tivoli Composite Application Manager for SOA. This information is written to multiple log files and optionally stored in a database. Then the IBM Web Services Navigator retrieves this data from the database. This data is converted into a log file format that can be displayed in an Eclipse-based viewer. The IBM Web Services Navigator also provides an import wizard function. This wizard parses the metric log files directly and transforms the data into log files in a format suitable for import operations.

This version of IBM Web Services Navigator supports metric and content log file versions 2, 3, and 4. Table 1 presents the versions of the metric log files that are supported for each data collector in ITCAM for SOA version 7.2 Fix Pack 1.

Table 1. Versions of the metric log files supported by each data collector

Data collector type	Metric and content log file version
ITCAM Data Collector for WebSphere	Versions 2 and 3
Microsoft .NET Data Collector provided with ITCAM for SOA	Version 2
Microsoft .NET Data Collector provided with ITCAM for Microsoft Applications	Version 2
JBoss Data Collector	Version 2
BEA WebLogic Server Data Collector	Version 2
CICS [®] Transaction Server Data Collector	Version 2
NetWeaver Data Collector	Version 2
SAP Data Collector	Version 2
WebSphere Community Edition Data Collector	Version 2
DataPower [®] SOA Appliance Data Collector	Version 2, 3, and 4
Data Collector for WebSphere Message Broker	Version 2

Installation environments

You can install IBM Web Services Navigator into the embedded Eclipse version 3.2.2 environment that is provided with the Tools.

Important: Beginning with ITCAM for SOA version 7.2, you can no longer install the IBM Web Services Navigator into an existing Eclipse environment. When you install IBM Web Services Navigator, a new installation of Eclipse is installed with the IBM Web Services Navigator in a location you specify.

Upgrading from a previous version: You must observe certain limitations when upgrading from a previous installation of IBM Web Services Navigator. See Chapter 2, “Planning for installation,” on page 5 for more information.

Product functions

The IBM Web Services Navigator includes the following functions:

- **Retrieve historical data:** You can retrieve historical metric data from a supported warehouse database and format it into a local log file that you then import in to IBM Web Services Navigator.
- **Combine multiple logs in to a single file:** You can use the import wizard graphical user interface to combine multiple metric and content log files in to a single log file that you then import in to IBM Web Services Navigator. This import wizard replaces the command line-based Log Assembler function that was used in previous versions of this tool.
- **Learn by using a sample log:** You can import the sample log file provided with this release in to IBM Web Services Navigator to learn more about the tool.
- **Visualize data in different views:** You can use a special Web Services Profiling *perspective* that contains a unique set of views in the Eclipse environment. Each of the views provides a different visual representation of your Web services data from the imported log file.

The following views are available:

Service Topology

A graphical representation of the monitored Web services, SCA components, and WebSphere Message Broker flows that displays information about the relationships between Web services, for example:

- Web services that call other Web services
- The frequency of Web service calls
- The application server hosting the Web services

Transaction Flows

A unified modeling language (UML) style sequence diagram that shows a chronological view of each *transaction* (the sequence of Web services calls), and the flow between the various Web services over time.

Flow Patterns

A visual representation of all of the different patterns of transactions, where each pattern represents a distinct sequence of Web service calls. The frequency of each pattern is also displayed, enabling you to see how often a specific transaction pattern occurs.

Statistic Tables

A multiple table view of all of the metric data collected by IBM Tivoli Composite Application Manager for SOA at each interception point. This view consists of four separate tables:

Message Statistics

Provides the details of all of the messages in the currently displayed log file. This information includes the operation,

service names and application server names for the requesters and response providers. It also includes send and receive times, and message size.

Invocation Statistics

Provides more details on individual request and response message pairs and one-way messages, including elapsed times, network transit times, and indicators of faults and missing events.

Transaction Statistics

Provides information about transactions composed of sequences of request and response message pairs and one-way messages. This information includes the number of invocations, the number of services, and application servers involved in the transaction.

Pattern Invocation Statistics

Provides details about the patterns of request and response message pairs and one-way messages, including the number of occurrences, and elapsed times and network delay times.

Message Content

A structured representation of the specific contents of an XML SOAP request or response. The data that is displayed in this view is not available from the historical database where other metric data is stored. This view requires you to use the graphical user interface provided with this version of the tool. This interface combines your metric and content log files in to a single log file necessary to view the message content data in IBM Web Services Navigator. See Chapter 5, "Retrieving local metric and content log files," on page 47 for more information.

- **Customize your views:** You can customize some of these views by formatting them to fit into the current window, by expanding or compressing the view. You can then hide or show some of the transactions and text labels to view only the transactions of interest. These views are described in more detail in the online help for IBM Web Services Navigator. The help is installed in the IBM Eclipse online help system. After installation, start IBM Web Services Navigator and click **Help** → **Help Contents** to access the online information.
- **Viewing multiple log files:** Use the IBM Web Services Navigator to import multiple log files in to the Eclipse environment. Then display the contents of a single loaded log file one at a time. You can switch between loaded log files by selecting them from the Navigator view.

Intended users

The following users employ IBM Web Services Navigator to visualize data about installed services, which is gathered by the IBM Tivoli Composite Application Manager for SOA data collector:

Services Architect

Responsible for the entire architecture of Web services. Services Architects use IBM Web Services Navigator to visualize the overall services flow to ensure that it maps to the designed flow. IBM Web Services Navigator provides a clear picture of the overall flow of transactions, so you can verify that Web services are called in the correct order and only when required.

Services Application Support

Typically responsible for receiving and handling trouble tickets and event

notifications, and resolving problems in the environment. Duties include fixing irregularities in performance or operation, identifying business impacts of outages, and helping to identify and correct root causes of Web services issues. These tasks are made easier by using IBM Web Services Navigator with IBM Tivoli Composite Application Manager for SOA to monitor and manage the Web services production environment.

Web Services Developer

Typically a software engineer that is designing, developing, and unit-testing new Web services implementations. It is assumed that the developer is working in an interactive development environment, such as IBM Rational® Application Developer, and that the developer is writing, compiling and unit testing the new Web services implementations in this interactive development environment.

Predeployment Tester

Typically a software tester that is installing, configuring, and testing new Web services implementations before production deployment, but in a production-like environment with multiple application servers.

Operations Manager

Responsible for monitoring the solution after it is deployed into the production environment. Operations Managers might use IBM Web Services Navigator to verify that the appropriate resources are monitored after the Web service is deployed in a production environment, and to group resources that are appropriate for the services being provided.

Chapter 2. Planning for installation

This chapter describes several considerations as you plan to install the tools provided with this release of IBM Tivoli Composite Application Manager for SOA.

Planning to install IBM Web Services Navigator

This release of IBM Web Services Navigator is supported on a limited number of operating system platforms. Prerequisites and detailed software requirements for ITCAM for SOA version 7.2 Fix Pack 1 are available from the Software product compatibility reports website. For information about accessing the reports from this website, see “Hardware and software prerequisites” on page 7.

Important: A Linux installation of IBM Web Services Navigator is no longer supported. Prior to version 7.2, a Linux installation was supported if the IBM Web Services Navigator was installed into an existing supported version of Eclipse.

Limitations on support of data from previous versions

If you import metric and content log files from previous versions of IBM Tivoli Composite Application Manager for SOA along with the current version into IBM Web Services Navigator, log data is imported only from version 7.1.0 or later. Data imported from versions before version 7.1.0 is ignored.

If you retrieve historical metric data from a data warehouse that contains data from previous and current versions of IBM Tivoli Composite Application Manager for SOA, only the data for version 7.2 and later is retrieved and imported into IBM Web Services Navigator version 7.2 or later. Use a version of IBM Web Services Navigator before version 7.2 to retrieve and import data from that version of IBM Tivoli Composite Application Manager for SOA.

An example configuration

Figure 1 on page 6 shows a possible configuration of several application servers in your Web services environment:

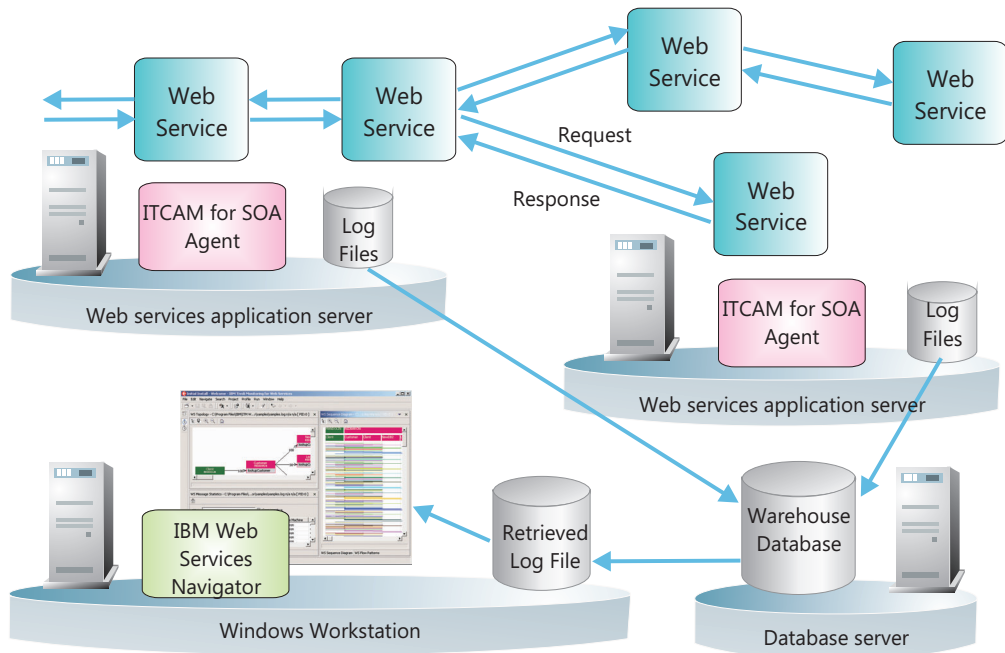


Figure 1. An example configuration

Figure 1 shows a simple configuration of two application servers that have one or more Web services deployed on them. The applications communicate with each other by using Web services requests and responses, either on the same server or across multiple servers in the enterprise. The IBM Tivoli Composite Application Manager for SOA monitoring agent is installed on each of these application servers where Web services are deployed. A separate workstation is also shown as the location for IBM Web Services Navigator. This configuration can also be on a system where Web services are deployed, but it is shown here on a separate distributed computer. The database is typically located on a supported server in your IBM Tivoli Monitoring environment where the warehouse proxy is located.

The IBM Tivoli Composite Application Manager for SOA monitoring agent that is installed on each Web services application server intercepts requests and responses that are sent to and received from Web services, as shown in Figure 2 on page 7. Information about the Web services request and response is written to the log file for each application server.

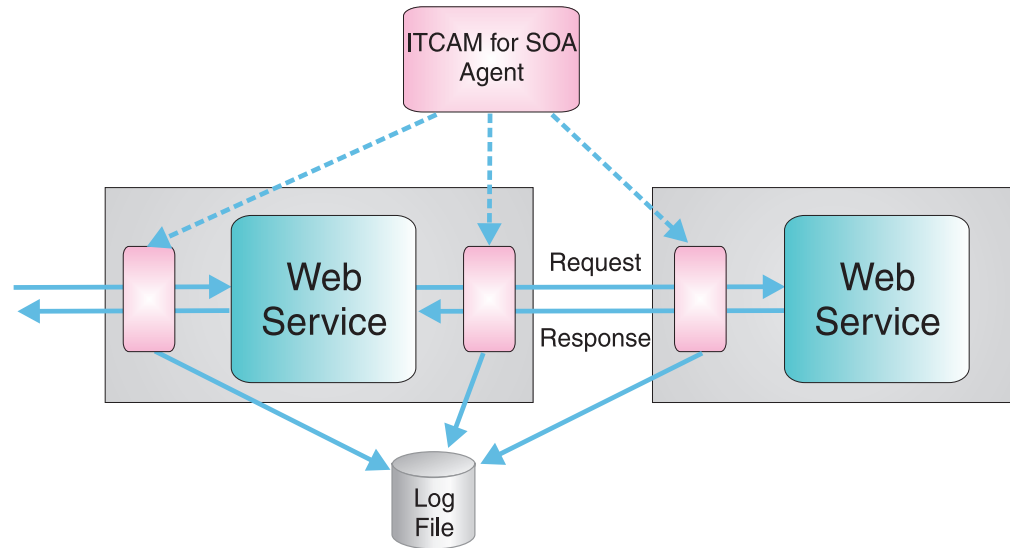


Figure 2. IBM Tivoli Composite Application Manager for SOA agents placed to intercept Web services requests and responses

As shown in Figure 1 on page 6, log files are written by IBM Tivoli Composite Application Manager for SOA to a warehouse database. These files are later retrieved from the database and converted into a log file format that is then imported and viewed by using IBM Web Services Navigator. The log files can also be assembled directly (without going through the database) by using shared drives and the Import local data collector log files function.

Hardware and software prerequisites

The installation of IBM Web Services Navigator assumes that the supported operating systems are already established in your environment.

See the Software product compatibility reports website to generate various reports that are related to product and component requirements.

To view the system requirements for server-side components in ITCAM for SOA version 7.2 and later, see the Server-side components detailed system requirements report.

To view the system requirements for agent-side components in ITCAM for SOA version 7.2 and later, see the Agent-side components detailed system requirements report.

Before you install IBM Web Services Navigator, it is assumed that the IBM Tivoli Monitoring product platform is already installed and configured in your environment, and that IBM Tivoli Composite Application Manager for SOA is installed on one or more application servers where you are monitoring Web services data. If you are planning to use IBM Web Services Navigator to retrieve Web services data that is stored in a warehouse database, it is assumed that the Warehouse Proxy function is configured and operational, and that the IBM Tivoli Monitoring environment is configured for historical data collection. Refer to the product publications for these installation and configuration procedures.

When you install the Eclipse environment provided with IBM Web Services Navigator, allow for at least 200 MB of storage space.

IBM Web Services Navigator imports data from IBM DB2, Microsoft SQL Server, and Oracle data warehouse databases. The database versions supported are as follows:

- DB2 database versions 8.1 with fix pack 10 or later fix packs, 8.2 with fix pack 3 or later fix packs, 9.1 and fix packs, 9.5 and fix packs, and 9.7 and fix packs
- Oracle database versions 9g, 10g Release 1, 10g Release 2, 11g Release 1, and 11g Release 2
- Microsoft SQL Server versions 2000 with service pack 3, 2005 and 2008.

Each database requires a JDBC driver:

- JDBC-DB2 for DB2
- MS SQL JDBC driver for MS SQL
- Oracle JDBC driver for Oracle

This publication assumes that you already have installed and configured IBM Tivoli Monitoring warehouse proxy database support in your environment.

IBM Web Services Navigator requires a Java™ version 1.6 SR3 or later runtime environment.

IBM Web Services Navigator requires a supported Eclipse environment, and several additional plug-ins that extend the Eclipse environment. IBM Web Services Navigator comes with an embedded Eclipse version 3.2.2 environment that you must install with the tool.

The Eclipse environment

Starting with version 7.2, you can only install the IBM Web Services Navigator on supported Windows operating systems into the embedded Eclipse version 3.2.2 environment that is provided with the installation of the IBM Web Services Navigator. Everything you need is installed for you, including the required version of the Eclipse environment and associated prerequisite plug-ins.

Upgrading from a previous installation

To upgrade from a previous release of IBM Web Services Navigator to version 7.2 Fix Pack 1, uninstall your current installation of Web Service Navigator and reinstall Web Services Navigator for version 7.2 Fix Pack 1.

If you are upgrading your IBM Web Services Navigator installation from a previous version installation, keep in mind the following limitations.

Installing with the embedded Eclipse environment

When you install the IBM Web Services Navigator embedded Eclipse environment, you cannot specify the same directory location where a previous version of IBM Web Services Navigator and Eclipse is currently installed. You cannot upgrade an existing Eclipse environment to the new embedded Eclipse environment. However, you can uninstall the previous version of IBM Web Services Navigator and its Eclipse environment, and install the current version into the same location.

Restriction: You cannot have two instances of the IBM Web Services Navigator running on the same computer system.

Reinstalling Tools on the same computer

You cannot reinstall the Tools if they are already installed on the target computer. You must first uninstall the current version of the Tools and then run the installation program again.

Log file considerations

After you introduce IBM Tivoli Composite Application Manager for SOA into your Web services environment, log files are created to temporarily store the data that is collected about the Web services that are monitored. When the IBM Tivoli Monitoring environment is configured for historical data collection, these log files are read by the IBM Tivoli Composite Application Manager for SOA monitoring agent and processed to send the information to the IBM Tivoli Monitoring warehouse database on an hourly or daily interval.

Every 15 minutes (70 minutes if historical data collection is not enabled), processed log files are moved to a temporary archive folder where they are held on the local application server for approximately 24 hours, or until the archive folder reaches a maximum size of 200 MB. When either of these limits are reached, the oldest files are automatically deleted from the archive folder as needed.

If you stop the monitoring agent, these log files remain on your local system until you remove them or until you start the monitoring agent again (after you start the monitoring agent, it reads the log files again, and the 15 minute or 70 minute archive interval time is restarted). If you do not restart the monitoring agent but continue to collect monitoring data, you must periodically check the size of these log files and delete them as needed, to avoid filling up available disk space. You can safely delete, rename, or move these log files when the application server environment is running.

Chapter 3. Installing the Tools

The installation of IBM Web Services Navigator involves running an installation program to install the application in attended mode in order to install these tools on the preferred computer. You do not have to install IBM Web Services Navigator on a computer where you are monitoring Web services. You can install IBM Web Services Navigator on any computer in your environment that is running a supported operating system.

When you install IBM Web Services Navigator and the embedded Eclipse version 3.2.2 environment that is provided on the installation media, everything you need for a functional Eclipse environment is installed, with additional plug-ins that extend the environment for IBM Web Services Navigator.

Installation limitations: The installation program for installing IBM Tivoli Composite Application Manager for SOA Tools does not support a silent installation, and does not support installing in console mode.

Installing the Tools on Windows operating systems

To install the Tools on a supported Windows operating system, complete the following steps:

1. Open a command prompt.
2. Use the IBM Tivoli Composite Application Manager for SOA product installation media to navigate to the `\KD4\Tools` directory.
3. Run the following command to start the installation program:

```
setupwin32.exe
```

Important: A specific version of IBM Tivoli Composite Application Manager for SOA Tools (for example, version 7.2 Fix Pack 1) can be installed only once on a given computer.

4. Select the language to be used for the installation, as shown in Figure 3 on page 12, and click **OK**.



Figure 3. The language selection page

Remember: This language choice applies only to this installation procedure. IBM Web Services Navigator is translated. The Tool starts in the correct language based on your language setup on your computer.

5. The installation program verifies that this version of IBM Tivoli Composite Application Manager for SOA Tools is not already installed on this computer. Click **OK**.

If the Tools are found, an error message is displayed instructing you to uninstall the current Tools installation before installing again. This release does not support the ability to install over an existing application.

A Welcome page is displayed, as shown in Figure 4.



Figure 4. The Welcome page

6. Click **Next**. The Software License Agreement page is displayed, as shown in Figure 5 on page 13.

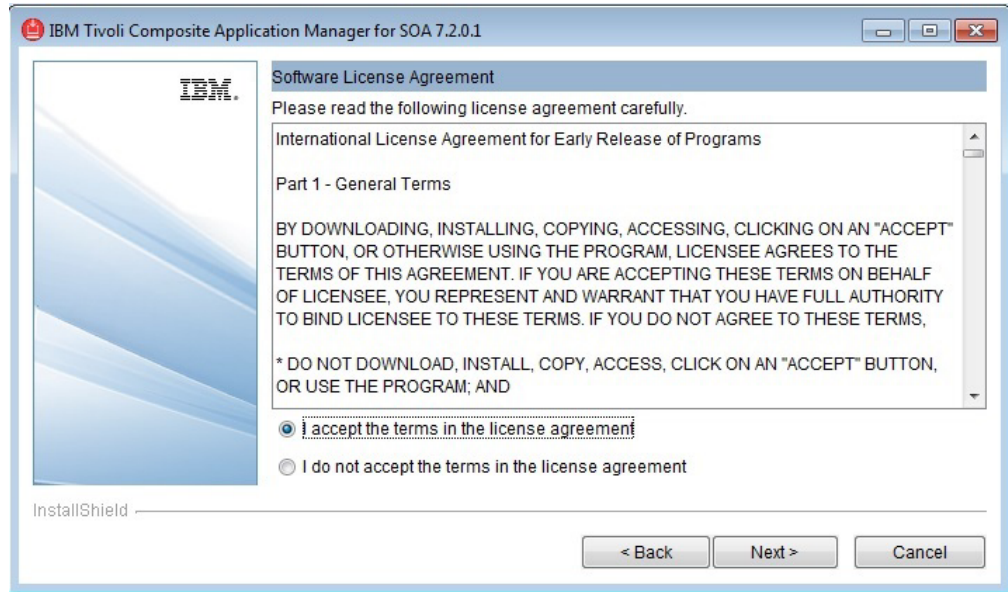


Figure 5. The Software License Agreement page

Read the terms in the license agreement in the scrollable window and, if you accept these terms, select **I accept the terms in the license agreement** and then click **Next**. You must accept the terms of the license agreement to continue the installation.

7. On the next page, you specify the directory where you want to install the IBM Tivoli Composite Application Manager for SOA Tools as shown in Figure 6.

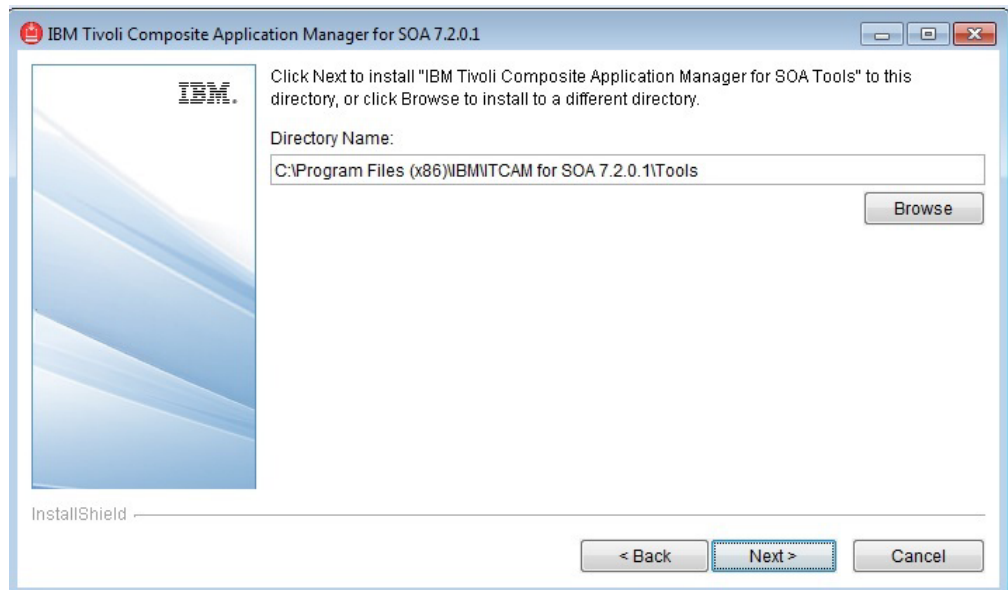


Figure 6. Specifying the target installation directory

The default installation directory is different from the default directory for previous versions of Tools, to avoid overlaying an existing installation.

To set the location, use one of the following steps:

- Accept the default location displayed in the **Directory Name** field.
- Type over the default location and specify your preferred location.

- Click **Browse** to navigate to your preferred location.
8. Click **Next** to verify that the directory specified does not contain a previous installation of IBM Web Services Navigator.
 9. A summary page is displayed similar to Figure 7, that indicates the target directory that you specified, and the estimated amount of hard disk space required for the installation.

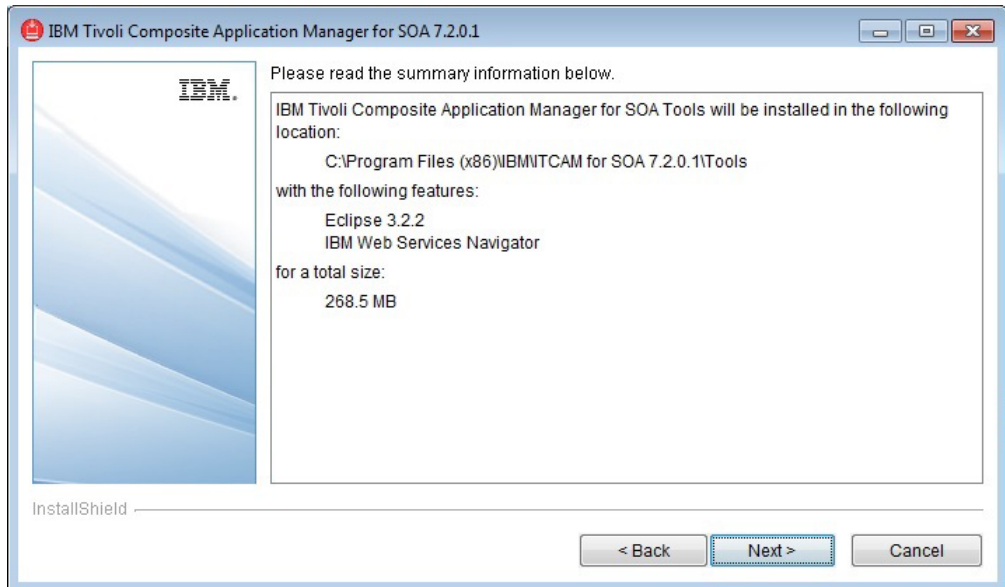


Figure 7. The summary page

Confirm your selection and click **Next** to begin the installation.

The installation starts, and a progress bar is displayed, similar to Figure 8. The installation might take a few minutes to complete.

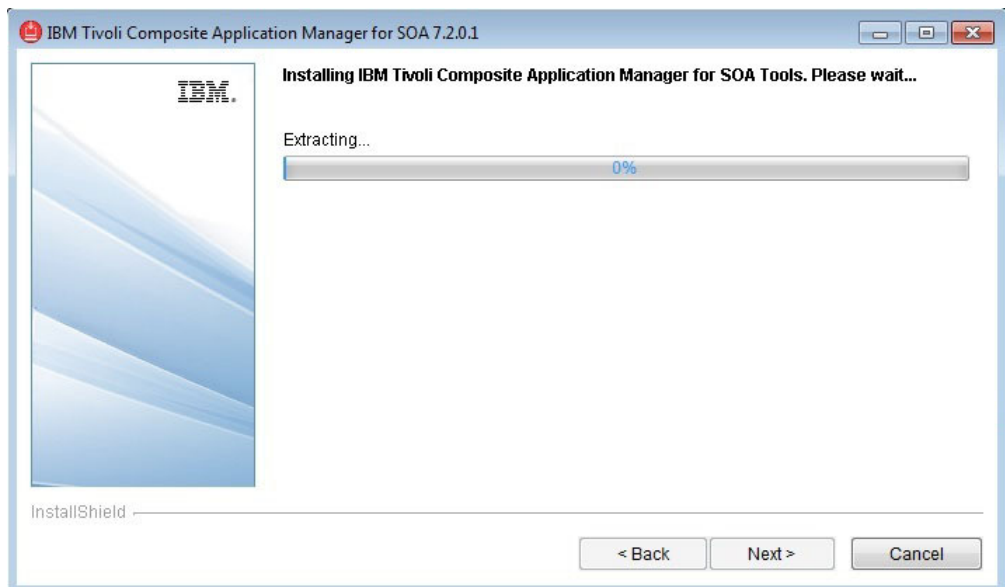


Figure 8. A progress bar displayed during installation.

10. After the installation completes successfully, a page is displayed, similar to Figure 9. Click **Finish** to close the installation program.

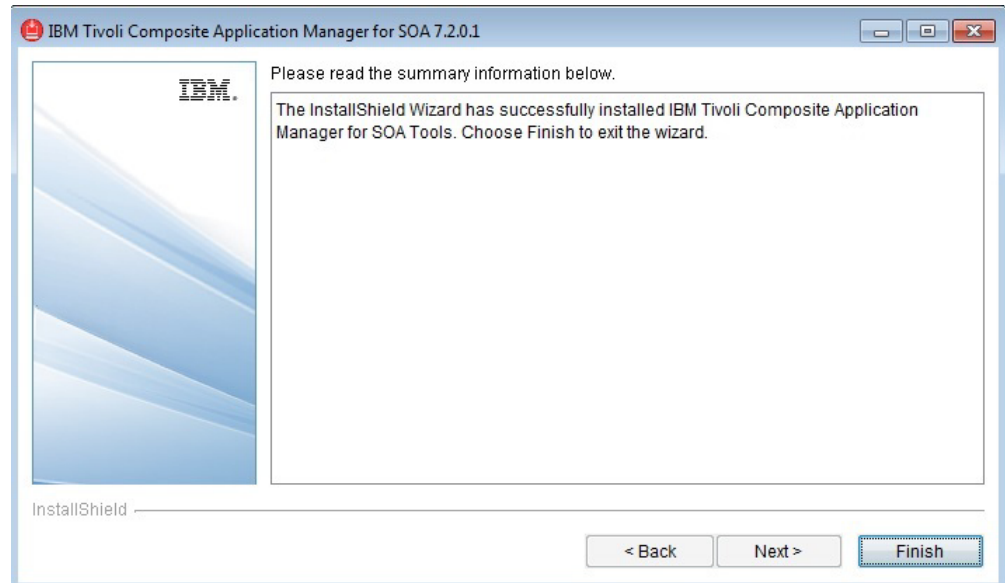


Figure 9. A message indicating successful installation

If the installation procedure fails, see Chapter 7, “Troubleshooting,” on page 59 for more information. A log file containing trace information about the installation is located in the target installation directory (see Figure 6 on page 13). The name of this log file is IWSInstall.txt. If you need to contact IBM Software Support, send this log file to aid in resolving your problem.

Verifying the IBM Web Services Navigator installation

To verify your IBM Web Services Navigator installation, start the IBM Web Services Navigator and import a sample log file and display its contents to verify that the IBM Web Services Navigator is working correctly.

Starting IBM Web Services Navigator in its own Eclipse environment

To start the IBM Web Services Navigator in the embedded version of the Eclipse environment that is provided as part of the installation, complete the following steps:

1. Start IBM Web Services Navigator on the Windows operating system by using one of the following methods:
 - From the Windows operating system **Start** menu, click **Start** → **All Programs** → **IBM Tivoli Composite Application Manager for SOA 7.2.0.1** → **IBM Web Services Navigator**.
 - Navigate to the directory where the tool is installed (for example, **C:\Program Files\IBM\ITCAM for SOA 7.2.0.1\Tools**) and run the **runNavigator.bat** script.

Either start method launches the Eclipse workbench environment, as shown in Figure 10 on page 16.

2. Optionally, reset your default Web Services Profiling Perspective displayed in the Eclipse workbench environment. To reset the Web Services Profiling Perspective, complete the following steps:
 - a. From the task bar at the top of the Eclipse workbench environment, click **Window → Reset Perspective**.
 - b. You are prompted to reset the perspective to the default view. Click **OK**.

The Web Services Profiling perspective

Any of the previous methods completes the installation and opens the **Web Services Profiling - IBM Web Services Navigator** *workbench*, as shown in Figure 10. No data has been imported yet for display in the perspective.

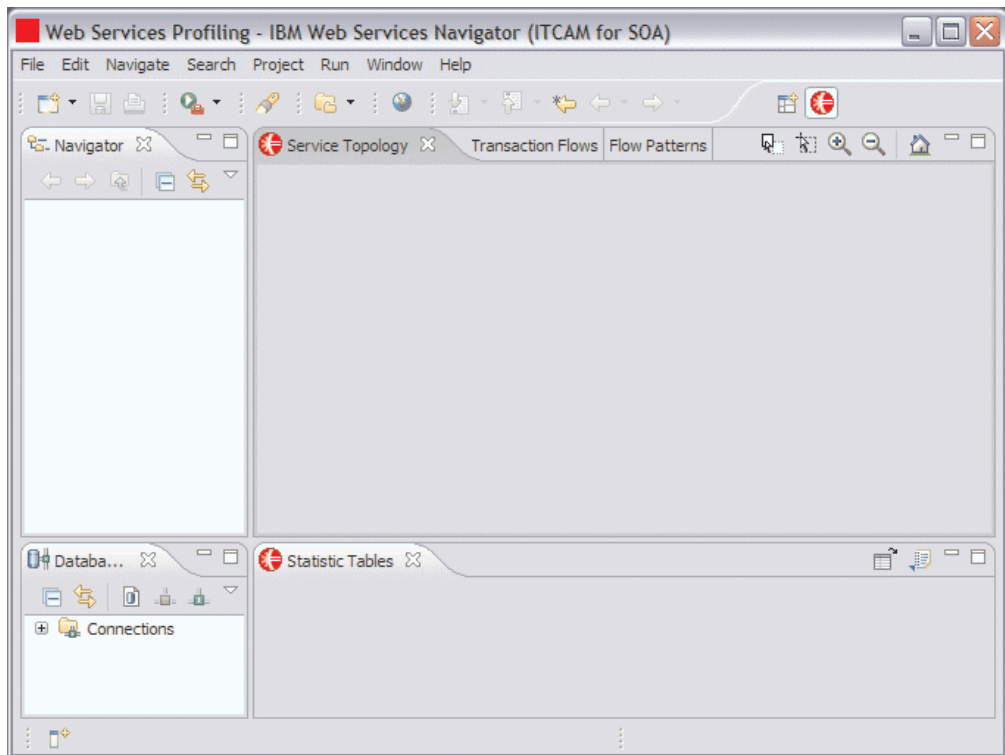


Figure 10. The IBM Web Services Navigator workbench, shown with the default profiling perspective

The term *workbench* refers to the desktop development environment window that is displayed when you start the IBM Web Services Navigator. The workbench displays one of several *perspectives*. A perspective defines the initial set and layout of *views* in the workbench window. When you first start IBM Web Services Navigator, the workbench window is displayed showing the default Web Services Profiling perspective.

The Web Services Profiling perspective is initially configured to display the following set of views:

Navigator

This view is the location where imported log files are placed. You can load one or more log files from the Navigator view, and then quickly switch between them to view their data in the other views.

Service Topology

This view is the first of several tabs within the workbench. The following additional views are available in this view:

- Transaction Flows
- Flow Patterns

Statistic Tables

After a log file is loaded, this view contains the following tabs for four table views:

- Message Statistics
- Invocation Statistics
- Transaction Statistics
- Pattern Invocation Statistics

Database Explorer

This view displays the defined connections to databases where monitoring data is stored.

In addition to these views that are part of the IBM Web Services Navigator product, there is the **Message Content** view. This view is not included in this default perspective, but is included in the perspective later when you import a log file containing message content data as well as metric data. When you import and display log file data in these views, select the various tabs within these views to display the data in different ways.

You can customize your perspective in various ways, for example, changing the size of each view in the window, dragging and dropping a view from one section of the workspace to another, or adding and removing views from the perspective. To learn more about the workbench, perspectives, views, and how to create and customize them, see the basic Eclipse online help information (click **Help** → **Help Contents**. For specific information about IBM Web Services Navigator, select **Help** → **Help Contents** → **IBM Web Services Navigator**).

Importing the sample log file

After you start IBM Web Services Navigator, you can import a provided sample log file to verify that the installation was successful. To import the sample log file, complete the following steps:

1. Before you can import a log file, you must first create a project. From the toolbar at the top of the workbench, click **File** → **New** → **Project** (see Figure 11).

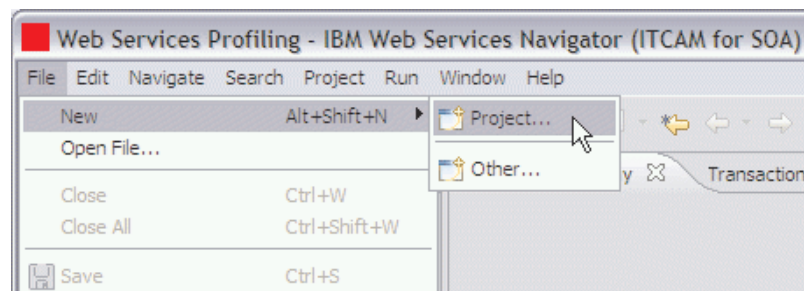


Figure 11. Creating a project

2. The New Project page is displayed, similar to Figure 12, offering several wizards to create various project resources.

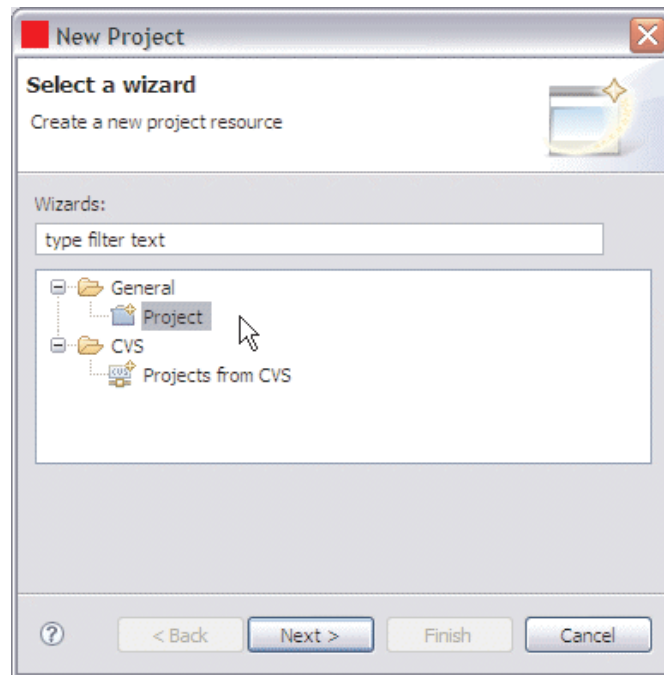


Figure 12. Selecting the General Project resource to create a project

3. Click **General** → **Project** and then click **Next**.
4. Enter a name for the new project, for example, *ITWSN_SampleProj*. Verify that the **Use default location** check box is selected, and click **Finish**.

The new project is created and then displayed in the Navigator view on the workspace. Figure 13 shows the resulting project in the Navigator view, after expanding the folder icon to show the project.

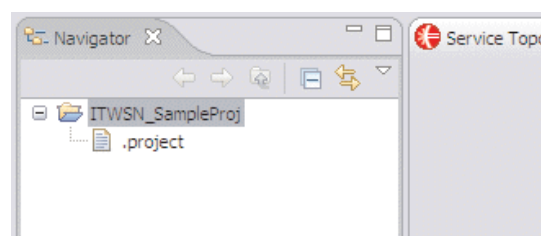


Figure 13. The new project displayed in the Navigator view

5. Now that you have a project created, import the sample log file. From the toolbar at the top of the workbench, click **File** → **Import**.

The Import page is displayed, similar to Figure 14 on page 19. Use this page to import resources from several different sources.

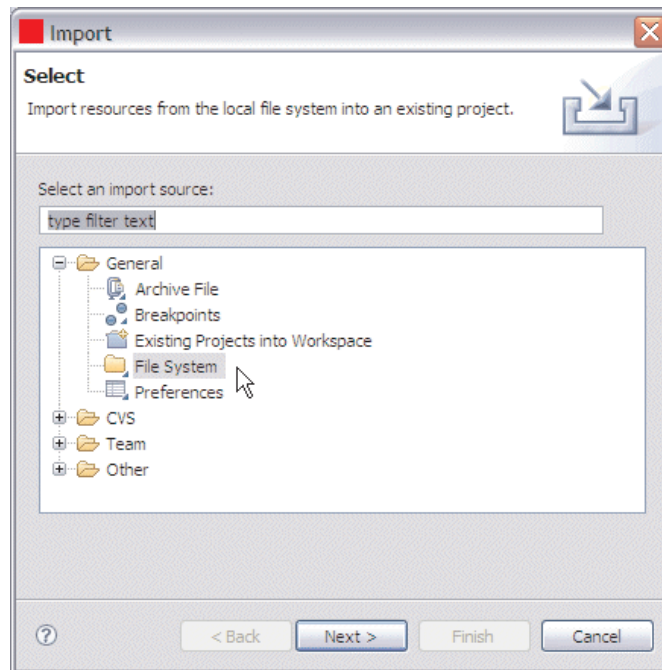


Figure 14. Selecting the file system import resource option to import the local sample log file

6. On the Import page, click the **General** → **File system** import source, which is used to import a log file that is stored locally on your workstation. Click **Next**. The **Import File system** page is displayed, as shown in Figure 15 on page 20. This page is where you specify the location of the log file to be imported.

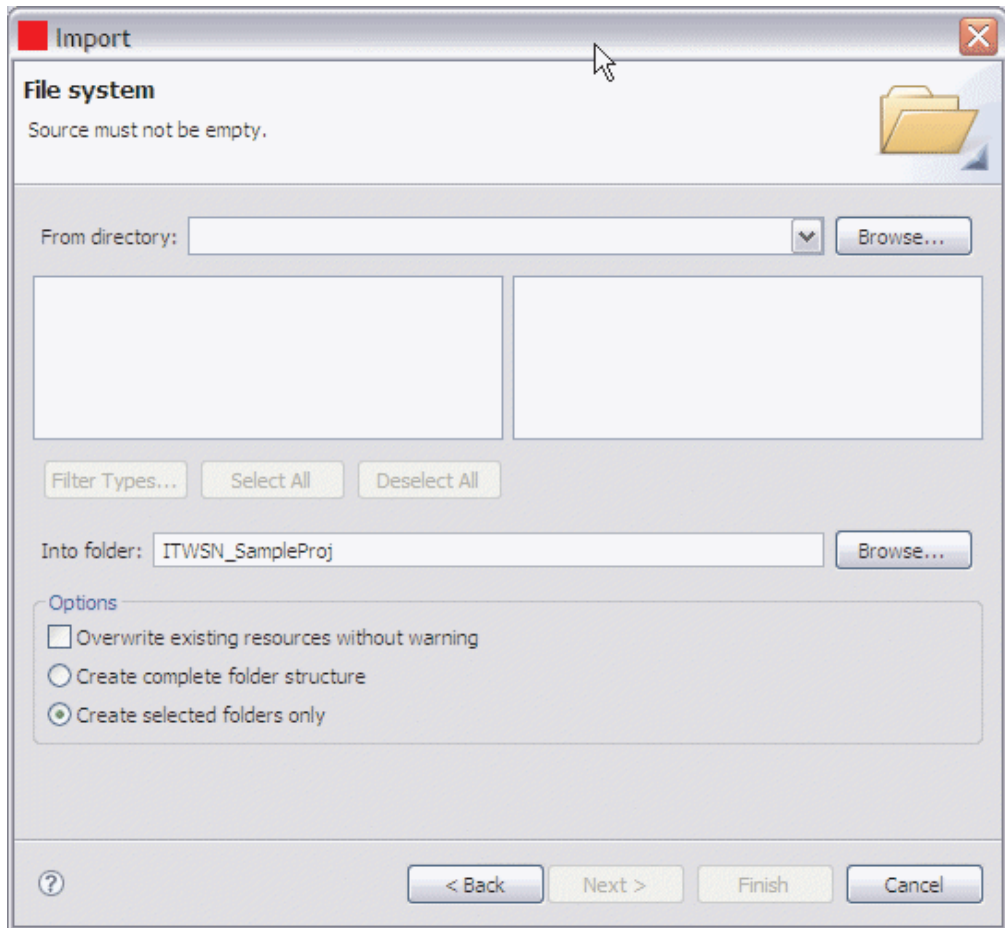


Figure 15. The Import File system page

7. Click **Browse** to navigate to the target directory where you installed the product, for example, **C:\Program Files\IBM\ITCAM for SOA 7.2.0.1\Tools**. Select the **\IWSNavigator\samples** folder and click **OK**.

You are returned to the Import File system page. You can select either the entire **\samples** directory, or just a single file, for example, *samples.log*.

8. For this example, select the check box for the single *samples.log* file.
9. In the lower portion of the Import File system page, you are prompted to specify the folder into which the *samples.log* file is to be imported. For this example, the *ITWSN_SampleProj* target folder is already specified.

If the preferred folder name is not displayed in the **Into folder** field, click **Browse** to launch the Import Into Folder page. On the Import Into Folder page, select the preferred target folder, for example, *ITWSN_SampleProj*, into which the log file is to be imported, and click **OK**. You are returned to the Import File system page.

10. In the **Options** area, you can select additional options to overwrite existing log files in the same folder, create the complete folder structure similar to where the selected log file is located, or create only the selected folders under the selected project. For this example, accept the default setting, **Create selected folders only**.

Figure 16 on page 21 shows the resulting Import File system page with the specified log file to be imported.

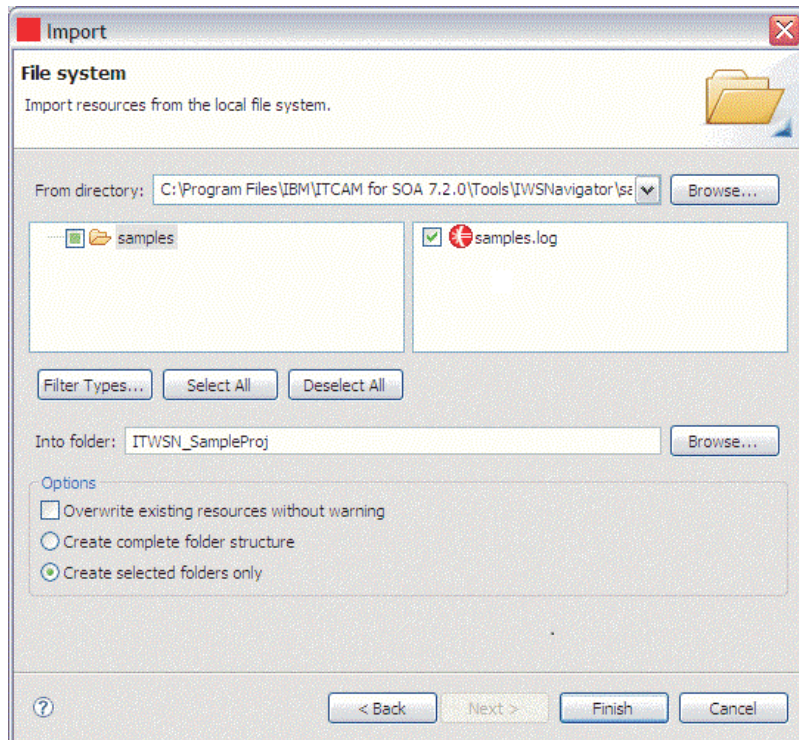


Figure 16. Selecting the samples.log file

11. Click **Finish** to import the sample log file in to the Navigator view of the IBM Web Services Navigator workspace. The log file is placed under the new *ITWSN_SampleProj* project name in the Navigator view.
12. To view the data in the imported log file, double-click the samples.log file name in the Navigator view.

The Service Topology view and the Statistic Tables view are populated with the data from the log file, as shown in Figure 17 on page 22 In the Navigator view, the samples.log file is marked with both a **check mark** icon and the suffix *[Loaded]* appended to the file name. These symbols indicate that the log file is loaded in to the perspective.

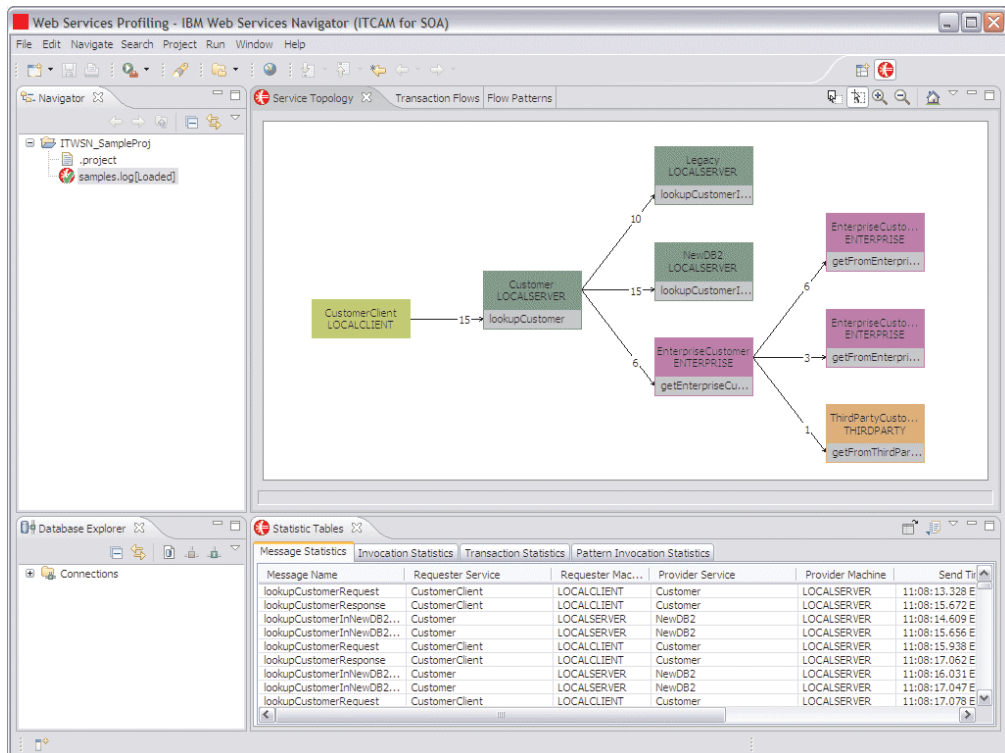


Figure 17. The sample log file loaded in to the views.

The Service Topology view displays the logical topology of the nodes involved in the Web service transactions.

13. Click the **Transaction Flows** tab. Repeatedly press the *greater than* (>) key to zoom in on the path sequence diagram to view the path sequence of the Web services in the sample log file. Repeatedly press the *less than* (<) key to zoom out again. Additional controls are described in the online help system.
14. To see a different view of the sample data, click the **Flow Patterns** tab, as shown in Figure 18 on page 23 (you might need to zoom in on this view, and drag the edges of the view to adjust the size in the workbench window). This view shows each unique transaction path and the number of times that specific path occurred in the sample data.

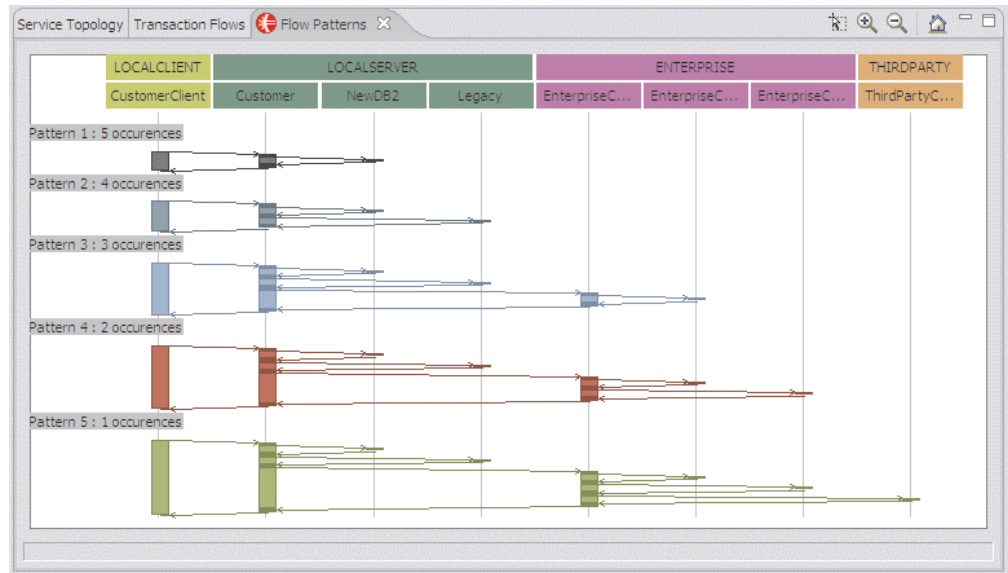


Figure 18. The Flow Patterns view

15. In the Statistic Tables view, the Message Statistics table is displayed by default. Click a row in the table data to highlight the row in yellow. Depending on the row that you select, you might see a corresponding portion of the Flow Patterns view also highlighted in yellow, similar to the example shown in Figure 19 on page 24.

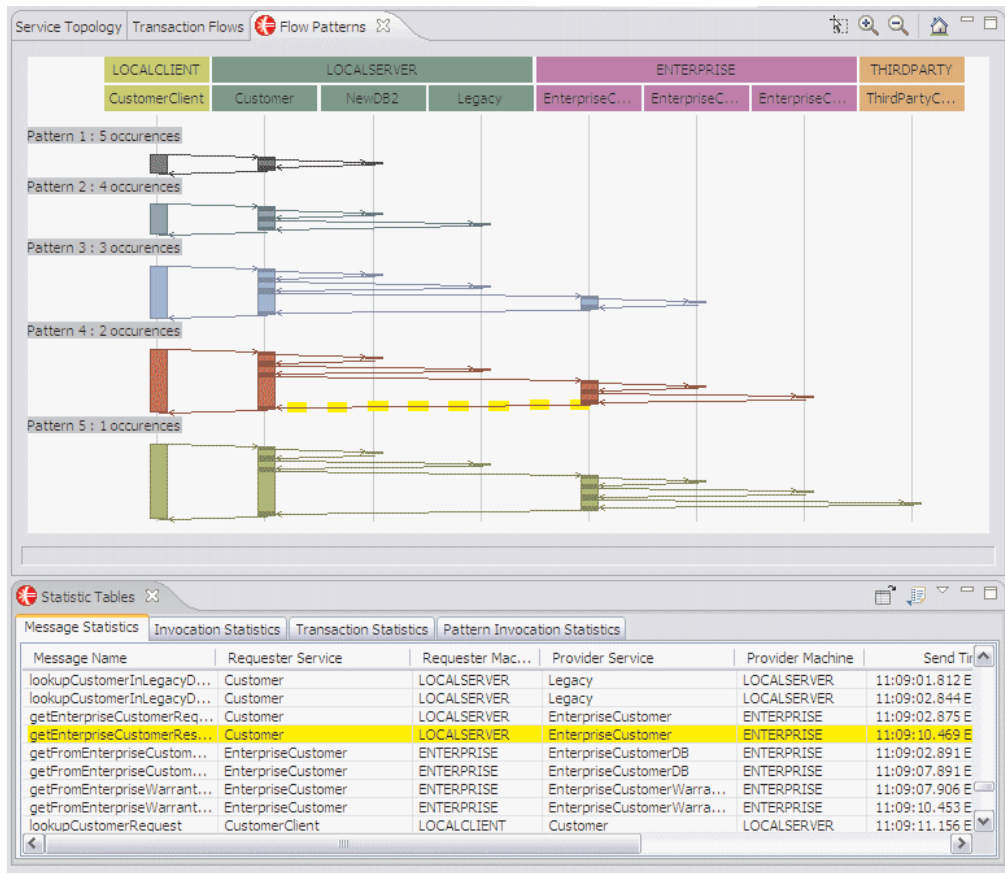


Figure 19. Highlighted data displayed in both the Message Statistics table in the Statistic Tables view and the Flow Patterns view

Notice in Figure 19 the broken yellow highlighting in the Flow Patterns view. This signifies that a subset of the transactions represented by that flow have been selected in another view. If you scroll through the table in the Statistic Tables view, you might see one or more rows highlighted in yellow in the table, but there are additional rows associated with this flow that have not been selected. If you click the transaction in the Flow Patterns view, the broken yellow line becomes a solid line, meaning that all transactions represented by that flow have been selected. You can now scroll through the Statistic Tables view and see all of the associated rows highlighted in yellow.

- With a row highlighted in the Message Statistics table view, click the **Open Content** icon in the Statistic Tables toolbar and select **Open Content**. The Message Content view opens as a new view in the same view space as the Statistic Tables view.

Structure	Value
[-] soapenv:Envelope	
@ xmlns:soapenv	http://schemas.xmlsoap.org/soap/envelope/
@ xmlns:xsd	http://www.w3.org/2001/XMLSchema
@ xmlns:xsi	http://www.w3.org/2001/XMLSchema-instance
[-] soapenv:Body	
@ soapenv:encodingStyle	http://schemas.xmlsoap.org/soap/encoding/
[-] ns1:lookupCustomer	
+ @ xmlns:ns1	http://org.jboss.test.webservice/samples
+ @ String_1	5555555555

Figure 20. The Message Content view

The Message Content view is unique to the other views in the Web Services Profiling perspective in that it displays the content of intercepted messages. The other views display metric data about the Web services. You cannot retrieve message content data from the warehouse database, where other Web services metric data is stored. Additional steps are required to capture message content data and convert it into a log file suitable for importing in to the Message Content view.

See Chapter 5, “Retrieving local metric and content log files,” on page 47 for more information about obtaining message content data to display in this view.

If you can successfully display these various views of the data from the imported sample log file, then IBM Web Services Navigator is successfully installed.

If the installation of IBM Web Services Navigator was not successful, see Chapter 7, “Troubleshooting,” on page 59 for more information.

Testing and debugging Web services

By now you have installed IBM Tivoli Composite Application Manager for SOA. You have started using it to monitor Web services and collect metric and content data, storing it locally in log files or, if your environment is configured for historical data collection, writing the data to the warehouse database. Now that you have also installed IBM Web Services Navigator, you are ready to view and analyze Web services that you are currently monitoring in your test or production environment.

To view and analyze Web services, use the following steps:

1. Deploy the Web services to your appropriate application servers.
2. If you are collecting historical Web services data and writing it to the warehouse database, note the start and end time in Greenwich Mean Time (GMT) of the data collection so that you can later retrieve the correct data from the warehouse.
 - a. If you are in a test environment and not storing data in the warehouse, delete or move existing log files so they are not included with your retrieved data.
 - b. If you are in a production environment, and not storing data in the warehouse, note which log files exist so that you use log files only with newly retrieved data.

3. Move the Web services traffic through the deployed Web services.
 - a. If multiple application servers are being used to monitor Web services, collect the log files from all the application server computers to the computer where you have installed the IBM Web Services Navigator.
4. Launch the IBM Web Services Navigator.
 - a. If you are storing data in the warehouse, import the data of interest from the warehouse database.
 - b. If you are not storing data in the warehouse, use the import function of IBM Web Services Navigator on your local computer, and import the resulting log files in to the Navigator view of the IBM Web Services Navigator.
 - 1) On the Eclipse menu bar, select **File -> Import**.
(Optional) Right-click in the Navigator view and select **Import**.
 - 2) On the Import Select page, expand the **Other** node, select **Import local data collector log files** and click **Next**.
 - 3) On the **ITCAM4SOA log file import** page, specify the project name where the combined target log file is to be stored, in the **Project** field. You can enter the project name in the format **/Name**, or click **Browse** and navigate to the preferred project.
 - 4) In the **File Name** field, specify the name of the combined target log file to be stored in the selected project. The file name must end with the **.log** suffix (for example, **data1.log**). See Figure 37 on page 56
 - 5) Click **Select log files** to select one or more log files to combine in to the target log file. Navigate to the preferred log file directories, **%CANDLE_HOME%\KD4\logs**, **%CANDLE_HOME%\KD4\logs\KD4.DCA.CACHE**, or **%CANDLE_HOME%\KD4\logs\KD4.DCA.CACHE\archive** on your local system, or to similar directory locations on networked systems in your Web services environment. Highlight all of the files to be included in the combined target log file, and click **Open**.
You are returned to the **ITCAM4SOA log file import** page, where your selected files are displayed.
 - 6) After you have selected all of the preferred log files from one or more monitored systems in your Web services environment, click **Finish**.
5. View your data in the various available views, and verify that Web services are functioning as expected.

If your Web services are not functioning as expected, the reason might be due to various problems, for example:

- Your Web services client applications might not be written according to the conventions described in chapter 4 of Java Specification Request 109 (JSR 109), *Java Web Services for J2EE*. Refer to the specification found at the following Web location:
<http://www.jcp.org/aboutJava/communityprocess/final/jsr109/>
- The monitoring criteria that was configured in IBM Tivoli Composite Application Manager for SOA might not be defined for the data you expect. See the *IBM Tivoli Composite Application Manager for SOA Installation Guide* and the online help for more information about configuring monitoring and filtering criteria.
- If you are monitoring Web services in a BEA WebLogic application server environment, the client side application code needs to be modified for proper

operation of the monitoring agent. See the *IBM Tivoli Composite Application Manager for SOA Installation Guide* for more information.

For additional installation help, refer to Chapter 7, “Troubleshooting,” on page 59 in this publication and the similar chapter in the *IBM Tivoli Composite Application Manager for SOA Troubleshooting Guide*.

For additional information about using IBM Web Services Navigator, including example tasks and tutorial information, see the online help information by completing the following steps:

1. In the Eclipse workbench window, click **Help -> Help Contents**.
The help system for the IBM Web Services Navigator is displayed in a separate window.
2. In the table of contents section, click **IBM Web Services Navigator**.
3. Navigate to the various sections of the online information for help on the topics of interest.

Chapter 4. Retrieving Web services data from the warehouse database

This chapter describes how to create a database connection in the Database Explorer view and how to retrieve data from the warehouse database.

After you complete the installation of IBM Web Services Navigator and verify its operation, and after you have successfully monitored Web services traffic in your environment with IBM Tivoli Composite Application Manager for SOA and written monitoring data into the IBM Tivoli Monitoring warehouse database, you can use the data retrieval function in IBM Web Services Navigator to request data from the database and then import it into your IBM Web Services Navigator workspace to view and analyze.

You must know how to create a project, and how to use the import function to import a sample log file in to IBM Web Services Navigator. The basic steps for viewing Web services data from the warehouse database include the following tasks:

- Create a database connection, either as a stand-alone task or as part of the import process.
- Create a project or select an existing project.
- Retrieve data from the warehouse database by specifying a target log file, the starting and ending date and time interval for the data of interest, and the database connection.
- Open the log file in the Navigator view and display the data in the Web Services Profiling perspective.

Enabling historical data collection

Data collected by the ITCAM for SOA monitoring agent can be stored long-term in the Tivoli Data Warehouse. IBM Web Services Navigator retrieves the data from the Tivoli Data Warehouse and converts the data into a format that can be displayed in an Eclipse-based viewer.

To enable historical data collection for IBM Web Services Navigator, you must configure the warehouse proxy agent and enable historical data collection on a subset of ITCAM for SOA attribute groups. For information on configuring the warehouse proxy, see the *IBM Tivoli Monitoring: Installation and Setup Guide*. When this configuration is complete, the Tivoli Enterprise Monitoring Server begins processing the locally stored log files of services data on each application server and sends the data to the warehouse database.

Important: The mechanism for configuring historical data collection changed in IBM Tivoli Monitoring version 6.2.2. You no longer explicitly start and stop historical data collection for an attribute group. You also need to explicitly distribute the historical data collection attribute group settings to your monitoring agent.

Considerations for historical data collection on IBM Web Services Navigator

To display historical data in the IBM Web Services Navigator, you must enable the attribute groups presented in Table 2.

Table 2. Attribute groups to configure for historical data collection

Display Location	Attribute groups
IBM Web Services Navigator - All Views	<ul style="list-style-type: none">• Relationships• Environment_Mapping• Svc_Port_Oper_Mapping• Service_Flow_Metrics

When configuring historical data collection, you must also consider the length of time which data is saved (*pruning*) and how often to aggregate detailed data (*summarization*) in the Tivoli Data Warehouse.

Table 3 shows the general recommendations of which ITCAM for SOA attribute groups should be configured for summarization and pruning, based on the anticipated volume of data in each.

Table 3. Recommendations for summarization and pruning of IBM Web Services Navigator attribute groups

Attribute group name	Summarize	Prune
EnvironmentMapping	No	No
Relationships	No	No
Service_Flow_Metrics	No	Yes
SVC_Port_Oper_Mapping	No	No

Important: If the Environment Mapping, Relationships or SVC_Port_Oper_Mapping tables are pruned, the IBM Web Services Navigator is not able to correctly display service topology and transaction flows.

For information about estimating the size of these warehouse tables for historical data collection, see the table in Appendix B in the *IBM Tivoli Composite Application Manager for SOA User's Guide*.

Configuring historical data collection

Before configuring historical data collection, ensure that the warehouse database and warehouse proxy are configured and activated.

To configure historical data collection for ITCAM for SOA, complete the following steps:

1. Open and sign in to either the portal desktop or the portal browser.
2. In the TEP console, click the **History Collection Configuration** icon in the toolbar.

The **History Collection Configuration** window displays.

3. In the **Monitored Applications** list, click the plus (+) sign to expand it, and select the ITCAM for SOA node.

4. Choose an attribute group from the tree. Only those attribute groups that are appropriate for historical collection and reporting are displayed.
5. Complete the following fields in the **Basic** tab:
 - Set the **Collection Interval**.
This is the frequency with which the metric log files are collected by the monitoring agent and stored in a temporary location before they are sent to the warehouse database. The recommended value is 5 minutes. The ITCAM for SOA monitoring agent does not support a collection interval greater than 1 hour.
 - Leave the **Collection Location** selection at TEMA to have the log files collected at the Tivoli Enterprise Monitoring Agent for processing.
 - Set the **Warehouse Interval**.
This is the frequency at which the metric log data is sent to the warehouse database for historical collection. You can select a frequency of once every hour or once per day. The recommended interval is once every hour.
 - Click **Apply**.
6. Complete the following steps on the **Distribution** tab to distribute the collection definition to the monitoring agent where you want to take data samples. Data collection begins as soon as you save the distribution:
 - a. Click the **Managed System (Agent)** radio button to select managed systems and managed systems groups individually.
 - b. Move the ITCAM for SOA agent from the **Available Systems** list to the **Start Collection** list.
 - c. Click **Apply** to save your settings and start data collection.

For information on assigning managed systems to a historical configuration group for the collection definition, see the *IBM Tivoli Monitoring: Tivoli Enterprise Portal User's Guide*.

Configuring summarization and pruning of attribute groups

Configure summarization and pruning for the Tivoli Data Warehouse to aggregate data and keep the database size at a manageable level.

To configure summarization and pruning for ITCAM for SOA attribute groups, complete the following steps:

1. Open and sign in to either the portal desktop or the portal browser.
2. In the **Monitored Applications** list, choose ITCAM for SOA from the tree.
3. Click on a row in the attribute groups table to configure an attribute group.
4. Determine which attributes groups to configure for summarization using the recommendations provided in Table 3 on page 30.
5. In the **Summarization** area, for each attribute group to be configured for summarization, select the check box for every time period to be aggregated.
6. Determine which attributes groups to configure for pruning using the recommendations provided in Table 3 on page 30.
7. In the **Pruning** area, for each attribute group to be pruned, select the check box for every time period to be pruned. If you also want to keep the original data samples, select the Detailed data check box. In the corresponding fields, specify the number of days, months, or years to keep the data.
8. Click **Apply** to save your settings.

Verifying the setup of historical data collection

After services data is written to the warehouse database for the first time (after approximately one hour or one day, depending on the **Warehouse Interval** value you specified), use your database software administrative tools to check the contents of the database tables. Verify that a table with the corresponding name for each configured attribute group is created in the database, as shown in the following DB2 example (DB2 is one of the warehouse databases types supported in IBM Tivoli Monitoring).

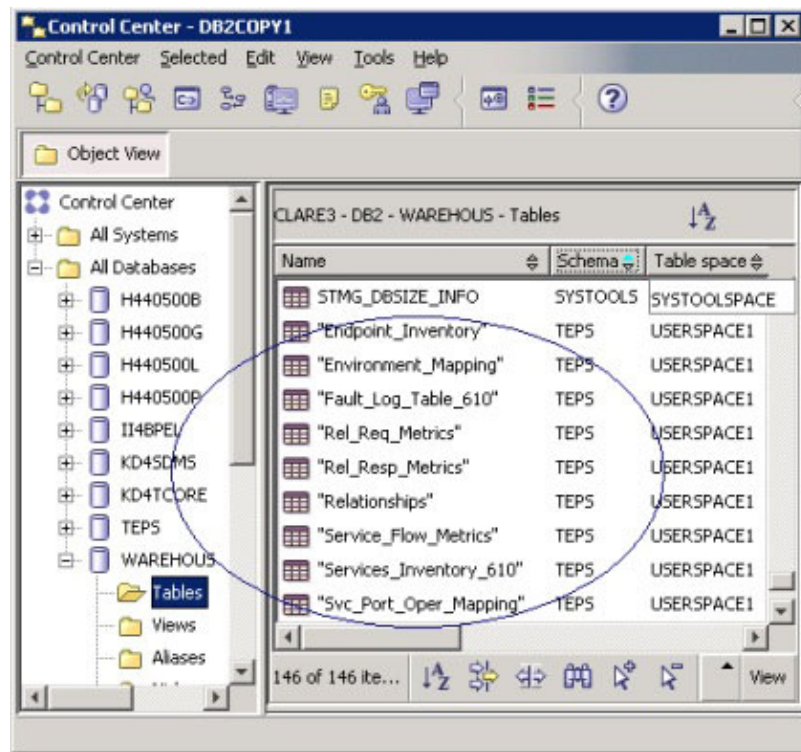


Figure 21. ITCAM for SOA attribute group tables displayed in the DB2 Control Center

For information about enabling historical data collection for other attribute groups not required by IBM Web Services Navigator, see the *IBM Tivoli Monitoring Composite Application Manager for SOA Installation Guide*.

Creating a database connection

This section describes how you can create a database connection as a stand-alone task, before beginning to import data. You create a connection to the database by using the New Connection command in the Database Explorer view of the Web Services Profiling perspective. By default, the Database Explorer view is located in the lower left part of the Web Services Profiling perspective, and is initially an empty view (unless it contains other database connections as part of an existing Eclipse installation). To create a connection, complete the steps in the following sections.

Defining a new connection

To define a new connection, complete the following steps:

1. Highlight the **Connections** node, then right-click in the Database Explorer view and click **New Connection** as shown in Figure 22.

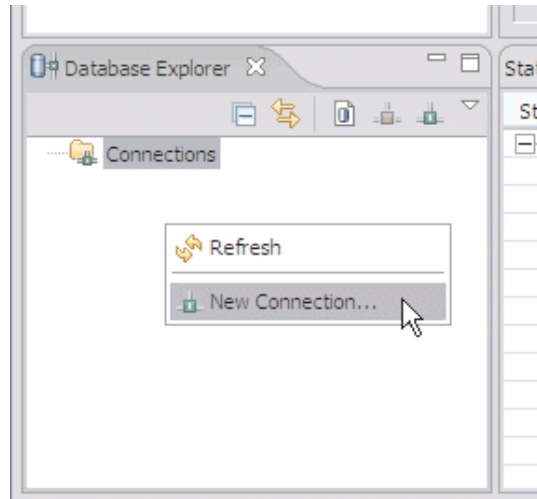


Figure 22. Creating a database connection

The New Connection page is displayed, similar to Figure 23 on page 34, showing a list of database managers and associated parameters that define the selected manager connection.

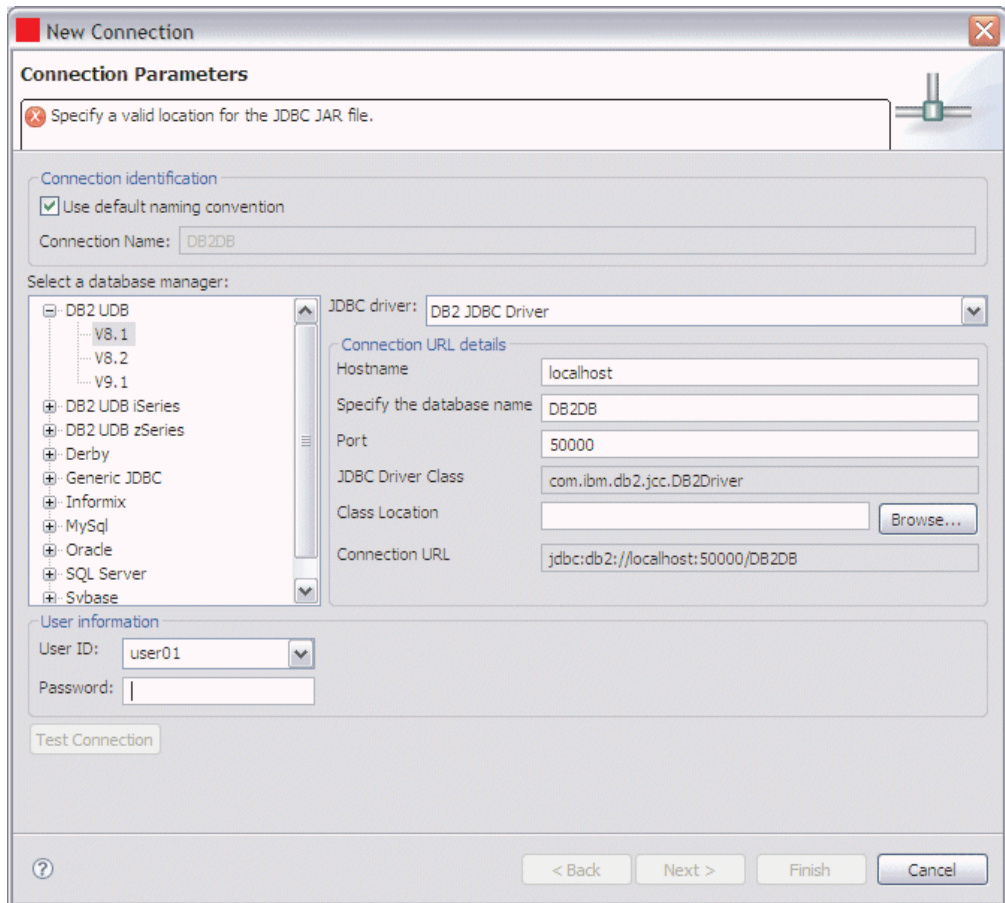


Figure 23. Naming the new connection and choosing a connection type

- Use this page to specify the database manager, platform, and version of the local or remote database to which you are connecting. Select the JDBC driver supported by your database manager, and then specify all of the required connection information for that driver. Some of the information is entered for you by default.

Depending on the database software that is used for the warehouse database, set up your connection similar to examples in the following sections. The JDBC driver must be a *type 4* driver.

Connecting to other supported databases: The sections that follow show several examples of connecting to databases for several supported versions of database application software. If you do not see the version of the database manager in the selection list, you can specify Other in the JDBC driver field and then define your own connection parameters. See “Creating a database connection with a different JDBC driver class” on page 39 for an example.

Creating an IBM DB2 Universal Database connection

To create a database connection for IBM DB2 Universal Database™, complete the following steps:

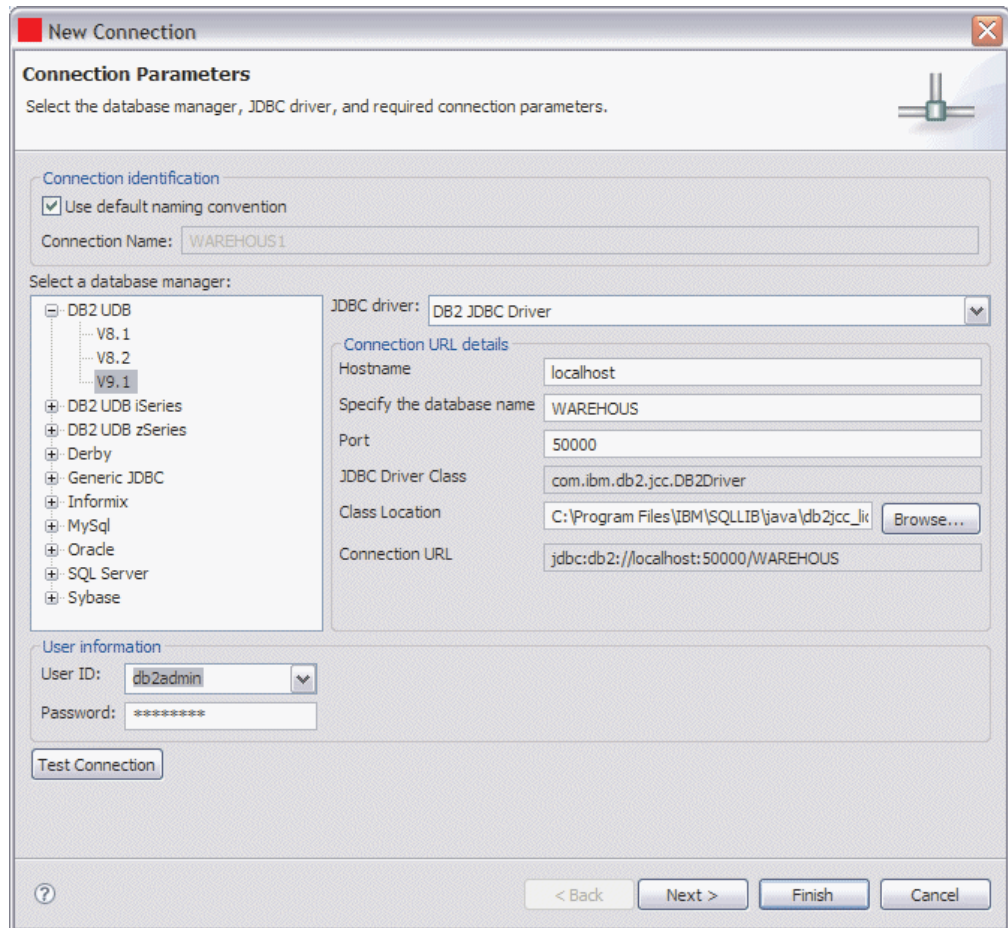


Figure 24. Specifying database connection parameters for an IBM DB2 v9.1 connection.

1. In the **Select a database manager** area, expand the DB2 UDB node and then select the appropriate version that is installed. For example, *V9.1*.
For DB2 9.5 or DB2 9.7: If your warehouse database uses DB2 version 9.5 or DB2 version 9.7, you can select version 9.1 from the list and then specify the version 9.5 or 9.7 JDBC driver.
2. In the **JDBC Driver** field, select **DB2 JDBC Driver**.
3. In the **Connection URL details** area, complete the following steps:
 - a. In the **Hostname** field, specify the fully qualified hostname of the system where the database is located, for example, *mymachine01.raleigh.ibm.com*.
If the database is located on your local workstation, specify *localhost*.
 - b. In the **Specify the database name** field, enter the appropriate database name, for example, *WPROXY*. If you are not sure which name to specify, see your database administrator for assistance.
 - c. In the **Port** field, accept the default port number of *50000*, or change it to a different port.
 - d. In the **JDBC Driver Class** field, accept the default class for this JDBC driver as **com.ibm.db2.jcc.DB2Driver**.
 - e. In the **Class Location** field, specify the JAR files, all on a single line, separated by semicolons.
Example:
 - `<DB2_HOME>\java\db2jcc.jar`

- <DB2_HOME>\java\db2jcc_license_cu.jar
- <DB2_HOME>\java\db2jcc_license_cisuz.jar

The <DB2_HOME> variable is the directory path where the IBM DB2 Driver for JDBC is installed, for example, C:\Program Files\IBM\SQLLIB.

- The value in the **Connection URL** field is composed of the values in the **Hostname**, **Port**, and **Specify the database name** fields.
- In the **User information** area, select the appropriate DB2 user ID and password that was used to configure the warehouse database. For example, the default user ID when installing IBM Tivoli Monitoring is *ITMUser*.

Creating a Microsoft SQL Server database connection

If your workstation is remote to the system where the SQL server is installed, verify that you have an SQL JDBC driver installed on your local workstation. Refer to the Microsoft SQL Server publications for additional installation information.

Creating a database connection for Microsoft SQL Server

To create a database connection for Microsoft SQL Server 2000 or 2005, complete the following steps:

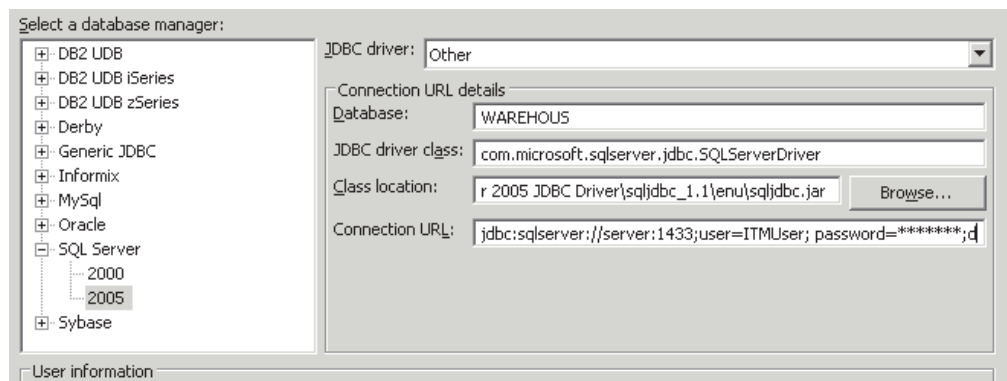


Figure 25. Specifying database connection parameters for a Microsoft SQL Server 2005 connection.

- In the **Select a database manager** area, expand the Microsoft SQL Server node and select **2000** or **2005**.

For Microsoft SQL Server 2008: If your warehouse database uses Microsoft SQL Server 2008, you can select Microsoft SQL Server 2000 or 2005 from the list.

- In the **JDBC Driver** field, select **Other**.
- In the **Connection URL details** area, complete the following steps:
 - In the **Database** field, specify the appropriate database name, for example, *WAREHOUS*. If you are not sure which name to specify, see your database administrator for assistance.
 - In the **JDBC driver class** field, specify the driver class, for example: *com.microsoft.sqlserver.jdbc.SQLServerDriver*.
 - In the **Class location** field, specify the location of the sqljdbc.jar file.

This file is typically located in the following directory on Windows operating systems. For example, **C:\Program Files\Microsoft SQL Server 2005 JDBC Driver\sqljdbc_3.0\enu**.

Only the Microsoft JDBC driver is supported. The Microsoft SQL Server 2005 JDBC 3.0 driver JAR file must be used for Microsoft SQL Server 2000,

Microsoft SQL Server 2005 and Microsoft SQL Server 2008 and is available as a free download from the Microsoft Download Center:

<http://www.microsoft.com/downloads>

The self-extracting file, `sqljdbc_3.0.1301.101_enu.exe`, includes the file `sqljdbc.jar` containing the Microsoft SQL Server 2005 JDBC Driver. This driver, at version 3.0, is the minimum supported version.

- d. In the **Connection URL** field, accept the default connection URL that is created from the other fields. The following syntax shows the format:

```
jdbc:sqlserver://<servername>:<port>;user=<user>;  
password=<password>;databaseName=<database>
```

The following variables are used:

<servername>

The fully qualified name of the system where Microsoft SQL Server is installed.

<port> The port number, typically 1433.

<user> The user ID authorized to access the database, for example, *ITMUser*.

<password>

The valid password associated with the specified user ID.

<database>

The name specified in the **Database** field, for example, *WAREHOUS*.

For other third party SQL JDBC drivers: Consult your SQL JDBC driver publications for the correct URL information to enter into this field.

4. In the **Specify user information** area, select the appropriate user ID and password to access the database, either the operating system sign-on values, or another authorized user ID and password.

Creating an Oracle database connection

If your workstation is remote to the system where the Oracle server is installed, verify that you have an Oracle JDBC driver installed on your local workstation. Refer to your Oracle product publications for additional information.

To create a database connection for Oracle, complete the following steps:

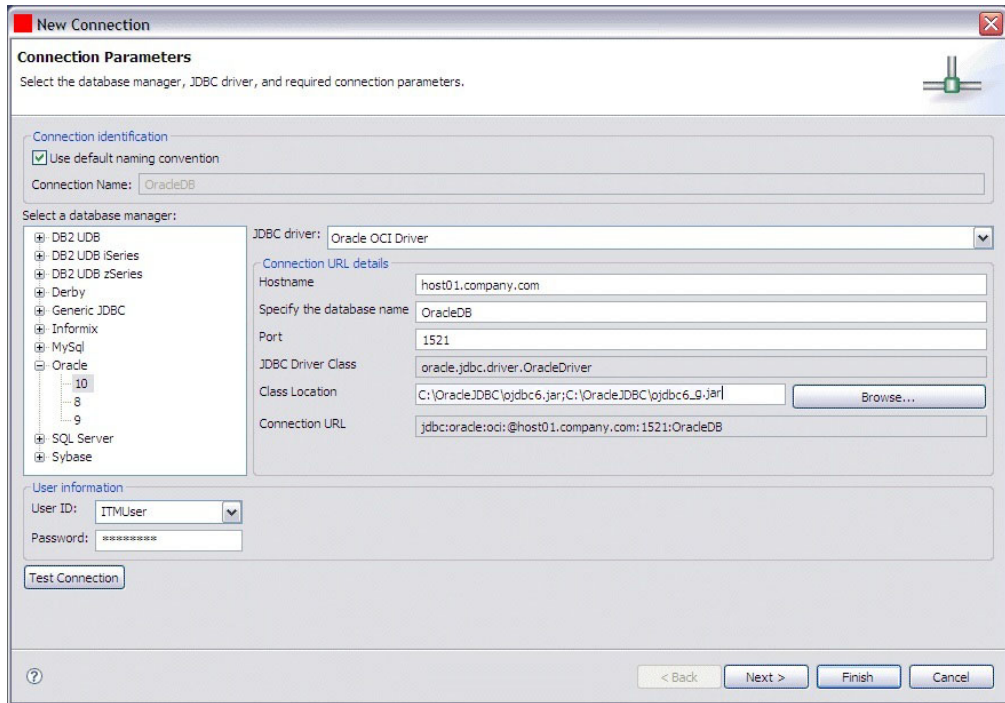


Figure 26. Specifying database connection parameters for an Oracle OCI connection.

1. In the **Select a database manager** area, expand the Oracle node and select 10.

For Oracle version 11g: If your warehouse database uses Oracle version 11g, you can use the version 10 JDBC driver.
2. In the **JDBC Driver** field, accept the default value: *Oracle OCI Driver*.
3. In the **Connection URL details** area, complete the following steps:
 - a. In the **Hostname** field, specify the fully qualified hostname of the system where the database is located, for example, *host01.company.com*. If the database is located on your local workstation, you can specify *localhost*.
 - b. In the **Specify the database name** field, select the appropriate database name from the selection list, for example, *OracleDB* or *warehouse*. If you are not sure which name to select, see your database administrator for assistance.
 - c. In the **Port** field, accept the default port number, *1521*, or change it to a different port.
 - d. In the **JDBC driver class** field, accept the default value: *oracle.jdbc.driver.OracleDriver*.
 - e. In the **Class location** field, specify the following JAR files. For example:


```
<Oracle_HOME>\lib\ojdbc6.jar
```

<Oracle_HOME> is the directory path where the Oracle Driver for JDBC is installed, for example, *C:\OracleJDBC*.
 - f. In the **Connection URL** field, accept the default values. The values in the **Hostname**, **Port**, and **Database** fields are in the following format:


```
jdbc:oracle:oci:@<Hostname>:<Port>:<Database>
```
4. In the **Specify user information** area, select the appropriate user ID and password to access the database, either the operating system sign-on values, or another authorized user ID and password.

The following example creates an Oracle database connection with the Oracle thin Driver:

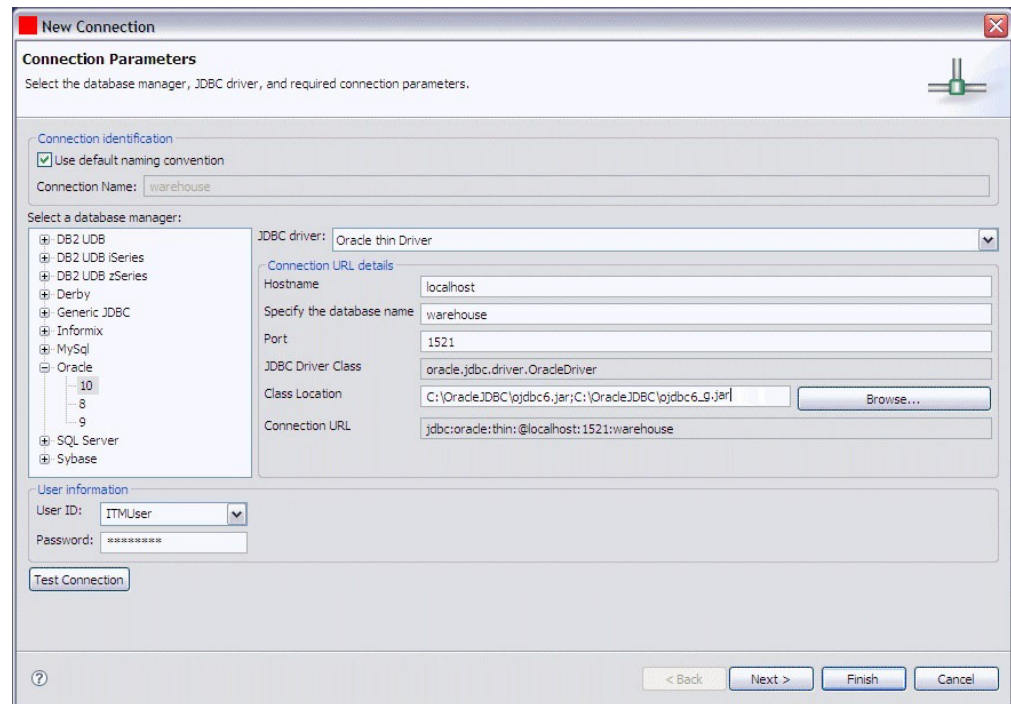


Figure 27. Specifying database connection parameters for an Oracle thin connection.

Creating a database connection with a different JDBC driver class

If you need to use a different JDBC driver class other than the classes provided by IBM Web Services Navigator select *Other* in the JDBC driver class field, and enter the JDBC driver class file path and the JDBC URL as needed.

The following example uses the *Other* JDBC driver value and enables you to specify own connection parameters:

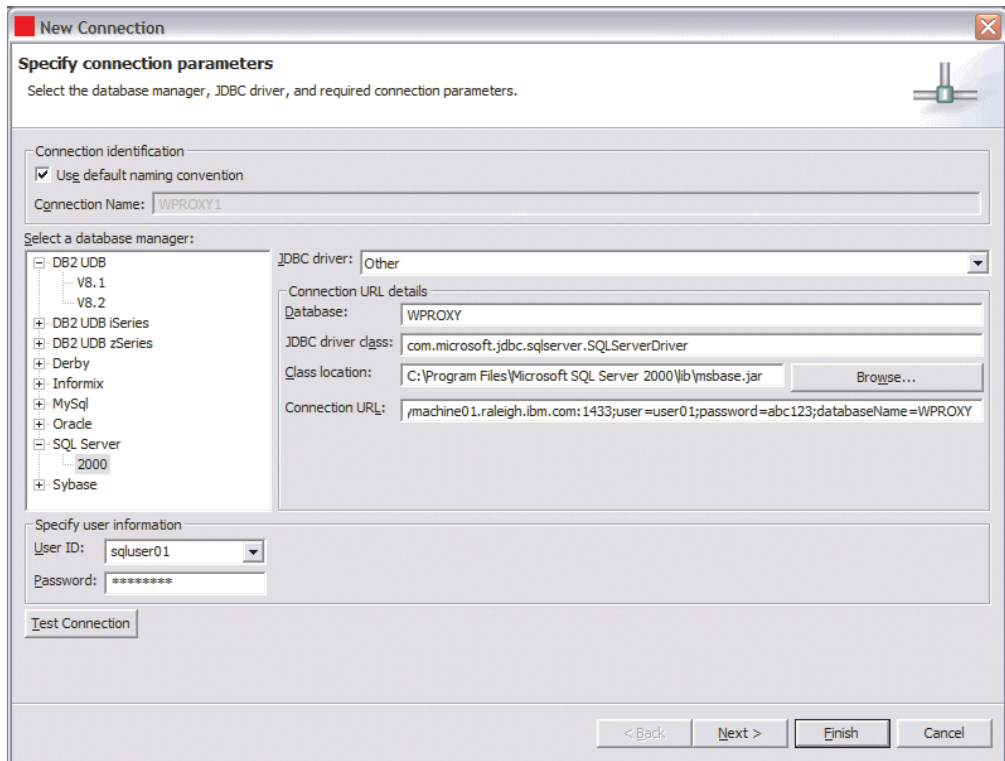


Figure 28. Specifying database connection parameters for a Microsoft SQL Server 2000 connection.

To create a database connection with a different JDBC driver class, follow these steps:

1. In the **Select a database manager** area, expand the Microsoft SQL Server node and select **2000**.
2. In the **JDBC Driver** field, select **Other**.
3. In the **Connection URL details** area, complete the following steps:

- a. In the **Database** field, select the appropriate database name from the selection list, for example, *WPROXY*. If you are not sure which name to select, see your database administrator for assistance.
- b. In the **JDBC driver class** specify the **com.microsoft.jdbc.sqlserver.SQLServerDriver** value.
- c. In the **Class location** field, specify the following JAR files, all on a single line, separated by semicolons:
 - `<SQL_HOME>\lib\msbase.jar`
 - `<SQL_HOME>\lib\mssqlserver.jar`
 - `<SQL_HOME>\lib\msutil.jar`

The `<SQL_HOME>` directory path is where the Microsoft SQL Server 2000 Driver for JDBC is installed, for example, `C:\Program Files\Microsoft SQL Server 2000`.

- d. In the **Connection URL** field, specify the connection URL in the following format:

```
jdbc:microsoft:sqlserver://<servername>:<port>;user=<user>;
password=<password>;databaseName=<database>
```

The following variables are used:

<servername>

The fully qualified name of the system where Microsoft SQL Server is installed.

<port> The port number, typically 1433.

<user> The user ID authorized to access the database, for example, *user01*.

<password>

The valid password associated with the specified user ID.

<database>

The name specified in the **Database** field, for example, *WPROXY*.

For other third party SQL JDBC drivers: Consult your SQL JDBC driver publications for the correct URL information to enter into this field.

4. In the **Specify user information** area, select the appropriate user ID and password to access the database, either the operating system sign-on values, or another authorized user ID and password.

Completing the database connection

After specifying the details of the database connection, complete the following steps:

1. On any New Connection page, click **Test Connection** to verify that the connection is valid. An attempt is made to establish the connection, and a message is displayed telling you if it was successful. If your connection fails, consult the error message and correct your connection accordingly.
2. Click **Finish**. Your connection is added to the Database Explorer view in the Web Services Profiling perspective.

Creating a project

Before you can retrieve data into a log file, you must first select an existing project or create a new one. To create a project, complete the following steps:

1. From the toolbar, click **File -> New -> Project** to open the New Project page, which offers several wizards to create various project resources.
2. On the New Project page, click **General -> Project** and click **Next**.
3. Enter a name for the new project, for example, *ITWSN_Project1*, in the **New Project** field, and click **Finish**. The new project is created and placed in the Navigator view on the workbench.

Attention: If you attempt to import data from the database without first creating a project, when you select **Import -> ITCAM for SOA** and enter a parent folder name that does not exist, you receive the message, The specified project does not exist at the top of the **Workspace** page. You must create a project in a parent folder before you can import data into IBM Web Services Navigator.

Retrieving Web services data

After you verify the database connection and create a project, import the data from the warehouse database into IBM Web Services Navigator for viewing by completing the following steps:

1. From the toolbar, click **File -> Import**.
Optional: You can also right-click within the Navigator view and then click **Import**.

2. The Import/Select page is displayed, similar to Figure 29. You can import resources from several different sources. Previously you used the **General** → **File system** import source to import the sample log file from your local workstation in to IBM Web Services Navigator.
3. On the Import Select page, click **Other** → **Import historical data from a connected database** to retrieve monitoring data that has been written to the warehouse database by IBM Tivoli Composite Application Manager for SOA and click **Next**.

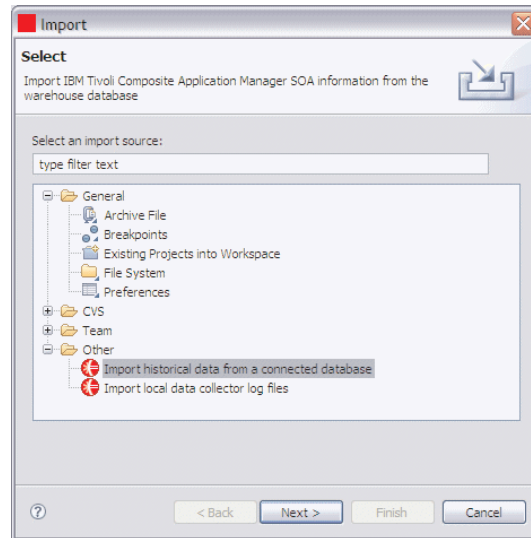


Figure 29. Selecting the Other import resource option

4. The **Workspace** page is displayed, similar to Figure 30 on page 43, prompting you to select the parent folder to contain the imported data in a log file. The list of available projects is shown in the **Enter or select the parent folder** area. Type the name of the target project or select a project from the list.

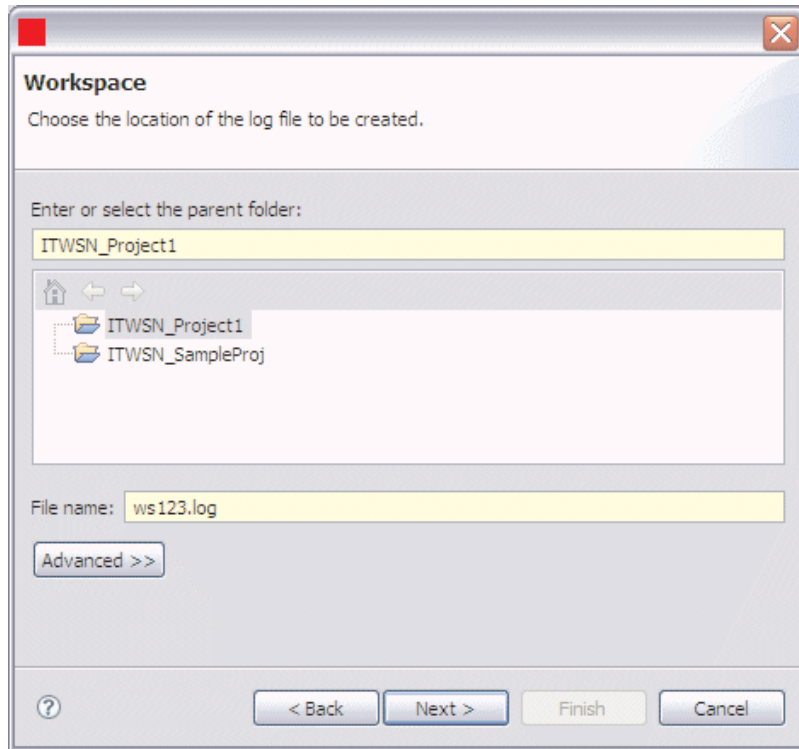


Figure 30. Specifying the destination project and log file for the retrieved data, by using the advanced link option.

5. In the **File name** field, enter a name for the destination log file where the data is to be stored and click **Next**. The format of the file name must have an extension of *.log*.

The time interval page is displayed, where you specify the starting date and time, and ending date and time for the data to be retrieved from the database. You can specify month, day, and year date values, along with hour, minute, and second time values, expressed in 24-hour format. The timestamps for data in the database is in Greenwich Mean Time (GMT), so be sure to account for time zone differences when you specify the start and ending time range for your retrieved data.

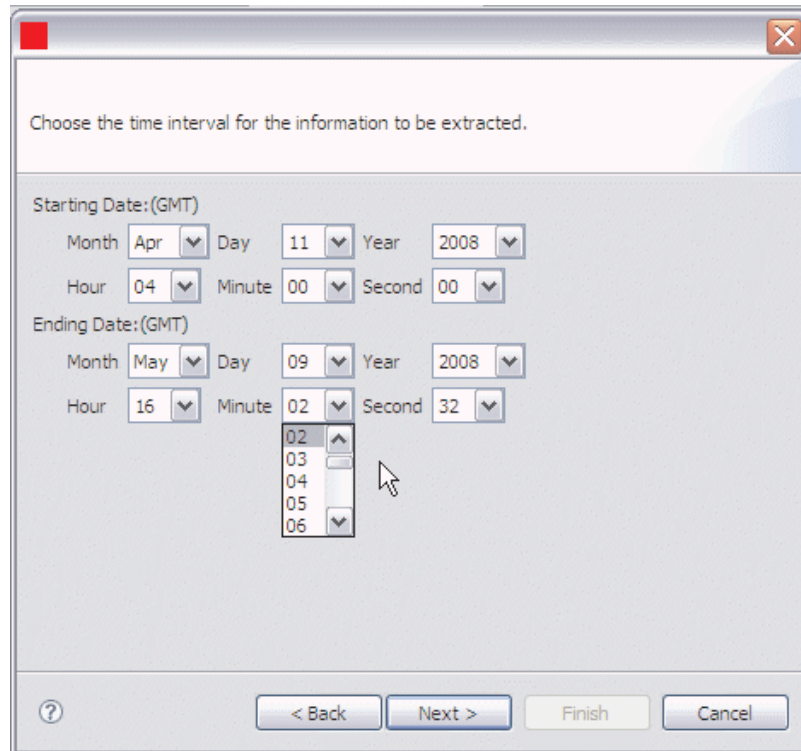


Figure 31. Specifying the start and end date and time interval for data retrieved from the warehouse database

6. Click **Next**. The next page is displayed, where you select the existing database connection to be used for retrieving the data.

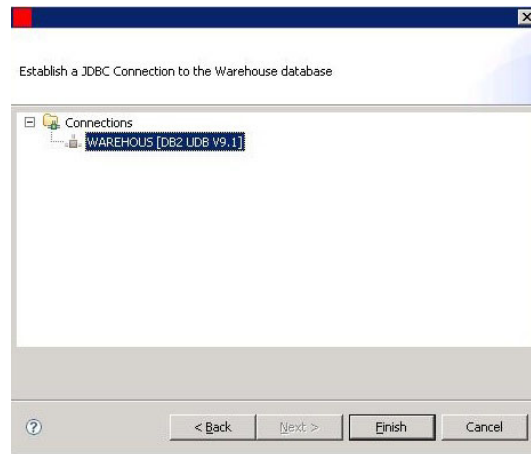


Figure 32. Using an existing database connection

7. After selecting or defining your database connection, click **Finish**. The data is retrieved from the database, and converted into the appropriate log file format for viewing in IBM Web Services Navigator. The target log file is added to the selected project folder in the Navigator view, and is marked as loaded with a **green check mark** icon displayed next to the log file name, and the *[Loaded]* suffix to the right of the log file name.
8. Double-click the log file in the Navigator view to display the retrieved data in your views.

See the online help system for additional information about using IBM Web Services Navigator to visualize your Web services data.

Chapter 5. Retrieving local metric and content log files

In a typical Web services production environment, you use IBM Tivoli Composite Application Manager for SOA to monitor your Web services across multiple application servers, with the resulting metric data collected in locally generated log files. If your environment is configured for historical data collection, this metric data is then processed and sent to the warehouse database on a configured interval, and eventually deleted from the local application server. Message *content* data is *not* sent to the warehouse database.

After the metric data is stored in the specified warehouse database, you then use IBM Web Services Navigator to retrieve the metric data from the warehouse database and then display it in the various views of the Web Services Profiling perspective of IBM Web Services Navigator for analysis. This procedure is described in Chapter 4, “Retrieving Web services data from the warehouse database,” on page 29.

In the following situations, however, you might need additional capabilities:

- You want to view message content data in addition to metric data.

The IBM Tivoli Composite Application Manager for SOA monitoring agent monitors Web services and collects metric data (and optionally, the content of messages, if the Message Logging Level is configured to a value other than the default value of *None*). Metric data and message content data are stored in separate log files, and only the metric data is later written to the warehouse database. The message content log file continues to reside on the local system, and continues to store new message content data. When the content log file reaches a maximum size of 500 MB, an integer number is appended to the end of the file name and a new content log file is started. This condition is referred to as *roll over*. There can be a maximum of five content log files. When all five files are filled, the oldest stored data is overwritten with new data, and rollover continues.

More importantly, while the monitoring agent is running, metric data log files are processed and moved in to an archive folder, where they are held temporarily for up to 24 hours (or until the folder reaches 200 MB in size) before the oldest files are automatically deleted. If you want to view the content of messages that are intercepted by the monitoring agent, you need a way to capture that information from the log files before the files are deleted. Then convert the data into a form that can be displayed in the Message Content view of the Web Services Profiling perspective.

- You might be experiencing a problem with your Web services and need to debug it in real time.

In this case you do not want to wait for the data to be processed and sent to the database on the configured interval (which might be on an hourly or daily basis). Generate Web services traffic to recreate the problem, and gather the resulting log files that have been generated. Merge them together to create a single log that you can import in to IBM Web Services Navigator for immediate viewing.

- You might be working in an environment where you do not have a warehouse proxy configured, or you might not have configured for historical collection of data in your IBM Tivoli Monitoring environment.

In the two previous situations, with the environment configured for historical data collection, the metric data is automatically stored in a warehouse database and available for retrieval and automatic conversion for display in IBM Web Services Navigator. In this situation, however, when your environment is not configured for historical data collection, you need another method to merge the various log files collected from around your Web services environment, and create a single log file that you can import in to IBM Web Services Navigator.

To assist you in all of these situations, IBM Web Services Navigator provides a method to gather these local metric and message content log files and assemble them in to a single log file that you can then import into the Web Services Profiling perspective for viewing.

Important: The metric and content log files must have the same header information.

You can select as input one or more metric log files and, optionally, one or more content log files that are created as a result of monitoring Web services traffic. The import function parses the log files, correlates their data, and then transforms the data into a single log file in the correct format that is suitable for importing into IBM Web Services Navigator. This log file is automatically loaded in to the Web Services Profiling perspective and displayed in IBM Web Services Navigator views.

Configuring the message content logging level

By default, the Message Logging Level parameter for the monitoring agent is configured to a value of *None*, meaning that all services are to be monitored. To collect message content data from the monitoring agents in addition to the regular metric data, configure the message logging level to *Full* to collect both header and body message content.

The default setting enables all services to be monitored. If you change this setting, only those services, operations, and namespaces that you specify are monitored.

To configure the message logging level, complete the following steps:

1. Open the desktop or browser version of the Tivoli Enterprise Portal, navigate to an application server where the IBM Tivoli Composite Application Manager for SOA monitoring agent is collecting data. Click the **Services Management Agent** node in the Navigator Physical view to open the Services Management Agent workspace.
2. In the Data Collector Monitor Control Configuration table view, use the AddMntrCntrl_610 and UpdMntrCntrl_610 Take Action commands to configure the data collectors by setting the Message Logging Level to *Full*. The Message Logging Level column indicates the level of logging that is configured for each unique combination of Service Port Name, Operation, and namespaces.

For more information about these and other Take Action commands, see the online help system for IBM Tivoli Composite Application Manager for SOA, or refer to the Take Action Commands chapter in the *IBM Tivoli Composite Application Manager for SOA User's Guide*.

With the Message Logging Level set to *Full*, the next time you generate Web services traffic, the monitoring agent collects full header and body content for each intercepted message. If this level is set to *Header* or *Body*, only that part of the message content is collected. If this level is set to *None*, message content is not collected.

Log file names and locations

You can generate Web services traffic to collect metric and, optionally, message content log files, with the monitoring agent either started or stopped. The state of the monitoring agent affects the names of your log files, and where they are located for retrieval.

With the monitoring agent started

Typically when the monitoring agent is started, Web services metric data is collected in a log file with a name in the form of *KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.metric.log*. In this format, these variables have the following meanings :

<app_srv>

An integer indicating the type of supported application server. The following values are valid:

- 1= IBM WebSphere Application Server
- 2 = Microsoft .Net
- 3 = BEA WebLogic Server
- 4 = JBoss
- 5 = Customer Information Control System (CICS) Transaction Server
- 6 = SAP NetWeaver
- 7 = WebSphere Community Edition
- 8 = DataPower SOA Appliance
- 10 = WebSphere Message Broker

<cluster>

The name of the cluster containing the application server, and might be a null value (that is, an empty text string) if the application server is not part of a cluster.

<cell> The name of the cell associated with the node for the application server, and might be a null value.

<node>

The node name, corresponding to a logical or physical computer system with a unique IP host address, where the application server is located, and serves as a logical grouping of one or more managed application servers. Typically this name is identical to the hostname for the computer, and might be a null value.

<server>

The name of the application server

Null values in log file names: If *<cluster>*, *<cell>*, or *<node>* names contain null values, the log file name still includes the separator period characters, such as *KD4.<app_srv>....<server>.metric.log*.

Additional parts to log file names: There might be additional variables included as part of the metric log file name, but all metric log files always have the general form of **.metric.log**.

For example, consider a JBoss (*<app_srv>* has a value of 4) that is not part of a cluster, with a cell name of *sys1Node01Cell* and a node name of *sys1Node01* and an application server name of *server1*. The resulting metric log file name is:

KD4.4..sys1Node01Cell1.sys1Node01.server1.metric.log

This metric log file is initially stored in the `<ITCAMfSOA_LOGS>\logs` folder, where `<ITCAMfSOA_LOGS>` is defined as `<ITCAM4SOA_Home>\KD4`. Refer to the operating system-dependent variables and paths to determine the location of `<ITCAM4SOA_Home>`.

Moving log data to the DCA Cache: Approximately every 10 seconds, the monitoring agent examines this log folder for new metric log files, and copies their content into a new log file in the `<ITCAMfSOA_LOGS>\logs\KD4.DCA.CACHE` folder. The log file name is modified by appending a date and timestamp to the end of the file name, for example:

KD4.4..sys1Node01Cell1.sys1Node01.server1.metric.log.1070723210445000-CA

The original `KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.metric.log` file is then deleted from the `<ITCAMfSOA_LOGS>\logs` folder. The *content* log files are *not* moved in to the `\KD4.DCA.CACHE` folder, and remain stored in the `<ITCAMfSOA_LOGS>\logs` folder.

Moving log data to the archive: If your environment is configured for historical data collection, the data in these multiple log files residing in the `\KD4.DCA.CACHE` folder is processed on the configured interval and sent to the warehouse database. Every 15 minutes (70 minutes if historical data collection is not enabled), these cached log files are also moved in to the `\KD4.DCA.CACHE\archive` folder, where they are held for up to 24 hours (or until the archive folder reaches 200 MB in size) and eventually deleted (if you temporarily stop the monitoring agent and then restart it later, the 15 minute (or 70 minute) archive interval time is restarted).

Capture log file data before it is deleted: If you leave the monitoring agent started, be sure to import the metric log files of interest from the `\KD4.DCA.CACHE` or `\KD4.DCA.CACHE\archive` folders before they are deleted, along with any associated content log files that remain in the `\logs` folder, and retrieve them into the single combined output log file that is then imported in to IBM Web Services Navigator.

Content log data accumulates in up to five separate files. When the first file increases in size up to a maximum of 500 MB, a second file is started. This process continues until a maximum of five content log files are created and filled. For large amounts of data collection, if all five content log files are filled, the oldest log file is overwritten with the latest data.

With the monitoring agent stopped

If you are in a test environment, you might choose to temporarily stop the monitoring agent when you generate Web services traffic.

To stop the monitoring agent, from the Manage Tivoli Enterprise Monitoring Services console, right-click **ITCAM for SOA** and from the menu, select **Stop**.

With the monitoring agent stopped, the resulting metric data is stored in the single `KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.metric.log` file in the `<ITCAMfSOA_LOGS>\logs` folder. Because the monitoring agent is stopped, this file is not processed and moved to the `\KD4.DCA.CACHE` folder, and the name is not appended with a date and time stamp. Message content data is still collected

into a separate *KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.content.log* file, and stored in the same *<ITCAMfSOA_LOGS>\logs* directory location.

As you continue to generate Web services traffic, additional metric data is added to this log file, and the file continues to grow, limited only by the amount of disk space in the local file system.

Message content data is also added to the content log file, until it reaches a maximum size of 500 MB, after which a second content log file is created. A maximum of five content log files are created. After all five content logs are filled, the oldest file is overwritten with the latest message content data.

Selecting log files for viewing

In your Web services environment, run Web services of interest to recreate the problem you are currently working on, or to collect the monitoring data of interest. If you are monitoring Web services on multiple computers in your environment, the various metric and content log files are stored locally on each computer, in the *<ITCAMfSOA_LOGS>\logs*, *<ITCAMfSOA_LOGS>\logs\KD4.DCA.CACHE*, or *<ITCAMfSOA_LOGS>\logs\KD4.DCA.CACHE\archive* folders.

Because the log file import function is part of IBM Web Services Navigator, you must have network access from the system where IBM Web Services Navigator is installed to each system where log files are stored, or you need to copy the log files of interest to a temporary location on the computer where IBM Web Services Navigator is installed.

Complete the following steps to import metric and content log files in to IBM Web Services Navigator:

1. Create a project directory by completing these steps:
 - a. On the Eclipse menu bar, select **File -> New -> Project**.
Optional: Right-click in the Navigator view, and select **New -> Project**.
 - b. On the New Project page, expand **General**, select **Project** and click **Next**.
 - c. On the next page, type a name for your project, for example, *Project_1* in the **Project Name** field.
 - d. The **Location** area specifies where your project folder is stored. The **Use default location** check box is already selected, specifying the default location of your project folder at **C:\Program Files\IBM\ITCAM for SOA 7.2\IBM Web Services Navigator\workspace**. Accept this default setting and click **Finish**.
You return to the Eclipse workspace. The newly created project folder now appears in the Navigator view.
2. On the Eclipse menu bar, select **File -> Import**. **Optional:** You can also right-click in the Navigator view and select **Import**.
3. On the Import Select page, expand **Other** folder, select **Import local data collector log files** and click **Next**.

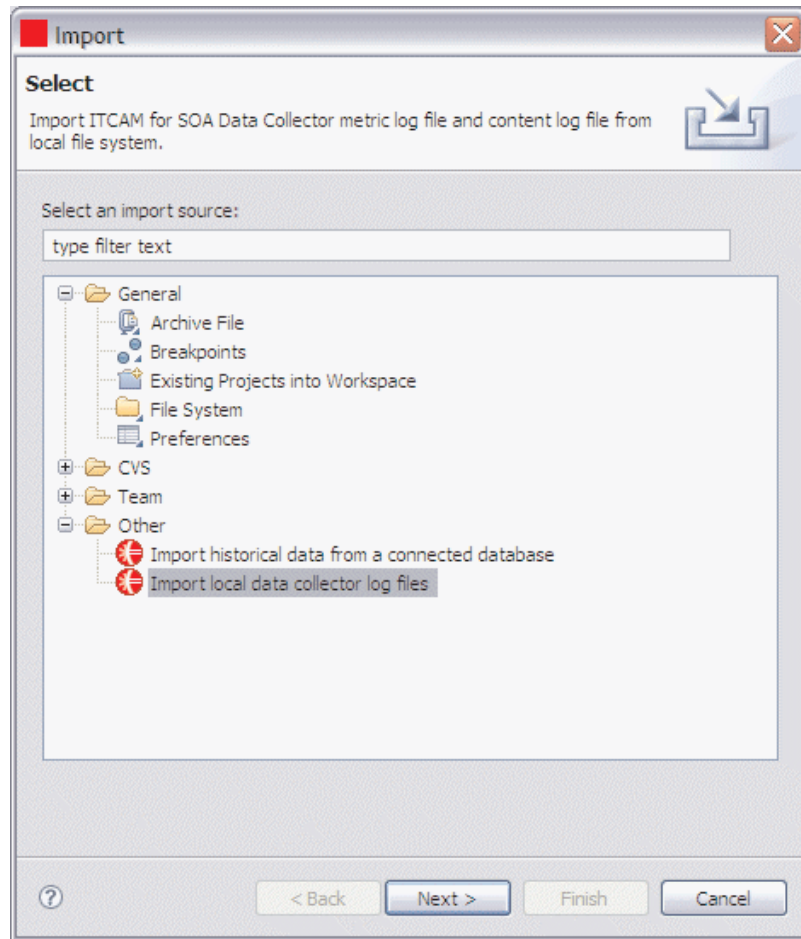


Figure 33. Selecting to import local data collector log files

4. On the **ITCAM4SOA log file import** page, in the **Project** field, specify the project name where the combined target log file is to be stored. You can enter the project name in the format */Name*, or click **Browse** and navigate to the preferred project, and select it.

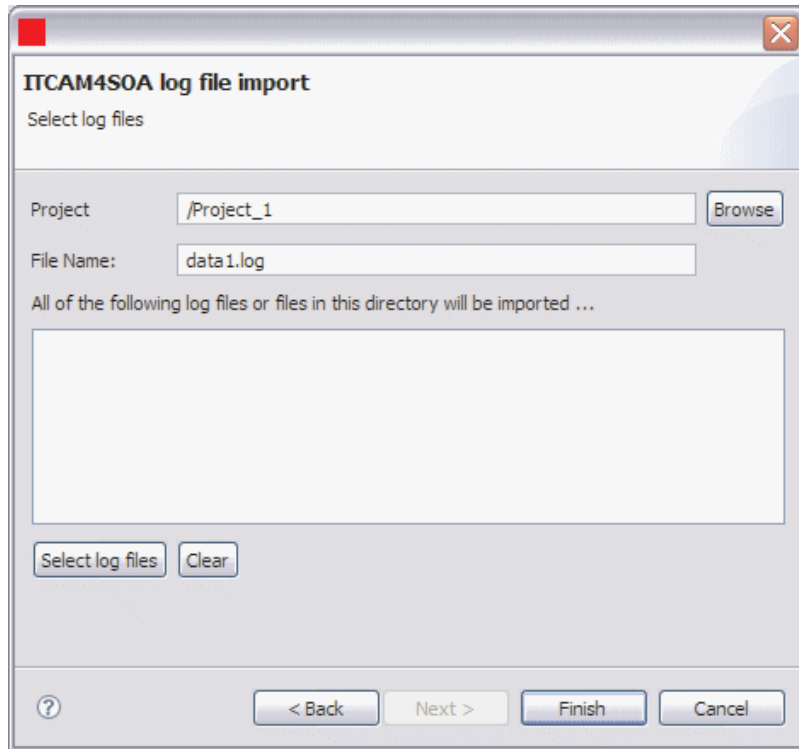


Figure 34. Specifying the target project and file name for the combined log file to be imported

5. In the **File Name** field, specify the name of the combined target log file to be stored in the selected project. The file name must end with the extension of *.log* (for example, *data1.log*).
6. Click **Select log files** to select metric and content log files to combine in to the target log file. Navigate to the preferred log file directories, *<ITCAMfSOA_LOGS>\logs*, *<ITCAMfSOA_LOGS>\logs\KD4.DCA.CACHE*, or *<ITCAMfSOA_LOGS>\logs\KD4.DCA.CACHE\archive* on the local system, or to similar directory locations on networked systems in your Web services environment, or to the temporary location where you copied metric and content log files from other systems as needed. Highlight all of the files to be included in the combined target log file, and click **Open**.

You are returned to the **ITCAM4SOA log file import** page, where your selected files are displayed.

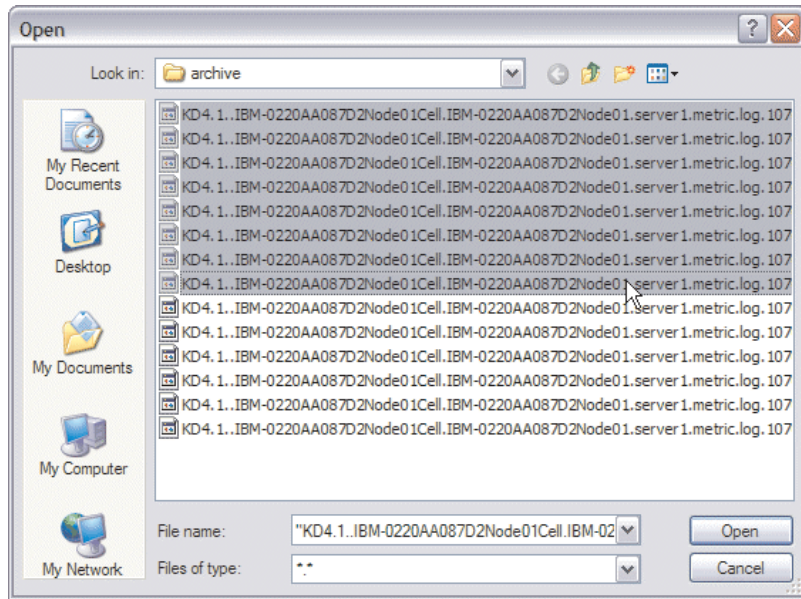


Figure 35. Selecting one or more log files to be included in the combined target log file

- On the ITCAM4SOA log file import page, click **Select log files** again to navigate to additional files for inclusion, and repeat this selection process until you have selected all of the preferred metric and content logs to be combined in to the target log file.

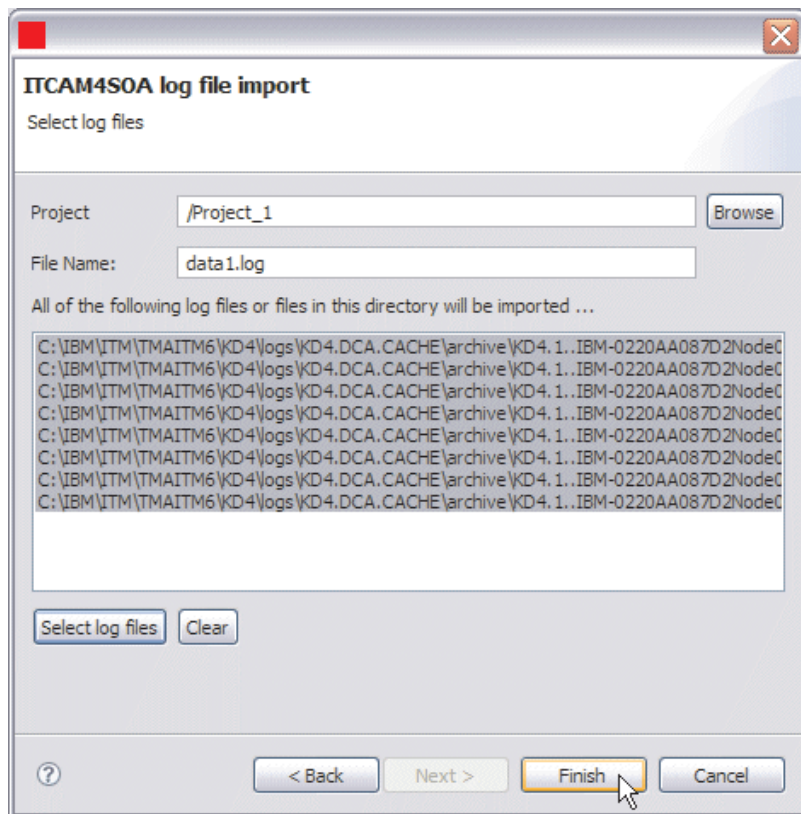


Figure 36. Completing the selection of log files to be combined in to the target log file for importing.

8. After you have selected all of the preferred log files from one or more monitored systems in your Web services environment, click **Finish**.

The log files are sorted and processed and the combined target log file is imported in to the Web Services Profiling perspective of IBM Web Services Navigator, and the resulting metric and content log data is displayed in the various views and tables. The combined target log file is listed in the Navigator view under the specified project, and is marked with both a **green check mark** icon and the suffix *[Loaded]* appended to the file name.

Configuring the maximum log file size

By default, the maximum size for your combined target log file is 50 transactions. You can configure this value by completing these steps:

1. On the Eclipse menu bar, select **Window** → **Preferences** to open the Preferences page.
2. On the Preferences page, expand the Navigator node, click **Max Transaction Size** to open the Max Transaction Size page as shown in Figure 37 on page 56.
3. In the **Max Transaction Size in One Log File** field, the default value of 50 is displayed. Type over this value to specify your preferred setting, expressed as an integer value, and click **OK**.

Attention: A larger maximum transaction size might affect the performance of the IBM Web Services Navigator. IBM Web Services Navigator generates trace and message log files in the *<Tools_Install>/logs* directory when the log option is enabled on the Preferences page for Logging. In order to avoid the performance impact of a trace log, turn off the trace log in your production environment.

The following file names specify the log files:

- navigator.log - The message log
- navigator.trace - The trace log

The metric log file is written to a *<filename>_<n>.log* file. When the amount is exceeded again, the log file is written to the *<filename>_<n+1>.log* file, where *n* is the index of the files. These files are visible in the project when the import wizard completes the operation. The data in the first file is displayed in the Navigator views. To display the data in the other files, you can load and unload the other files. To load the information in the file, double-click the file or if you are using a different editor in the Eclipse environment, right-click the file and select **Open With** → **Web Services Visualizer**. To unload the file, right-click the file and select **Unload**.

For example, you specify the filename as *navigator.log*. The maximum transaction size is the default of 50, but your data contains 120 transactions.

The data is written to the following files:

- navigator.log
- navigator_2.log
- navigator_3.log

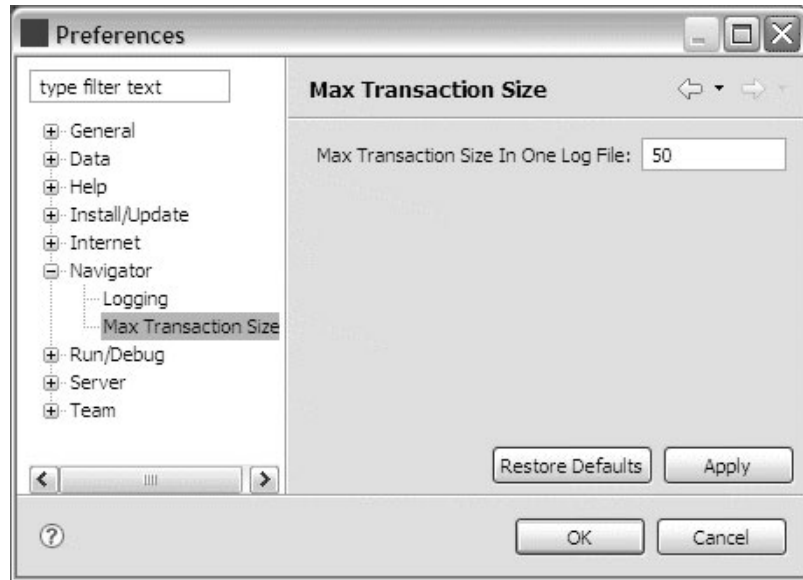


Figure 37. Configuring the maximum size for the target combined log file

Chapter 6. Uninstalling IBM Tivoli Composite Application Manager for SOA Tools

The uninstallation procedure removes only files that are included in the initial installation procedure. For example, if you keep your data collector-generated log files in the product installation directory, those log files are not deleted during uninstallation. Similarly, if you customize the arrangement of view panes in the IBM Web Services Navigator, the Eclipse platform stores these preferences in the `\workspace\metadata` directory. These preferences also remain after the uninstallation procedure completes, and must be removed manually.

Uninstall the product by using the **Add/Remove Programs** function from the Windows Control Panel, by completing the following steps:

1. Shut down the IBM Web Services Navigator workbench window if it is still active.
2. Click **Start->Control Panel** and double-click **Add/Remove Programs**.
3. From the list of programs displayed, select **IBM Tivoli Composite Application Manager for SOA Tools** and click **Remove**.

When the Welcome page displays, follow the on-screen prompts to complete the uninstallation.

4. After the uninstallation completes, return to the location where the Tools were installed and delete any remaining files or directories.

You can also uninstall the Tools by using the uninstallation program provided with the product, by completing the following steps:

1. Shut down the IBM Web Services Navigator workbench window if it is still active.
2. Navigate to the location where the Tools were installed (for example, the `C:\Program Files\IBM\ITCAM for SOA 7.2.0.1\Tools` directory) and open the `_uninst` folder.
3. Run the `uninstaller.exe` program to perform the uninstallation. When the Welcome page displays, follow the on-screen prompts to complete the uninstallation.
4. After the uninstallation completes, return to the location where the Tools were installed and delete any remaining files or directories.

Chapter 7. Troubleshooting

This chapter includes information about troubleshooting the product, during installation and regular usage.

Installing IBM Tivoli Composite Application Manager for SOA Tools

This section presents problems that you might encounter while installing the Tools.

Installation does not complete successfully

If the installation of the Tools is not successful, examine the IWSInstall.txt installation log file and resolve any problems that are identified. The installation log file is located in the target directory where you installed the product, for example, **C:\Program Files\IBM\ITCAM for SOA 7.2.0.1\Tools**.

After correcting any problems that are identified in the installation log, delete the target installation directory and start the installation procedure again. If you continue to experience problems, save the installation log file and contact IBM Software Support.

Starting IBM Web Services Navigator

Start the IBM Web Services Navigator by following the instructions in “Starting IBM Web Services Navigator in its own Eclipse environment” on page 15. This section addresses problems that you might experience when starting IBM Web Services Navigator.

Empty views displayed in the workspace

If you installed IBM Web Services Navigator into version 3.2.2 of Eclipse provided with the product, when you start IBM Web Services Navigator for the first time, the Web Services Profiling perspective is displayed by default, but the views included in the workspace are not yet populated (see Figure 10 on page 16). You can start creating projects in the Navigator view, and database connections in the Database Explorer view. When you import log files, you can load them into the other views displayed in the Web Services Profiling perspective.

If the Web Services Profiling perspective is not displayed, you can display it in the workspace by clicking **Window -> Open Perspective -> Other** and then selecting the **Web Services Profiling** perspective from the list.

If an expected view is not displayed in the Web Services Profiling perspective, you can display it from the Eclipse menu bar by clicking **Window -> Show View -> Other**, then in the **Show View** window, expand **Web Services Profiling** folder, select one or more views from the list, and click **OK**.

If you have been working with views, rearranging them in the workspace, or changing their sizes to view more data, you can reset the view sizes and positions to their default positions. From the Eclipse menu bar, click **Window -> Reset Perspective** and then click **OK** when asked if you want to reset the current perspective to its defaults.

Configuring the workbench perspective

Information about configuring the workbench perspective is available in the online help information. From the toolbar at the top of the workbench, click **Help** → **Help Contents** → **Workbench User Guide** → **Tasks** for information about customizing the workbench.

Starting more than one session from the same installation path

If you start one session of IBM Web Services Navigator and then attempt to start a second session from the same installation location, you might receive the following message, shown in Figure 38:

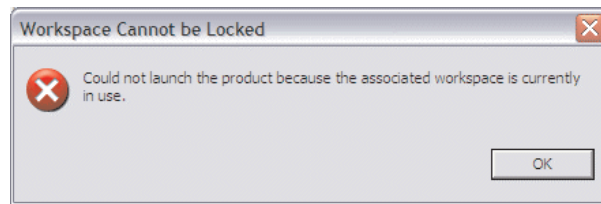


Figure 38. Message when you attempt to start two sessions of the IBM Web Services Navigator from the same installation location

You can have only one session running from a particular workspace. If, for some reason, you do not have an IBM Web Services Navigator session already started from that installation location, navigate to the `\workspace\metadata` directory, located in the target directory where you installed IBM Tivoli Composite Application Manager for SOA Tools and delete the `.lock` file, then start IBM Web Services Navigator again.

Retrieving data from the database

This section discusses problems that you might encounter while retrieving historical Web services data from the database.

Database connection created, but the import wizard fails

If you create a database connection successfully while using the import wizard, but the import process does not complete successfully, the database connection is not immediately displayed in the Database Explorer view.

You can resolve this problem by closing the IBM Web Services Navigator and restarting it. After restarting the tool, the database connection is displayed in the Database Explorer view as expected.

The file name is empty

If you attempt to import data from the database, after creating a project and selecting **Import** → **ITCAM for SOA**, you specify the parent folder, but receive the message, The 'file' name is empty at the top of the workspace.

In addition to the parent folder name, you must also specify a destination log file name where the data that is retrieved from the database is locally stored under the specified parent folder. On the **Workspace** page, type a name for the destination log file in the **File name** field. The file name must have an extension of `.log`.

No data retrieved

If you submit a request to import historical Web services data but the request returns with no results, the problem might be one of several types:

- If you specified a project name and log file name and clicked **Finish** before you specified a start and end interval, IBM Web Services Navigator sets the ending date for the request to the present day, the ending time to the present time in the local time zone, and the start date and time 24 hours earlier, effectively requesting data that was collected during the previous 24 hours. However, the starting and ending date and times must be specified not in the local time zone, but in Greenwich Mean Time (GMT). If you do not specify the correct starting and ending date and time range for the data of interest, you might not receive the data you expected, or you might not receive any data.
- You might receive an error message if the database connection was not successful. Check the database connection settings for the database connection that was used for the import request, and correct the configuration if needed. You might need to select another defined connection if the connection being used is pointing to the wrong database. See your local database or system administrator for assistance.
- The data might not have been written to the warehouse database yet. When IBM Tivoli Composite Application Manager for SOA is installed and configured, it is also configured for historical data collection, which includes defining the time interval for the gathering of local metric logs and their storage in a temporary location in preparation to be written to the warehouse database, and another longer interval when the metric data is written to the warehouse database. This setting might be configured to be written on an hourly or daily basis. See “Enabling historical data collection” on page 29 for information about historical data collection configuration.

A problem can also occur when data that is being retrieved from the warehouse database is larger than the Navigator can handle. When this problem occurs, you must specify a smaller time interval.

Operation names displayed as *Unknown*

Due to limitations in certain application server environments, the monitoring agent might not have access to the service name or operation name. In these cases, the service or operation name is displayed in the workspaces and views as *Unknown*.

Collecting local log files

Your environment might not be configured for historical data collection, or you might prefer to gather the metric and content log files from the various application servers in your enterprise where Web services are being monitored, and process them with the import function for viewing in IBM Web Services Navigator. The following sections address the following problems that you might encounter while handling these log files:

- Cannot find log files
- Not enough disk space for log files
- Data rolled over in log files
- The import function for the metric or content log file fails
- One or more agent tables are missing from the import function for the Data Warehouse

Locating the metric log files

At each application server where the IBM Tivoli Composite Application Manager for SOA monitoring agent is installed and monitoring Web services, the metric data is stored in the `<ITCAMfSOA_LOGS>\KD4\logs` directory, where `<ITCAMfSOA_LOGS>` is defined as `<ITCAM4SOA_Home>\KD4`. Refer to the operating system-dependent variables and paths to determine the location of `<ITCAM4SOA_Home>` for your operating system.

If the IBM Tivoli Composite Application Manager for SOA monitoring agent is not started when Web services data is collected, the resulting metric data is stored in a log file with a name in the format of `KD4.app_srv.cluster.cell.node.server.metric.log`.

If the IBM Tivoli Composite Application Manager for SOA monitoring agent is started, Web services metric data is temporarily stored in the `KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.metric.log` file, but at each polling interval the monitoring agent checks for the existence of this log file, and if found, copies the log file in to the `<ITCAMfSOA_LOGS>\KD4\logs\KD4.DCA.CACHE` folder, and renames it by adding a time stamp suffix to the end of the file name. As Web services data continues to be collected, additional metric log files are added to the `\KD4.DCA.CACHE` folder.

At a time interval that is defined during the configuration of IBM Tivoli Composite Application Manager for SOA for historical data collection, these cached metric log files are processed and the data is written to the warehouse database. After the file is processed, if the monitoring agent remains active, approximately 15 minutes later (70 minutes if historical data collection is not enabled) these cached metric log files are moved to the `\KD4.DCA.CACHE\archive` folder, where they are held for up to 24 hours or until the archive folder reaches a maximum size of 200 MB. After reaching either of these limits, the oldest files are deleted from the local file system as needed. If you stop the monitoring agent and restart it at a later time, the 15 minute (or 70 minute) archive interval is reset.

Therefore, if you plan to manually collect these cached metric log files while allowing the monitoring agent to continue to run, collect the log files from the `\KD4.DCA.CACHE` and `\KD4.DCA.CACHE\archive` folders before they are automatically deleted.

Attention: In the import wizard for IBM Tivoli Composite Application Manager for SOA log files and the import wizard for the data warehouse, the metric logs are written in to a new log file when the amount of Service Flow Identifiers or transactions exceeds the maximum amount. The new file name is `<filename>_<n>.log`. See “Configuring the maximum log file size” on page 55 for more information.

Locating the content log files

At each application server where the IBM Tivoli Composite Application Manager for SOA monitoring agent is installed and monitoring Web services, by default the data collector is not configured to collect message content, for performance considerations. If the Message Logging Level is not configured, it is set by default to a value of *None*, meaning that no message content is collected. As a result, if you navigate to the `<ITCAMfSOA_LOGS>\KD4\logs` directory, you do not find a `KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.content.log` file.

To collect message content and store the data into the content log, the Message Logging Level must be configured to a value of *Header*, *Body*, or *Full* (both header

and body), depending on how much message data you want. See the *IBM Tivoli Composite Application Manager for SOA User's Guide* for information about configuring the Message Logging Level of each data collector to collect message content data.

The metric data is stored in the `<ITCAMfSOA_LOGS>\KD4\logs` directory. If the IBM Tivoli Composite Application Manager for SOA monitoring agent is not started when Web services data is collected, the resulting metric data is stored in a log file with a name in the format of `KD4.app_srv.cluster.cell.node.server.metric.log`.

If the Message Logging Level is configured to collect message content (header, body, or both), then a content log file with a name in the format of `KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.content.log` is created in the `\KD4\logs` folder. Unlike the metric log files, the content log is not moved in to the `\KD4.DCA.CACHE` folder.

The content log file has a maximum size limit of 500 MB. When the content log file reaches this size limit, it is rolled over to a second file, with an integer value of 1 attached to the end of the file, as in `KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.content.log1`, and a new `KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.content.log` file is started. If you collect a large amount of message content data, you might see as many as five content log files in the `\KD4\logs` folder. If the total message content exceeds the size of these five content log files, the oldest content log file is overwritten with new data.

Be sure to collect all of the content log files from the `\KD4\logs` directory for processing with the import function.

Local metric or content log files not found

When you want to view the log results in the IBM Web Services Navigator, you need to manually collect the various log files from the application servers where Web services are being monitored, and then copy them to the workstation where IBM Web Services Navigator is installed. If you do not find the metric or content logs in the `<ITCAMfSOA_LOGS>\KD4\logs` folder on each local application server where Web services are being monitored, this situation might be caused by one of the following problems:

- If you generated Web traffic that resulted in metric data being stored in a metric log file, and your environment is configured for historical data collection, the metric log files might have already been processed and written to the warehouse database, and the local log file deleted from the archive folder, if the monitoring agent remains active for up to 24 hours after the metric log is read, or if the archive folder reached its maximum allowed size of 200 MB. You must either recreate the Web traffic and create new local metric log files, or retrieve the data from the warehouse database for viewing in IBM Web Services Navigator.
- There might be a problem with the data collector JAR files that are installed as part of the installation of IBM Tivoli Composite Application Manager for SOA. You might need to uninstall the monitoring agent from the application server and then reinstall it.
- You might have data collection turned off for the monitoring agent. Check the Data Collector Configuration workspace to verify the settings for the Data Collector On/Off setting. If this setting is set to *Off*, metric or content data is not collected, and the log files are not created.

- If the Message Logging Level is configured with a value of *None*, then message content data is not collected, and the *KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.content.log* file is not created. The Message Logging Level must be configured with a value of *Header*, *Body* or *Full* to generate message content data and store it locally in the content log file.
- There might not be enough disk space available on the local application server for the log file. Check the status of your file system and make sure that there is enough free space for the log files to be created.

Not enough local disk space for metric log files

At each application server where the IBM Tivoli Composite Application Manager for SOA monitoring agent is installed and monitoring Web services, the metric (and optional message content) data is stored in local log files in the *<ITCAMfSOA_LOGS>\KD4\logs* directory. If the IBM Tivoli Composite Application Manager for SOA monitoring agent is temporarily stopped, the metric data is stored in the *\KD4\logs* folder in a file with a name in the format of *KD4.app_srv.cluster.cell.node.server.metric.log*. This file continues to grow as more Web services data is written to the log file, to the limits of the available storage space in your local file system.

If the monitoring agent is stopped, over time the metric log file can grow too large for the available space, as the Web services data collector continues to write information about the Web services requests and responses that are intercepted. In this case you need to periodically clear out or delete metric log files to keep them from getting too large.

Data rolled over in to a content log file

When your monitoring agent is configured to collect message content data, the *KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.content.log* file is created when Web services messages are intercepted by the monitoring agent. Message content data can grow large rather quickly, and the content log file can fill up quickly even with a maximum file size of 500 MB.

Limit your message data collection to fit into the available content log file space and periodically delete old files when they are no longer needed. If you find that you need more than 500 MB for these content log files, contact IBM Software Support.

One or more agent tables are missing from the import function for the Data Warehouse

The import wizard retrieves data from the following agent tables for the Data Warehouse:

- Service_Flow_Metrics
- Relationships
- Svc_Port_Oper_Mapping
- Environment_Mapping

You must verify that these agent tables are enabled for historical data collection, and then you must run traffic to create the tables.

Avoiding log file naming conflicts

Be careful when copying or transferring metric and content log files from multiple application servers and monitoring agents as you gather them and store them on the workstation where IBM Web Services Navigator is installed for processing with the import function. All of the log files from each application server have a similar name format, as in *KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.metric.log* or *KD4.<app_srv>.<cluster>.<cell>.<node>.<server>.content.log*, so be careful not to overwrite a log file from one application server on to a log file from another application server. You might append the application server hostname to each file, or develop your own naming convention to distinguish files from each other. You might also place metric and content logs from one application server in a separate temporary directory from other log files, to avoid name conflicts and keep the files organized.

Similarly, if you import metric and content log files from multiple application servers, be sure to specify unique output file names so you can import them into IBM Web Services Navigator without name conflicts.

Importing local log files

You can import a log file in to the IBM Web Services Navigator to analyze your Web services transactions. This section presents typical problems you might experience with importing log files.

Importing a log file from an earlier version of the Navigator into version 7.2 by using the import wizard

When you import a log file that was created by a previous version of the Navigator into version 7.2, you receive an error message. This problem might be caused by missing header information that is expected before the actual log entries. This header information might be missing for any of the following reasons:

- The log file was truncated when combined with another log file.
- The log file was corrupted through manual handling.

```
VERSION;1.2  
MACHINE;<Hostname>;<IP address>
```

In this example, *<Hostname>* is the fully qualified hostname for the application server where the data was originally collected, and *<IP address>* is the IP address of the application server.

Load the log file into the previous version of IBM Web Services Navigator, because it is not supported in the current version, or create your log file by using the current version of the IBM Web Services Navigator with the import wizard. If you are still experiencing problems and the log file is not imported properly in to IBM Web Services Navigator, contact IBM Support for more assistance.

Uninstalling Tools

This section presents problems you might encounter while uninstalling the Tools.

Files remaining in installation directories

After you uninstall the Tools, there might be several files remaining in the directories. If you do not want to save this information, you can delete everything in the Tools installation folders.

The Eclipse environment is trying to load Web Services Profiling perspective after it has been removed

After uninstalling the Tools, the next time you start your Eclipse environment, it attempts to restore the previous workspace configuration. If this configuration includes the Web Services Profiling perspective that has been uninstalled, the Eclipse environment fails to load the workspace configuration correctly.

You can resolve this problem by selecting another perspective to load.

You can also avoid this problem by selecting a different perspective for your workspace before uninstalling the Tools.

Appendix A. Messages

Messages issued in the IBM Web Services Navigator are displayed in either a pop-up window or in the standard output (STDOUT) of the Eclipse Java virtual machine (JVM). Some messages might be displayed that are not documented. If any undocumented messages are displayed, contact IBM Software Support for assistance.

Messages are documented in the Messages appendix of the *IBM Tivoli Composite Application Manager for SOA Troubleshooting Guide*.

Appendix B. Accessibility

Accessibility features help users with physical disabilities, such as restricted mobility or limited vision, to use software products successfully.

The accessibility features in the product enable users to:

- Use assistive technologies, such as screen reader software and digital speech synthesizers, to hear what is displayed on the screen. Consult the product documentation of the assistive technology for details on using the technology with this product.
- Perform tasks with the software using only the keyboard.

General Navigation

Each page has four main sections:

- Headerbar
- Toolbar
- Main tabs
- Content

Each page has navigation points for screen readers. The following navigation points are all H1:

- Title bar
- Main tabs
- Main form
- Section labels
- Table labels

Menu Navigation

You use the Go To menu at the top of the screen to navigate to any of the applications that you have access to. The Go To menu is a cascading menu that is three levels deep at its deepest point. The following instructions describe how to get started with JAWS:

1. To get to the Go To menu press Alt+G.
2. When you open the menu, JAWS reads the first application in the menu. If JAWS does not begin to read the entry, restart the screen reader.
3. Navigate the list of applications in the menus by using the arrow keys.
4. JAWS indicates if a menu item has submenus. To get to a submenu, press the right arrow or enter.
5. Press the left arrow to move up a level in the hierarchy. If you press the left arrow at the highest level of the Go To menu, you leave the menu completely.
6. Press the Enter key to enter an application.

Accessibility help

The Accessibility Help panels provide details on general navigation, menu navigation, and hot keys. Click **Accessibility Help** from the toolbar of the product to access the help panels.

Screen reader setting

The product contains a screen reader flag. When you turn on the screen reader flag, the user interface is optimized to work with JAWS for Windows®. You use the **User** tab in the Users application to turn on the screen reader flag.

Keyboard shortcuts

You can navigate within the applications by using a combination of keys.

Accessible reports

To use the accessibility tools to read reports, you must access the reports in Microsoft Excel. In the reports applications, select the **Run Reports** option in the **Select Action** menu. With this option, you can email an .xls file version of a report to yourself at a scheduled time.

IBM and accessibility

For more information about the commitment that IBM has to accessibility, see the IBM Human Ability and Accessibility Center. The IBM Human Ability and Accessibility Center is at the following web address: <http://www.ibm.com/able>

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Printed in USA

GC32-1539-04

