Tivoli software

IBM

Deployment Guide Series: ITCAM for Response Time V6.2

- Response time management for end-user dashboard
- Extensive deployment and usage examples
- Solution guide and references

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Note: Before using this information and the product it supports, read the information in “Notices” on page vii.

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Contents

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Preface

This IBM® Redbooks® publication is written as part of the deployment guide series. This book provides a step-by-step guide for deploying ITCAM for Response Time V6.2. This deployment guide can help an IBM or business partner service person plan and perform the deployment of the product.

The discussion of ITCAM for Response Time includes the explanation of product architecture and its components. We discuss planning and sizing considerations before you implement the product and some guidelines on setting up service engagement for the product.

The deployment explained in the book would fit for a demonstration or a small deployment system, although the information is highly relevant for larger deployment engagements. This book also explains some usage scenario that can be performed for demonstrating the product.

The team that wrote this book

This book was produced by a team of specialists from around the world working at the International Technical Support Organization, Austin Center.

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Thanks to the following people for their contributions to this project:

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Part 1

Planning

In this part, we discuss planning information related to IBM Tivoli Composite Application Manager for Response Time V6.2 deployment.

1

Solution introduction

ITCAM for Response Time V6.2 provides the ultimate measurement of response time for several different user environments. It assists monitoring and measurement of transaction response time to collect information about IT system capacity. This chapter is divided into:

1.1 Response time measurement

Information technology (IT) provides services for its user in the form of facilities and applications for users to perform their day-to-day functions. These facilities and applications are in the form of IT services. They run transactions, perform workflows, and execute processes.

With the emerging initiative for IT to perform as a business-oriented entity, such as the implementation of IT infrastructure library (ITIL®) initiatives, the needs of having a formally defined Service Level Agreement (SLA) with user groups are developed. The SLA contains the service specifications that are provided by IT for the users.

The main service-level requirements from users are usually to have a defined availability and performance of the services they wanted to use. Availability assumes that the user can access the services that perform a function correctly, while performance indicates that the service returns the desired result within an acceptable amount of time.

Over the years, there have been some changes in how availability and performance information is measured. In a mainframe-based environment, the availability and performance of network and transaction manager can easily be measured from a central location, which is the mainframe itself. The introduction of multi-tiered programming and the thin client presentation layer has shifted these premises to need a more user-related approach. Performance must be measured from the end-user perspective. These user-based measurements are generally harder to collect, as they need a distributed collector and some or all users connected to the application.

Figure 1-1 shows a typical multi-tiered application. It indicates that there are several points at which you can collect response time and availability information.

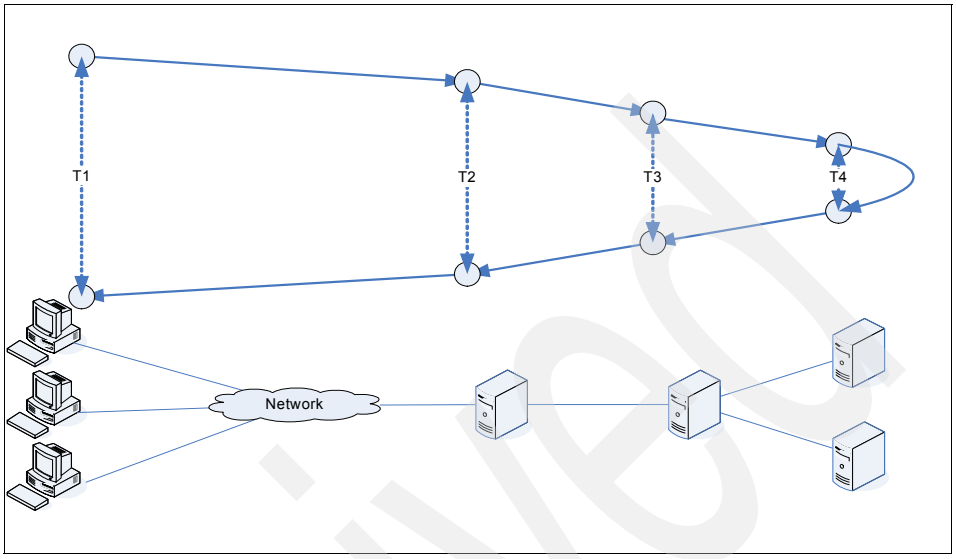

Figure 1-1 Multi-tiered application environment

Typical IT measurement would be using the time T2, the response time on which the transaction already entered into a machine that IT controls. The measurement can take several different methods. It may also simulate the network time by getting a feedback mechanism from the end-user machine. However, the best representation of the end-user experience is the collection of the time T1. It is what the end-user experiences.

IBM has participated in response time measurement. One of the notable standards for response time measurement is the Application Response Measurement (ARM) standard that now belongs to the Open Group:

`http://www.opengroup.org/arm`

This approach allows API calls to be inserted into application programs to call ARM, which indicates starts and stops of transactions. These would be tedious changes to incorporate into existing applications. The general approach is the insertion of the call on instrumenting the application. Instrumentation means that the external mechanism is employed to provide a hook on the application that measures response time, such as the time from when the Graphical Interface button is clicked until the screen changes.

Another important challenge of the end-user response time measurement is the scope of the monitoring or measurement. In a typical environment, the number of

end-user machines greatly outnumbers the servers. For a single server, there may be hundreds or thousands of users. Should all of these users be included in the measurement? Should a limited number of samples be included? Or should there be a robotic representation of the user being defined?

1.2 ITCAM for Response Time features

ITCAM for Response Time provides the ability to collect response time and availability information by including the hook in the user application or performing an automated transaction to sample the user experience.

ITCAM for Response Time collects the response time information from end-user application instrumentation, such as Web traffic, 3270 interface, Lotus® Notes®, Microsoft® Outlook®, and other graphical applications. It also provides robotic simulations to check availability and response time of a scripted transaction. The transaction can be a Windows®-based, Web-based, Citrix, SAP®, or based on Mercury LoadRunner.

ITCAM for Response Time collects this response time information about the scope of an IBM Tivoli Monitoring environment. Data is collected in a common monitoring platform. This allows monitoring to be performed together with the resource monitoring, and allows cross reference and correlation of events.

The major features of ITCAM for Response Time are:

- Helps monitor real user response time. It can identify sporadic problems that would otherwise get lost in the averages and show what users are experiencing.
- Records and plays back synthetic transactions. This provides both availability and response time monitoring, which can be useful for testing different locations and service providers and helps proactively find problems.
- Helps automate business practices. It creates comprehensive automated policies and situations to proactively help manage the user experience, and provides expert advice to help understand how to best resolve specific response time issues.
- Delivers end-to-end integration using a common user interface. The integration of data and events with other IBM Tivoli Monitoring based solutions from IBM Tivoli Composite Application Manager, IBM Tivoli Monitoring, and IBM Tivoli OMEGAMON® to help provide comprehensive management of business applications. It thus allows management of the entire enterprise with a single user interface, therefore eliminating the need to learn multiple tools with different user interfaces and resulting in faster return on investment.

See the following URL for more information:

http://www-306.ibm.com/software/tivoli/products/composite-application-mgr-response-time/

1.3 ITCAM for Response Time value proposition

ITCAM for Response Time provides the following benefits:

- Shorter problem identification to resolution times.
- Reduced support cost in determining the cause of downtime/slow down.
- Increased revenue and customer satisfaction by maintaining SLAs.
- Reduced need for costly and hard-to-find subject matter experts to solve problems.
- Role-based user interface to provide the correct level of information to the correct user for quick problem identification, seamless hand-off, and problem resolution.
- Tivoli Enterprise Portal integration provides the ability to manage your entire enterprise with a single user interface, eliminating the need to learn multiple tools with different user interfaces, resulting in faster return on investment.

1.4 Product architecture

ITCAM for Response Time Version 6.2 is an evolution from IBM Tivoli Composite Application Manager for Response Time Tracking Version 6.1. It inherits some of the major components and functions of that product.

Figure 1-2 shows the ITCAM for Response Time V6.2 component relationships and logical architecture.

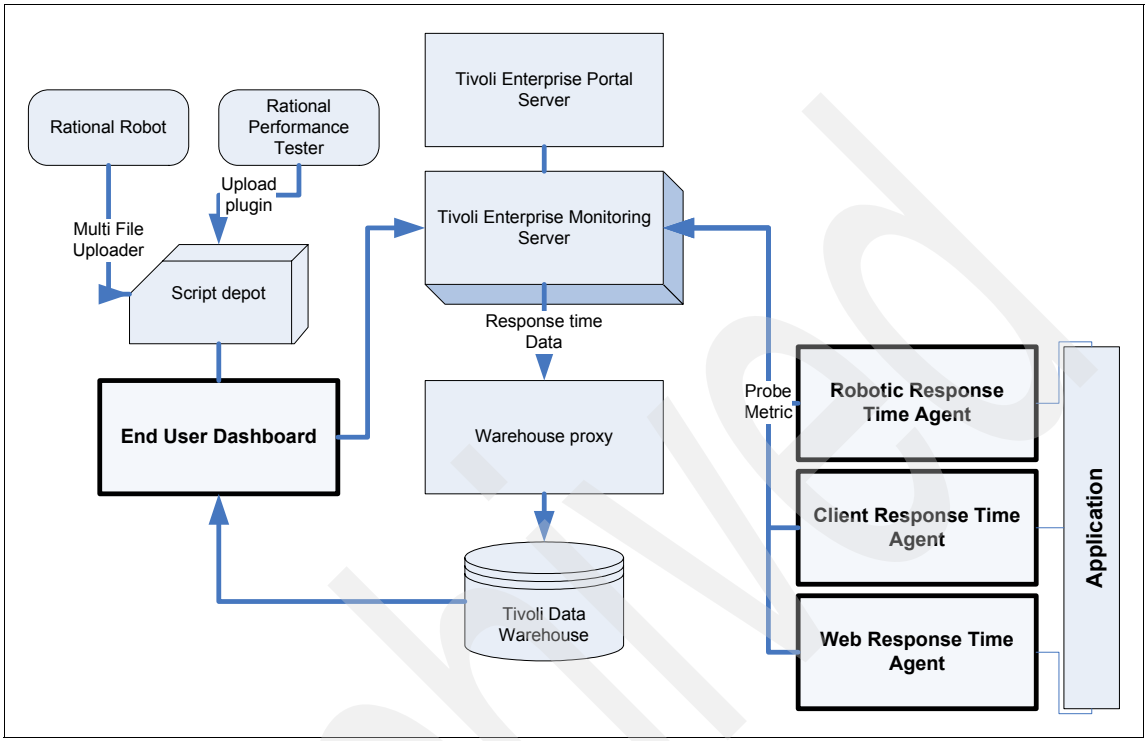

Figure 1-2 ITCAM for Response Time architecture

ITCAM for Response Time is an IBM Tivoli Monitoring 6.1 application. The IBM Tivoli Monitoring base architecture is explained in *Deployment Guide Series: IBM Tivoli Monitoring 6.1*, SG24-7188. An operator accesses ITCAM for Response Time using Tivoli Enterprise Portal, either the browser or the desktop version.

In Figure 1-2, the bolded boxes represent the ITCAM for Response Time agents. The Robotic, Client, and Web Response Time agents connect to the application and retrieve response time information. Response time data is then stored in the Tivoli Data Warehouse. The End-user Dashboard component provides a comprehensive response time interface for all applications and agents on a specified IBM Tivoli Monitoring instance.

The End-user Dashboard also acts as robotic file depot. It stores the robotic scripts from either the Rational® Robot or the Rational Performance Tester. These scripts are loaded by the Robotic Response Time agent for execution.

Response time information from the Tivoli Enterprise Monitoring Agent is collected whenever one of the following happens:

- An online request is issued by Tivoli Enterprise Portal (manual refresh or autoupdate interval expires).
- A situation interval expires and the situation requests the data.
- The historical collection interval expires and the current data is written out to the historical file.

We discuss the four components of ITCAM for Response Time in the following sections:

- 1.4.1, “Web Response Time agent” on page 9
- 1.4.2, “Client Response Time agent” on page 11
- 1.4.3, “Robotic Response Time agent” on page 13
- 1.4.4, “End User Response Time Dashboard agent” on page 14

1.4.1 Web Response Time agent

The Web Response Time agent collects user response time for HTTP and HTTPS Web transactions.

- For HTTP traffic, the agent can listen to the local TCP/IP stack and measure the response time of the transaction.
- For HTTPS traffic, as the product needs to access an unencrypted HTTP data stream, the agent runs on the Web server machine and makes use of the Web server exits to get access to the data stream.
- Appliance mode allows the agent to collect HTTP traffic from other machines in the same network segment by enabling collection of network packets in promiscuous mode.

The agent is made up of three components, as displayed in Figure 1-3.

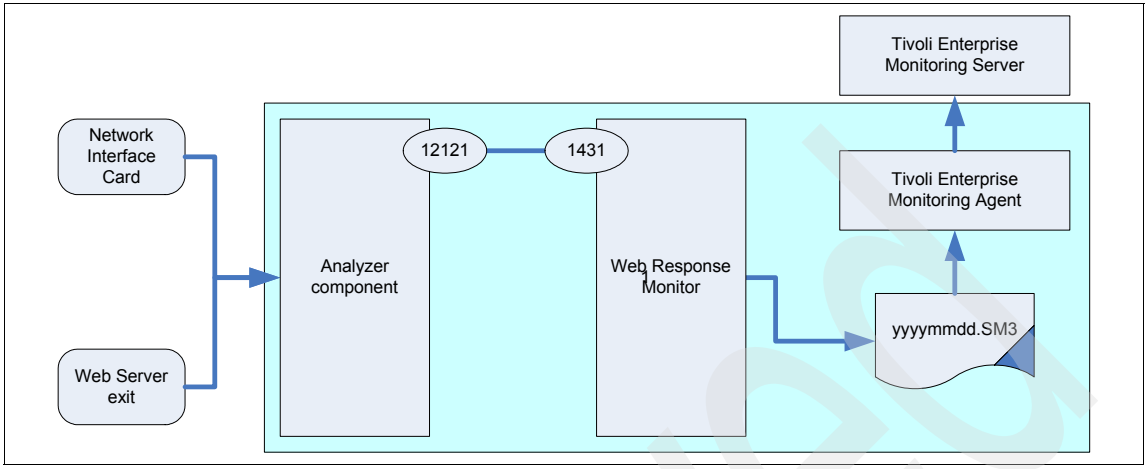

Figure 1-3 Web Response Time Agent structure

The components are:

- Analyzer component

  The Analyzer component operates as a TCP/IP network component logically at the NIC card physical layer. This component observes the network packets and applies a patented response time technique to collect the end-to-end response time of outgoing and incoming sockets. This collects response time all the way down to the requesting source without requiring a software agent at the source.

  In a Windows platform, the analyzer runs as a service called Candle® Media Analyzer. In UNIX® or Linux®, it runs a separate process.

- Web Response Monitor component

  The Web Response Monitor component collects the socket information from the Analyzer component and correlates all the subcomponents of the Web transaction. When the complete transaction information has been collected, the record is written out to a file (*YYYYMMDD*.sm3, where *YYYY* is the year, *MM* is the month, and *DD* is the day). The YYYMMDD.sm3 file can be found under the IBM Tivoli Monitoring directory. In Windows it is under the TMAITM6\wrm\log directory.

  The analyzer communicates to the Web Response Monitor using port 12121 and 1431, typically.

  The Web Response Monitor runs as a service under Windows known as Candle Web Response Monitor - Collection.

- Tivoli Enterprise Monitoring Agent

  The Tivoli Enterprise Monitoring Agent reads the SM3 file and aggregates the data over a user-defined interval (5 minutes by default). It then calculates the information for displays on the workspaces.

  The Tivoli Enterprise Monitoring Agent also starts and stops the Analyzer and Web Response Monitor components, so that they are started when the Tivoli Enterprise Monitoring Agent is started and the Tivoli Enterprise Monitoring Agent stops them when the it is stopped.

  Note: When the duration between a stop request and start request is too close (such as using the restart process), the analyzer or Web Response Monitor processes may not be stopped properly.

  The Tivoli Enterprise Monitoring Agent performs all the usual IBM Tivoli Monitoring 6.1 agent activities:

  – Responds to requests for data
  – Logs data to binary history files if historical recording is turned on
  – Runs situations when their intervals expire
  – Heartbeats the Tivoli Enterprise Monitoring Server to make sure that it is still available
  – Responds to Tivoli Enterprise Monitoring Server heartbeats

  The Tivoli Enterprise Monitoring Agent runs as a service under Windows called ITCAM for Web Response Time agent and as kt5agent process in UNIX and Linux.

1.4.2 Client Response Time agent

The Client Response Time agent is installed on a Windows desktop to monitor desktop applications that run on that machine. This machine is typically a user machine on which someone is working with the monitored application. It analyzes a combination of Windows messages and TCP/IP network traffic to compute the user response time for transactions created by monitored GUI applications.

The logical architecture of the Client Response Time agent is shown in Figure 1-4.

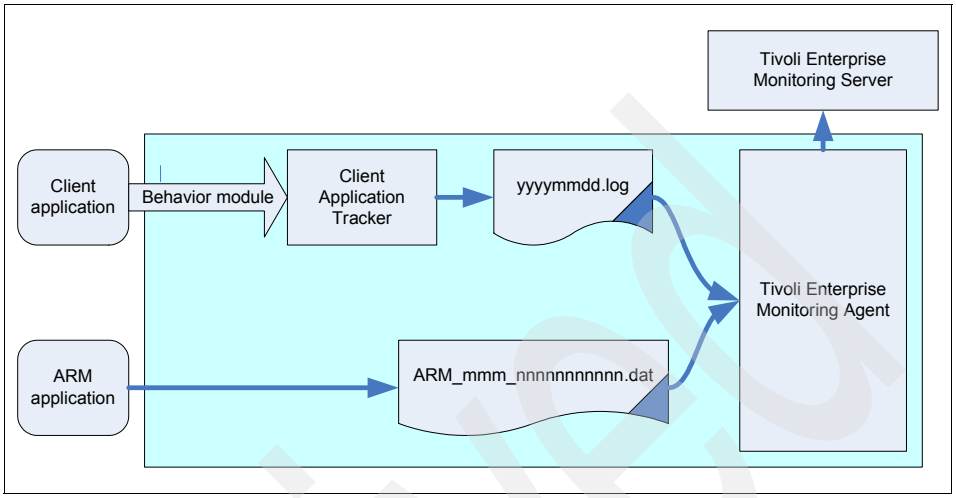

Figure 1-4 Client Response Time agent

The Client Response Time agent consists of:

- Client Application Tracker

  The Client Application Tracker monitors the application as defined by behavior modules. The behavior modules come as part of the product, or they can be developed by a user using the ETEWatch® Customizer component that is available on the IBM Tivoli Open Process Automation Library at "http://catalog.lotus.com/wps/portal/topal. The product comes with support for:

  - Lotus Notes Versions 6 and 7
  - Microsoft Outlook 2000 and 2003
  - SAP GUI 6.x
  - IBM PCOMM 5.X (TN3270 protocol only)
  - Hummingbird (TN3270 protocol only)
  - Exceed 11 (TN3270 protocol only)
  - Attachmate Extra 8 TN3270 emulators

  Behavior modules reside in the <itm>\TMAITM6\cat\Mgmt\Collector\TC directory on Windows and have a .dat file suffix.

  The Client Application Tracker component reads the behavior files at startup and monitors the applications defined in those behavior files. It makes use of windows messages and TCP/IP data stream to decipher the start and stop times of transactions caused by the users interacting with the monitored applications. When a transaction record is completed it is written out to a daily

log file called *YYYYMMDD*.log (where *YYYY* is the year, *MM* the month, and *DD* the day), which is aggregated in a similar way to how the Web Response time agent aggregates its sm3 file. This file resides in <itm>\TMAITM6\cat\Mgmt\Log. In Windows, the Client Application Tracker runs as a service called IBM Client Application Tracker.

- The Tivoli Enterprise Monitoring Agent

  The Tivoli Enterprise Monitoring Agent aggregates the data over a user-defined interval (5 minutes by default) and calculates the information necessary to populate the IBM Tivoli Monitoring tables that are reported in Tivoli Enterprise Portal workspaces.

  The Tivoli Enterprise Monitoring Agent performs all the usual IBM Tivoli Monitoring 6.1 agent activities:

  - Responds to requests for data
  - Logs data to binary history files if historical recording is turned on
  - Runs situations when their interval expires
  - Sends heartbeats to indicate its availability
  - Responds to Tivoli Enterprise Monitoring Server heartbeats

  In Windows, the Tivoli Enterprise Monitoring Agent runs as a ITCAM for Client Response Time agent service and as the process kt4agent under Linux and UNIX.

  The Tivoli Enterprise Monitoring Agent can also collect Application Response Measurement (ARM) Version 2 and ARM Version 4 records that are produced by any ARM instrumented application. The ARM_*mmmm_nnnnnnnnn*.dat file (where *mmmm* is the pid of the program creating the ARM records and *nnnnnnnnn* is the timestamp) is created in the <itm>\TMATITM6\cat\Mgmt\Collector\TC directory on Windows.

1.4.3 Robotic Response Time agent

The Robotic Response Time agent is installed on Windows, Linux, or UNIX to accept response and availability information from the supported robotic runtime environment. The robotic runtime environments currently supported are:

- Rational Performance Tester
- Rational Robot
- Command Line Interface (CLI)
- Mercury LoadRunner

The logical architecture of the agent is displayed in Figure 1-5.

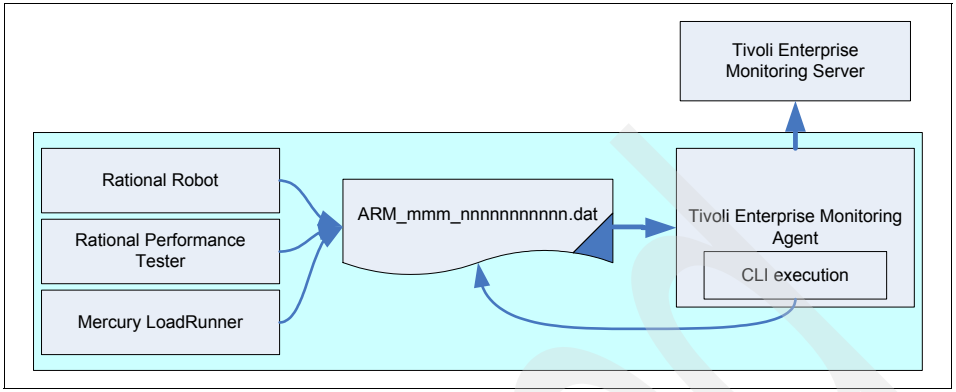

Figure 1-5 Robotic Response Time agent

The agent collects response and availability information in the form of ARM V2 and ARM V4 records and logs these to the file. The full name of the file is ARM_*nnnn_mmmmm*.dat, where *mmmm* is the pid of the program creating the ARM records and *nnnnnnnnnn* is the timestamp. The robots execute at the interval defined at install time (the default is every 15 minutes). This can be changed subsequently.

The agent runs as the service ITCAM for Robot Response Time under Windows and as the process kt6agent under UNIX and Linux.

1.4.4 End User Response Time Dashboard agent

The End User Response Time Dashboard (End-user Dashboard) agent consolidates the historical data from all other ITCAM for Response Time agents:

- Client Response Time
- Robotic Response Time
- Web Response Time

As a consolidator, there is only one End User Response Time Dashboard agent in each IBM Tivoli Monitoring environment. The End User Response Time Dashboard agent also acts as the file depot for the robotic scripts.

The ITCAM for End User Response Time Dashboard agent integrates up to eight hours of historical data from the Tivoli Data Warehouse (TDW). In Windows, the agent runs as a service called ITCAM for End User Response time and as a process in Linux and UNIX called kt3agent.

The product provides automated ways of distributing scripts to the agents. Manual methods are also documented. There are two deployments required:

- “Deploying the script to the repository” on page 15
- “Deploying the script from the repository to the agent” on page 16

Figure 1-6 shows the high-level view of the architecture.

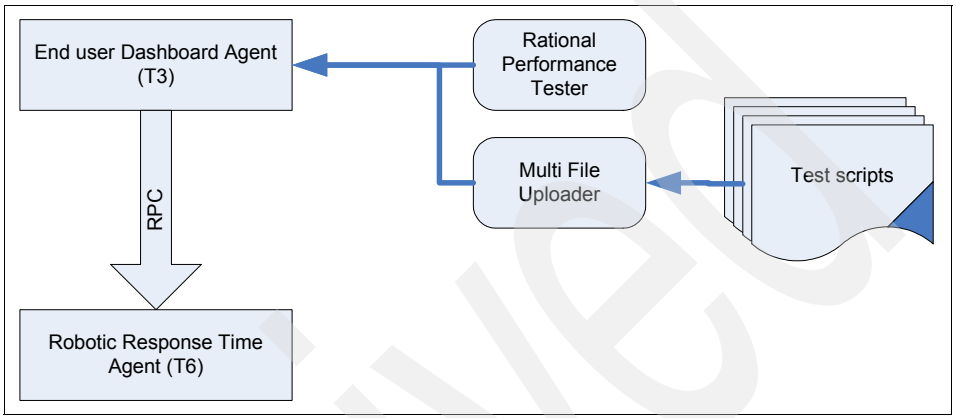

Figure 1-6 Script deployment

Deploying the script to the repository

Deploying the script to the repository can be achieved in two ways:

- Automated deployment to the repository

  The repository is a directory that is part of the ITCAM for Response Time dashboard agent. It is typically found at <*itm*>/kt1depot/T3/<*type*>, where <*itm*> is the location of the IBM Tivoli Monitoring install directory and <*type*> is dependent on the type of script such as RPT, CLI, ROBOT_GUI, or ROBOT_VU.

  Rational Performance Tester has the ability to send packaged scripts directly to the dashboard agent. The Rational Performance Tester workbench contains an export destination for ITCAM for Response Time. This uses a SOAP mechanism to send the scripts to the repository. It uses port 1976 by default.

  Automated sending of CLI, Load Runner, or Rational Robot scripts to the repository uses the Multiple File Uploader (MFU) facility. It can be accessed from the Tivoli Enterprise Portal navigator or using a remote Java™ WebStart facility The MFU also uses SOAP calls from port 1976 by default.

  For Rational Robot, the Multi File Uploader discovers scripts stored under <itm>\tmaitm6\app\genwin\project\<projectname>\TestData\TestDataStore\DefaultTestScriptDatastore\TMS_Scripts.

- Manual deployment to the repository

  The scripts (as zip files) can be manually placed directly in the repository directory <*itm*>/kt1depot/T3/type, where <*itm*> is the location of the IBM Tivoli Monitoring install directory and type is dependent on the type of script, such as ROBOT_GUI, ROBOT_VU, RPT, or CLI.

Deploying the script from the repository to the agent

The scripts can be deployed in two ways between the respository and the agent:

- Automatically deploying the script

  At user-defined intervals (15 minutes by default), the End User Response Time Dashboard agent pulls the new scripts from the repository to the executing agent. They are copied to a directory called <itm>/kt1depot/t6/<*type*>, where *type* is the type of script, such as CLI, RPT, Robot_GUI, or Robot_VU.

- Manual deploying from the repository to the agent

  Scripts can be manually distributed by copying the scripts from the repository at <itm>/kt1depot/T3/<type> to the machine running the robotic agent under <itm>/kt1depot/t6/<type>.

Both the manual and the automated deployment to the agent make use of an RPC capability between the repository and the ITCAM for Robotic Response Time Agent. This capability exists in the Tivoli Enterprise Monitoring Server, and it is installed automatically on Windows and needs to be manually installed on other platforms.

2

Solution environment

This chapter discusses the environment that is needed for deploying ITCAM for Response Time V6.2. This includes prerequisites and planning information. The discussion consists of:

2.1 Hardware prerequisites

The hardware requirements for ITCAM for Response Time relate to the requirements of IBM Tivoli Monitoring V6.1. For the IBM Tivoli Monitoring servers, such as Tivoli Enterprise Monitoring Server or Tivoli Enterprise Portal Server, we recommend that processor speeds be at least 1 GHz for RISC architectures and 2 GHz for Intel® architectures. A single processor is suitable when the components are installed on separate computers.

Table 2-1 lists the memory and disk requirements for IBM Tivoli Monitoring servers.

Table 2-1 IBM Tivoli Monitoring memory and disk requirement

Component	Memory requirement[a]	Disk space requirement
Hub monitoring server	70 MB–100 MB	650 MB
Remote monitoring server	100 MB–300 MB	250 MB
Portal server	100 MB–300 MB	800 MB
Portal client	150 MB–300 MB	150 MB
Tivoli data warehouse	2 GB–8 GB	Must be calculated[b]
Warehouse proxy agent	50 MB–100 MB	150 MB
Summarization and pruning agent	150 MB–300 MB	150 MB

a. The memory requirement range is based on the processing needs. The low end is for around 100–200 monitoring agents, while the high end is for around 500–1000 monitoring agents.

b. The amount of data of the Tivoli Data Warehouse depends on the size of data for each attribute groups. For each attribute group, you need the number of detailed records per day, the data size per record, and the aggregation policy. See http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc/itm_install65.htm#estimate.

The hardware requirement for IBM Tivoli Monitoring servers is discussed in detail in:

http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc/itm_install61.htm#hardware

See also *Deployment Guide Series: IBM Tivoli Monitoring 6.1*, SG24-7188, for more information about the configuration of the IBM Tivoli Monitoring servers.

Specifically for ITCAM for Response Time, the agents have additional requirements for memory and disk space. These additional requirements are on top of any existing capacity needs. Table 2-2 lists the minimum and recommended memory and disk requirements.

Table 2-2 Requirement

Resource	Minimum machine memory	Recommended machine memory	Minimum additional disk space	Recommended additional disk space
End user response time dashboard	512 MB	1 GB	512 MB	512 MB
Robotic response time	512 MB	1 GB	512 MB	1 GB
Client response time	100 MB	256 MB	256 MB	512 MB
Web response time	512 MB	1 GB	512 MB	2 GB

The disk space requirement in Table 2-2 for the Robotic, Client, and Web response time agents varies widely depending on the transaction load, monitoring level, and tracing level of the agent.

For the most up-to-date prerequisites, refer to:

http://publib.boulder.ibm.com/tividd/td/ITCAMRT/prereq62/en_US/HTML/memory.html

2.2 Software prerequisites

The software requirements for ITCAM for Response Time V6.2 are discussed in:

- 2.2.1, “Operating system” on page 19
- 2.2.2, “Other software requirements” on page 20

2.2.1 Operating system

The supported operating system matrix is provided in:

http://publib.boulder.ibm.com/tividd/td/ITCAMRT/prereq62/en_US/HTML/operatingsysystem.html

Table 2-3 lists the supported operating system level at the time that we this deployment guide was written.

Table 2-3 Supported operating systems

Operating system	Client Application Tracker	Generic ARM	CLI playback	Rational Performance Tester	Rational Robot	Mercury LoadRunner	Web Response Time Agent	End-user Dashboard Agent
AIX 5L™ V5.3	-	Yes	Yes	-	-	-	Yes	Yes
Solaris™ 9 with patch 111711-16	-	Yes	Yes	-	-	-	Yes	Yes
Solaris 10	-	Yes	Yes	-	-	-	Yes	Yes
HPUX 11i V2 (PA-RISC)	-	Yes	Yes	-	-	-	Yes	Yes
Windows XP Pro SP2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Windows 2000 Pro	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Windows 2000 Server	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Windows 2003 Server	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Windows 2003 Server 64-bit	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes
RHEL 4.0	-	Yes	Yes	Yes	-	-	Yes	Yes
RHEL 4.0 64-bit	-	Yes	-	-	-	-	Yes	Yes
RFAS 4.1	-	Yes	Yes	-	-	-	Yes	-
RFAS 5.1	-	Yes	Yes	-	-	-	Yes	-
SLES 9.x	-	Yes	Yes	Yes	-	-	Yes	Yes
SLES 10.x	-	Yes	Yes	Yes	-	-	Yes	Yes
SLES 9.x 64-bit	-	Yes	-	-	-	-	Yes	Yes
SLES 10.x 64-bit	-	Yes	-	-	-	-	Yes	Yes

2.2.2 Other software requirements

The software requirements depending on the agent type are needed to perform the functions of ITCAM for Response Time V6.2.

Generic software requirements

These software levels are needed for all agents:

- IBM Tivoli Monitoring V6.1 with fix pack 5
- Tivoli Enterprise Console® V3.7.1, V3.8, and V3.9
- Tivoli Data Warehouse V2.1
- Tivoli Configuration Manager Version 41142 or later for installing agents using SPD files

Client Response Time agent software requirements

These software levels are needed for the Client Response Time agent:

- Application Response Measurement V2.0 or V4.0
- Lotus Notes V6.x or V7.x
- Microsoft Outlook 2000 and 2003
- SAP Graphical User Interface 6.x
- TN3270 software:
  - IBM Personal Communication 5.x
  - Hummingbird Exceed 11
  - Attachmate Extra 8

Robotic Response Time agent software requirements

These software levels are needed for the Robotic Response Time agent:

- Rational Performance Tester V7
- Rational Robot SR6 2003.06.15.xxx
- Mercury LoadRunner V8.0 and V8.1
- Citrix hosted applications
- SAP
- Siebel® V7.7 and V7.8

Web Response Time agent software requirements

These software levels are needed for the Web Response Time agent:

- IBM HTTP Server 6.0.x, 2.0.47+, 1.3*
  - For both HTTP and HTTPS protocols
  - Running on AIX, Solaris, HPUX, Windows, Linux on Intel servers
- Microsoft Internet Information Server 6.0
  - For both HTTP and HTTPS protocols
  - Running on Windows servers

- iPlanet Web Server 6.0, Sun™ Java™ System Web Server 6.1
  - For HTTP protocol running on AIX, Solaris, HPUX, Windows, Linux on Intel servers
  - For HTTPS protocol running on Solaris
- Other Web Servers, including Apache 2.0.47+ and 2.2.0
  - For HTTP protocol only
  - Running on AIX, Solaris, HPUX, Windows, Linux on Intel servers

2.3 Sizing consideration

The maximum scalability considerations for ITCAM for Response Time V6.2 are:

- Client Response Time supports up to 5,000 agents for a single Tivoli Enterprise Monitoring Server hub
- Robotic Response Time capacity for scripts running every five minutes is:
  - Rational Robot GUI: 10 scripts
  - Command Line playback: 25 scripts
  - Mercury Load Runner: 25 scripts
  - Rational Robot VU: 25 scripts
  - Rational Performance Tester: 25 scripts
- Web Response Time sizing for capturing traffic:
  - HTTP supports 1.8 million requests per hour
  - HTTPS supports 400,000 requests per hour

2.4 Typical deployment environments

In this section we discuss some considerations for deployment of ITCAM for Response Time V6.2. The considerations are typically related to the structure of IBM Tivoli Monitoring servers and the connection for ITCAM for Response Time agents to connect to the Tivoli Enterprise Monitoring Server. See also *Deployment Guide Series: IBM Tivoli Monitoring 6.1*, SG24-7188.

We discuss different scenarios in the following sections:

- 2.4.1, “Demonstration or proof of concept” on page 23
- 2.4.2, “Small and medium” on page 23
- 2.4.3, “Large and very large” on page 25

2.4.1 Demonstration or proof of concept

The demonstration or proof-of-concept deployment focuses on speed for bringing the system up and showing the functions. It does not consider performance and load of the servers or the system reliability. A typical configuration is shown in Figure 2-1.

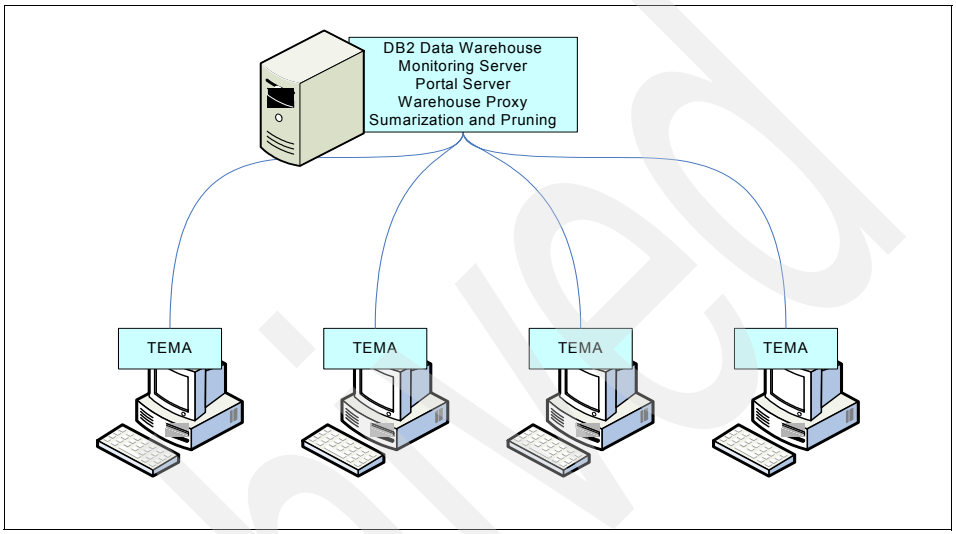

Figure 2-1 Demonstration or proof of concept

The configuration shown in Figure 2-1 consists of:

- A single server running DB2® Universal Database™ for Tivoli Data Warehouse and Tivoli Enterprise Portal Server database, End User Response Time Dashboard agent, Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Warehouse Proxy. The Summarization and Pruning agent is not configured, as the system would not be around for a long period of time.
- Various agents running on client machines to monitor response time using the Client Response Time agent, Robotic Response Time agent, and Web Response Time agent. Depending on the available systems, you can put these agents on the same or different machines. Having the agents on different machines allows an easier understanding of the scenarios.

2.4.2 Small and medium

A small or medium scale environment would accommodate a larger number of agents with consideration for performance of the system. This environment has

more specialization for the servers and allows some load to be balanced to a remote Tivoli Enterprise Monitoring Server. This environment may be applicable for 1–5 sites with less than 1,000 monitored clients. Each remote Tivoli Enterprise Monitoring Server is capable of handling up to 1,000 agents. A typical configuration is shown in Figure 2-2.

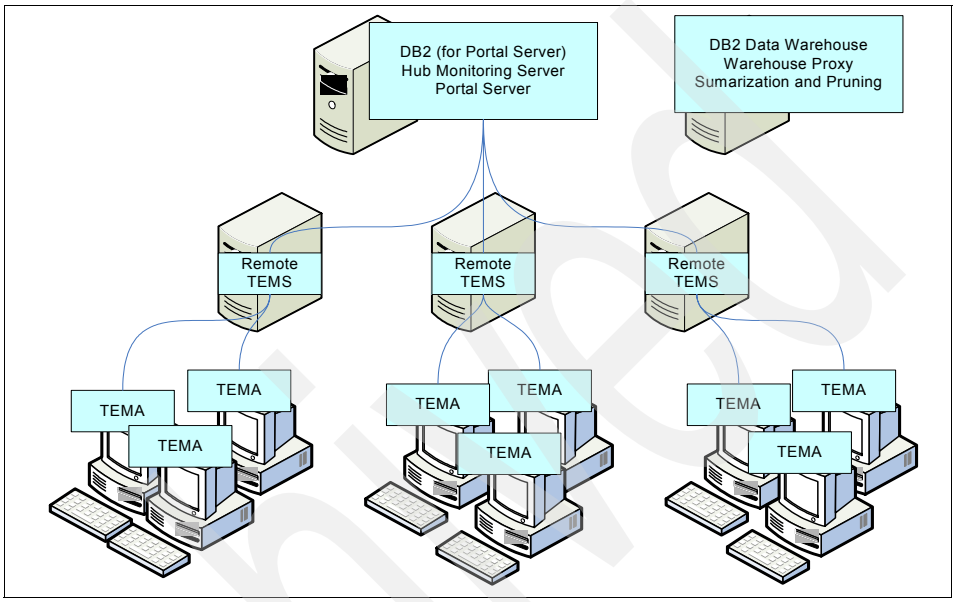

Figure 2-2 Small and medium environment

The small and medium environment shown in Figure 2-2 includes:

- A specialized hub for Tivoli Enterprise Monitoring Server and Tivoli Enterprise Portal Server
- A separate machine for handling Tivoli Data Warehouse with Warehouse Proxy, Summarization and Pruning Agent, and End User Response Time Dashboard agent
- Remote Tivoli Enterprise Monitoring Server handling agent communication from different sites, instead of directly from the hub Tivoli Enterprise Monitoring Server

2.4.3 Large and very large

For a larger environment, redundancy and performance are becoming very critical. This design includes multiple levels of a Tivoli Enterprise Monitoring Server structure with the failover capability. All major central functions are running on separate servers with their required redundancy. Figure 2-3 shows an example of a large system deployment.

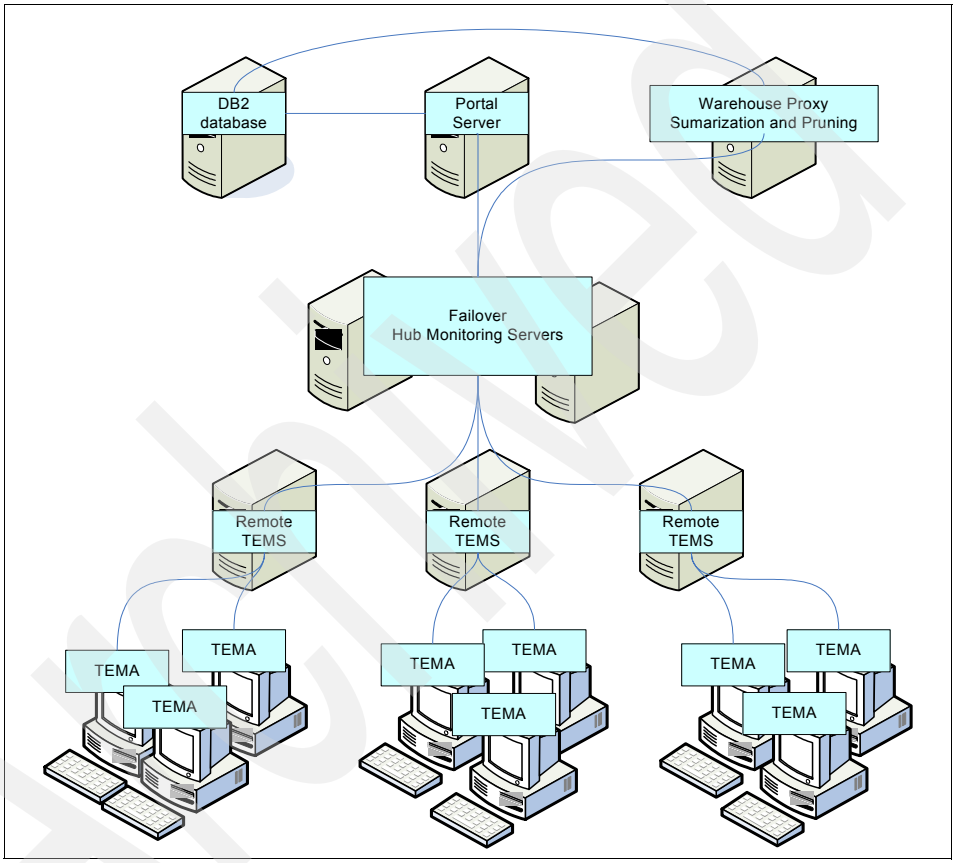

Figure 2-3 Large system deployment

In Figure 2-3 on page 25, the configuration includes:

- Separate servers for:
  - Tivoli Data Warehouse database
  - Hub Tivoli Enterprise Monitoring Server (two servers)
  - Tivoli Enterprise Portal Server
  - Warehouse proxy and Summarization and Pruning agent
  - End User Response Time Dashboard agent
- Separate remote Tivoli Enterprise Monitoring Server for each site

3

Project planning

This chapter discusses project planning information that is relevant to the deployment of ITCAM for Response Time V6.2. The discussion consists of:

3.1 Required skills

For the implementation of ITCAM for Response Time V6.2, you should understand the following prerequisite skills:

- IBM Tivoli Monitoring architecture
- Response time monitoring tools and techniques
- Application environments
- Database skill
- Networking and Web transaction knowledge
- Robotic scripting environment, such as defining Rational Performance Tester script or Rational Robot script
- ETEWatch customizer (optional), only needed if you want to create instrumentation for an unsupported application with a Client Response Time agent
- Working with Tivoli Enterprise Portal

Apart from the above requirements, you would have to know the ITCAM for Response Time V6.2 itself. This includes:

- Using the workspaces
- Running multi-file uploader
- Upload Rational Performance Tester script
- Navigating ITCAM for Response Time workspaces

There is a certification for ITCAM for Response Time deployment professionals. The certification test number is 910. For detailed requirements for this certification see:

http://www-03.ibm.com/certify/certs/24010802.shtml

3.2 Solution description and assumptions

The ITCAM for Response Time solution would monitor response time for an application. The monitoring methodology must be established using a series of planning sessions with the customer. In the planning sessions, the following items should be addressed:

- The applications or IT services that would be included in the implementation, what server hosts those applications, where are these servers, what connectivity option exists.

- The users or clients that use the applications, how many of them, where are they located, whether all would be monitored or just a sample of them.
- The access method to the application, such as Web-based, Citrix, Lotus Notes, or custom GUI interface.
- Identify critical transactions and measurement points. Which transactions can represent availability? Is there a specific transaction that can be simulated using a robotic transaction tool?

Based on the above requirement from the customer, you can start developing the solution configuration and implementation methods. The configuration involves defining where to put critical components, such as Tivoli Enterprise Monitoring Server and the End User Response Time Dashboard agent, and the implementation method, including deployment of the agents, remote deployment, the software distribution option, or silent installation.

Sometimes you can perform only a sub-set of the identified final configuration. The complete configuration would be up to the customer to implement. You must pre-determine the initial sub-set to implement that is representative of the final configuration.

3.3 Task break down

The detailed tasks for ITCAM for Response Time implementation are divided into:

3.3.1 Project kickoff

The initiation of the project is a critical task that allows all participants to be identified. This initiation allows roles and responsibilities to be presented and a generic project plan to be laid out.

The kickoff is also an important milestone to promote the project to the customer’s user base and generate interest for the project.

3.3.2 Environment preparation

The initial environment preparation has these objectives:

- Install and prepare the new server machines with the appropriate operating system and network connectivity. This applies to the machines that would run Tivoli Enterprise Monitoring Server, Tivoli Data Warehouse, and other servers.
- Identify client or agent machines on which the Tivoli Enterprise Monitoring Agent would be installed. This includes tabulating their IP addresses, host name, owner, access to the machine, and other relevant information.
- Collect installation media and required software for the installation.

Depending on the size of the implementation and the readiness of the environment, this can be performed for several hours or several days.

3.3.3 IBM Tivoli Monitoring setup

Once the environment preparation is done, IBM Tivoli Monitoring V6.1 can be installed. This includes installing DB2 Universal Database V8.1 for Tivoli Enterprise Portal Server and maybe the Tivoli Data Warehouse.

For IBM Tivoli Monitoring, you must install the following components:

- Tivoli Enterprise Monitoring Server
- Tivoli Enterprise Portal Server
- Warehouse Proxy
- Summarization and Pruning agent (not needed for demonstration or proof of concept installation)

For more information about the detailed tasks, see *Deployment Guide Series: IBM Tivoli Monitoring 6.1*, SG24-7188.

3.3.4 Application support files installation

Before ITCAM for Response Time components are installed, you must install the application support files. The application support files must be installed on Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal desktop client, and Tivoli Enterprise Portal Server machines.

Depending on the configuration of the IBM Tivoli Monitoring environment, you may need to install this application support files to one or more machines. During this installation, the Tivoli Enterprise Monitoring Server and Tivoli Enterprise

Portal Server must be restarted. This must be scheduled for minimal interruption for the operation.

The detailed procedure of this installation is provided in 4.2, “Installing application support files for Windows” on page 38.

3.3.5 ITCAM for Response Time agents setup

The agents for ITCAM for Response Time must then be installed on the appropriate machines. Some of these agents must be installed on the users’ machines. This deployment must be done with the least interruption to their work possible. Depending on the environment, the following are ideas about performing the installation:

- Installation with an existing software distribution mechanism such as IBM Tivoli Configuration Manager.
- Remote deployment of agent using the operating system agent that is already installed.
- Silent installation using a login script for Windows machines.
- Or if there is no other option, you can also run the GUI installation wizard on the user machine.

Detailed steps of these installations are provided in the following sections:

- 4.3, “Installing End User Response Time Dashboard” on page 51
- 4.4, “Installing ITCAM for Robotic Response Time” on page 61
- 4.5, “Installing ITCAM for Web Response Time” on page 71
- 4.6, “Installing ITCAM for Client Response Time” on page 87

3.3.6 Customizing the product

This task is the most time-consuming and critical task. This is where the design of the solution would be implemented. The identified requirement from 3.2, “Solution description and assumptions” on page 28, should be realized in this task. This task includes:

- “Developing monitoring script” on page 31
- “Loading behavior modules” on page 32
- “Instrumenting Web servers” on page 32
- “Defining situations” on page 32

Developing monitoring script

Robotic monitoring scripts must be built using the appropriate tools, such as Rational Robot or Rational Performance Tester. The robotic script must be

designed such a way that it represents a valid representative user interaction to the application and also must not be disruptive to the application itself if it is run over and over again. Specific details for the Rational Performance Tester installation are provided in 4.7, “Installing Rational Performance Tester Workbench” on page 93.

Loading behavior modules

If the monitored user application is not using a standard out-of-the box interface for the Client Response Time agent, you may build the behavior module using the ETEWatch customizer from IBM Open Process Automation Library at:

http://catalog.lotus.com/topal?NavCode=1TW10CP0E

This allows you to be able to define any graphical application as a managed application using the Client Response Time agent.

Instrumenting Web servers

When you want to monitor HTTPS traffic, a Web server exit on the supported Web servers must be installed. This requires some additional customization to be performed, depending on the Web server platform.

Defining situations

When the entire interface is in place and data are collected, you define situations. Situations allow you to monitor a large number of systems without requiring you to navigate Tivoli Enterprise Portal workspaces. Situations generate alerts or events to notify you when something goes wrong. There are some predefined situations from ITCAM for Response Time that you may want to customize to set a threshold and name for your environment.

3.3.7 Demonstrating the solution and skill transfer

After the customization has been completed, the solutions are in place, and you can demonstrate the result to the customer. This demonstration can signify your completion milestone. You must also perform skill transfer, so the customer’s personnel would then be able to operate and maintain the solution on a day-to-day basis. This is an important task that ensures smooth hand over of the overall project.

The demonstration tasks are provided in Chapter 5, “Usage demonstration” on page 103.

Part 2

Deployment

In this part, we describe scenarios related to the actual deployment and usage of ITCAM for Response Time V6.2.

4

Installation and configuration

In this chapter we provide step-by-step instructions for installing ITCAM for Response Time 6.2. This chapter consists of the following sections:

4.1 Installation overview

In our environment, we installed all four agents provided with the ITCAM for Response Time 6.2. You do not need to install all of the agents provided. You should install the agent that best fits your needs, as described in Table 4-1.

Table 4-1 Choosing which monitoring agent to use

If you want to	Use this agent
Monitor real user response times for Lotus Notes, Microsoft Outlook, or applications running in a Citrix or Terminal Services environment. Understand real user client experience. Monitor custom Windows applications. Monitor real user 3270 transactions.	ITCAM for Client Response Time
Upload and store the robotic scripts that you use with ITCAM for Robotic Response Time. This agent is required in order to upload the IBM Rational Performance Tester scripts that you recorded. Have a consolidated enterprise view of all application performance and availability. Create custom roles to limit access to application data.	ITCAM for End User Response Time Dashboard
Run an existing Mercury Load Runner script and monitor the results with this product. Run robotic monitoring for Web applications, Siebel, SAP, and Citrix. Run a custom application, script, or command and see results.	ITCAM for Robotic Response Time
Monitor real user transactions on an HTTP server. Discover new URLs.	ITCAM for Web Response Time

Once you have decided what you want to monitor and which agents to install, verify the prerequisites at:

http://publib.boulder.ibm.com/tividd/td/ITCAMRT/prereq62/en_US/HTML/Version62.html

For this deployment guide, we installed the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, Tivoli Enterprise Portal Desktop Client, Warehouse Proxy, Warehouse Summarization and Pruning agent, and the Warehouse Database on the same server. This type of installation is recommended only for proof of concepts or small-size environments. For more information about IBM Tivoli Monitoring design considerations see *IBM Tivoli Monitoring Installation and Setup Guide,* GC32-9407. You should consult also

the *Deployment Guide Series: IBM Deployment Guide Series: IBM Tivoli Monitoring 6.1*, SG24-7188. That is a step-by-step deployment guide for IBM Tivoli Monitoring 6.1 that covers small to large environments and discusses best practices for a deployment plan.

For *each* ITCAM for Response Time agent you are going to install you must first install application support files on the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal Desktop Client.

You just need to install the application support files *once* for *each* ITCAM for Response Time Agent you are going to install. For example, if you plan to install four ITCAM for Robotic Response Time Agents in your environment to play back Rational Performance Tester scripts from different locations, you just need to install ITCAM for Robotic Response Time application support files once.

We discuss application support file installation in 4.2, “Installing application support files for Windows” on page 38. The process is the same for all four agents for ITCAM for Response Time (End User Dashboard, Client, Web, and Robotic), so we it demonstrate only once.

You can install an agent using different methods. In this book, we cover the following methods:

- Locally on the same server on which we are running the Tivoli Enterprise Portal Server, Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Desktop Client, Warehouse Proxy, Warehouse Summarization and Pruning agent, and the Warehouse Database, as described in 4.3, “Installing End User Response Time Dashboard” on page 51.
- Locally when there is an IBM Tivoli Monitoring OS agent installed, as described in 4.4, “Installing ITCAM for Robotic Response Time” on page 61.
- Locally when there is no IBM Tivoli Monitoring OS agent installed, as described in 4.5, “Installing ITCAM for Web Response Time” on page 71.
- Installing through the Tivoli Enterprise Portal Server when there is an IBM Tivoli Monitoring OS agent up and running, as described in 4.6, “Installing ITCAM for Client Response Time” on page 87.

Note: If you have previously installed ITCAM for Response Time Tracking, Version 6.1, you must uninstall it from your environment and verify that the following DLLs are deleted before installing ITCAM for Robotic Response Time or ITCAM for Client Response Time:

- c:\windows\system32\libarm4.dll
- c:\windows\system32\libarm32.dll
- c:\windows\system32\armjni4.dll
- c:\windows\system32\armjni.dll
- c:\windows\system32\armcli.dll
- c:\windows\system32\libarm4net.dll

The installation environment that we use is shown in Figure 4-1.

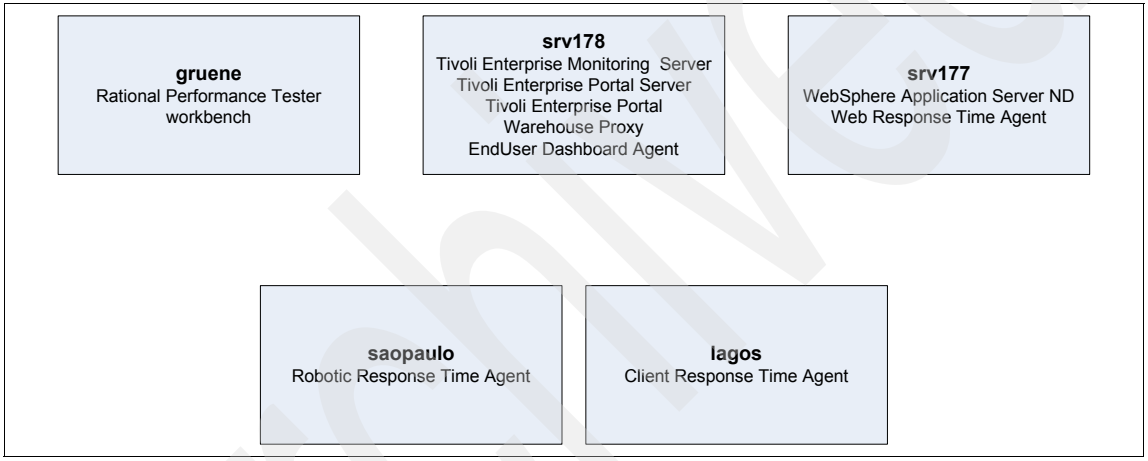

Figure 4-1 Sample environment

4.2 Installing application support files for Windows

Before you can view data collected by monitoring agents, you must install and enable application support for the agents. Application support files provide agent-specific information for workspaces, helps, situations, templates, and other data. This section describes how to install application support files for Windows.

All monitoring agents require that application support be configured on all instances of the following infrastructure components:

- Tivoli Enterprise Monitoring Server (both hub and remote monitoring serves)
- Tivoli Enterprise Portal Server
- Tivoli Enterprise Portal Desktop Client

See your IBM Tivoli Monitoring administrator and collect the Tivoli Enterprise Portal Server host name, Tivoli Enterprise Monitoring Server name, Tivoli Enterprise Monitoring Server host name, and the protocol settings for the Tivoli Enterprise Monitoring Server that you are going to connect with.

Note: The monitoring server is stopped during this process.

1. Stop the Tivoli Enterprise Monitoring Server, or the installation wizard will automatically stop the Tivoli Enterprise Monitoring Server.
2. Run **`setup`** from the WINDOWS subdirectory on the agent installation media.
3. Click **Next** on the Welcome window.
4. Verify that the required versions of IBM GSKit and IBM Java Runtime Environment are installed and click **Next**, as shown in Figure 4-2.

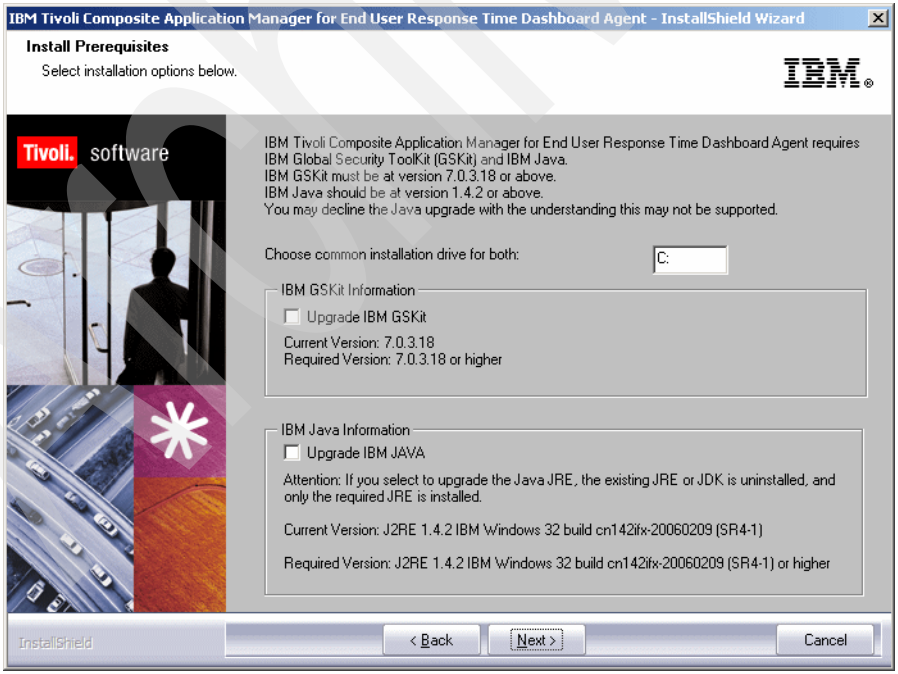

Figure 4-2 Install prerequisites

5. Click **Accept** on the software license agreement.
6. In the Select Features window (Figure 4-3), *uncheck* Tivoli Enterprise Monitoring Agents, as we are not installing the agent, just the application support files. Click **Next**.

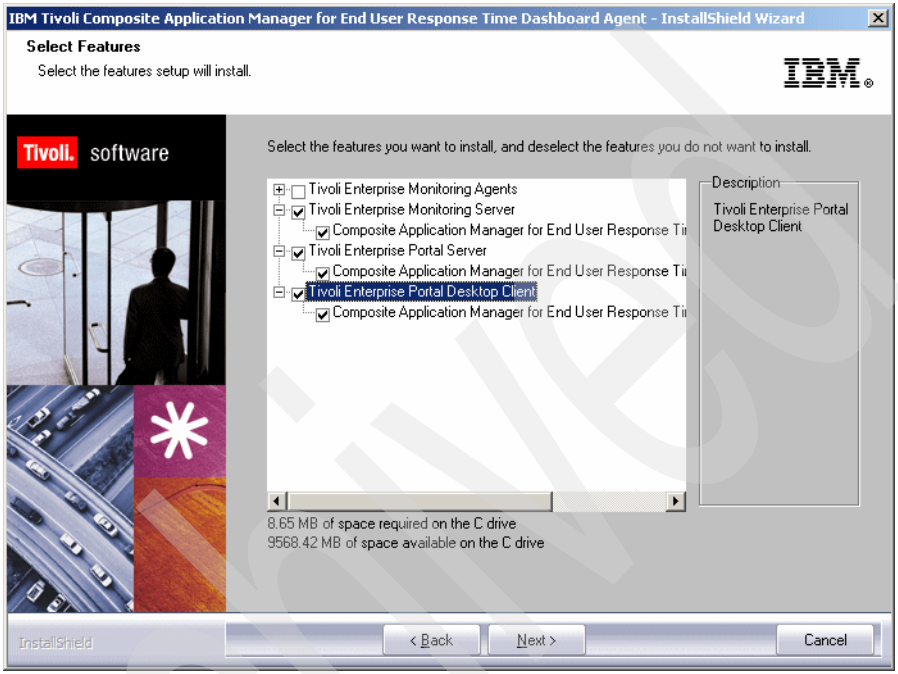

Figure 4-3 Select features

7. The Agent Deployment window opens, as shown in Figure 4-4. IBM Tivoli Monitoring provides the ability to deploy resource monitoring across your environment from a central location, the monitoring server. You can use the remote deployment feature to deploy and configure monitoring agents. To add the agent to the deployment depot, select the agent and click **Next**.

> **Note:** You do not need to enable remote deployment for the End user Dashboard agent, as it is the only one to be installed in the IBM Tivoli Monitoring environment.

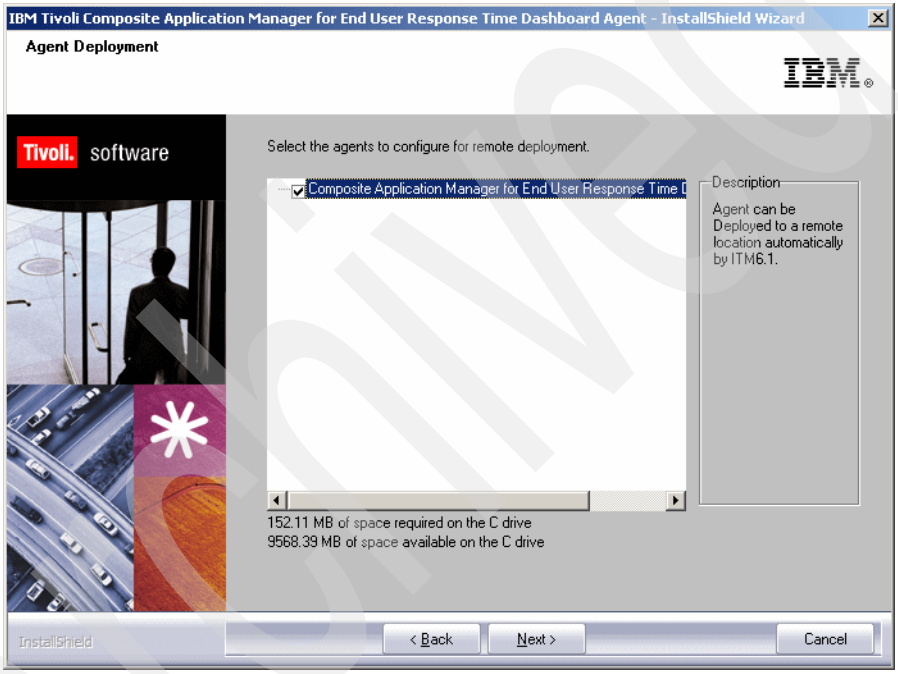

Figure 4-4 Agent deployment

8. Review the installation summary details. Click **Next** to start the installation, as shown in Figure 4-5.

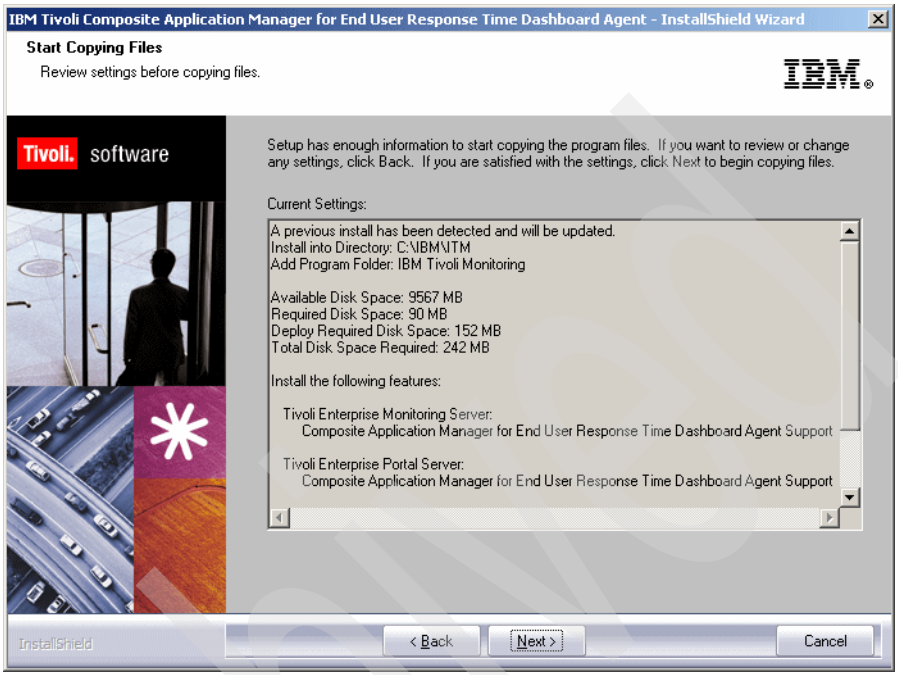

Figure 4-5 Installation summary

9. After the application support package installation is complete, a configuration window is displayed with all the components that you just installed selected for configuration. Click **Next**, as shown in Figure 4-6.

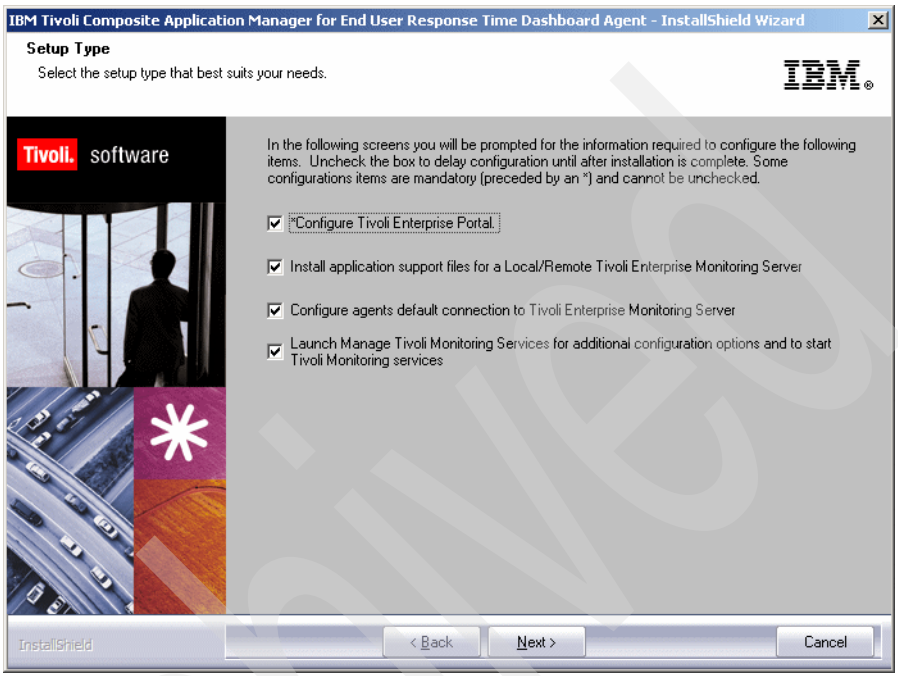

Figure 4-6 Configuration choices

10. The Tivoli Enterprise Portal and Tivoli Enterprise Portal Server configuration starts.

    a. Select the host name of the machine on which Tivoli Enterprise Portal Server resides. Click **Next**, as shown in Figure 4-7.

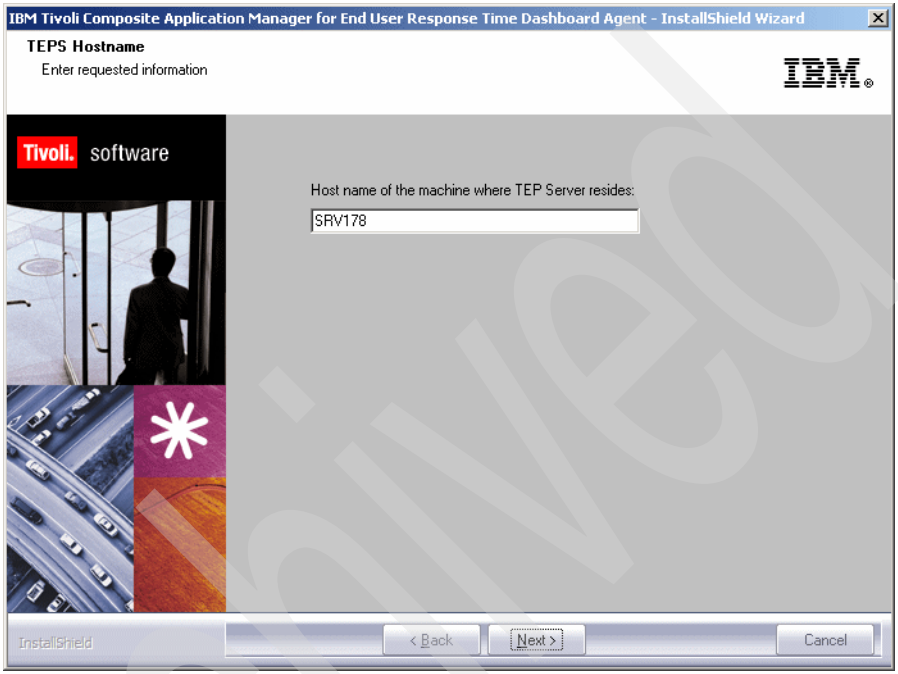

Figure 4-7 Tivoli Enterprise Portal Server host name

b. The installation starts building Tivoli Enterprise Portal Server presentation files, as shown in Figure 4-8.

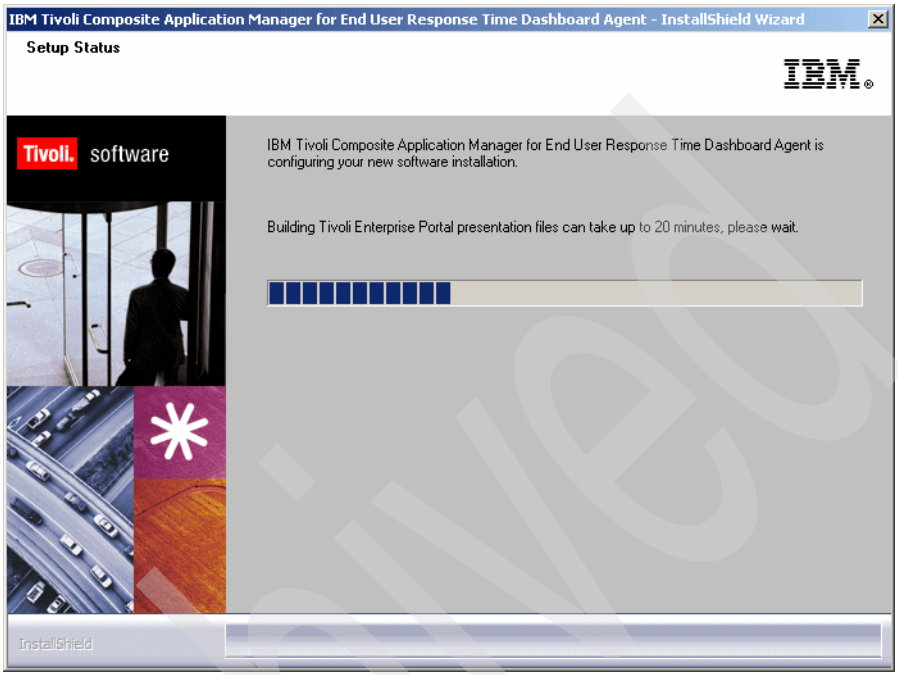

Figure 4-8 Setup building workspaces and presentation files

11. The next steps install application support for the Tivoli Enterprise Monitoring Server.

    a. Check that the communication protocol to the Tivoli Enterprise Monitoring Server is correct and click **OK**, as shown in Figure 4-9.

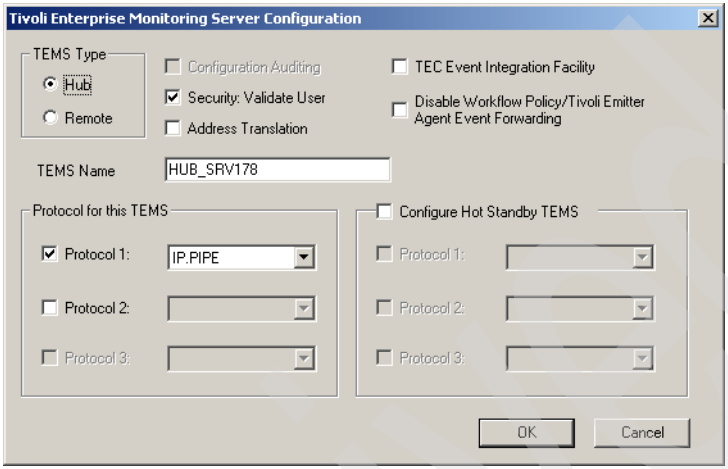

Figure 4-9 Tivoli Enterprise Monitoring Server communication protocols

    b. Make sure that the communications parameter for the selected protocols (in our case IP.PIPE) for the agents to connect to the monitoring server is correct and click **OK**, as shown in Figure 4-10.

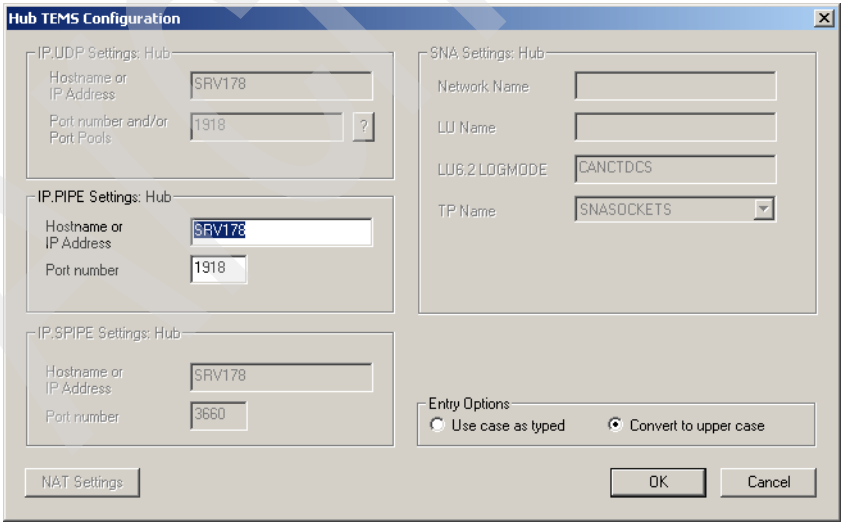

Figure 4-10 Tivoli Enterprise Monitoring Server IP.PIPE configuration

c. Specify the location of the monitoring server, as shown in Figure 4-11. Click **OK.**

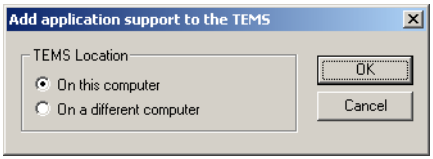

Figure 4-11 Selecting Tivoli Enterprise Monitoring Server location

d. Select the application support to add to the Tivoli Enterprise Monitoring Server windows. This window lists the application support packages that you selected in the window shown in Figure 4-3 on page 40. Click **OK** to begin seeding the monitoring server (using SQL files listed in this window, as shown in Figure 4-12). This process can take up to 20 minutes.

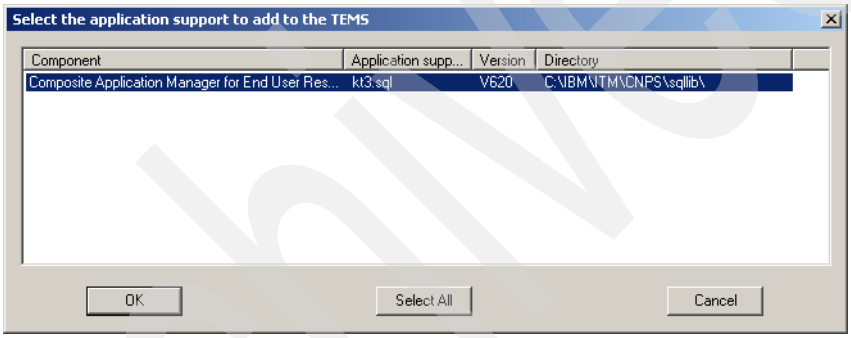

Figure 4-12 Selecting the application support

e. Figure 4-13 shows that the application support addition has been completed with rc=0. Click **Next.**

> **Note:** If the Application Support Addition Complete window is not displayed after 20 minutes, look in the IBM\ITM\CNPS\Logs\seedk*pp*.log files (where *pp* is the two-character code for each monitoring agent) for diagnostic messages that help you determine the cause of the problem.

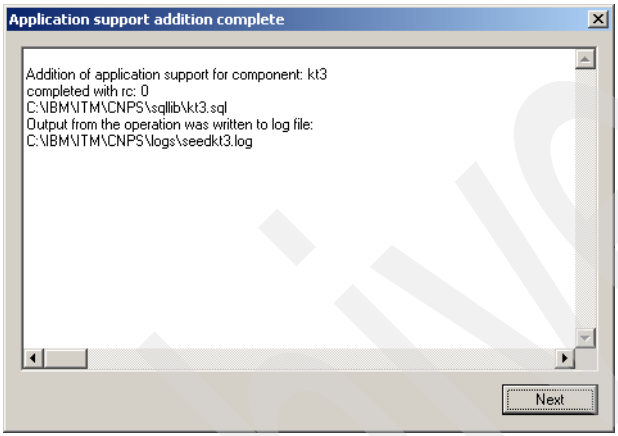

Figure 4-13 Application support addition complete

12. The next figures shows the configuration of agent defaults connection to the Tivoli Enterprise Monitoring Server.

    a. Specify the communication protocol default for the agent to use when it communicates with the Tivoli Enterprise Monitoring Server and click **OK**, as shown in Figure 4-14.

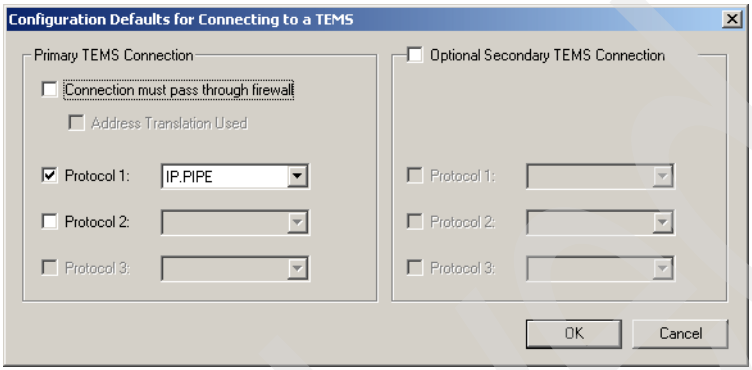

Figure 4-14 Communication protocol defaults

    b. Define the communications parameter defaults between agents and the monitoring server and click **OK**, as shown in Figure 4-15.

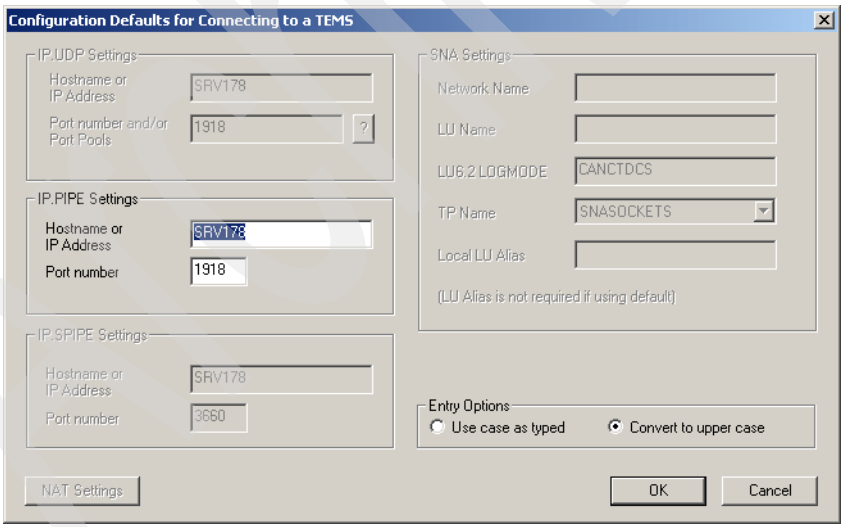

Figure 4-15 Communication parameters for IP.PIPE

13.Figure 4-16 shows that the installation is complete. Click **Finish**.

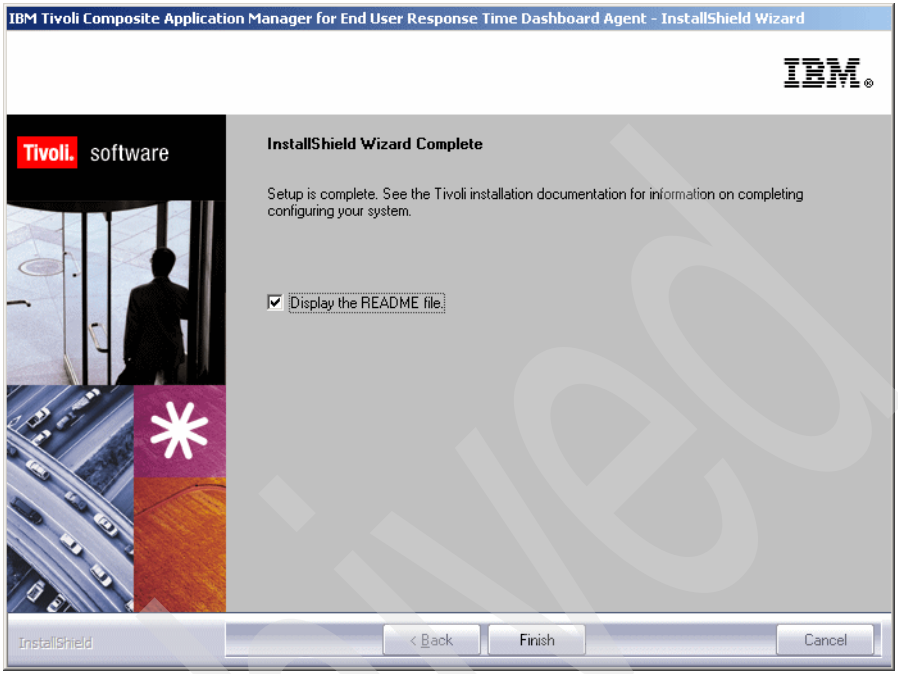

Figure 4-16 Installation finished

14. The Manage Tivoli Enterprise Monitoring Server opens (as we select it in the window shown in Figure 4-6 on page 43). Recycle the Tivoli Enterprise Portal Server, as shown in Figure 4-17.

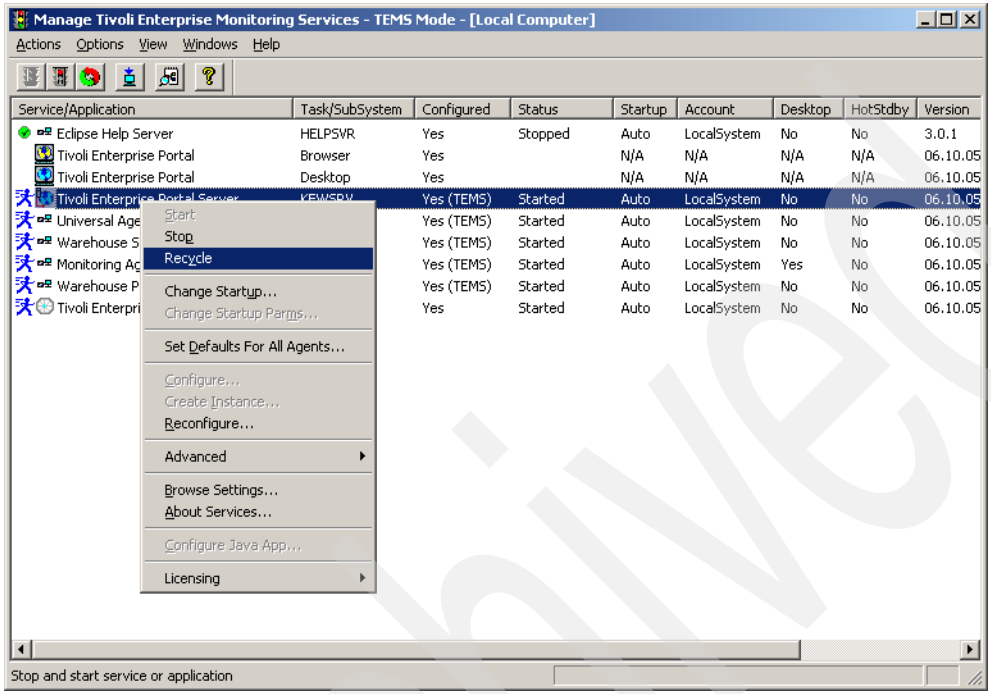

Figure 4-17 Recycle Tivoli Enterprise Portal Server

You have finished the installation of the application support files.

> **Note:** Repeat these steps for all types of agent that you are going to install in your environment. In the deployment environment we repeated them to install application support files for the Robotic, Web, and Client Response Time Agents.

4.3 Installing End User Response Time Dashboard

This chapter describes how to install the End User Response Time Dashboard on Windows.

The End User Response Time Dashboard works with data from the Tivoli Data Warehouse. Therefore, we recommend that it be installed close to the Tivoli Data

Warehouse, but on a separate system, in the same subnet. It could be on the same machine as the Warehouse Proxy or Summarization and Pruning agents, as they all access the warehouse.

For demonstration purposes we install the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, Tivoli Data Warehouse, Warehouse Proxy Agent, and Summarization and Pruning Agent all in one server.

Before you install:

1. Install the agent as administrator.
2. Install only one ITCAM for End User Response Time Dashboard Tivoli Enterprise Monitoring Agent in the monitoring environment. The ITCAM for End User Response Time Dashboard is also the robotic script file depot. There should be only one file depot per IBM Tivoli Monitoring environment.
3. See your IBM Tivoli Monitoring administrator and collect the Tivoli Enterprise Portal Server host name, Tivoli Enterprise Monitoring Server name, Tivoli Enterprise Monitoring Server host name, and the protocol settings for the Tivoli Enterprise Monitoring Server that you are going to connect with. Also get the Tivoli Data Warehouse configurations.
4. Install the application support files as described in 4.2, “Installing application support files for Windows” on page 38.

To install the ITCAM for End User Response Time Dashboard agent:

1. Launch the installation wizard by double-clicking **setup.exe** in the WINDOWS subdirectory for the installation files. The software displays the Welcome window, as shown in Figure 4-18. As we are going to install on the same machine on which we already installed the application support files, select **Modify** and click **Next**.

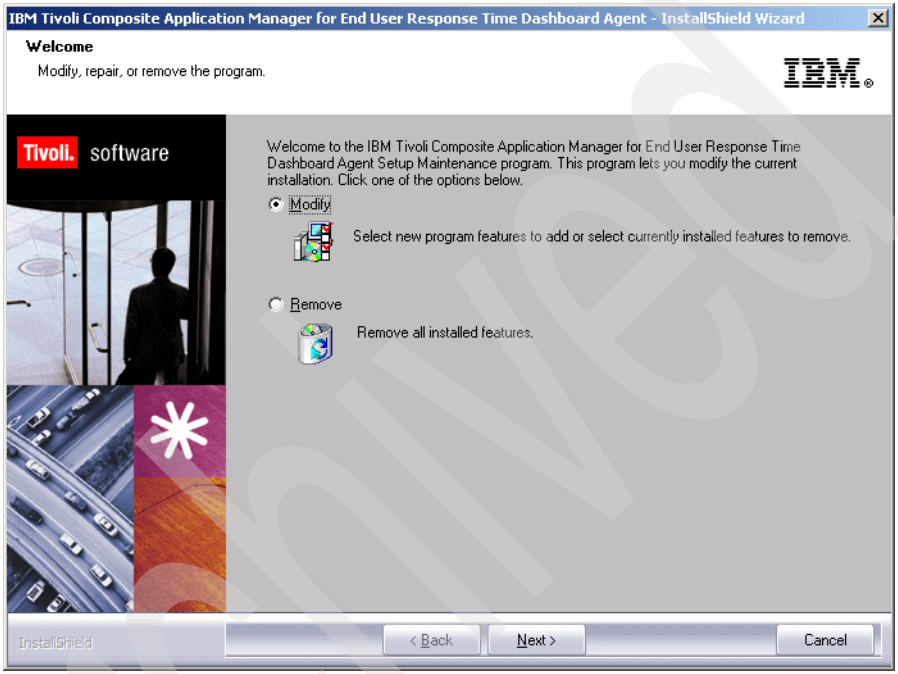

Figure 4-18 Welcome window

2. Figure 4-19 informs that you *should not* deselect items, otherwise you will uninstall them. Click **OK**. This happens as we install the End User Response Time Dashboard agent on the same machine as the Tivoli Enterprise Monitoring Server and the Tivoli Enterprise Portal Server.

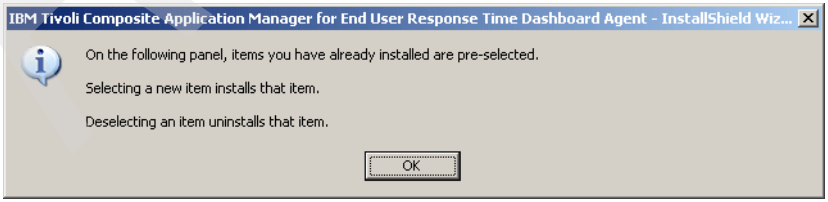

Figure 4-19 Information box

3. Figure 4-20 is shown. Expand **Tivoli Enterprise Monitoring Agents** and select **Composite Application Manager for End User Response Time Dashboard agent**. Click **Next**.

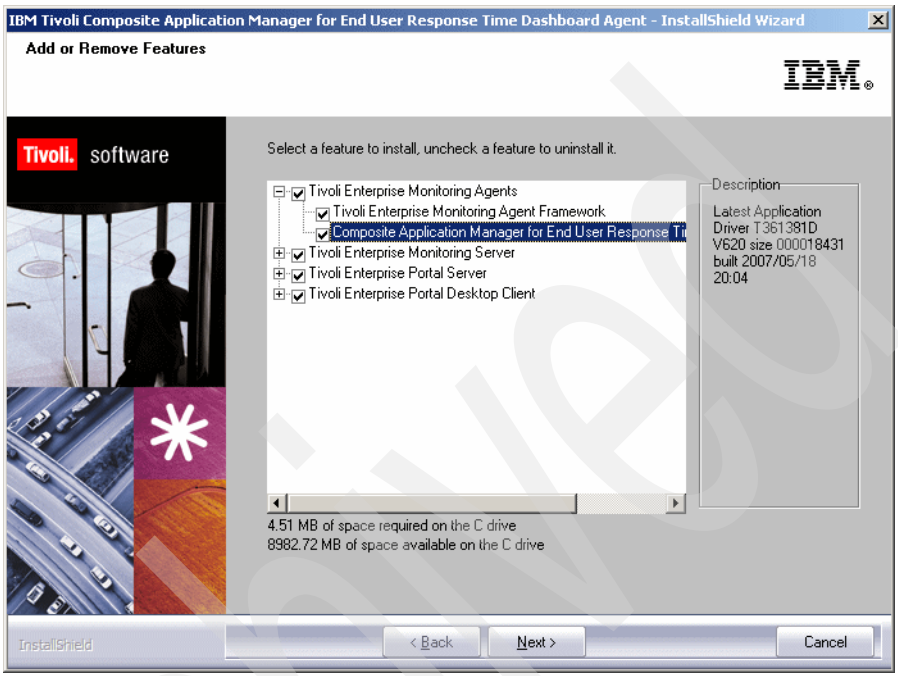

Figure 4-20 Add or remove features

4. You can select the agent for remote deployment. This is not really necessary, as you would only need one End User Response Time Dashboard agent in your environment. See Figure 4-21. Click **Next**.

> **Note:** If you do not have the Tivoli Enterprise Monitoring Server on this server, this step is skipped.

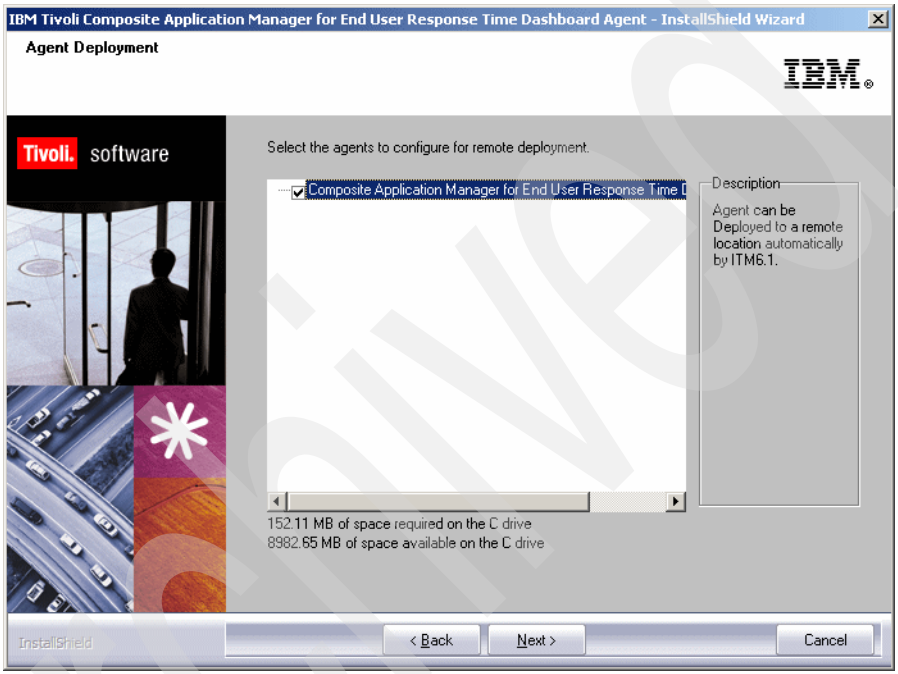

Figure 4-21 Agent deployment

5. Review the installation settings and click **Next**, as shown in Figure 4-22. This stops the Tivoli Enterprise Monitoring Server, if it is not already stopped.

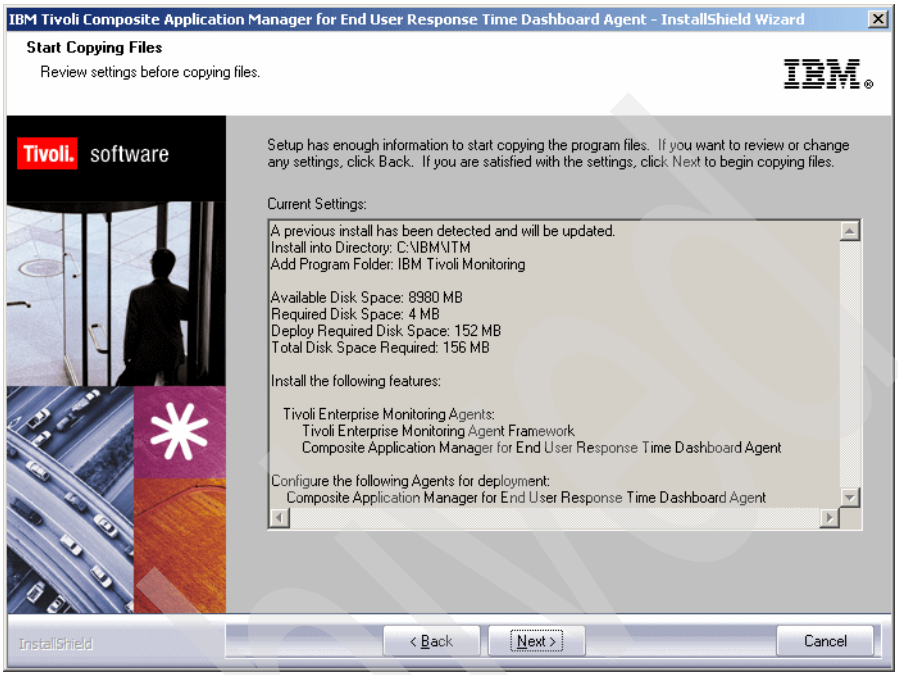

Figure 4-22 Installation summary

6. Figure 4-23 shows what items you might configure. By default they all come selected. As we already configured the application support files, we do not need to select all options. We only need to run the Manage Tivoli Monitoring Services application. Click **Next**.

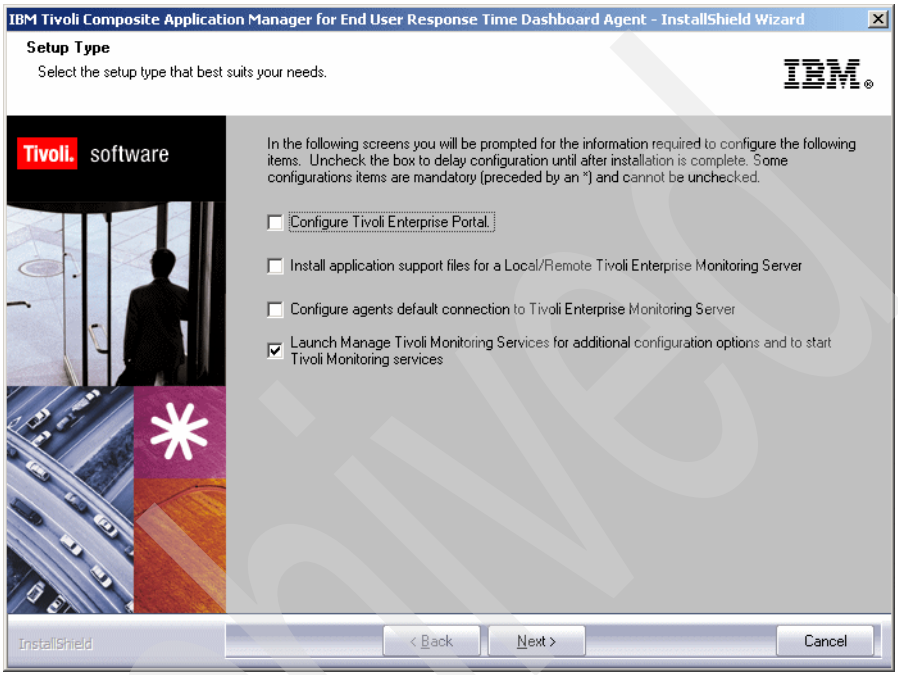

Figure 4-23 Configuration options

7. The agent configuration dialog appears, as shown in Figure 4-24.
   a. On the Tivoli Datawarehouse Database Configuration Options tab, specify the Tivoli Data Warehouse database configuration options.

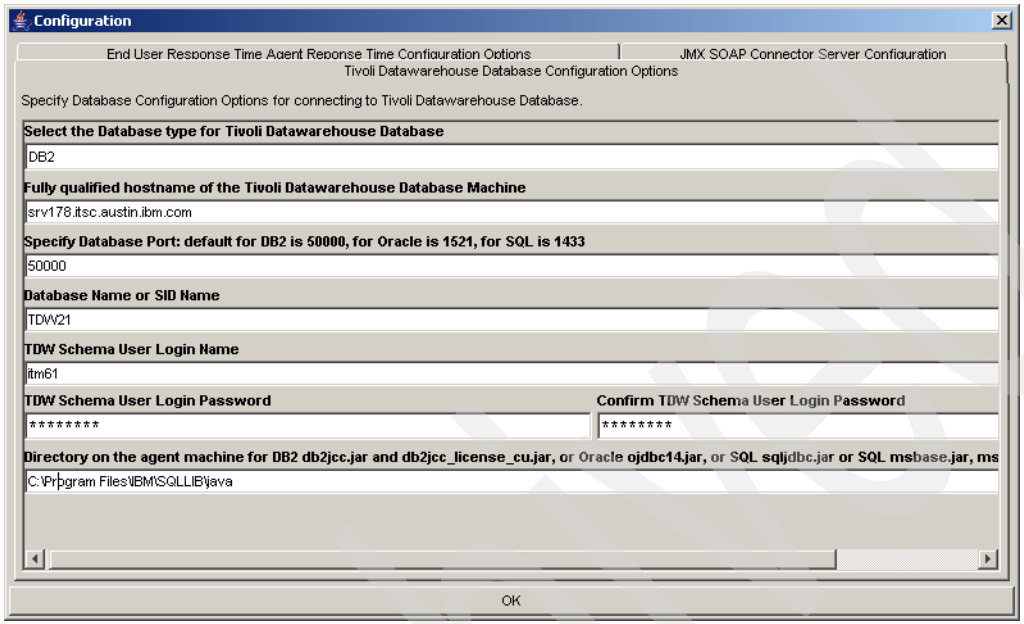

Figure 4-24 Warehouse database configuration

b. Select the **JMX™ SOAP Server Configuration** tab. Complete the options on the JMX SOAP Connector Server Configuration, as shown in Figure 4-25. This configuration is used for the file uploader utility — either the Multi-file Uploader or the Rational plug-in.

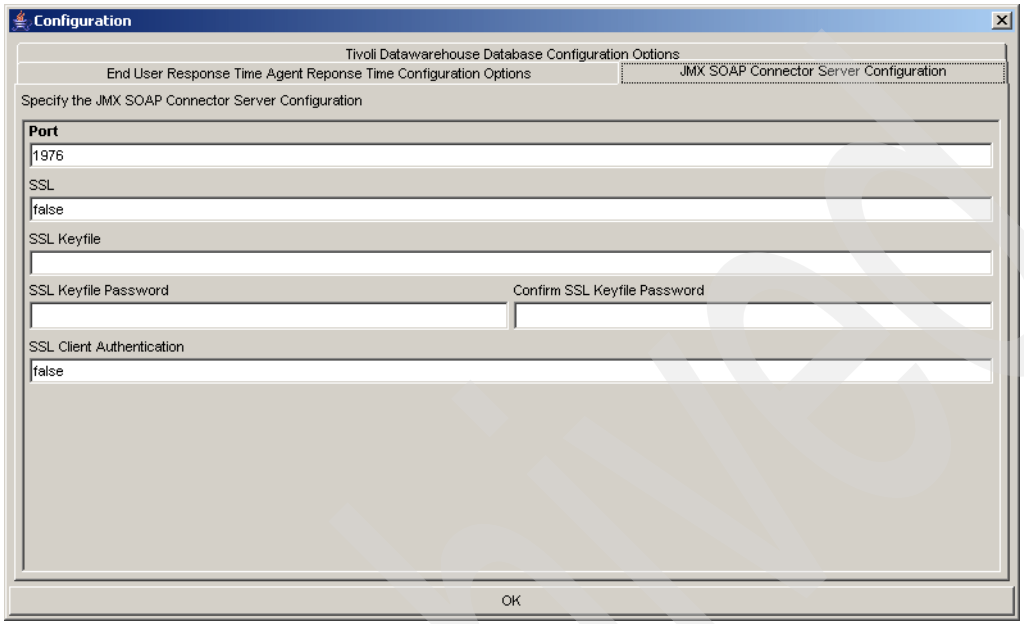

Figure 4-25 JMX SOAP connector server configuration

c. Select the **End User Time Agent Response Time Configuration Options** tab. Keep the defaults, as shown in Figure 4-26, and click **OK**.

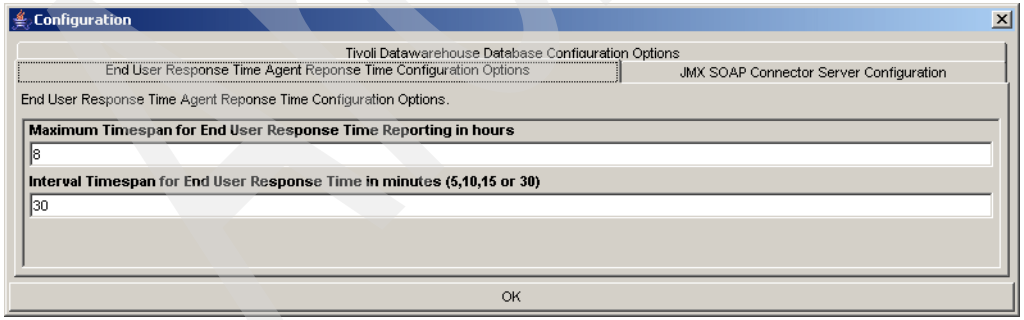

Figure 4-26 End User Response Time Agent configuration

8. Deselect the display for the readme file and click **Finish**, as shown in Figure 4-27.

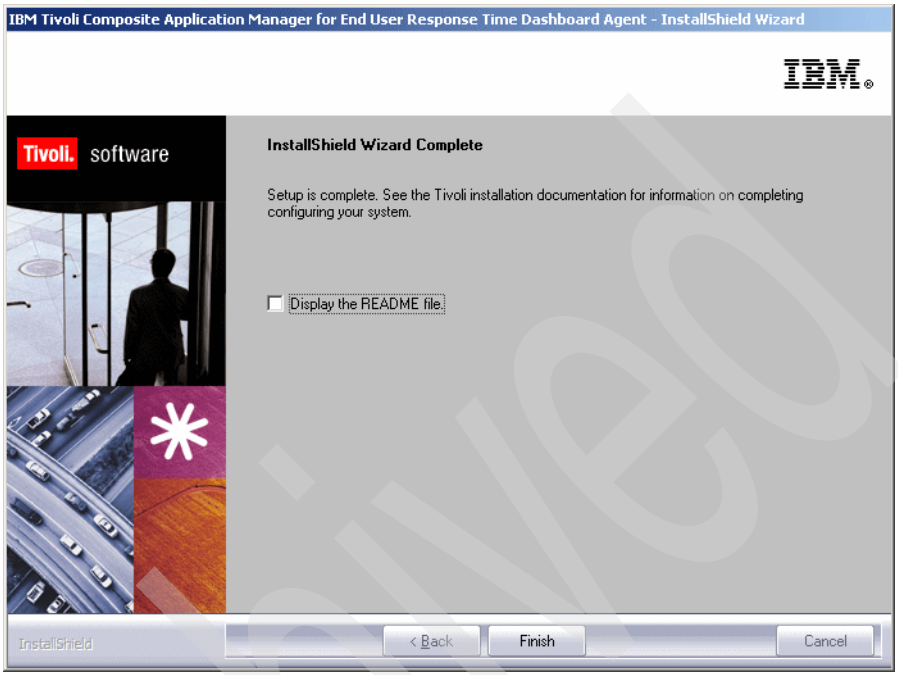

Figure 4-27 Installation complete

9. Click **Finish** on the Maintenance Complete screen, as shown in Figure 4-28.

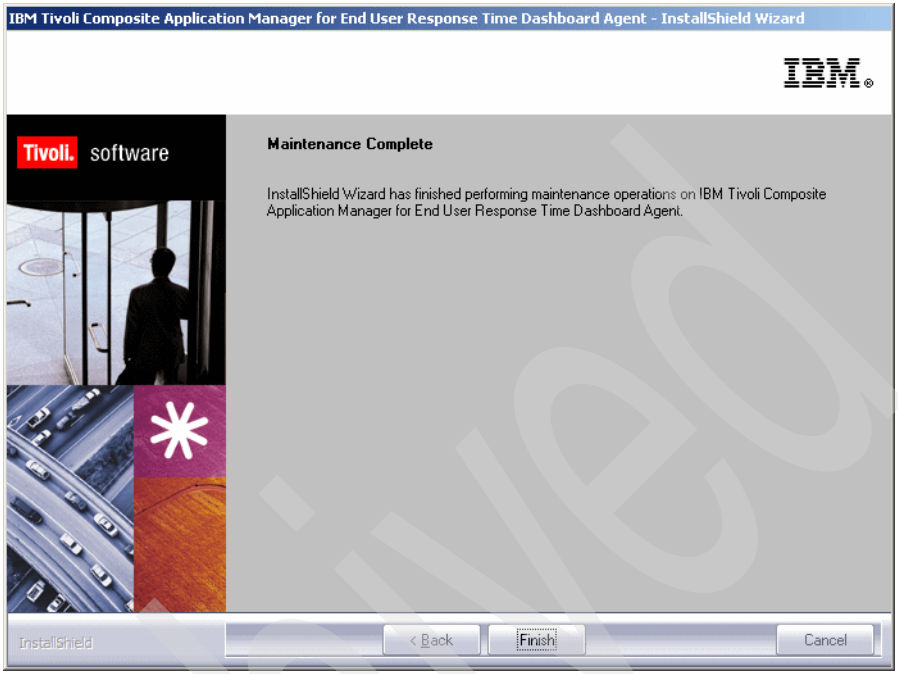

Figure 4-28 Maintenance complete

4.4 Installing ITCAM for Robotic Response Time

In this section we demonstrate how to install the ITCAM for Robotic Response Time Agent locally on a Windows system. From this system we play back Rational Performance Tester scripts.

If the ITCAM for Robotic Response Time agent is in the IBM Tivoli Monitoring remote deployment depot, and you have an operating system monitoring agent running on the server on which you plan to install it, you may install through the Tivoli Enterprise Portal. This saves time because you do not need to configure the Tivoli Enterprise Monitoring Server and the Tivoli Enterprise Portal Server. In 4.6, “Installing ITCAM for Client Response Time” on page 87, we describe an installation using the Tivoli Enterprise Portal.

Note: If you plan to play back scripts recorded with Rational Robot, you need to install Rational Robot before you install the ITCAM for Robotic Response Time Agent.

Before you install:

1. Install the agent as administrator.
2. See your IBM Tivoli Monitoring administrator and collect the Tivoli Enterprise Portal Server host name, Tivoli Enterprise Monitoring Server name, Tivoli Enterprise Monitoring Server host name, and the protocol settings for the Tivoli Enterprise Monitoring Server that you are going to connect with.
3. Install application support files, as described in 4.2, “Installing application support files for Windows” on page 38.

We perform a local installation on the SAOPAULO server:

1. Launch the installation wizard by double-clicking **setup.exe** in the WINDOWS subdirectory for the installation files. The software displays the Welcome window, as shown in Figure 4-29. Click **Next**.

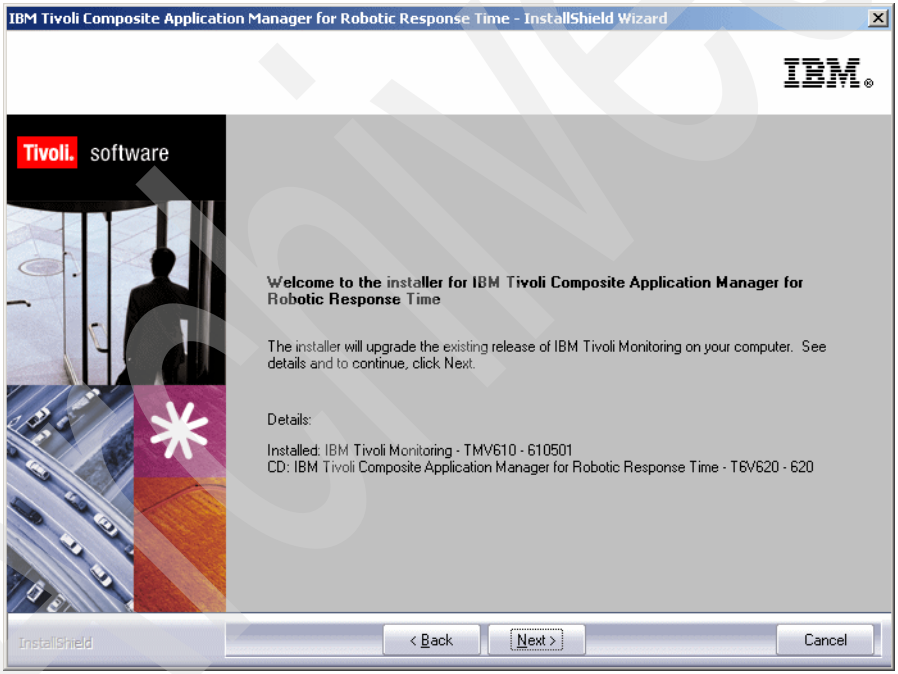

Figure 4-29 Welcome

2. Review the prerequisites and click **Next**, as shown in Figure 4-30.

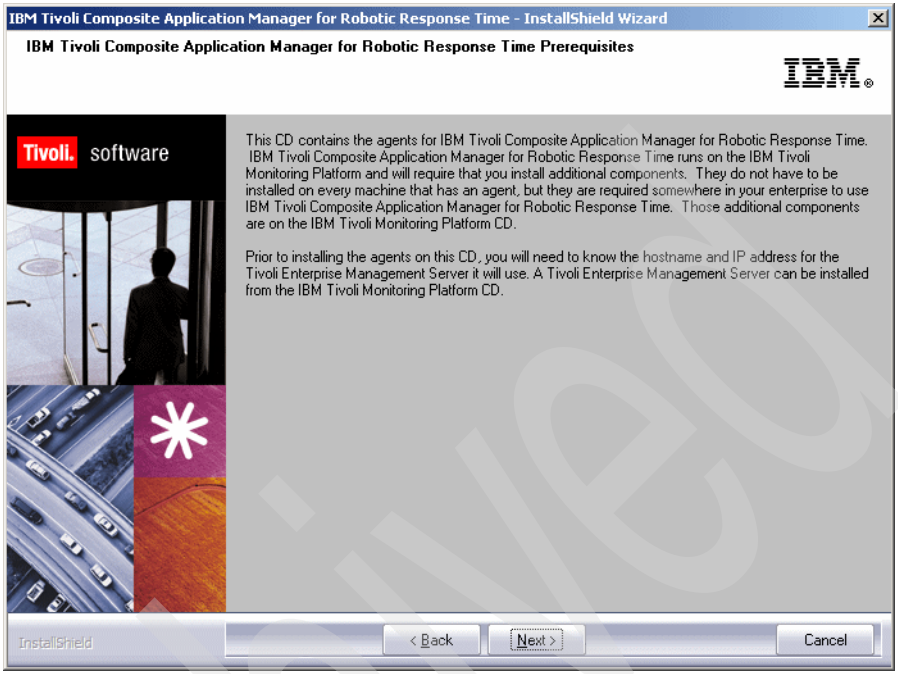

Figure 4-30 ITCAM for Robotic Response Time prerequisites

3. Verify that the required versions of IBM GSKit and IBM JAVA are installed and click **Next**, as shown in Figure 4-31.

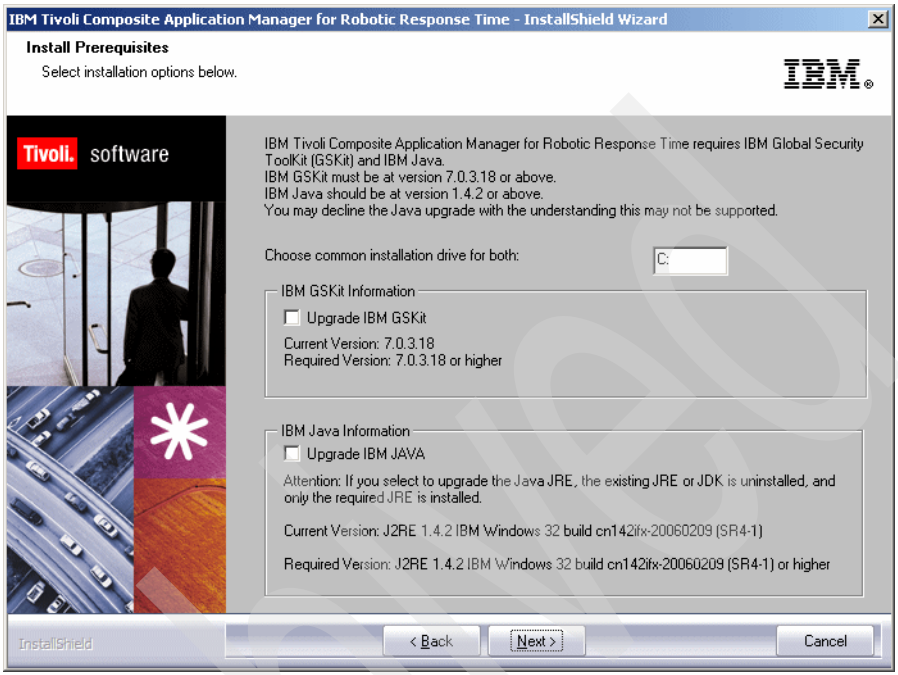

Figure 4-31 Install prerequisites

4. Figure 4-32 shows the software license agreement. Click **Accept**.

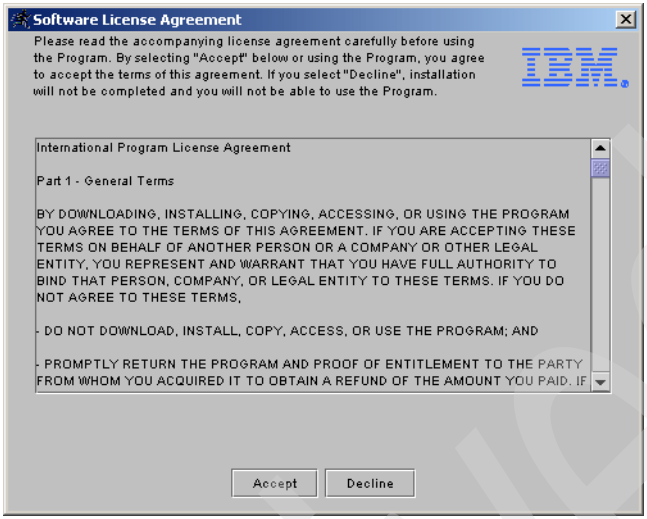

Figure 4-32 Software license agreement

5. Expand **Tivoli Enterprise Monitoring Agents**, select **Composite Application Manager for Robotic Response Time Monitoring Agent**, and click **Next**, as shown in Figure 4-33.

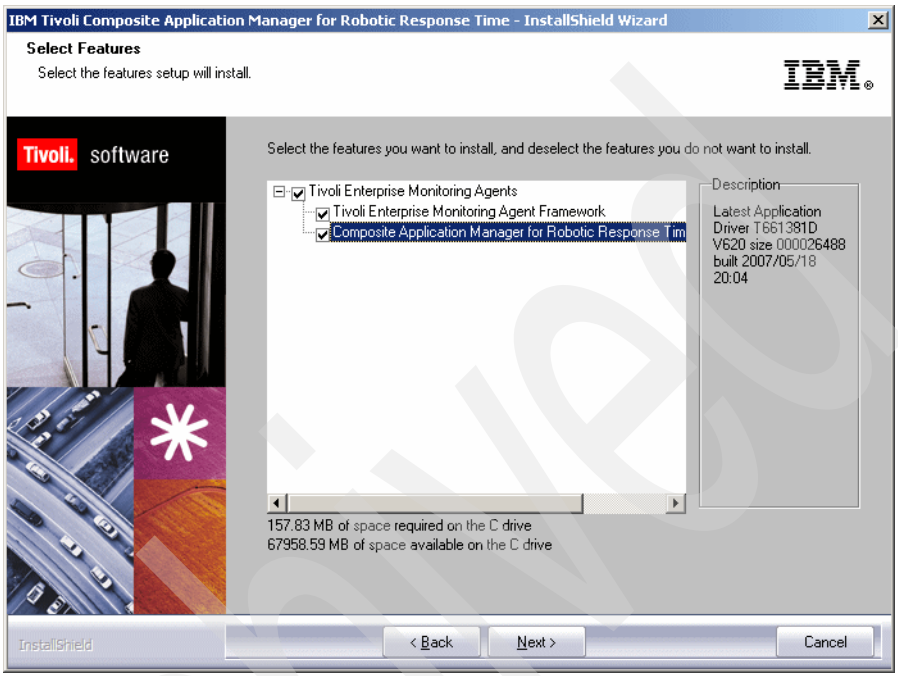

Figure 4-33 Select features

6. Review the settings and click **Next**, as shown in Figure 4-34.

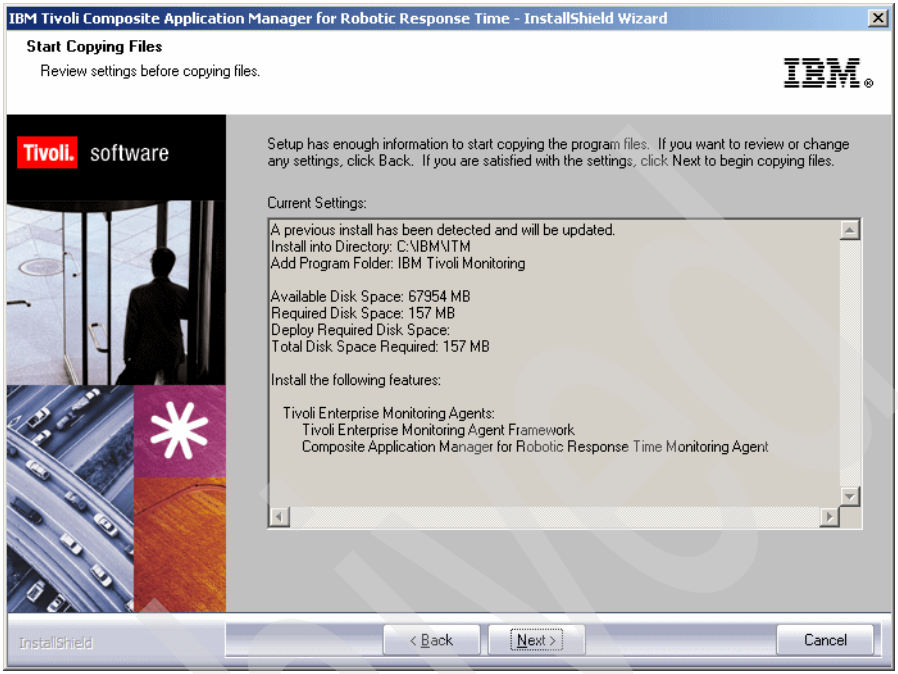

Figure 4-34 Installation summary dialog

7. Click **Next** to configure both items, as shown in Figure 4-35.

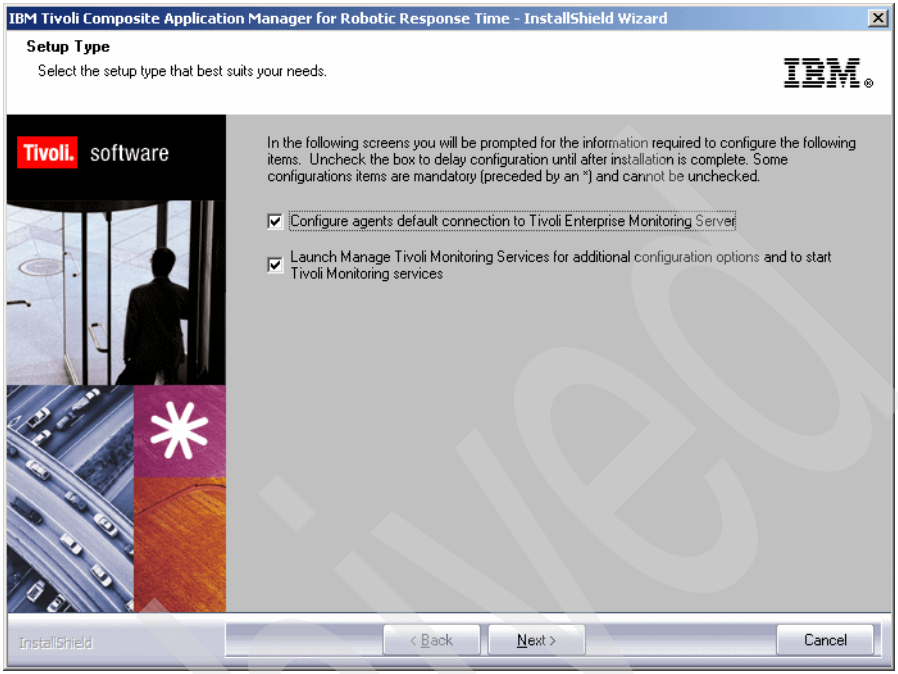

Figure 4-35 Configuration options

8. Select the protocols to communicate with the Tivoli Enterprise Monitoring Server and click **OK**, as shown in Figure 4-36.

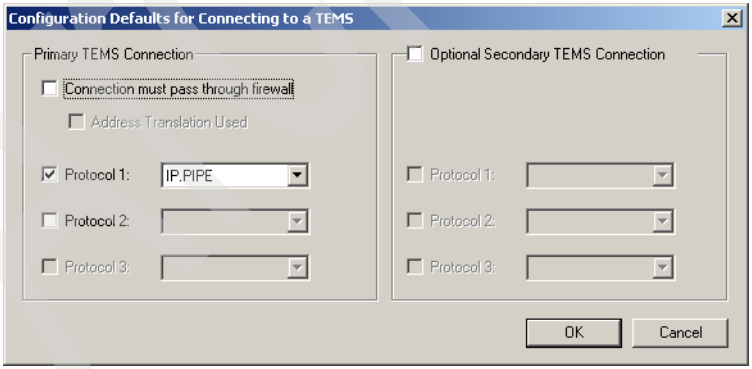

Figure 4-36 Communication protocol defaults

9. Based on the protocols that you have selected before, configure the information needed and click **OK**, as shown in Figure 4-37.

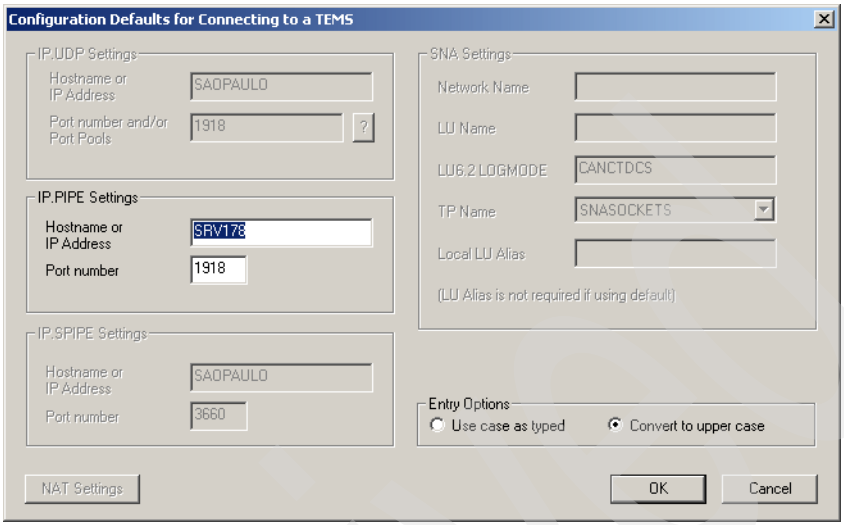

Figure 4-37 Communication parameters for IP.PIPE

10. Accept the defaults for all tabs and click **OK**.

11. Deselect the readme file and click **Finish**, as shown in Figure 4-38.

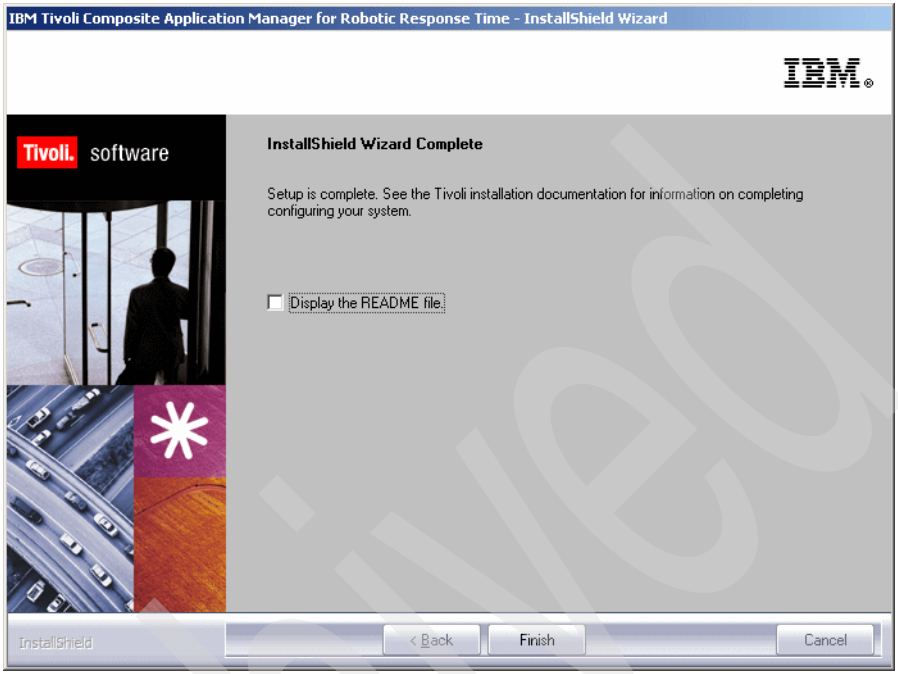

Figure 4-38 Installation complete

12. Open the Manage Tivoli Enterprise Monitoring Services utility (if it does not open automatically) to see whether the monitoring agent has been configured and started. The Configured column should show Yes, as shown in Figure 4-39.

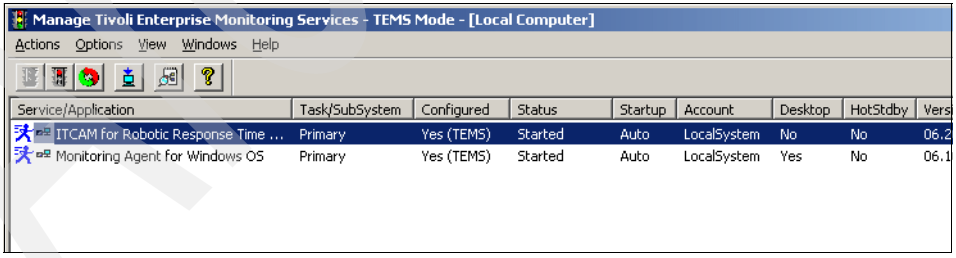

Figure 4-39 Manage Tivoli Enterprise Monitoring Services

13. Reboot your environment manually, as the ITCAM for Robotic Response Time requires a reboot after the installation is complete.

4.5 Installing ITCAM for Web Response Time

This section demonstrates how to install the Web Response Time Agent locally on a Windows system that has no OS Agent installed.

You should install a Web Response Time Agent on each Web server or install in appliance mode using promiscuous mode to monitor the entire network traffic.

If you have an OS Agent installed and you have the ITCAM for Web Response Time Agent loaded into IBM Tivoli Monitoring depot, you may install through the Tivoli Enterprise Portal Server, which does not ask you about Tivoli Enterprise Monitoring configuration.

Before you install:

1. Install the agent as administrator.
2. See your IBM Tivoli Monitoring administrator and collect the Tivoli Enterprise Portal Server host name, Tivoli Enterprise Monitoring Server name, Tivoli Enterprise Monitoring Server host name, and the protocol settings for the Tivoli Enterprise Monitoring Server that you are going to connect with.
3. Install the application support files, as described in 4.2, “Installing application support files for Windows” on page 38.
4. Install the Windows Network Monitor, as described 4.5.1, “Installing Windows Network Monitor” on page 71.

4.5.1 Installing Windows Network Monitor

Before installing the ITCAM for Web Response Time agent on your Windows platform, you must install the Windows Network Monitor.

1. Do one of the following:
   - For Windows 2000: Click **Control Panel** → **Network and Dial-up Connections** → **Local Area Connection**.
   - For Windows 2003 and Windows XP: Click **Control Panel** → **Network Connections** → **Local area Connection**.
2. Right-click **Local Area Connection**.

3. In the pop-up menu, click **Properties**, as shown in Figure 4-40.

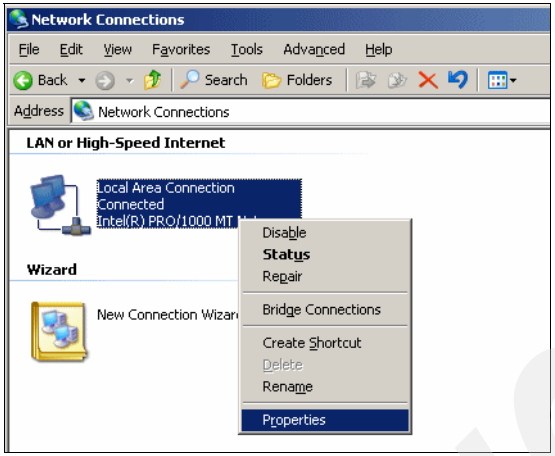

Figure 4-40 Network Connections properties

4. In the Local Area Connection Properties window, click **Install** if there is no Network Monitor Driver available, as shown in Figure 4-41.

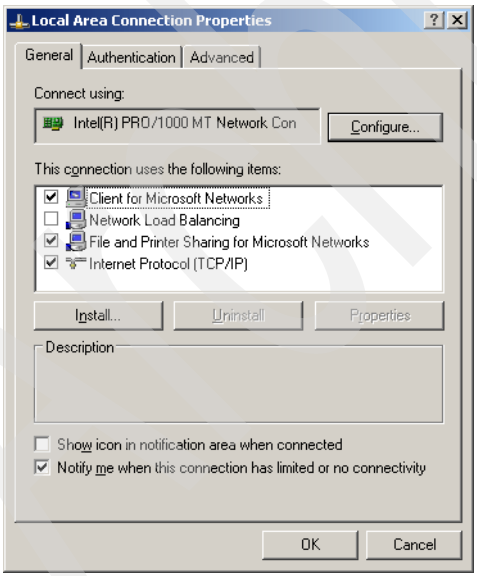

Figure 4-41 Network drivers

5. Select **Protocol** from the Select Network Component window and click **Add**, as shown in Figure 4-42.

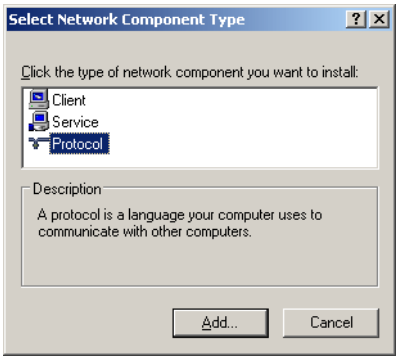

Figure 4-42 Choosing protocol network component

6. Select **Network Monitor Driver** from the Select Network Protocol window and click **OK**, as shown in Figure 4-43.

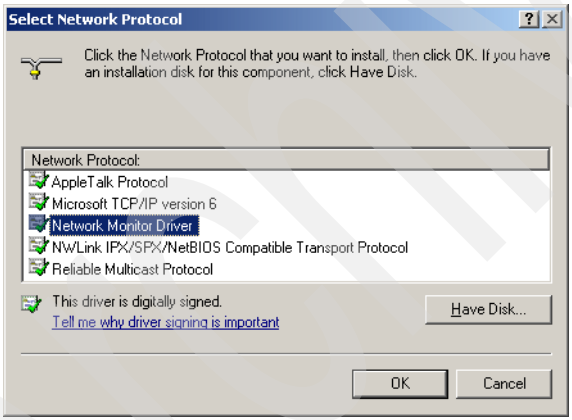

Figure 4-43 Select Network Monitor Driver protocol

7. After the Network Monitor Driver is displayed on the Local Area Connections Properties window, click **Close**, as shown in Figure 4-44.

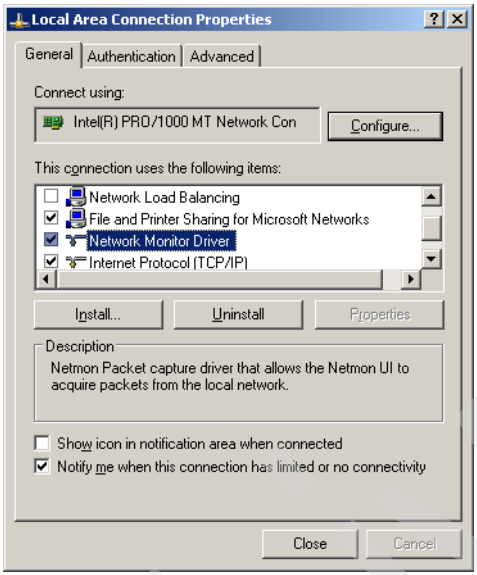

Figure 4-44 Network Monitor driver installed

4.5.2 Installing Web Response Time agent

To install the Web Response Time agent:

1. Launch the installation wizard by double-clicking **setup.exe** in the Windows subdirectory for the installation files. The software displays the Welcome window, as shown in Figure 4-45.

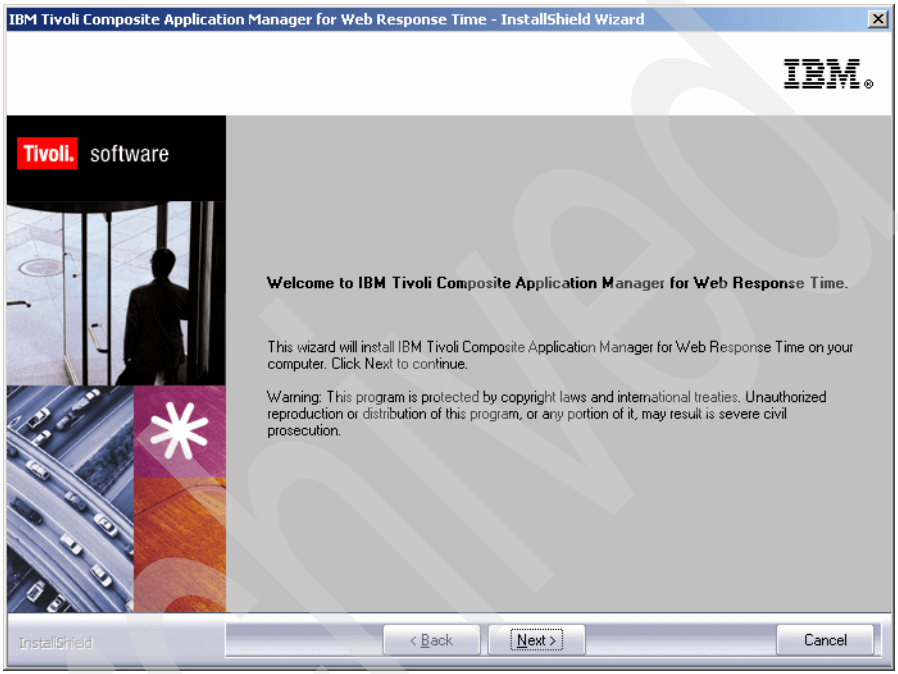

Figure 4-45 Welcome

2. Review the prerequisites and click **Next**, as shown in Figure 4-46.

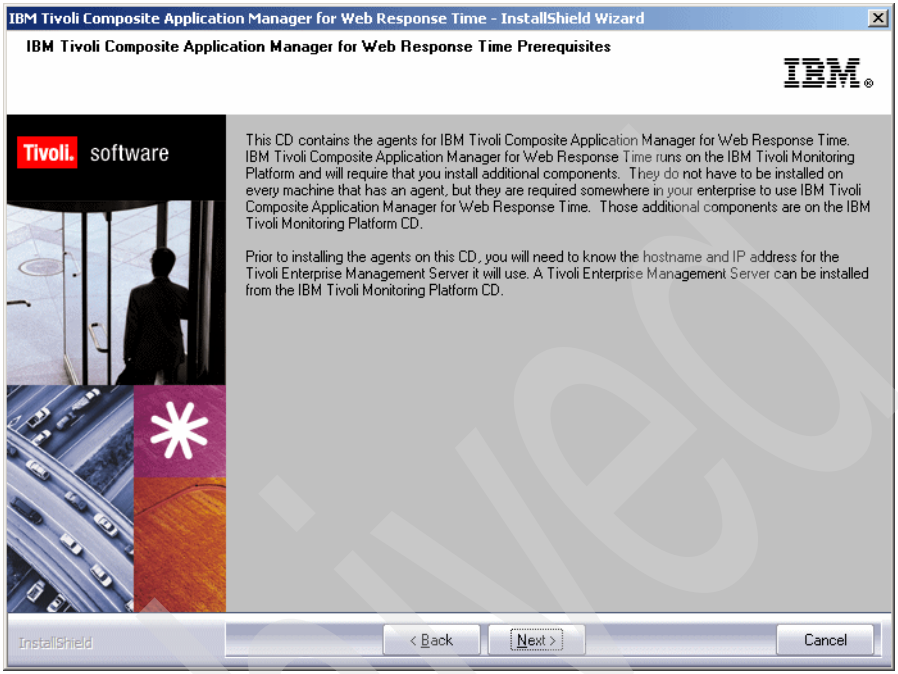

Figure 4-46 Web response time prerequisites

3. In the window shown in Figure 4-47, accept the prerequisites needed and click **Next**.

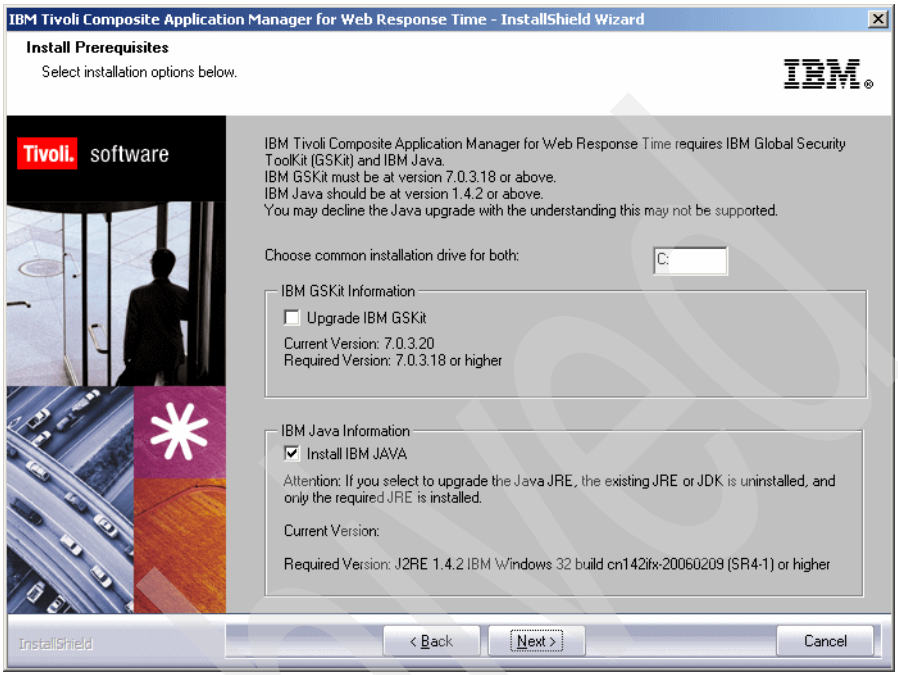

Figure 4-47 Install prerequisites

4. Figure 4-48 shows the software license agreement. Click **Accept**.

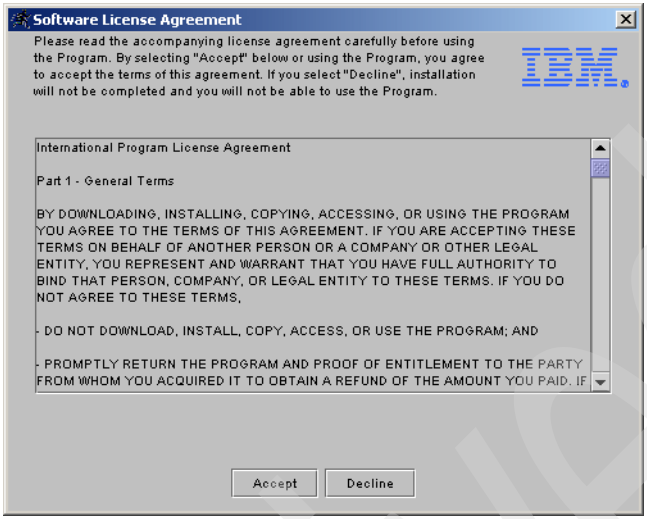

Figure 4-48 Software License Agreement

5. Choose the directory in which you want to install the product, as shown in Figure 4-49. Click **Next**.

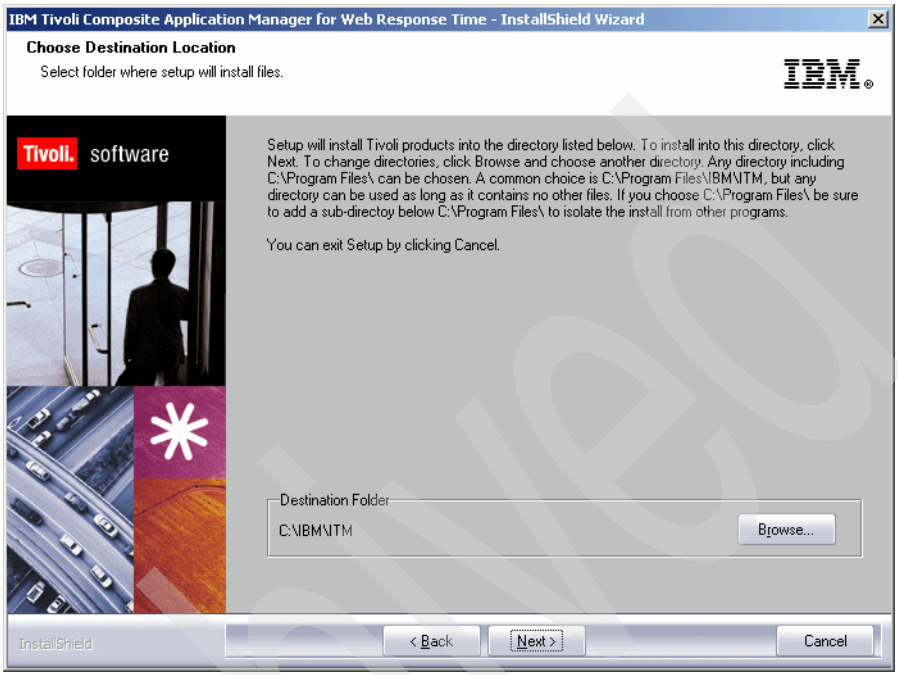

Figure 4-49 Choose destination location

6. Type a 32-character encryption key and click **Next**. We use the default, as shown in Figure 4-50.

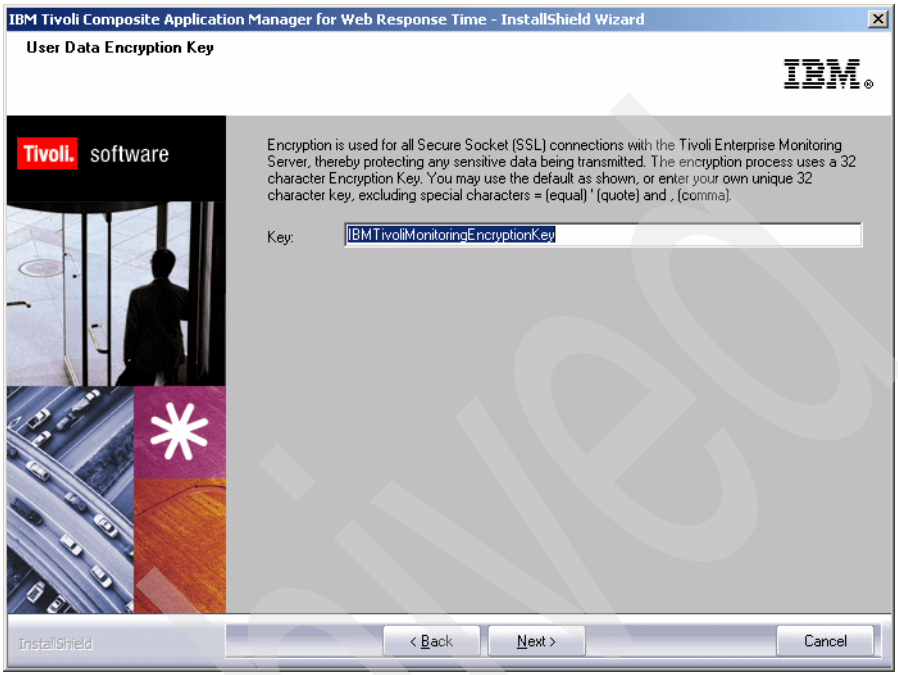

Figure 4-50 User data encryption key

7. Click **OK** to confirm the encryption key, as shown in Figure 4-51.

Figure 4-51 Encryption key information box

8. On the Select Features windows (Figure 4-52), expand and select **Composite Application Manager for Web Response Time Monitoring Agent**. This automatically selects the Tivoli Enterprise Monitoring Agent Framework, as we did not have any other agent installed on this server. Click **Next**.

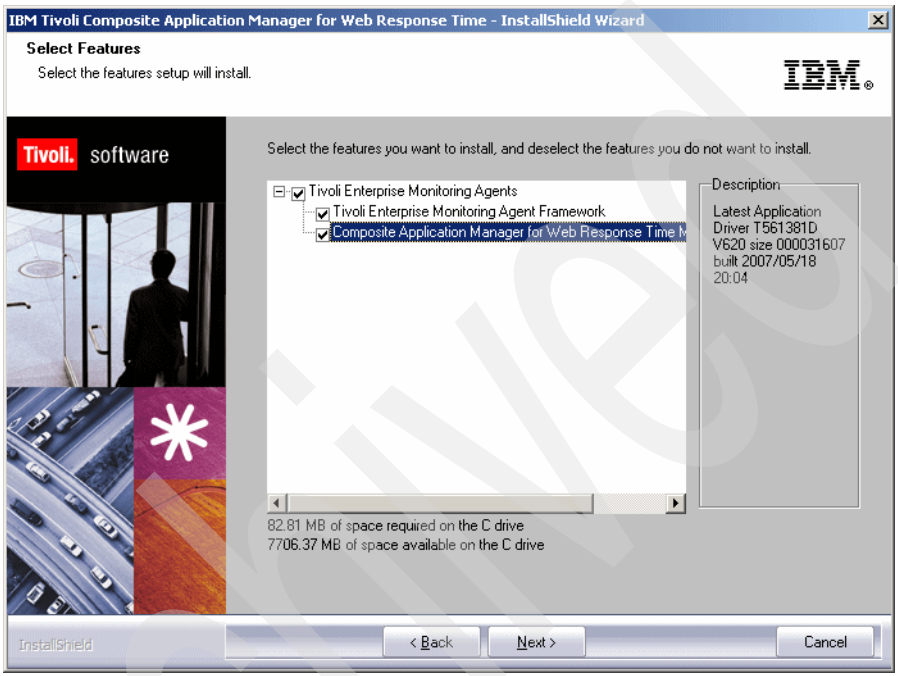

Figure 4-52 Select features

9. The software displays the Select Program Folder window. Select a program folder and click **Next**, as shown in Figure 4-53.

Figure 4-53 Select program folder

10. The software displays the installation summary details (Figure 4-54). Review them and click **Next** to start the installation.

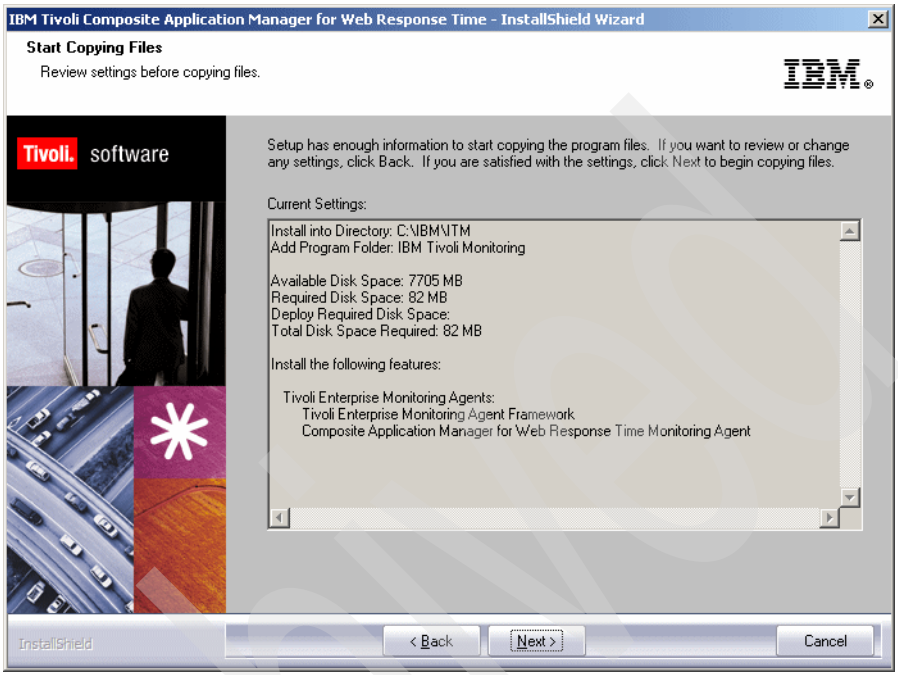

Figure 4-54 Installation summary

11. After the components are installed and the configuration environment is initialized, the software displays the Setup Type window, as shown in Figure 4-55. Leave both options checked and click **Next**.

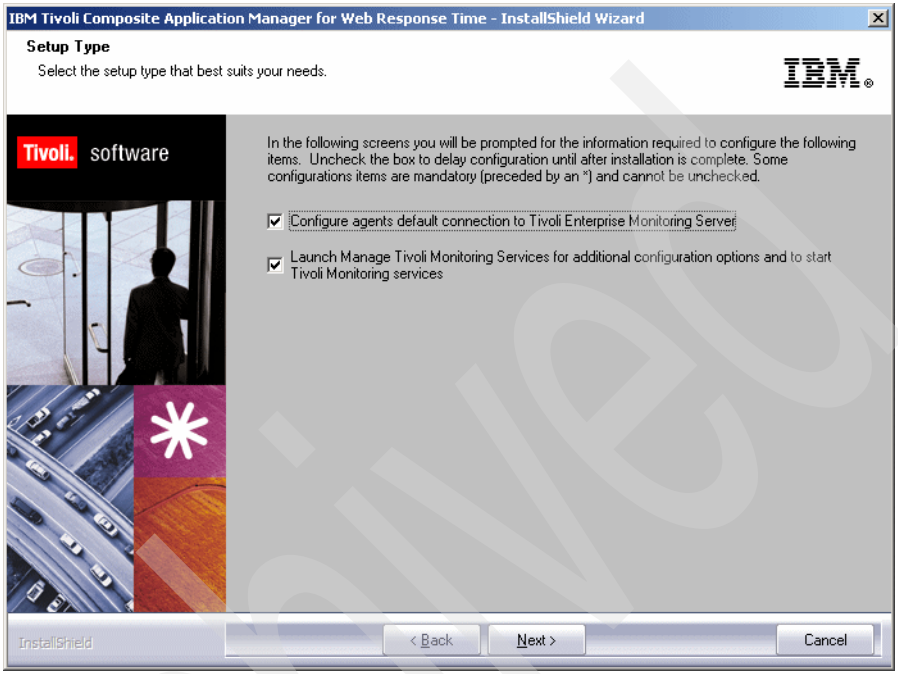

Figure 4-55 Configuration choices

12. On the Tivoli Enterprise Monitoring Server connection window (Figure 4-56), specify the default values for any IBM Tivoli Monitoring agent to use when it communicates with the monitoring server, and click **OK**.

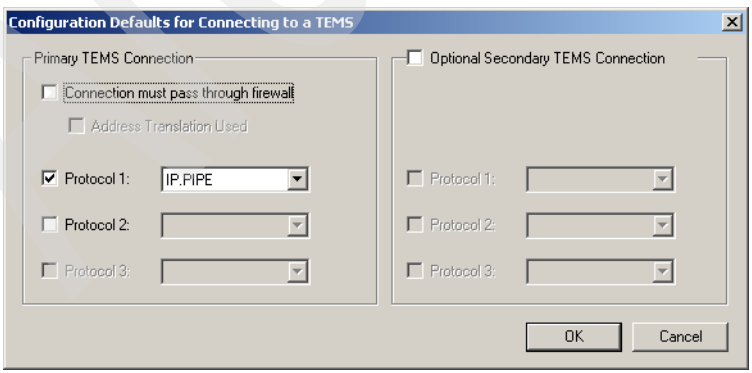

Figure 4-56 Communication protocol defaults

13. Specify the information that you collected with your IBM Tivoli Monitoring administrator regarding the monitoring server and click **OK**, as shown in Figure 4-57.

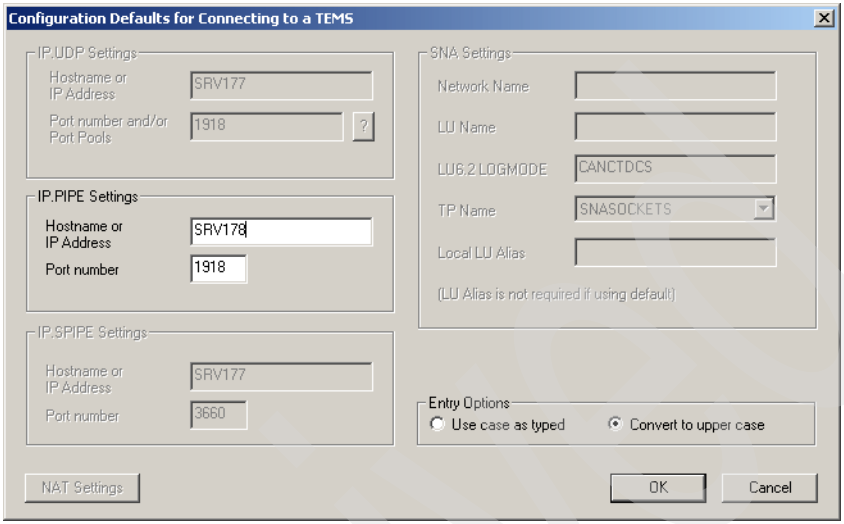

Figure 4-57 Communication parameters for IP.PIPE

14. On the agent configuration (Figure 4-58), leave the defaults. The configuration can be changed later to suit your monitoring needs. Click **OK**.

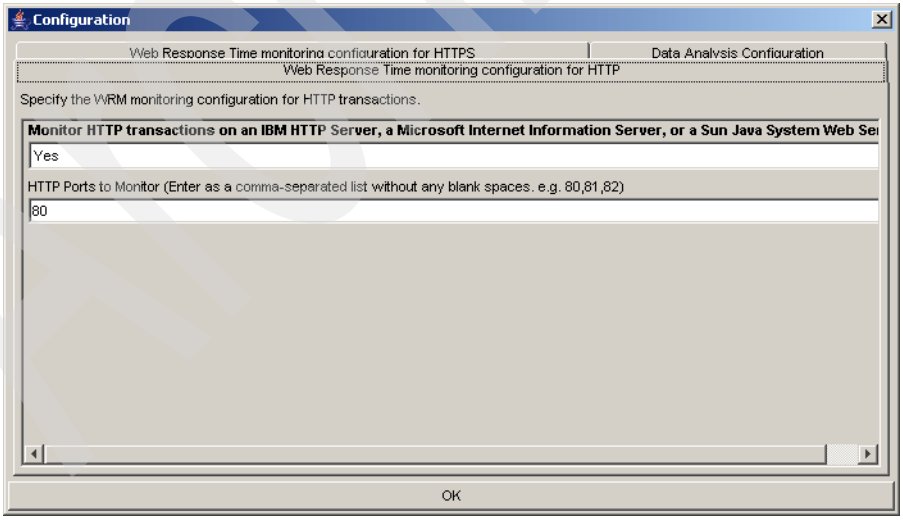

Figure 4-58 Web Response Time Agent configuration

15. The software displays the Install Shield Wizard Complete window. Deselect the Display the README File check box. Click **Finish**, as shown in Figure 4-59.

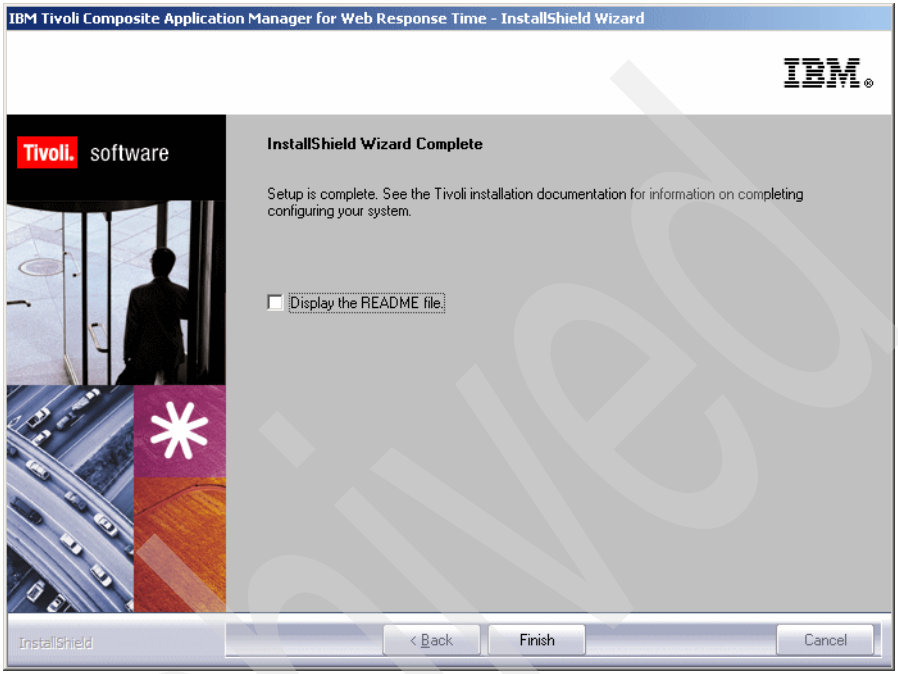

Figure 4-59 Installation complete

16. Open the Manage Tivoli Enterprise Monitoring Services utility (if it does not open automatically) to see whether the monitoring agent has been configured and started. The Configured column should show Yes, as shown in Figure 4-60.

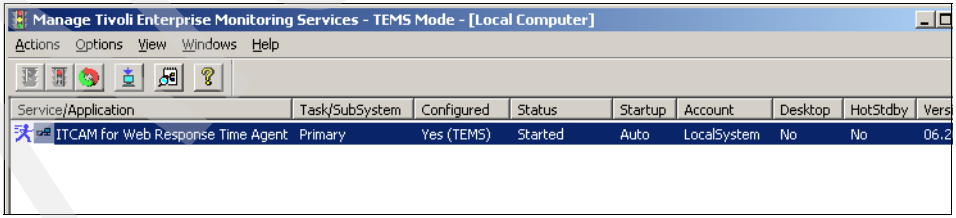

Figure 4-60 Manage Monitoring services

You have finished the installation of the ITCAM for Web Response Time Agent.

4.6 Installing ITCAM for Client Response Time

In this section we demonstrate how to install ITCAM for Client Response Time through the Tivoli Enterprise Portal.

Before you install ITCAM for Client Response Time, install application support files, as described in 4.2, “Installing application support files for Windows” on page 38.

We install the ITCAM for Client Response Time Agent at LAGOS, which already has an IBM Tivoli Monitoring Windows OS agent running. We also already loaded the IBM Tivoli Monitoring repository when we installed the application support files, as described in 4.2, “Installing application support files for Windows” on page 38.

1. Log on to the Tivoli Enterprise Portal and find the server on which you want to deploy ITCAM for Client Response Time. In this demonstration, we want to deploy it at LAGOS, which is accessible from Tivoli Enterprise Portal.

2. Right-click **LAGOS**, then click **Add Managed System**, as shown in Figure 4-61.

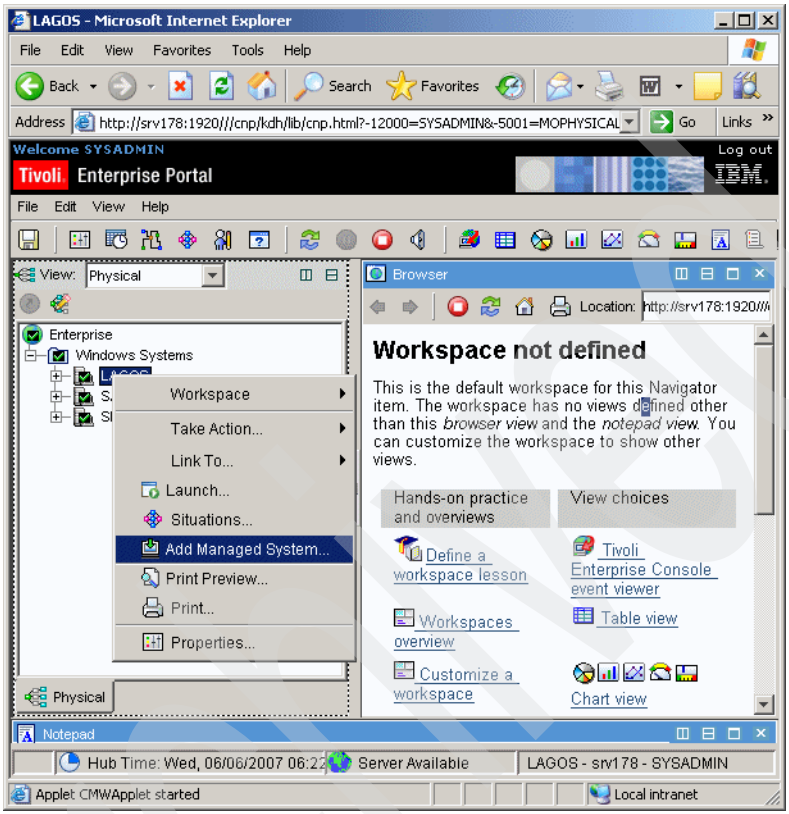

Figure 4-61 Add Managed System

3. Select **Composite Application Manager for Client Response Time Monitoring Agent** and click **OK**, as shown in Figure 4-62.

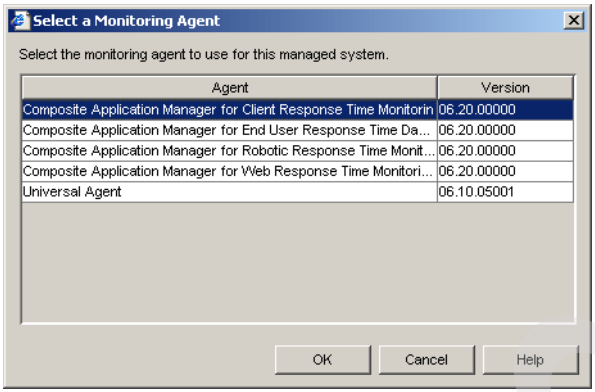

Figure 4-62 Select a Monitoring Agent

4. Leave the defaults for Data Analysis Configuration, as shown in Figure 4-63, and click **Next**.

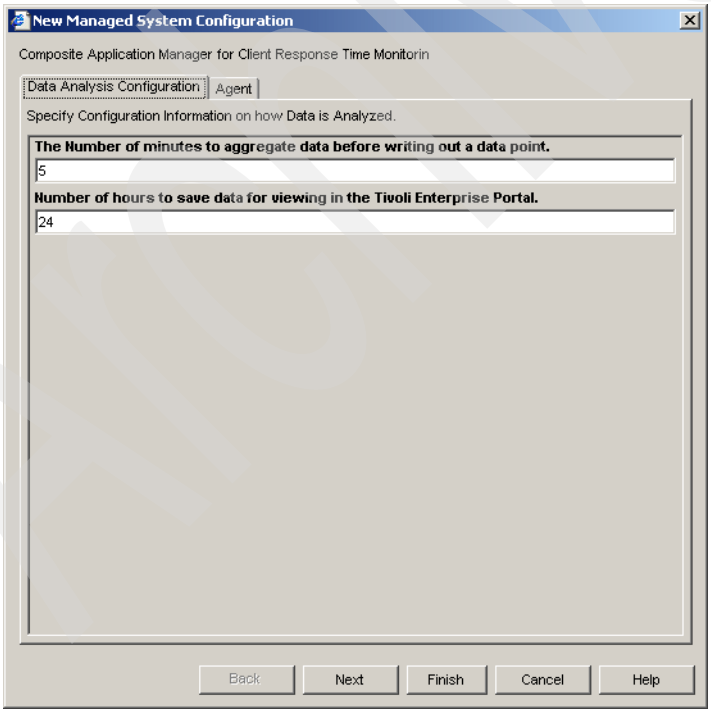

Figure 4-63 Data Analysis Configuration

5. Leave the defaults on the Agent Configuration tab, as shown in Figure 4-64. Click **Finish**.

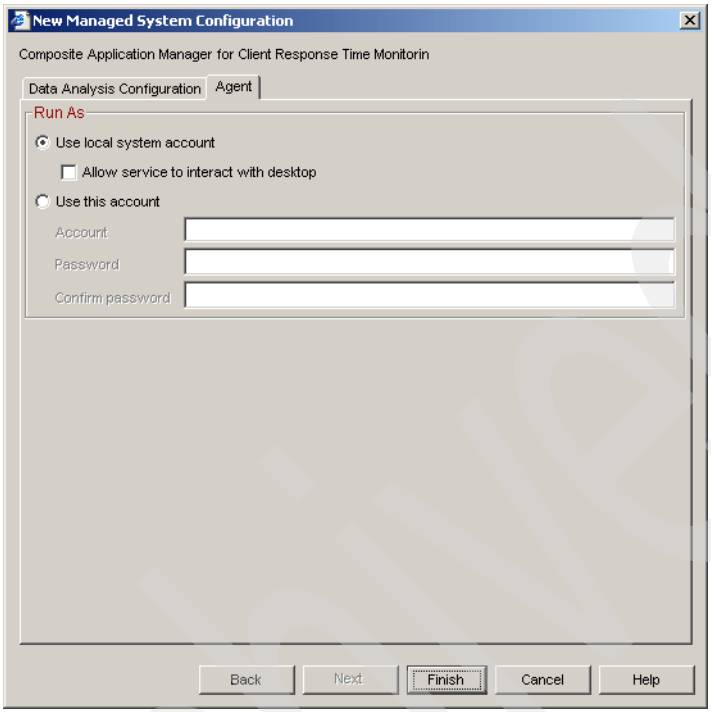

Figure 4-64 Agent configuration

6. Wait until the configuration finishes, as shown in Figure 4-65.

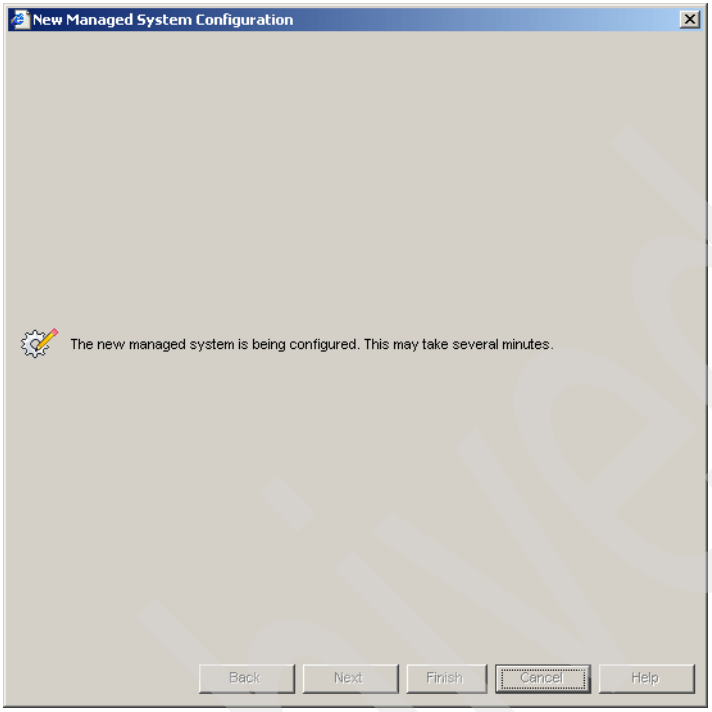

Figure 4-65 Agent being configured

7. Update the navigator by clicking the arrow that you see inside a green balloon underneath the physical view, as shown in Figure 4-66.

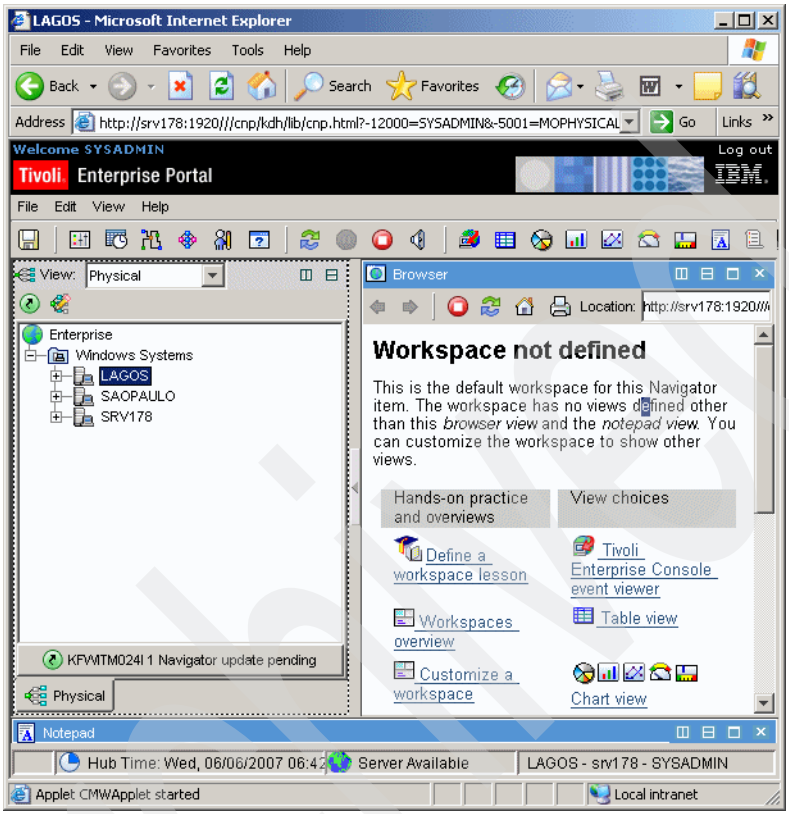

Figure 4-66 Navigator update pending

The installation has finished and the Client Response Time Workspace can be accessed by the portal, as shown in Figure 4-67.

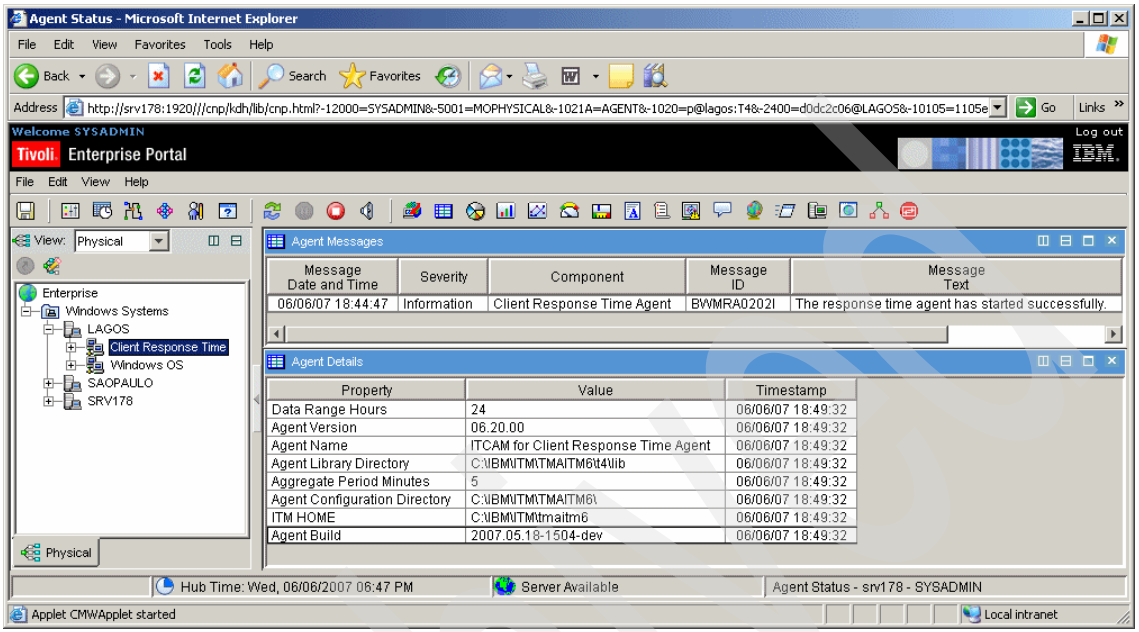

Figure 4-67 Client Response Time workspace

4.7 Installing Rational Performance Tester Workbench

This section describes how to install the Rational Performance Tester Workbench on a workstation. The Rational Performance Tester Workbench is needed to record and upload Rational Performance Tester tests. You should install the Rational Performance Tester Workbench if you want to monitor Web applications, SAP, Siebel, or Citrix applications.

You can install the Rational Performance Tester Workbench on any system from which you want to record the tests. You do not need to install it on the same system as the ITCAM for Robotic Response Time Agent. The Rational Performance Tester Workbench needs a connection to the End User Response Time Dashboard agent. Make sure that there are no firewalls between them.

For the installation we used the following media:

- IBM Tivoli Composite Application Manager for Response Time V6.2: Rational Performance Test V7.0 Integration Support Windows, English. This contains the setup_RPT.exe that calls the Rational Performance Installation Media

(Parts 1, 2, and 3) and performs the installation, including IBM Installation Manager 1.0, IBM Rational Performance Tester 7.0, IBM Rational Performance Tester 7.0 license key, and IBM Tivoli Composite Application Manager for Response Time 6.2 Integration plug-in.

- IBM Rational Performance Tester V7.0 Multiplatform Multilingual Part 1.
- IBM Rational Performance Tester V7.0 Multiplatform Multilingual Part 2.
- IBM Rational Performance Tester V7.0 Multiplatform Multilingual Part 3.

If you are downloading the software to a disk, we recommend that you uncompress all four installation images on the same directory, for example, C:\ITCAMRational, so that it will not ask you for the Rational media. For this demonstration we created one directory for *IBM Tivoli Composite Application Manager for Response Time V6.2: Rational Performance Test V7.0 Integration Support Windows, English* media and another for *IBM Rational Performance Tester V7.0 Multiplatform Multilingual Part 1, 2, and 3* in order to show you how to proceed if they are on separate directories.

1. Verify the supported platforms for Rational Performance Tester at:

   `http://www-306.ibm.com/software/awdtools/tester/performance/sysreq/index.html`

2. Go to the RPT\w32-ix86\disk1 directory of the downloaded installation images. This is where you uncompressed IBM Tivoli Composite Application Manager for Response Time V6.2: Rational Performance Test V7.0 Integration Support Windows, English.

3. Run setup_RPT.exe to display the Welcome window, as shown in Figure 4-68. Click **Next**.

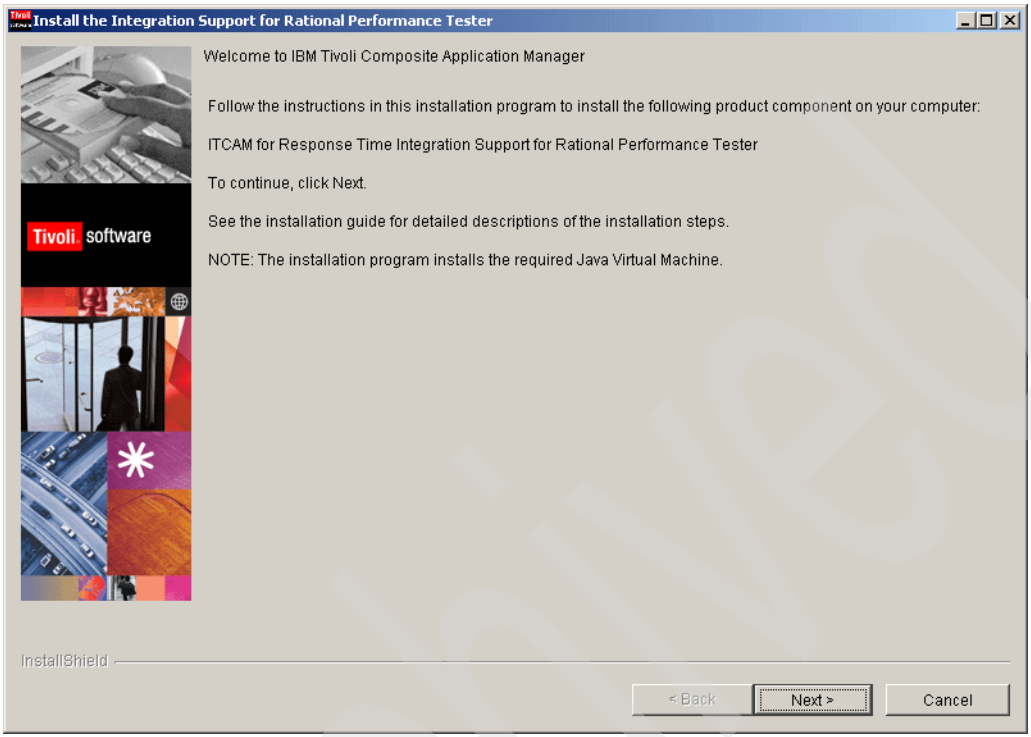

Figure 4-68 Welcome dialog

4. We do not install from a CD-ROM. Select **No** and click **Next**, as shown in Figure 4-69.

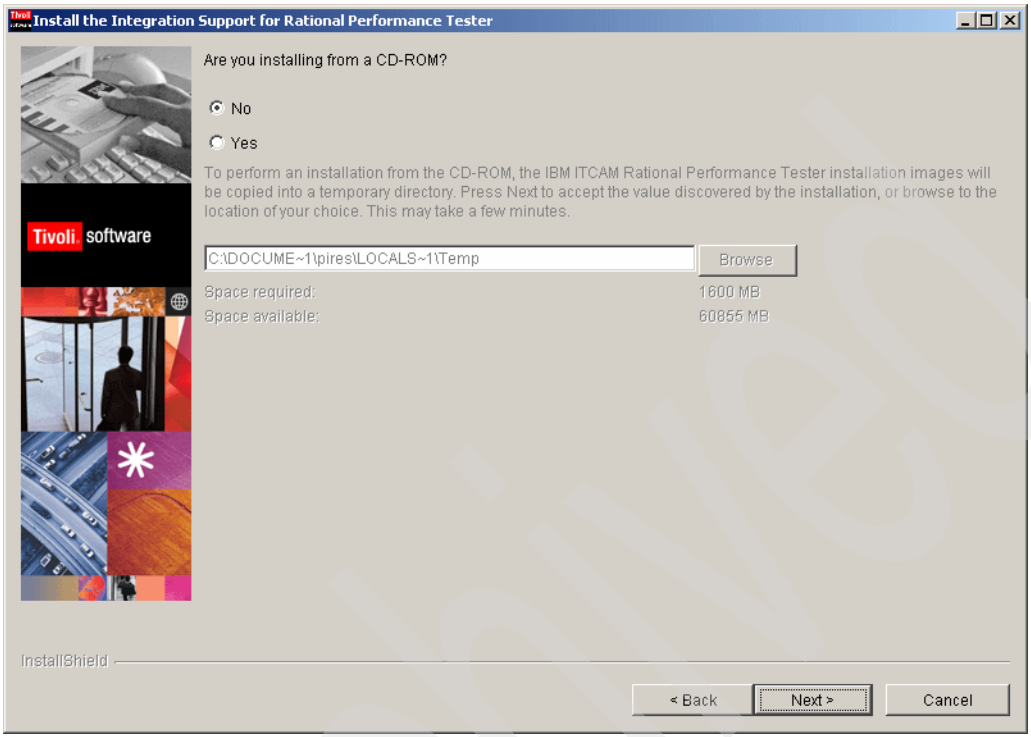

Figure 4-69 Installation source

5. The Software License Agreement opens (Figure 4-70). Accept the terms of the license agreement and click **Next**.

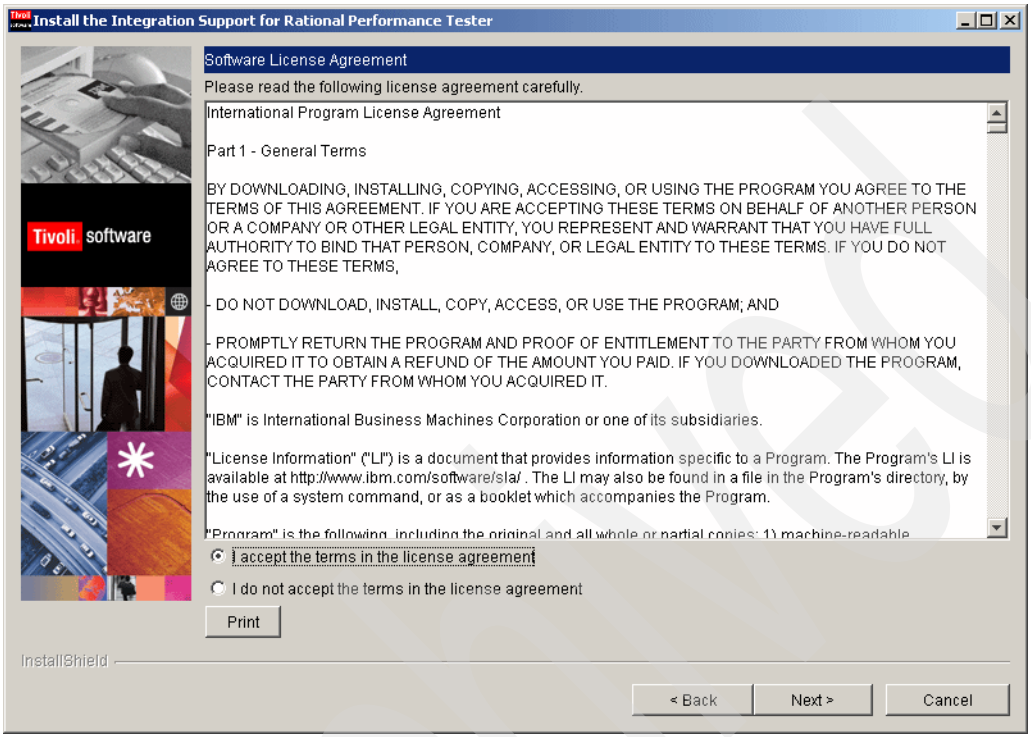

Figure 4-70 Software license agreement

6. As the RPT images are in other directory, the software asks you for the image location, as shown in Figure 4-71. Note that if they were in the same directory, the installed would not ask for it. Enter the correct location and click **Next**.

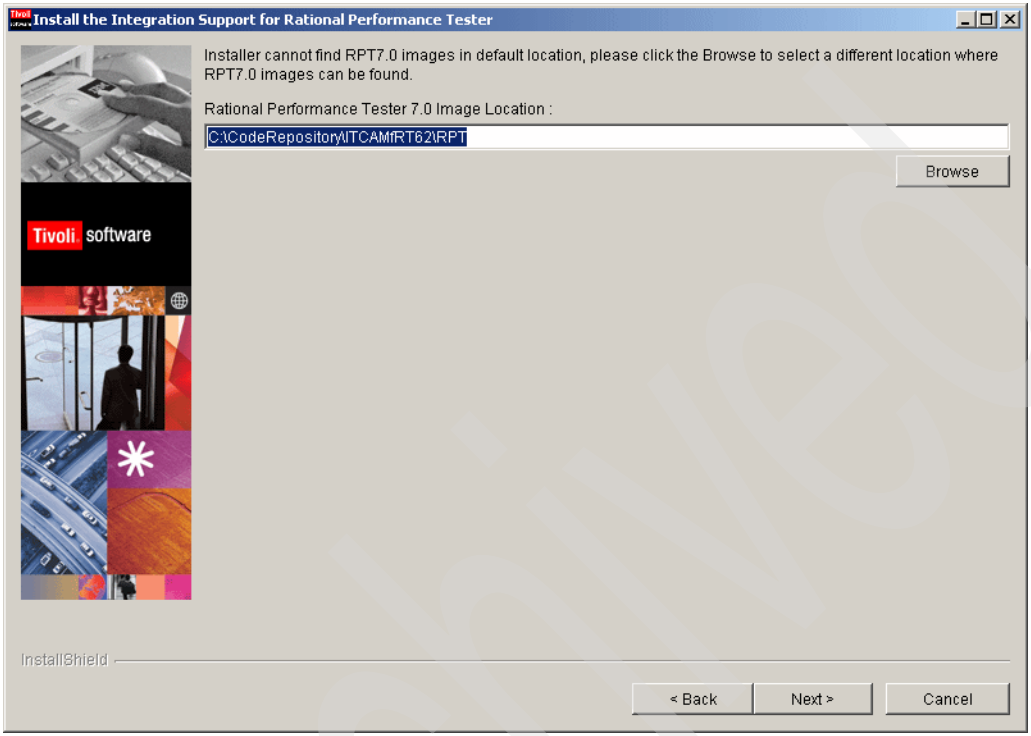

Figure 4-71 Rational Performance Tester 7.0 image location

7. The software calculates and displays the required disk space needed for the installation and shows the default directories used for installation, as shown in Figure 4-72. Verify that there is sufficient disk space, and choose the directories to install or accept the defaults, and click **Next**.

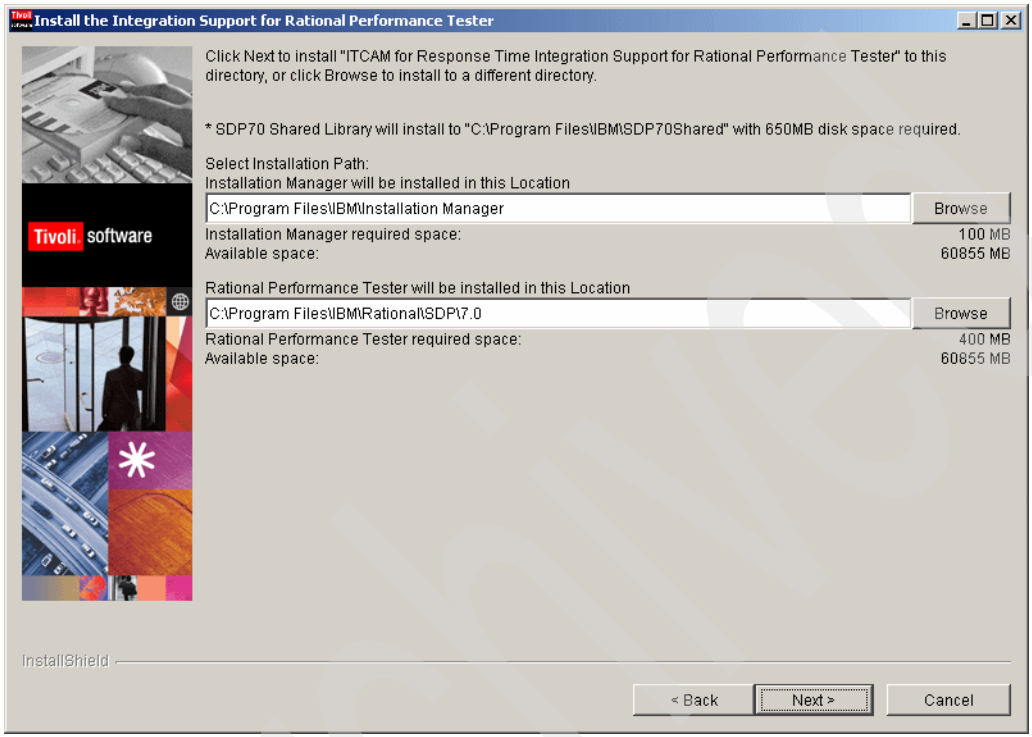

Figure 4-72 Select installation path

8. The software shows what is going to be installed (Figure 4-73). Click **Next** to begin the installation. It may take several minutes to complete.

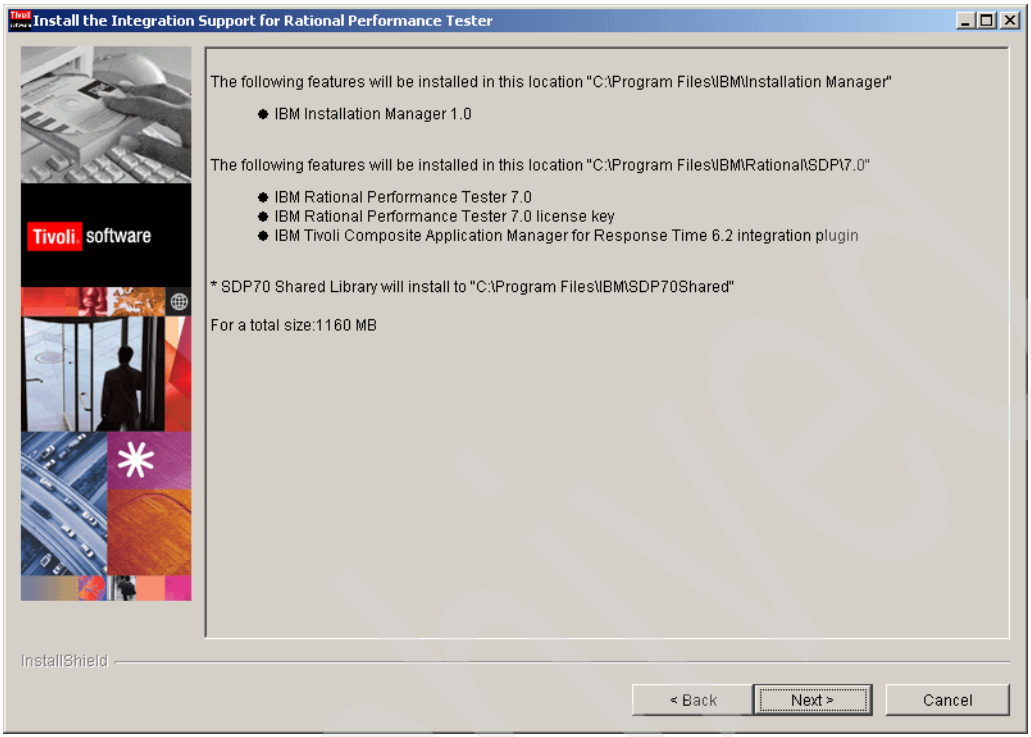

Figure 4-73 Installation summary

9. The installation finishes and shows the status (Figure 4-74). Click **Finish**.

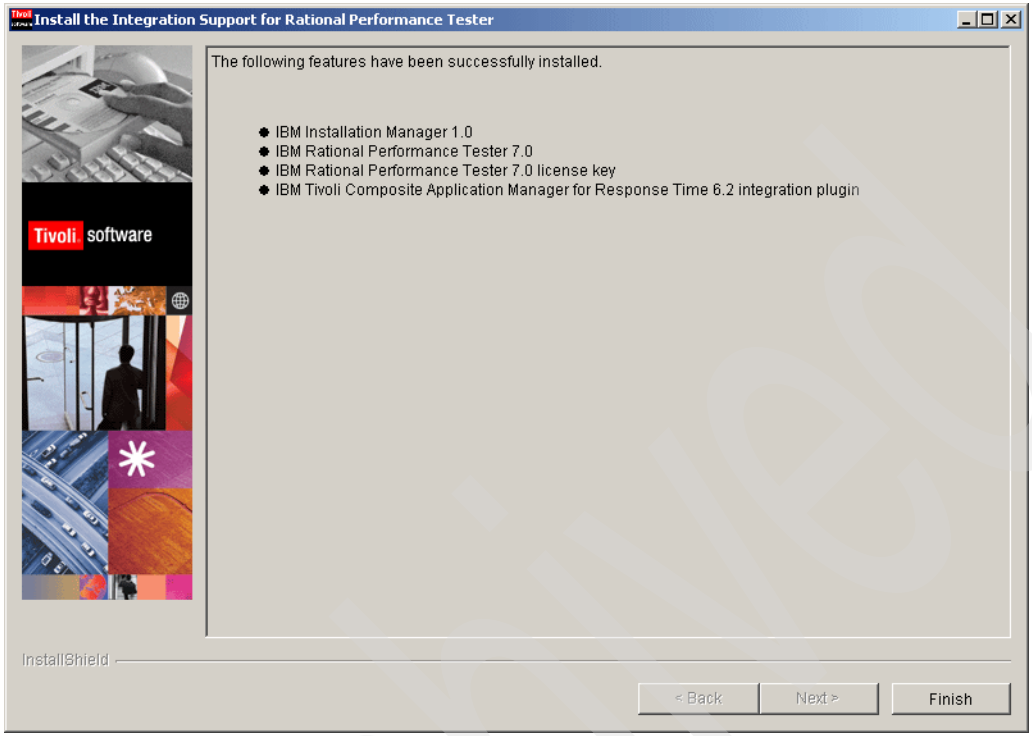

Figure 4-74 Installation complete

5

Usage demonstration

This chapter demonstrates usage scenarios for ITCAM for Response Time V6.2. The discussion consists of:

5.1 Usage scenarios

This chapter demonstrates the features of ITCAM for Response Time. The demonstration uses the Trader application. A description of the Trader application is provided in Appendix A, “The Trader application” on page 161.

The Trader application is a Web-based J2EE application that has back-end processing in CICS® and DB2. The application can be accessed from the Web browser or 3270 interface. Based on this structure, we decided to collect Trader application response time using the following methods:

- Using Rational Performance Tester to run a transaction simulation to the Web interface
- Using the Web Response Monitor to collect HTTP traffic performance on the Web application server
- Using the Client Application Tracker to collect CICS’s 3270 interface response time

Interaction with ITCAM for Response Time is mainly performed through the workspaces of Tivoli Enterprise Portal. Except for the recording portion of Rational Performance Tester, using the Rational Performance Tester Workbench, all activities are performed using Tivoli Enterprise Portal.

In 5.2, “Workspaces and interfaces” on page 104, we describe the Tivoli Enterprise Portal interface. Further along, we start to build the environment using:

- The Recording Rational Performance Tester script in 5.3, “Using Rational Performance Tester” on page 106
- Running and monitoring the Rational Performance Tester script in 5.4, “Using Robotic Response Time agent” on page 122
- Working with Web response time in 5.5, “Using Web Response Time agent” on page 140
- Collecting 3270 transaction performance in 5.6, “Using Client Response Time Agent” on page 146

5.2 Workspaces and interfaces

The workspaces for ITCAM for Response Time in the physical tree are organized based on agent. Each agent type provides a different set of workspaces that are collected under it. The End user Dashboard agent is a unique agent in that it only

collects data from the historical data warehouse, instead of the live system. The dashboard provides an overview of the cross-enterprise response time.

The hierarchy tree of the workspace for ITCAM for Response Time agents is shown in Figure 5-1.

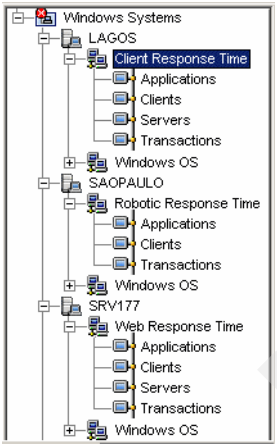

Figure 5-1 Workspace structure

As shown in Figure 5-1, the workspace for ITCAM for Response Time is divided into:

- By application: An application is defined as a larger entity that encompasses multiple transactions.
- By transaction: individual element of an application.
- By client: the end-user machine or IP addresses that accesses the application.
- By server: the request processing server, such as 3270 host, application server machine, and so on. The robotic response time does not have a server aggregation, as the transaction can be directed to any server within the robotic script.

Furthermore, the End user dashboard workspace aggregates information from all other ITCAM for Response Time agents. The End user dashboard workspace is shown in Figure 5-2.

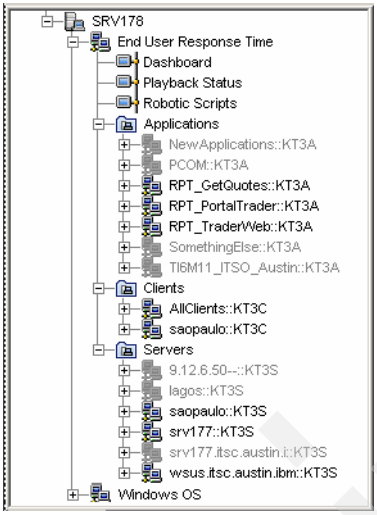

Figure 5-2 Workspace structure

The dashboard contains the overall summary or aggregate of all ITCAM for Response Time agents status. The playback status and robotic scripts workspaces are related to the robotic script depot. The application, client, and server workspaces show the historical status of the available response time measurement broken down by application, client, or server.

5.3 Using Rational Performance Tester

Before you start you must install the Rational Performance Tester Workbench on a workstation, as described in 4.7, “Installing Rational Performance Tester Workbench” on page 93.

Rational Performance Tester monitors Web applications, SAP, Citrix, and Siebel using protocol-based record and playback. Rational Performance Tester features include:

- Immediate productivity by hiding all complexity. No coding required.
- An integrated solution that is built on Rational Application Developer.
- Advanced data access and manipulation.
- Automatic data correlation and synchronization of input parameters.

- Verification points for content matching and response code checking.
- Automatic ARM instrumentation for HTTP transactions to correlate with downstream applications and resources for problem isolation.
- Improved scalability allows for higher playback rates and more concurrent playbacks on a single system, which limits costs of licenses and maintenance.
- Network-level statistics for DNS, SSL Connect time, Server Response Time, and Delivery.
- Rational Robot VU functionality, including a scalable and concurrent playback solution of HTTP transactions and a generic framework that allows you to add new protocols.

Note: You cannot migrate a previously recorded Rational Robot VU script to RPT scripts. You must record new scripts with the Rational Performance Tester.

In this section, we create an HTTP script to access our Trader application. We record a script called RPT_TraderWeb. This name is important, as it characterized to the target system, not the agent host name on which the script would run. The process is:

1. Open the Rational Performance Tester:
   a. Click **All Programs** → **RPT** → **IBM Rational Performance Tester** → **IBM Rational Performance Tester**.
   b. If this is the first time you open Rational Performance Tester, select a workspace in which to store your projects, as shown in Figure 5-3. Click **OK**.

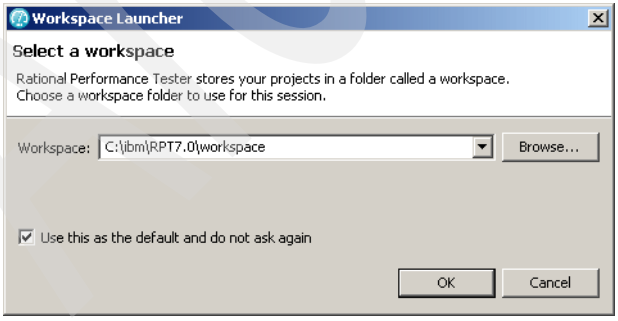

Figure 5-3 Workspace launcher

2. Create a new transaction recording:

   a. Select **File** → **New** → **Test From Recording**, as shown in Figure 5-4.

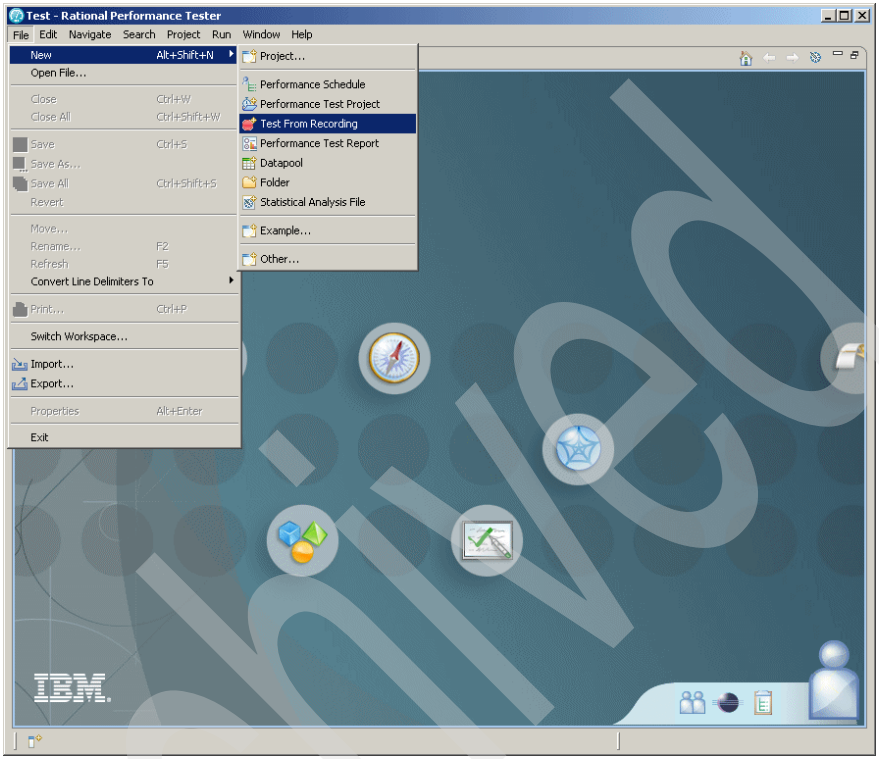

Figure 5-4 Recording a new transaction

b. From the Create New Test from Recording window, select **Create Test From New Recording**, then choose **HTTP Recording**, as shown in Figure 5-5. Click **Next**.

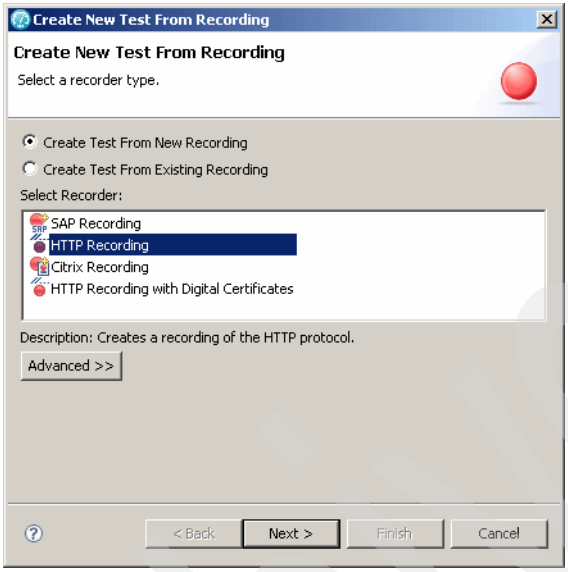

Figure 5-5 Create New Test From Recording

c. On the Create Project window, fill in a project name, a location, and a recording file name, as shown in Figure 5-6. Click **Finish**. The recording file name is used to identify the robotic script and robotic transaction. This name should match your naming convention standard, especially if you want to use an automation application based on the robotic events.

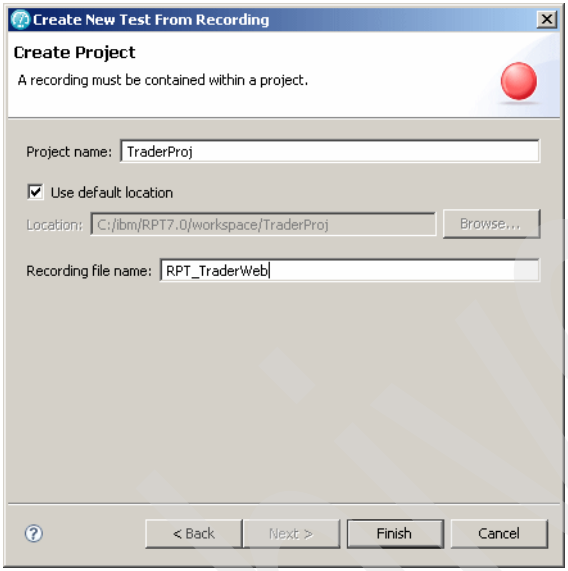

Figure 5-6 Create project

d. The browser opens the readme.html file, as shown in Figure 5-7. Read it and take the actions described under BEFORE YOU BEGIN. Also read the privacy warning.

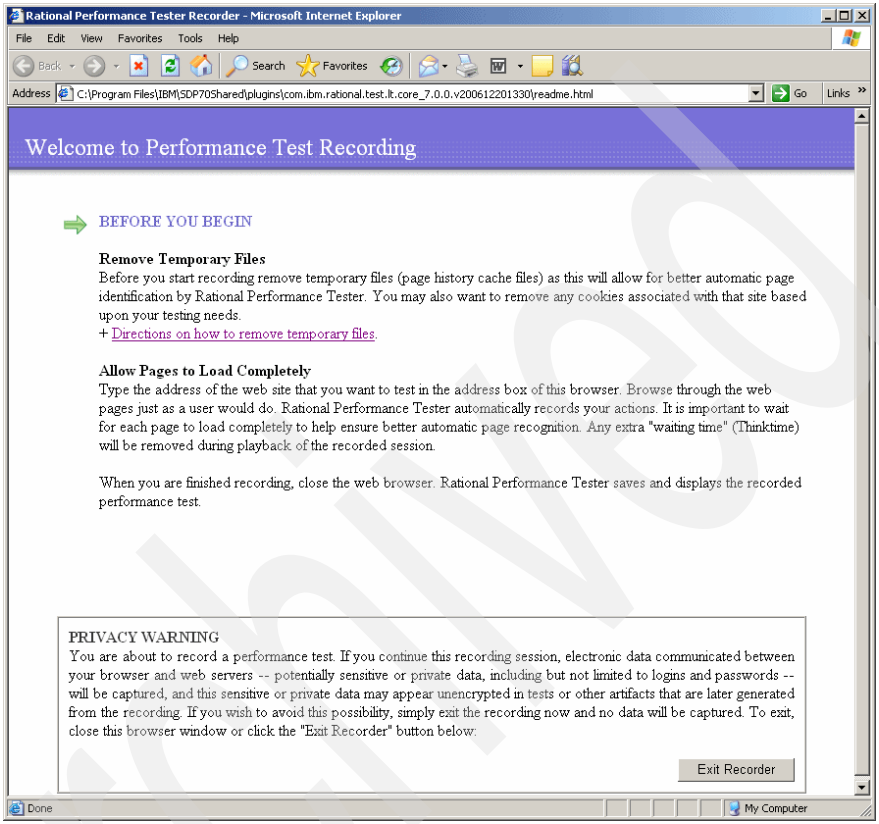

Figure 5-7 Recording welcome page

3. Start recording the transaction that you want to monitor. Figure 5-8 shows some of the steps we took for recording the RPT_TraderWeb transaction. When you finish your transaction recording, close the browser.

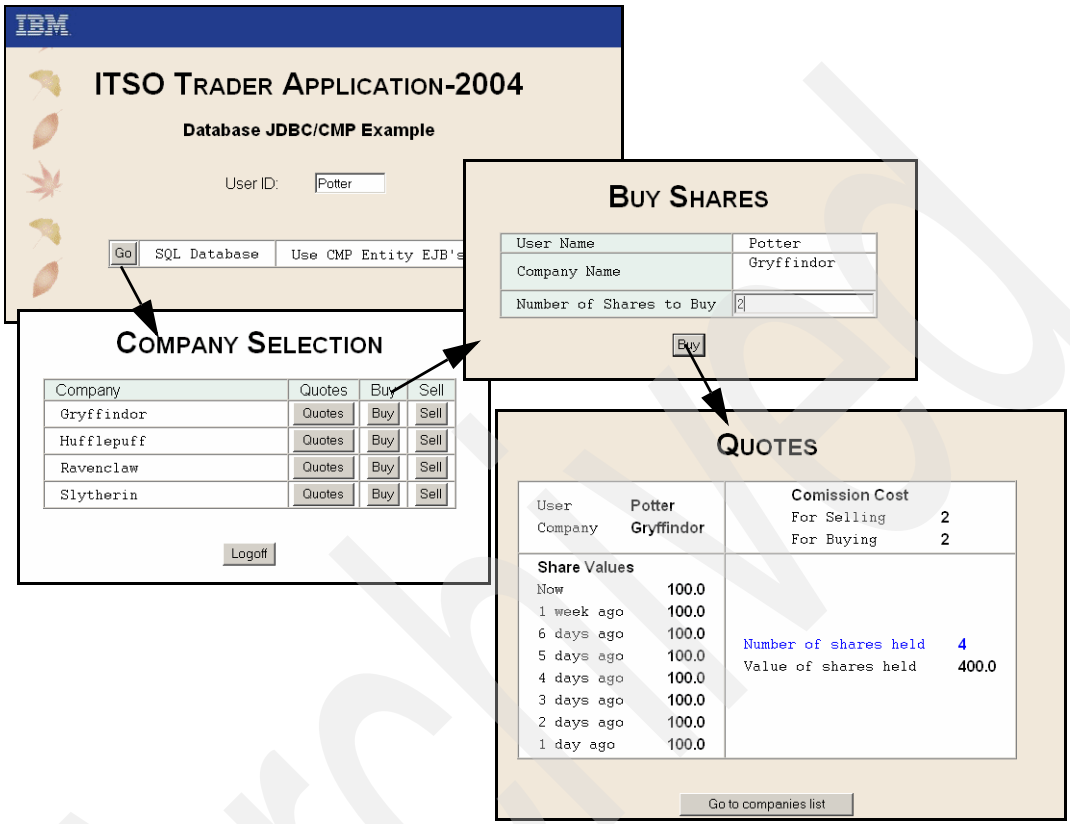

Figure 5-8 Recording a transaction

4. Once the Web browser window is closed, the test generation is complete. We close the Welcome tab to give more room to view the recorded test. We also selected the **Browser** tab in the protocol data, so we can see the Web page being tested. See the test result in Figure 5-9.

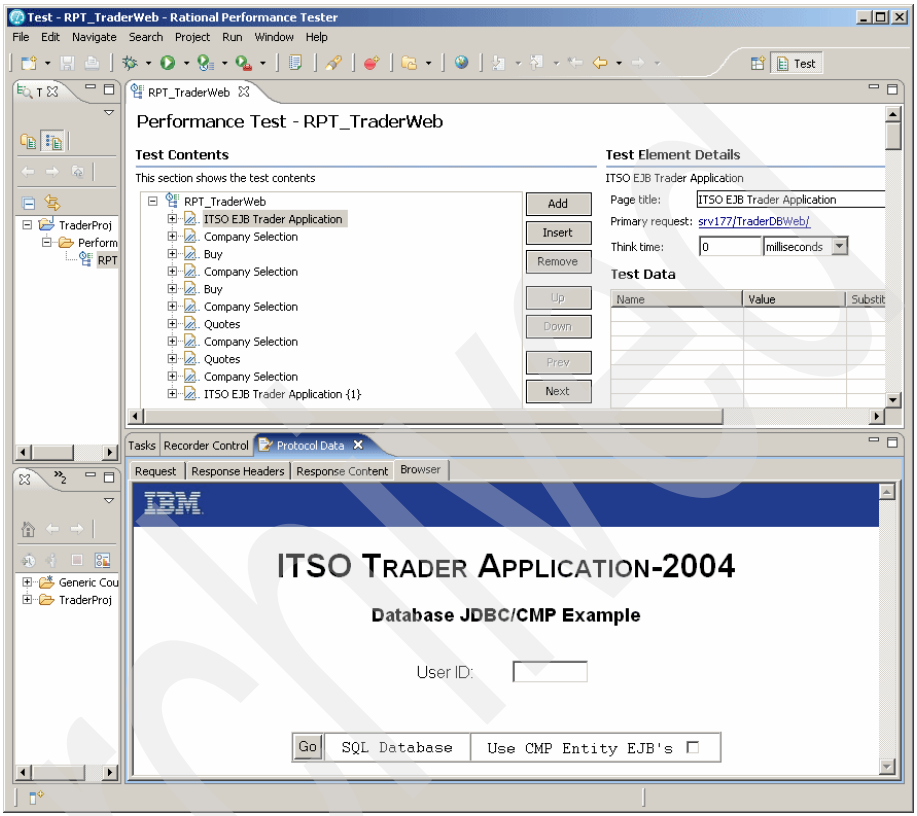

Figure 5-9 RPT Workbench - test showing the Web page

5. The test result shown in Figure 5-9 on page 113 shows generic page titles, such as company selection, buy, and quotes. These page titles becomes sub transactions in the robotic monitor execution. We recommend changing the page titles to allow ease of identification for sub transactions. We customized the page titles, as shown in Figure 5-10.

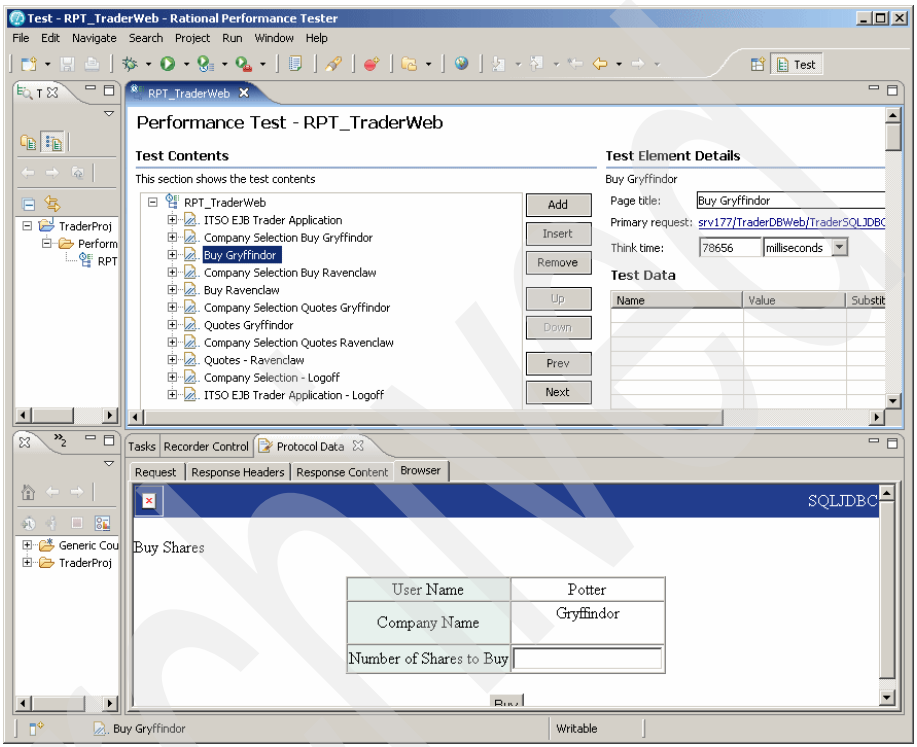

Figure 5-10 Customized page title in workbench

6. Optionally, we also added response code verification points, as shown in Figure 5-11.

Note: *Verification points* are ways to detect problems in an application. Web verification points you can use are:

- *Content*, which searches for a specific string on a page
- *Page title*, which compares the page title against the recorded title
- *Response code,* which compares the HTTP code returned against the recorded code
- *Response size*, which compares the page size returned against the recorded size
- *Custom*, which is a Java API that is available only when custom code is added to a test

For more information, access the help provided in the Rational Performance Tester Workbench.

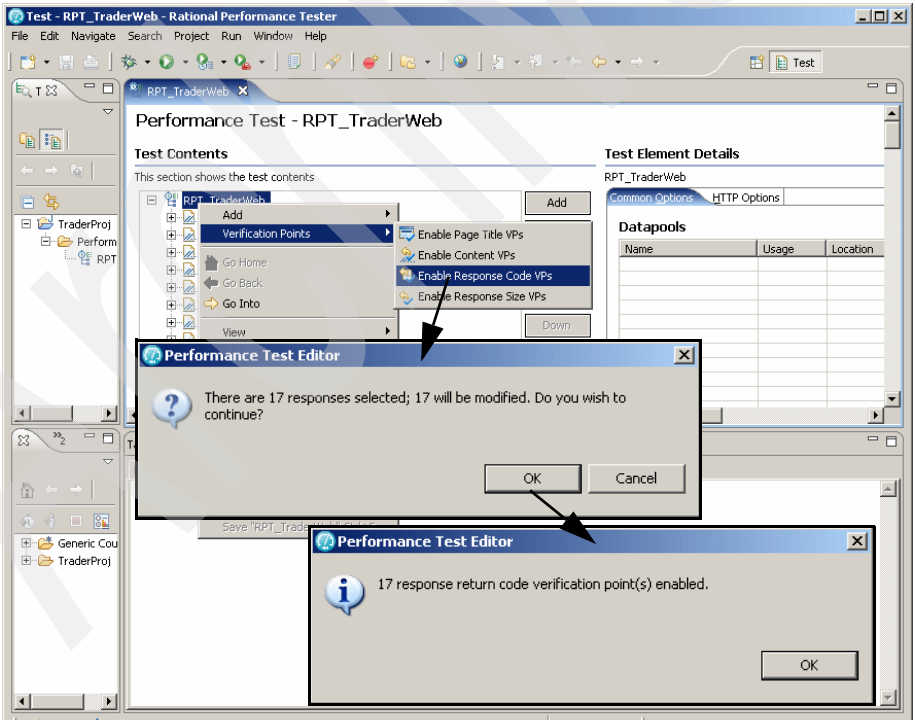

Figure 5-11 RPT Workbench - enabling response code verification points

The response code verification default is inserted into all sub-transaction of the pages. This is shown in Figure 5-12.

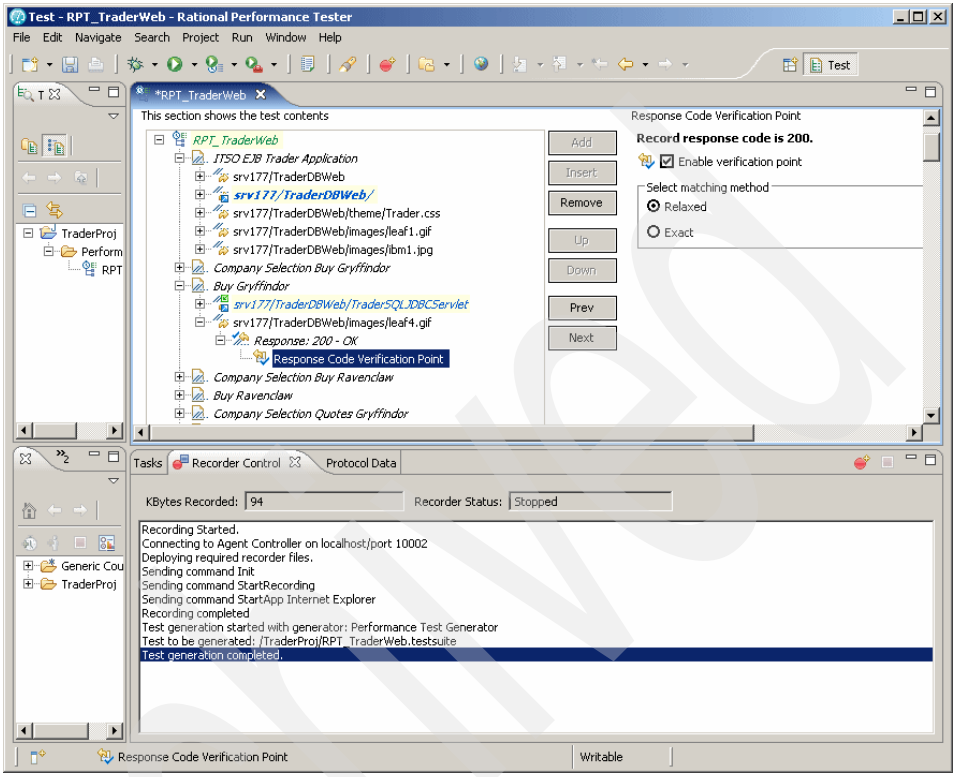

Figure 5-12 Response code verification point in the workbench

7. Save the updates by selecting **File** → **Save**. Make sure that you test that your script is working properly before uploading it to ITCAM for Response Time. You can test your script using the context menu. Select **Run As** → **2 Performance Test**, as shown in Figure 5-13.

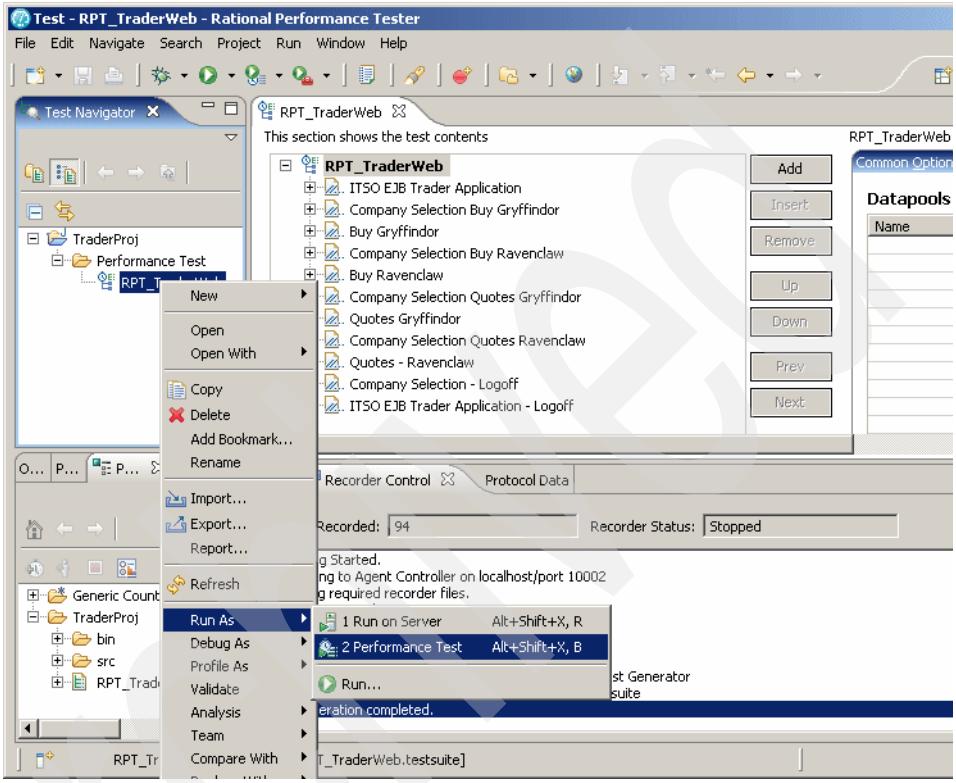

Figure 5-13 RPT Workbench - running a test before uploading

8. If all tests are successful, you are ready to upload the script to the End user Dashboard Agent. The ITCAM for Response Time uploader is a plug-in in the Eclipse workbench that runs Rational Performance Tester Workbench.

   a. Before you upload the script, we recommend that you stop the ITCAM for Robotic Response Time, as shown in Figure 5-14. You can also use the **`./itmcmd agent stop t6`** command or the Manage Tivoli Enterprise Monitoring Services.

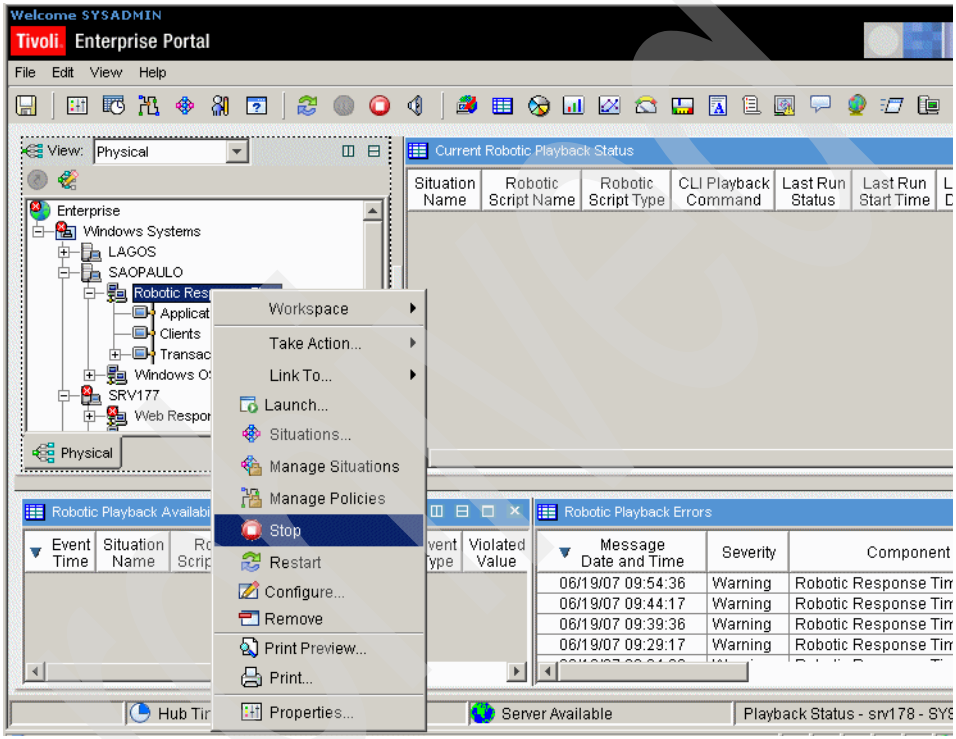

Figure 5-14 Stopping Robotic Response Time Agent

b. On the Rational Performance Tester Workbench select **File** → **Export**. Use **Other** → **ITCAM for Response Time** and click **Next**, as shown in Figure 5-15.

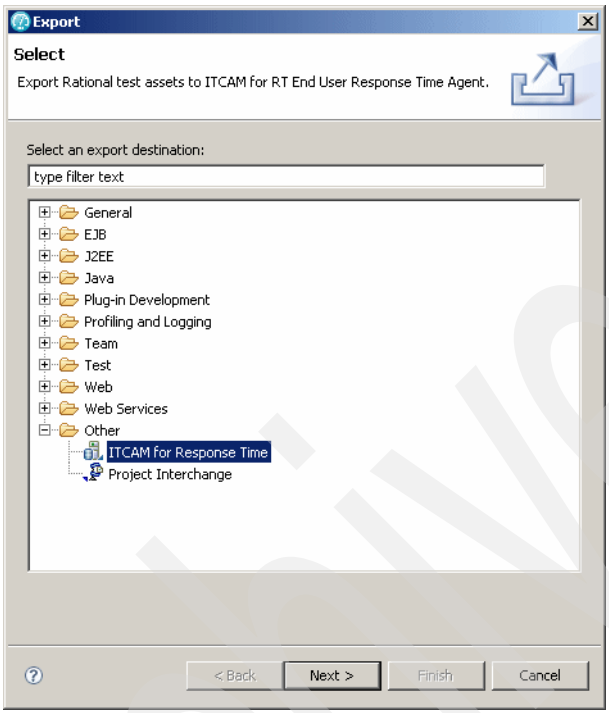

Figure 5-15 RPT Workbench - export to ITCAM for Response Time

c. Figure 5-16 shows the Connect to ITCAM for RT End User Response Time Agent window. Fill in the host name and port for the End User Response Time Dashboard agent. Click **Next**.

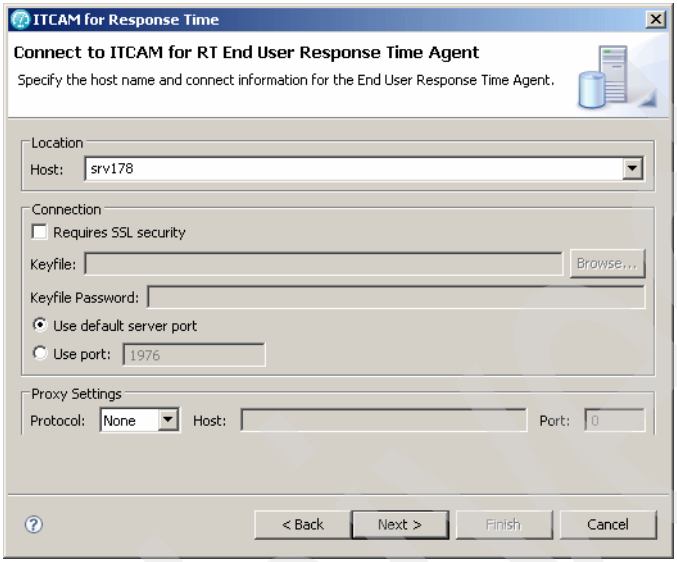

Figure 5-16 Connecting to End User Response Time Agent

d. Figure 5-17 shows the Select Projects window. Select the project that you want to export and click **Next**.

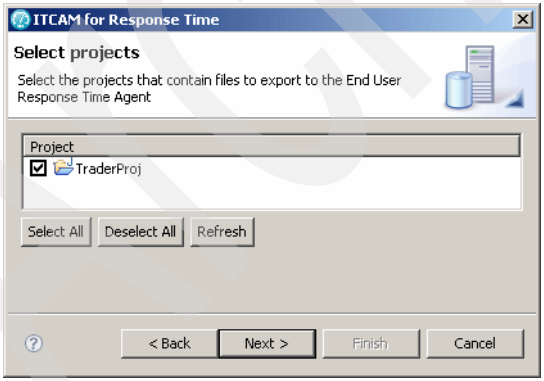

Figure 5-17 Select project to export

e. Select the files to export, as shown in Figure 5-18. Click **Finish**.

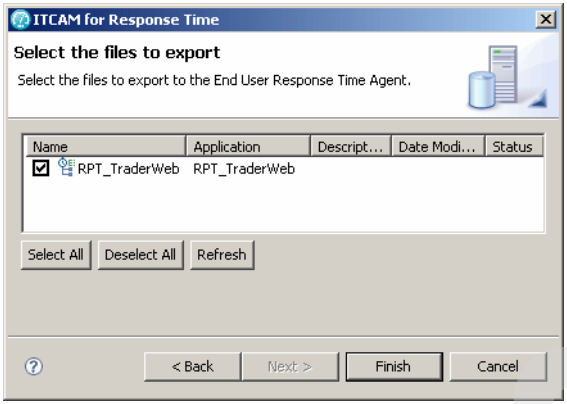

Figure 5-18 Select the files to export

f. Wait until you get the message that upload is successful, as shown in Figure 5-19.

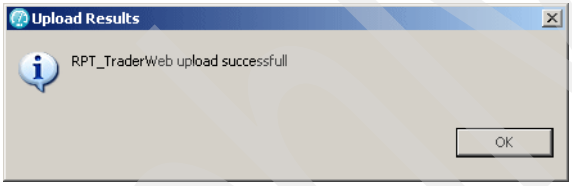

Figure 5-19 Upload successful

g. Start the ITCAM for Robotic Response Time, as shown in Figure 5-20. You can also use the **`./itmcmd agent start t6`** command, or you can use the Manage Tivoli Enterprise Monitoring Services.

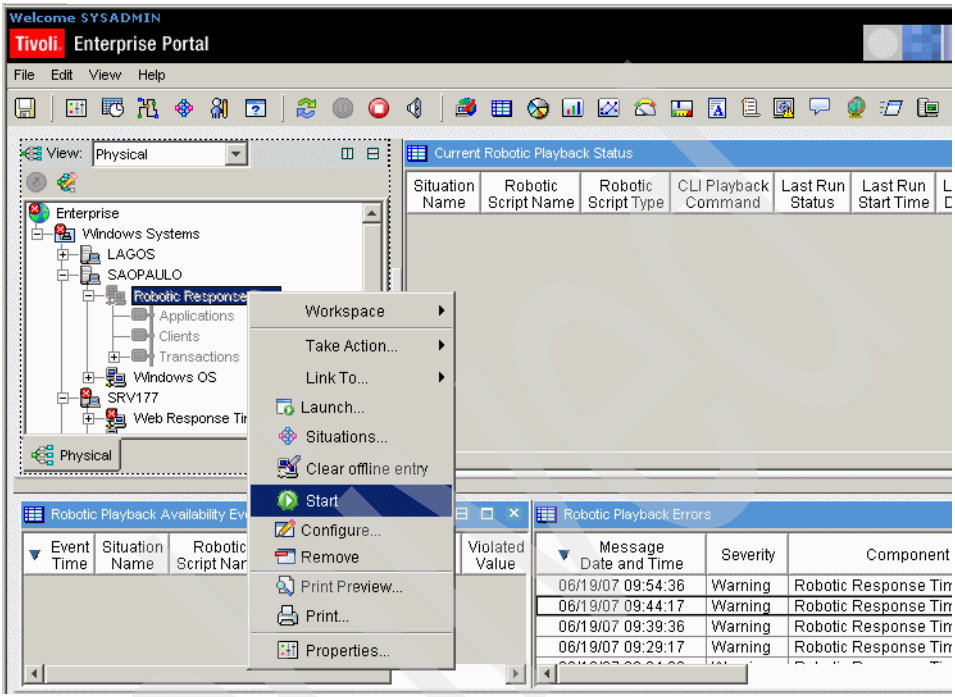

Figure 5-20 Starting the ITCAM for Robotic Response Time Agent

9. You have finished the record and upload/export steps.

5.4 Using Robotic Response Time agent

In this section we discuss the following:

- 5.4.1, “Selective execution of robotic script” on page 122
- 5.4.2, “Verifying whether the playback is working” on page 123
- 5.4.3, “Working with robotic situation event” on page 127
- 5.4.4, “Customizing playback schedule” on page 132

5.4.1 Selective execution of robotic script

Once you have the robotic script uploaded, robotic monitoring is performed using situations. The Robotic Response Time Agent would download all robotic scripts

regularly (by default every 15 minutes) from the depot. It would execute any script whose name matches a Robotic Agent situation. Figure 5-21 shows the default Robotic Response Time Playback situation that matches all scripts. This situation executes all stored robotic scripts based on the sampling interval defined.

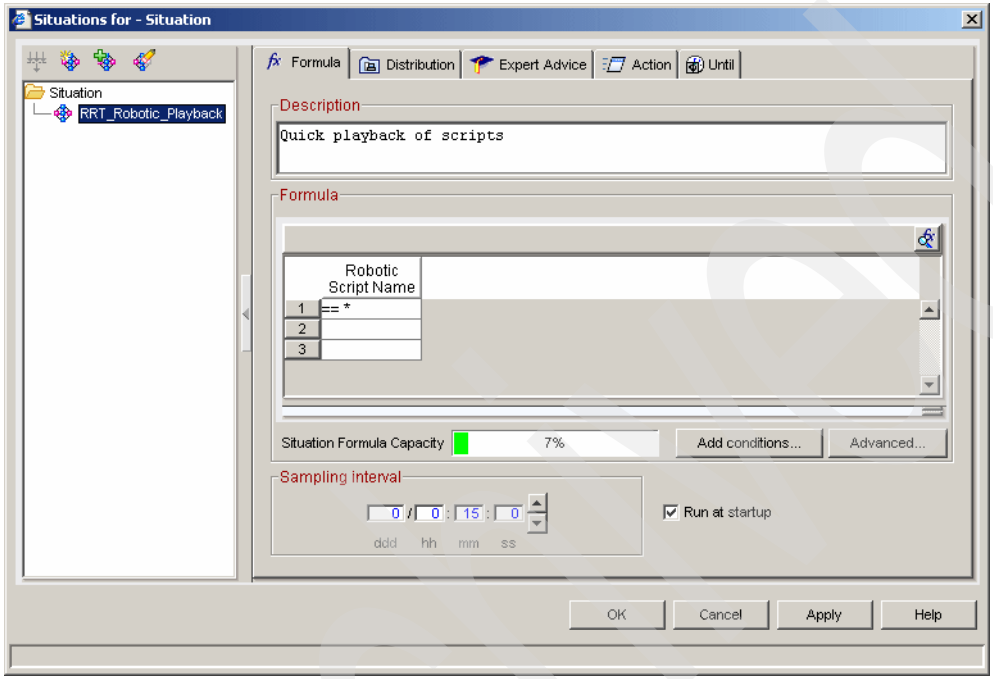

Figure 5-21 RRT_Robotic_Playback situation

You can change this behavior by modifying the condition of an existing situation and changing the distribution scope of the situation.

5.4.2 Verifying whether the playback is working

Now that we already uploaded the script to the ITCAM for End User Response Time Dashboard, we check whether it is being played back.

Next screens will show you how to verify it by navigating some of the workspaces.

Note: For a detailed description of the workspaces, situations, and attributes, read the ITCAM for Robotic Response Time and ITCAM End User Response Time Dashboard Users' Guide, SC23-6333.

- To identify what scripts are stored on the End User Response Time Dashboard, you can access the Robotic Scripts workspace, as shown in Figure 5-22.

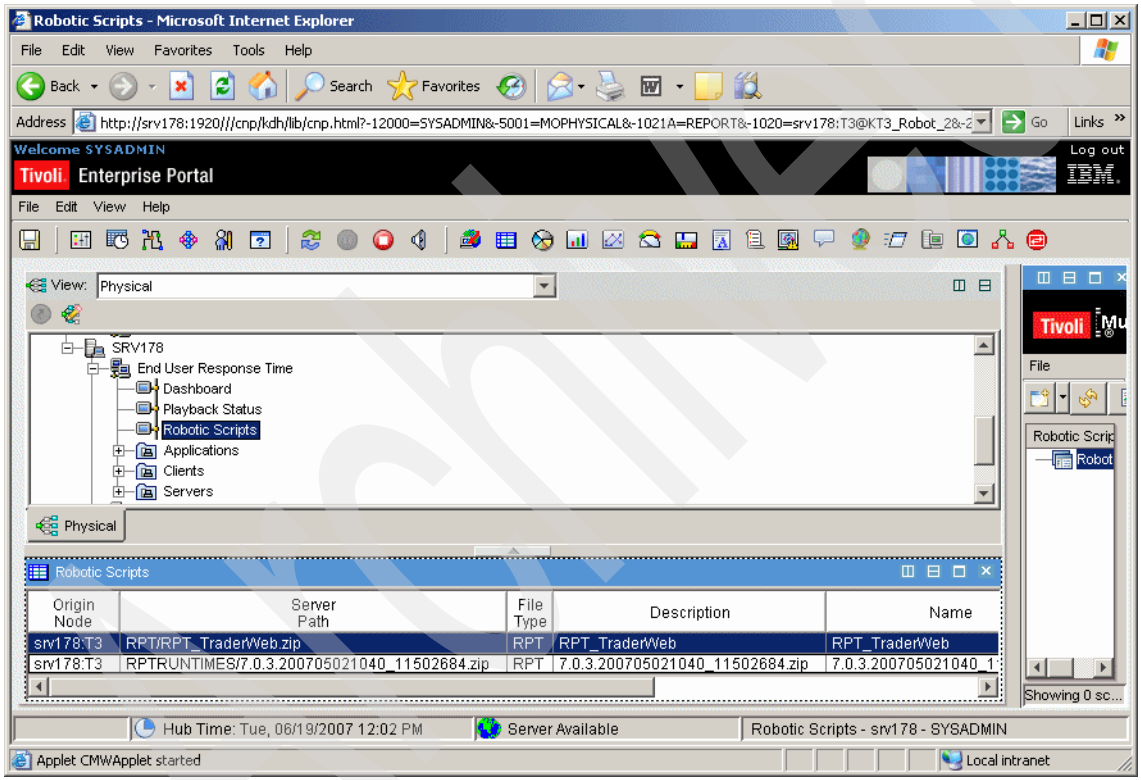

Figure 5-22 End User Response Time - Robotic Scripts workspace

- From the End User Response Time workspace (Figure 5-23), you see the status of all the ITCAM for Response Time agents, and from that workspace you can link to the agent-specific workspaces.

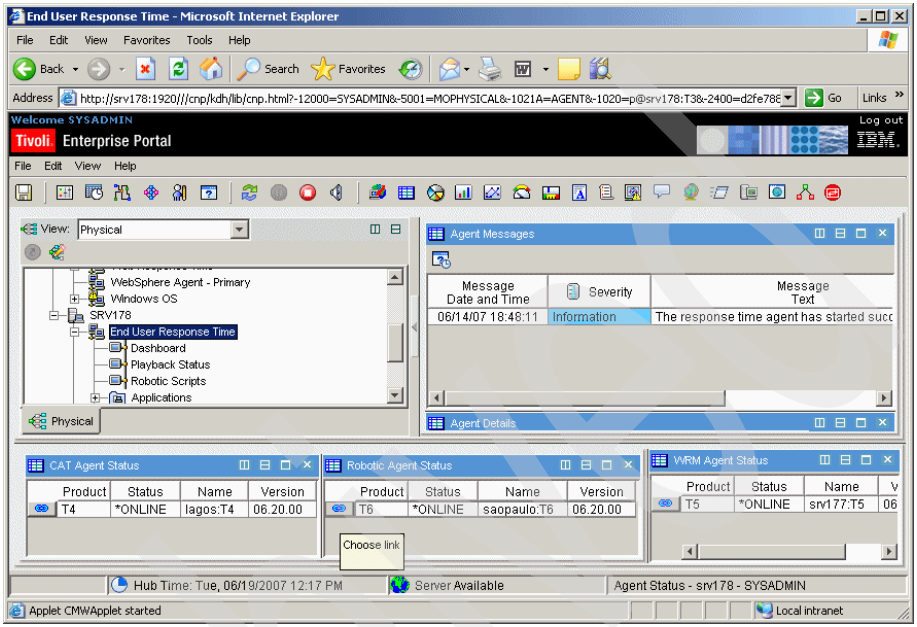

Figure 5-23 End User Response Time workspace

- The Current Robotic Playback Status view (Figure 5-24) provided in the Robotic Response Time Playback Status workspace, provides information about each script running on the agent. From here you can monitor the current status of any robotic scripts running on the server.

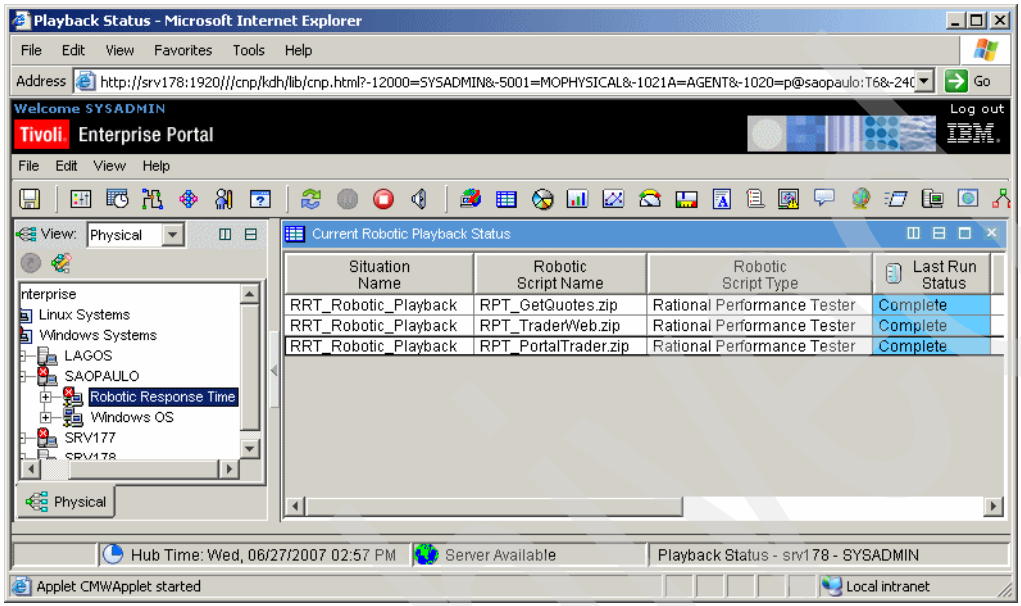

Figure 5-24 Current Robotic Playback Status view

5.4.3 Working with robotic situation event

In our environment there are various monitoring agents generating situation events. We can demonstrate on working with situations using the following flow:

1. To have a better view of what we want to demonstrate, we filter the situation event console events. Figure 5-25 shows the Situation Event Console, provided in the Enterprise Status workspace.

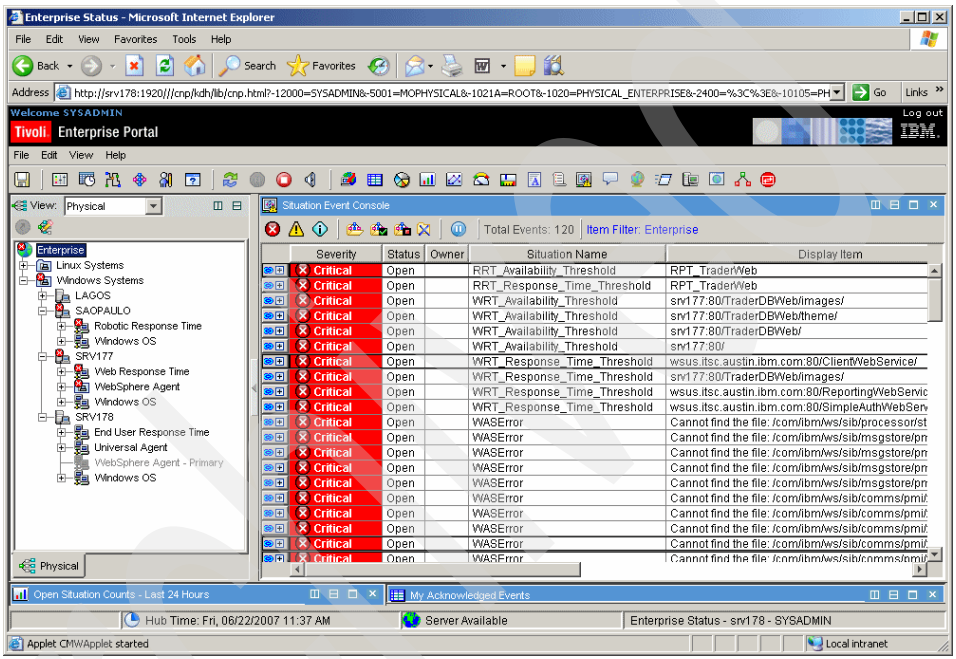

Figure 5-25 Situation event console

2. To filter the situation event console so it only shows Robotic Response Time agents events, you can drag the Robotic Response Time agent into the situation console, as shown in Figure 5-26.

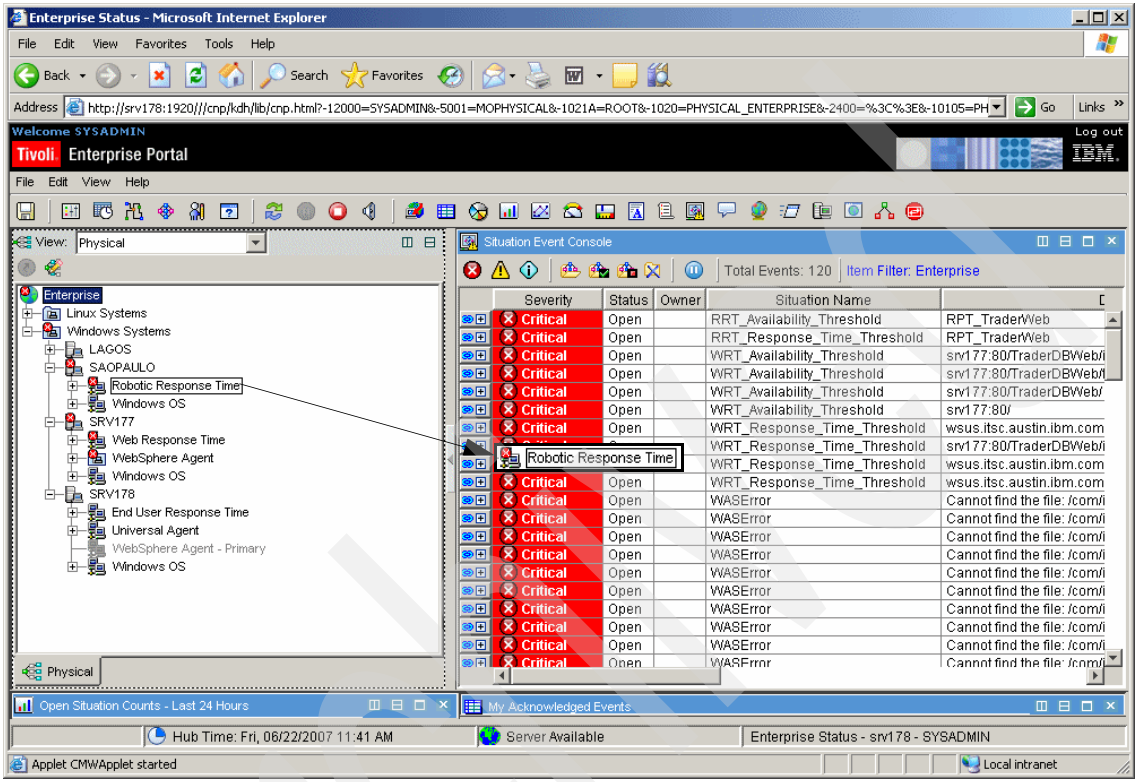

Figure 5-26 Drag Robotic Response Time and drop into situation event console

3. The filter would then be active, as shown in Figure 5-27.

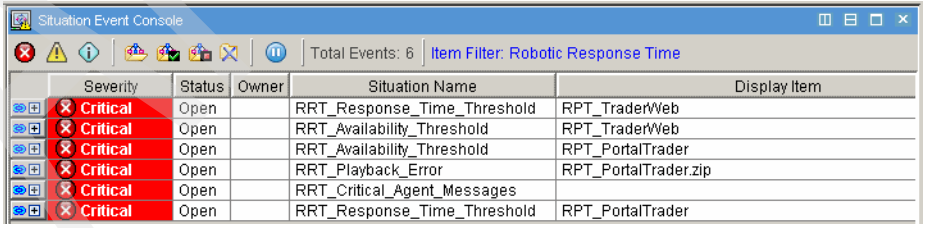

Figure 5-27 Situation event console filter active

4. We can then analyze an event by right-clicking it and selecting **Situation Event Results**, as shown in Figure 5-28.

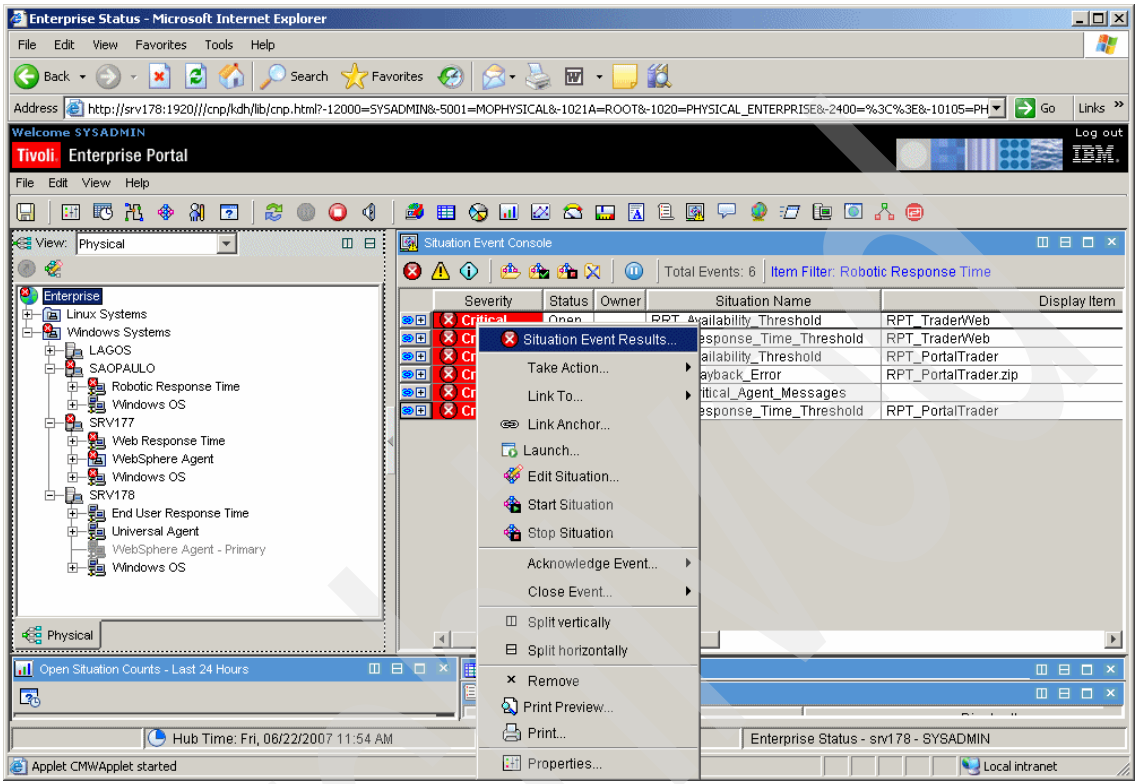

Figure 5-28 Selecting situation event results

5. As we modified the workspace by adding a filter, the Tivoli Enterprise Portal confirms (see Figure 5-29) whether we want to save the workspace. Click **No** to keep the existing filter.

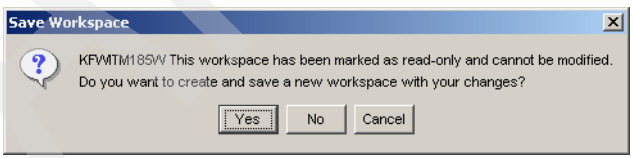

Figure 5-29 Do not save the workspace

6. Figure 5-30 shows details of the critical alert raised by the RRT_Availability_Threshold. This means that the RPT_TraderWeb script did not complete successfully.

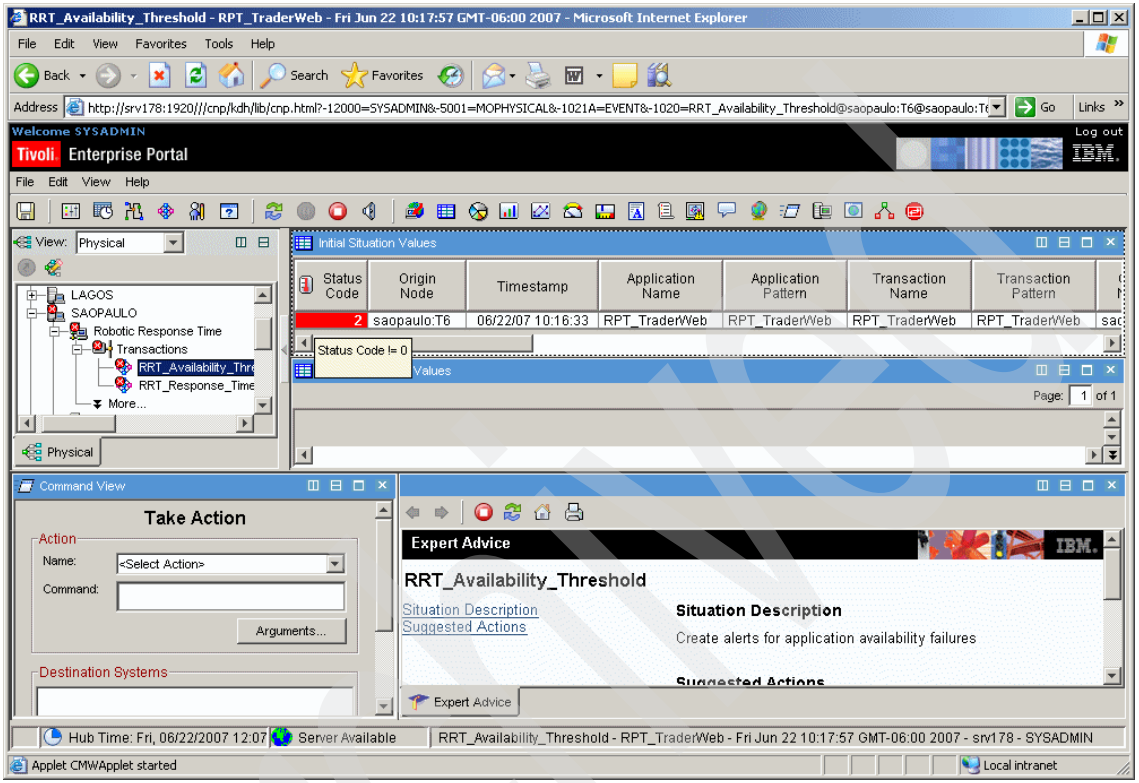

Figure 5-30 RRT_Availability_Threshold event

7. Using the Top 5 Worst Applications Current Status workspace (Figure 5-31), we know that the problem is no longer occurring.

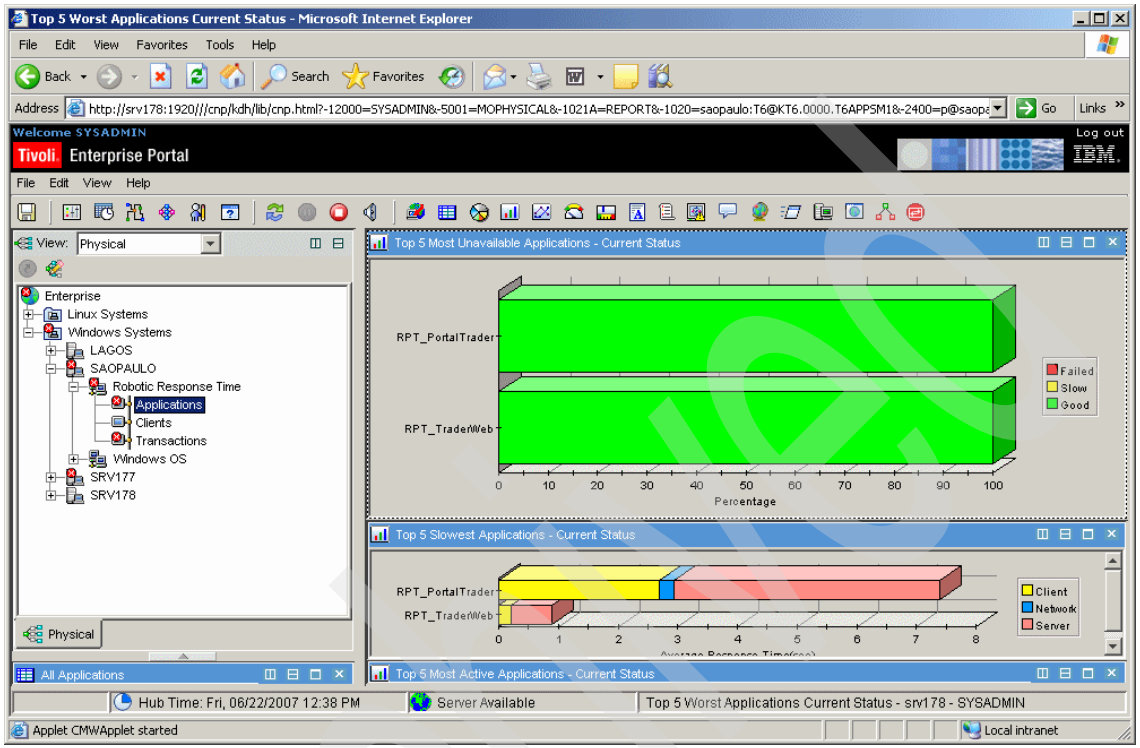

Figure 5-31 Top 5 Most Unavailable Applications - current status

8. You can manually close the event, as shown Figure 5-32.

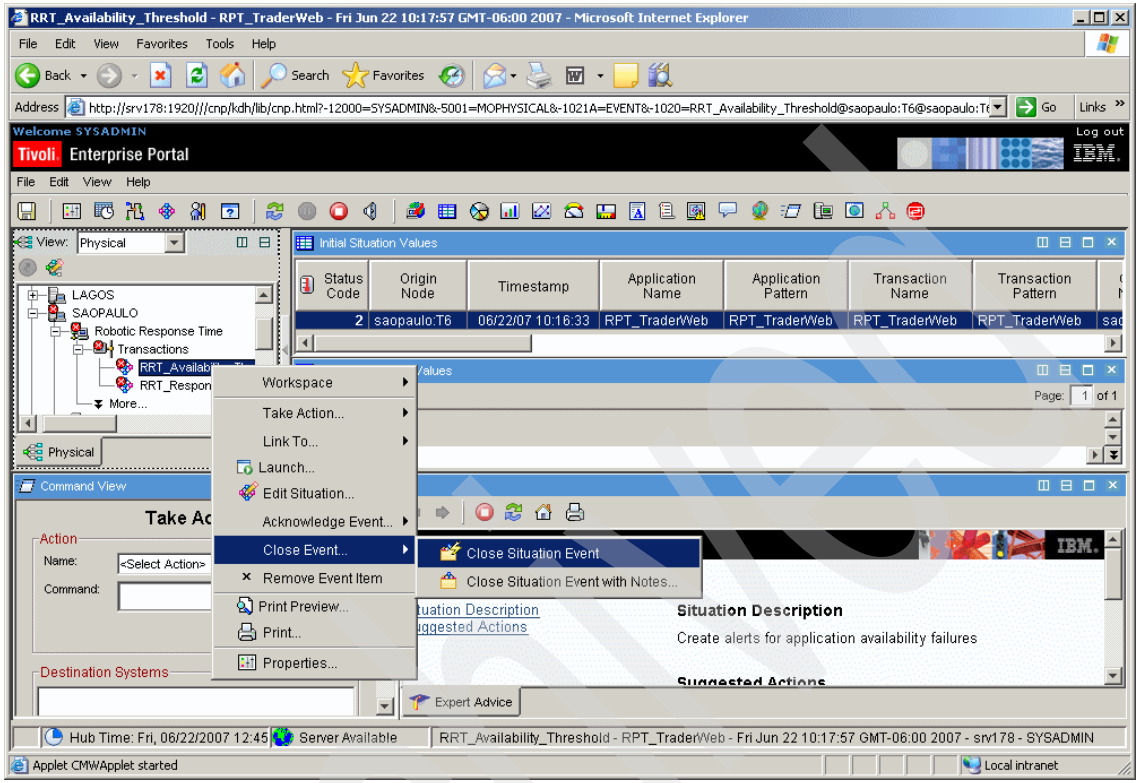

Figure 5-32 Closing the event

5.4.4 Customizing playback schedule

In this section, we explain how to customize a playback schedule for a robotic script called RPT_Get_Quotes.zip. We want to run the script only on workdays Monday to Friday within the prime shift from 8 a.m. to 5 p.m. The script runs every 10 minutes with the possibilities of three retries. Each retry has a 10-second lag time. The script times out if there is no response within 30 seconds.

Note: For more information about Situations and workflows, refer to the *IBM Tivoli Monitoring User's Guide*, SC32-9409.

To accomplish this scenario:

1. Create a robotic playback configuration situation and do *not* select Run At startup. The situation is controlled by the IBM Tivoli Monitoring workflow.

   a. Open the situation editor from **Edit** → **Situation Editor**, as shown in Figure 5-33.

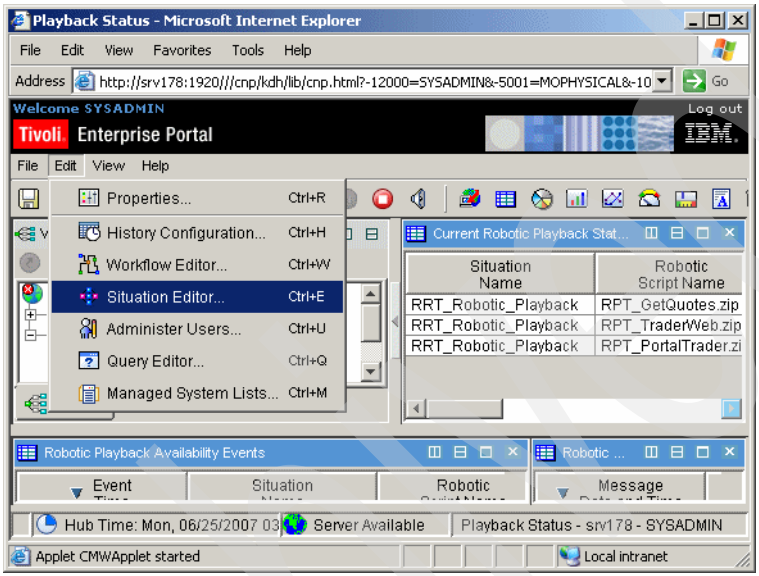

Figure 5-33 Situation Editor

b. Right-click **RRT_Robotic_Playback_Advanced** and select **Create another**, as shown in Figure 5-34.

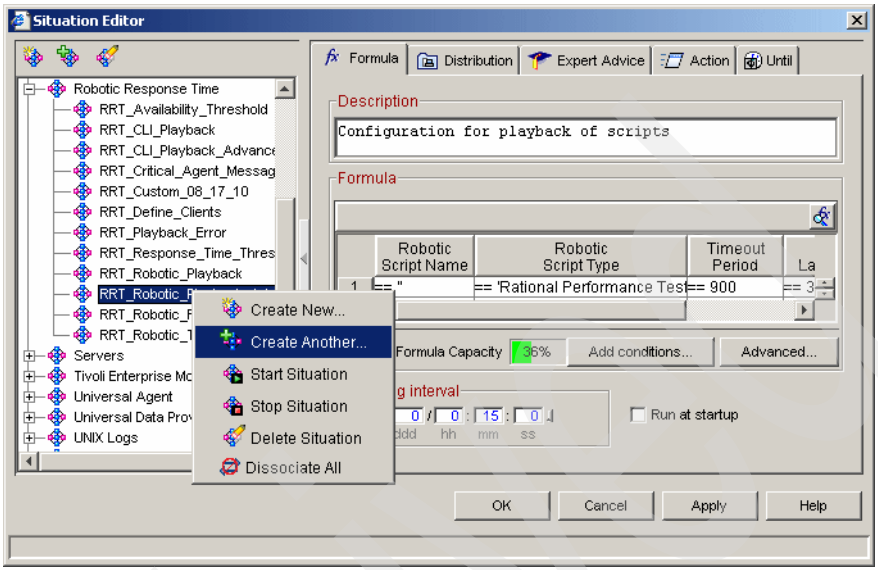

Figure 5-34 Cloning situation RRT_Robotic_Playback_Advanced

c. Fill in a name and description (Figure 5-35) and click **OK**.

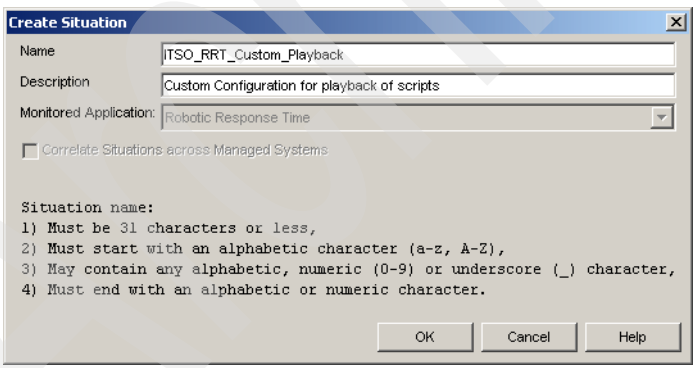

Figure 5-35 Create new situation

d. Customize the robotic script name, robotic script type, time out period, retry lag time, number retries, and sampling interval, as shown in Figure 5-36. Do *not* select Run at startup.

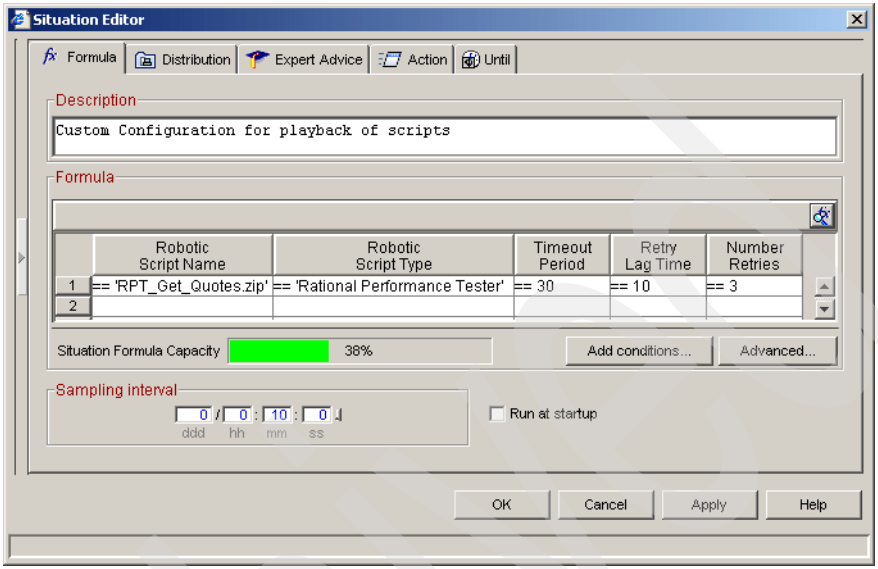

Figure 5-36 Customizing Robotic Agent situation

e. Figure 5-37 shows the Distribution tab. Choose the agents where you want the script being played back and click **OK**.

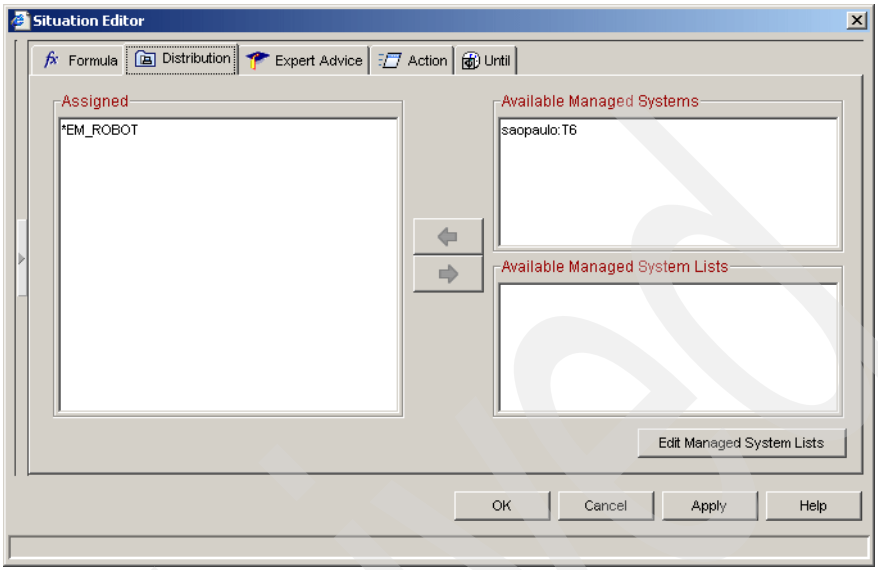

Figure 5-37 Defining situation distribution

2. Create a scheduling situation for starting the robotic monitor.
   a. We use the PrimeShift situation provided by IBM Tivoli Monitoring. For other schedule requirements, you can also clone the PrimeShift situation and define your own scheduling rule. See Figure 5-38.

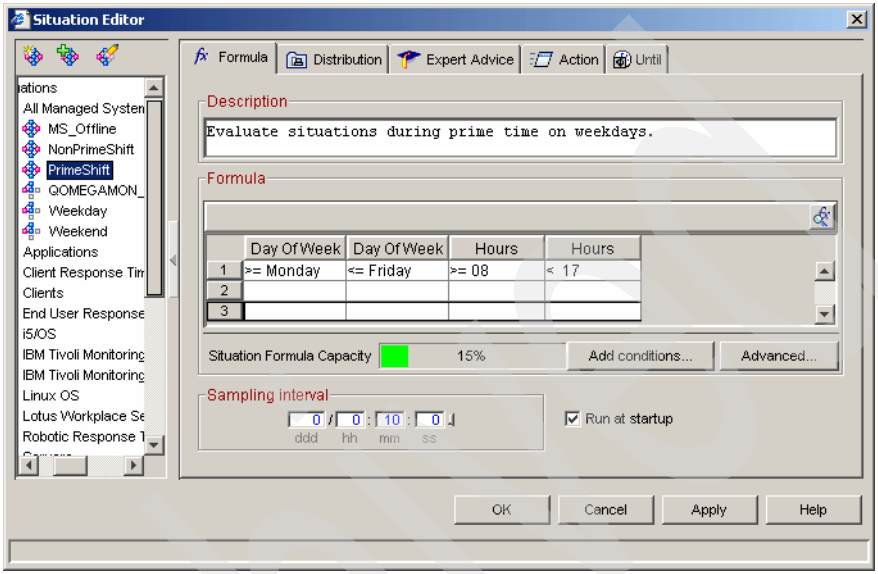

Figure 5-38 PrimeShift situation

b. Make sure to distribute the scheduling situation to the same robotic agents as the robotic configuration situation created on step 1, as shown in Figure 5-39.

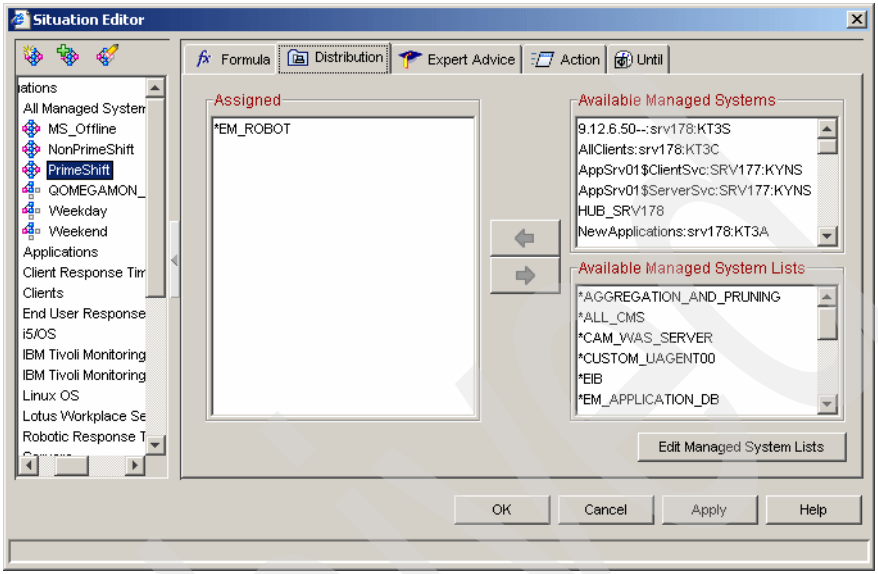

Figure 5-39 PrimeShift situation - Distribution tab

3. Create a scheduling situation to stop the robotic playback.

   a. We use the NonPrimeShift situation provided by IBM Tivoli Monitoring. Do not use Run at startup. Figure 5-40 shows the NonPrimeShift situation.

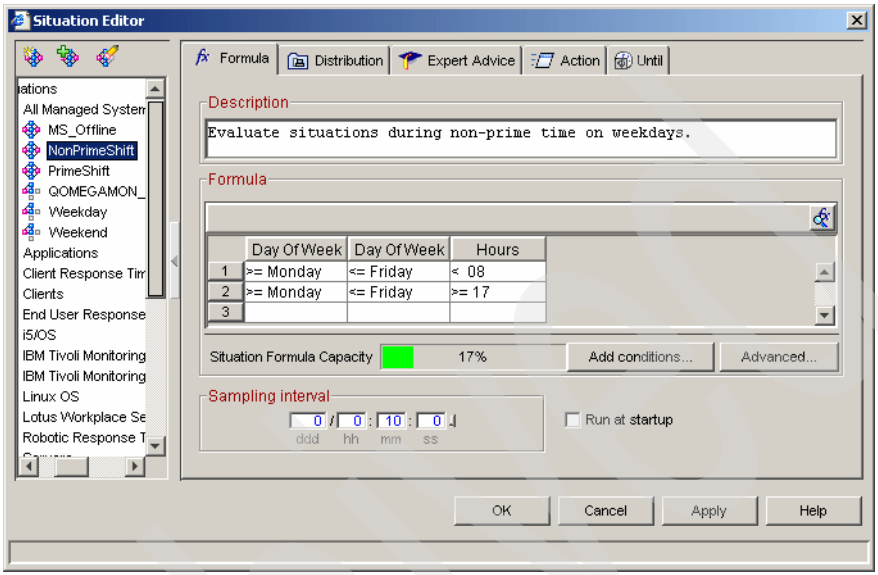

Figure 5-40 NonPrimeShift situation

   b. Make sure to distribute the scheduling situation to the same robotic agents as the robotic configuration situation created on step 1, as shown in Figure 5-41.

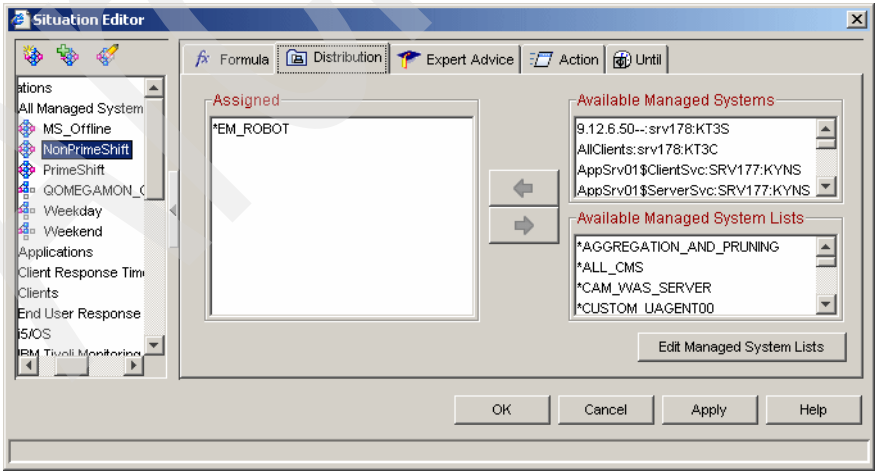

Figure 5-41 NonPrimeShift situation - Distribution tab

4. Create a workflow to start and stop the robotic playback situation. Distribute the workflow to the same robotic agents to which you distributed in the previous steps. Figure 5-42 shows the workflow.

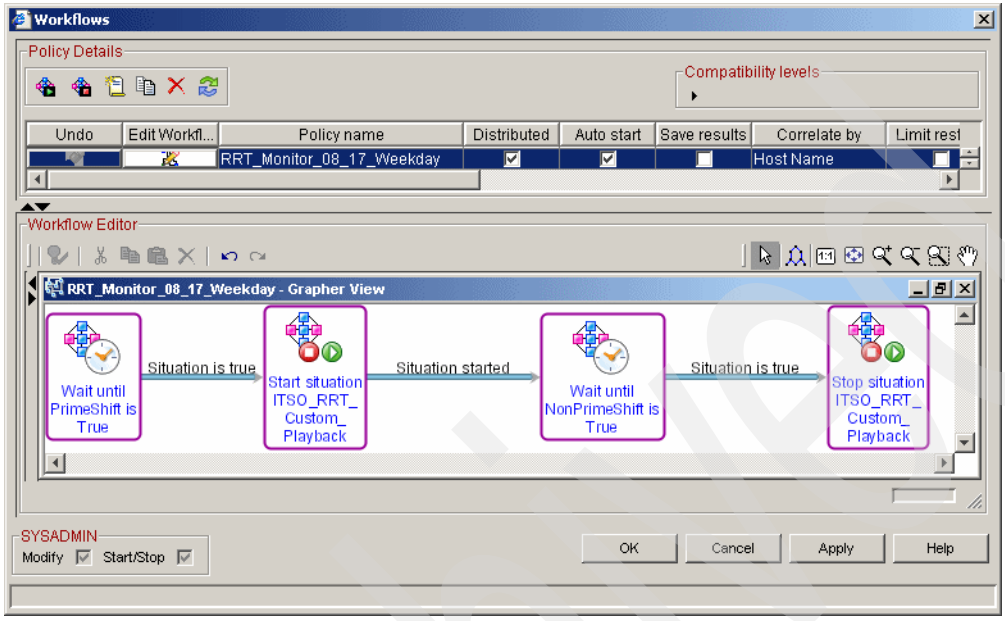

Figure 5-42 Workflow for start and stop the customized schedule

5.5 Using Web Response Time agent

The Web Response Time agent is used to collect HTTP response time for the Trader application running on srv177. WebSphere® provides HTTP access at ports 9081 and 9082. By default, Web Response Monitor collects all HTTP traffic and measures its response time. We define situations to indicate the data to be collected by the Tivoli Enterprise Monitoring Server.

First let us evaluate the workspaces of the Web Response Time agent. Figure 5-43 shows the agent summary workspace that lists important information about the agent.

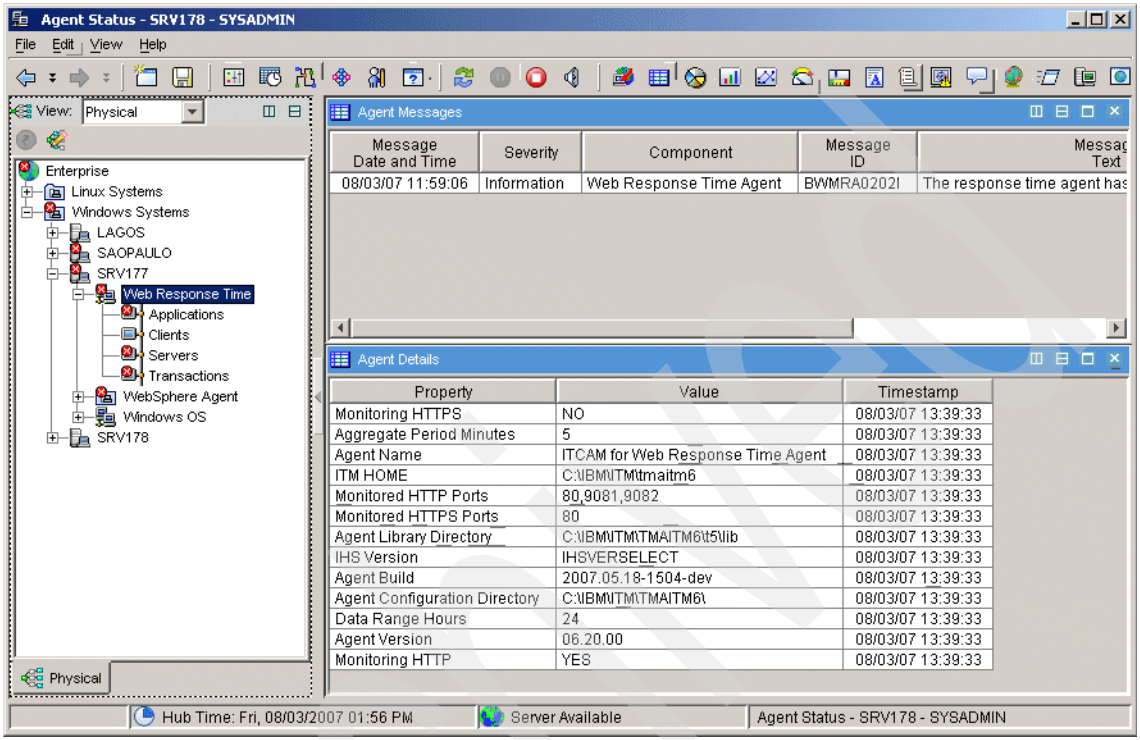

Figure 5-43 Agent summary workspace

The workspaces show application response time breakdown that is collected from this agent by application, transaction, client, and server.

- The application workspace differentiates response time by the URL path. Figure 5-44 shows the application grouping.

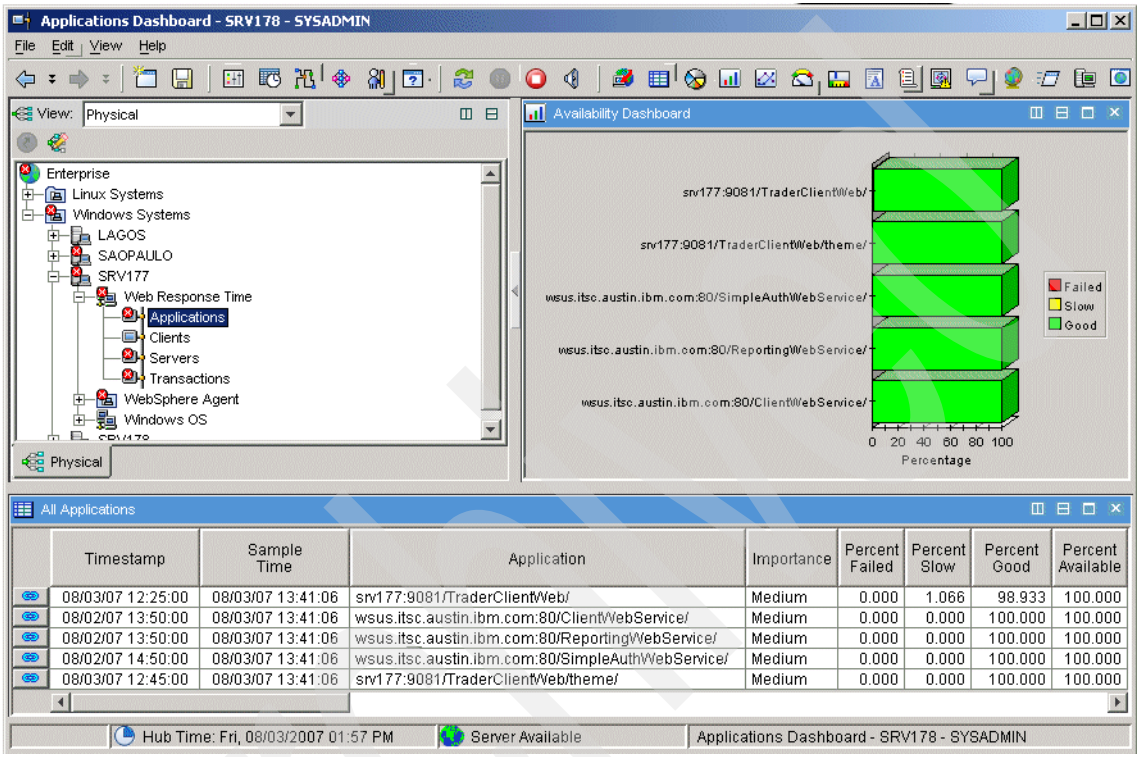

Figure 5-44 Application workspace

- The server workspace shows the target server of the HTTP transactions. Figure 5-45 shows the sample HTTP transactions.

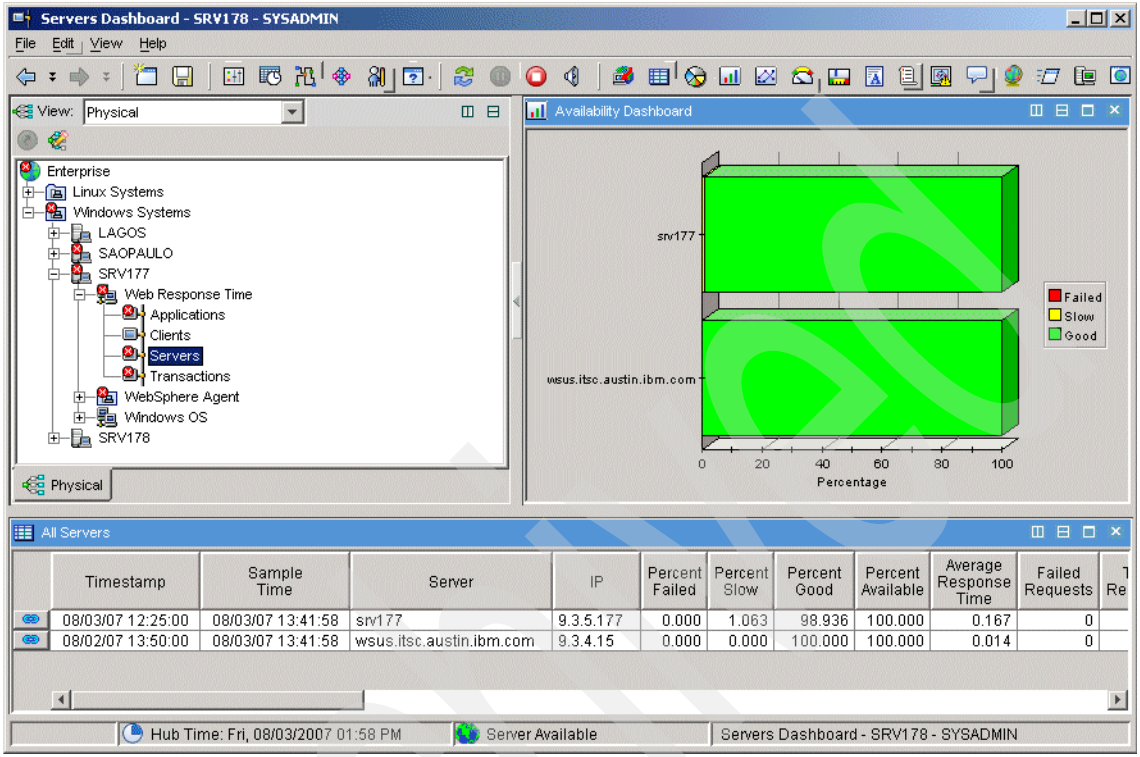

Figure 5-45 Server workspace

- The transaction workspace gets you into the individual observed transactions. Figure 5-46 shows the sample workspace.

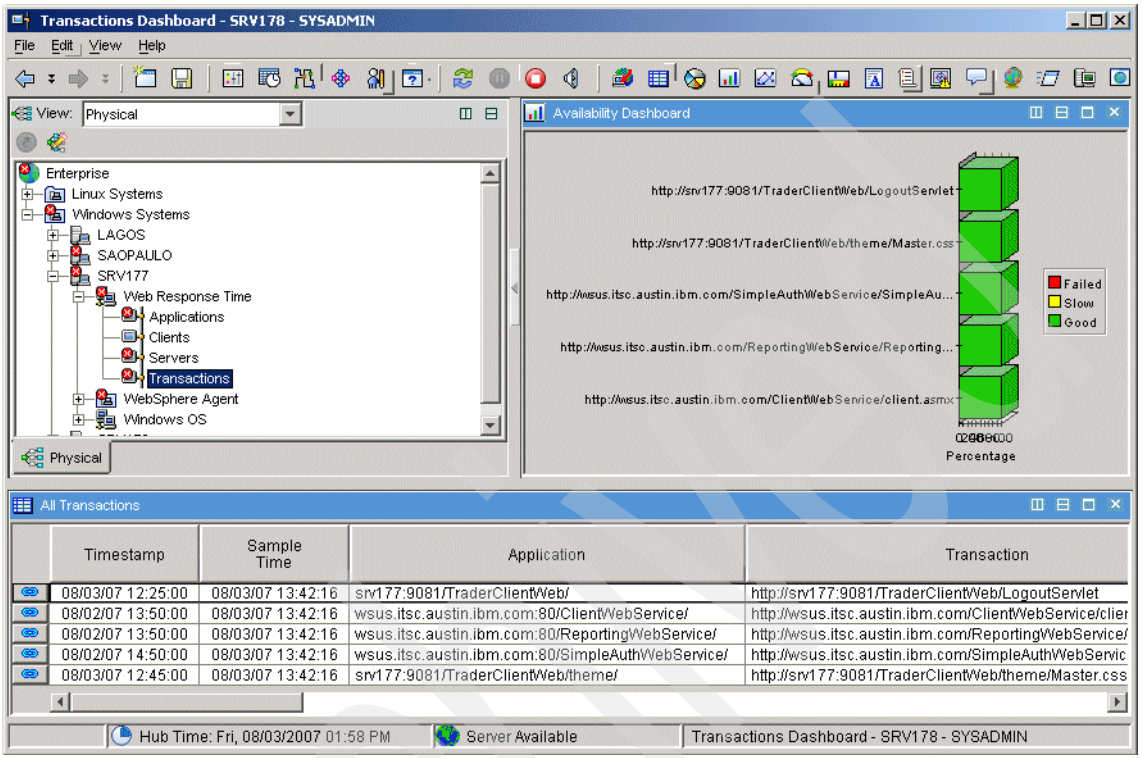

Figure 5-46 Transaction workspace

The rule to determine transaction and client grouping is defined as situations. The list of active situations for the Web Response Time agent can be retrieved by right-clicking **Web Response Time agent** in the navigation tree and selecting **Manage Situations**. The situation list is shown in Figure 5-47.

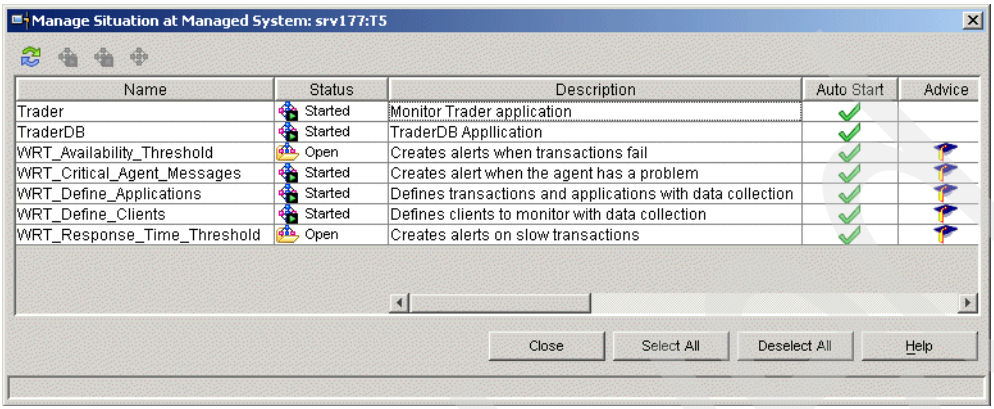

Figure 5-47 Situation list

As an example, right-click the **WRT_Define_Clients** situation and select **Edit Situation**. Figure 5-48 shows that all clients are grouped in the All Clients group.

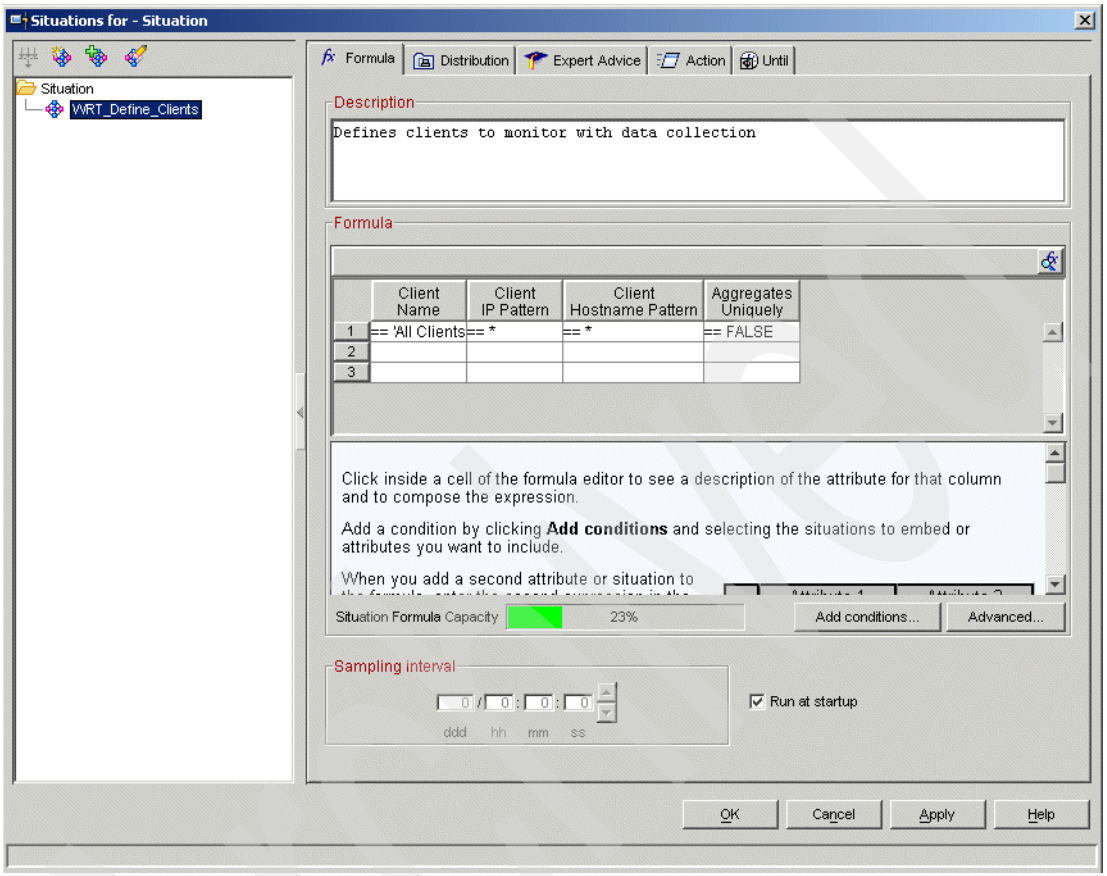

Figure 5-48 Situation for defining clients

> **Note:** The Web Response Time situation does not support multiple conditions.

5.6 Using Client Response Time Agent

For the Client Response Time Agent, we monitor the response time for accessing the Trader application on the mainframe using the IBM Personal Communications 3270 application.

To monitor the Client Response Time we need to create a situation from Tivoli Enterprise Portal. The response time would be monitored according to the situation and the filter rule set up in the situation. Creating a situation for Client Response Time is the same as creating a situation for Web Response Time.

Once the situation is created and started, the Client Response Time agent on lagos starts monitoring the application and filter events based on the rule defined in the situation and starts sending data to the Tivoli Enterprise Portal. The Trader CICS 3270 application screens are shown in Figure 5-49.

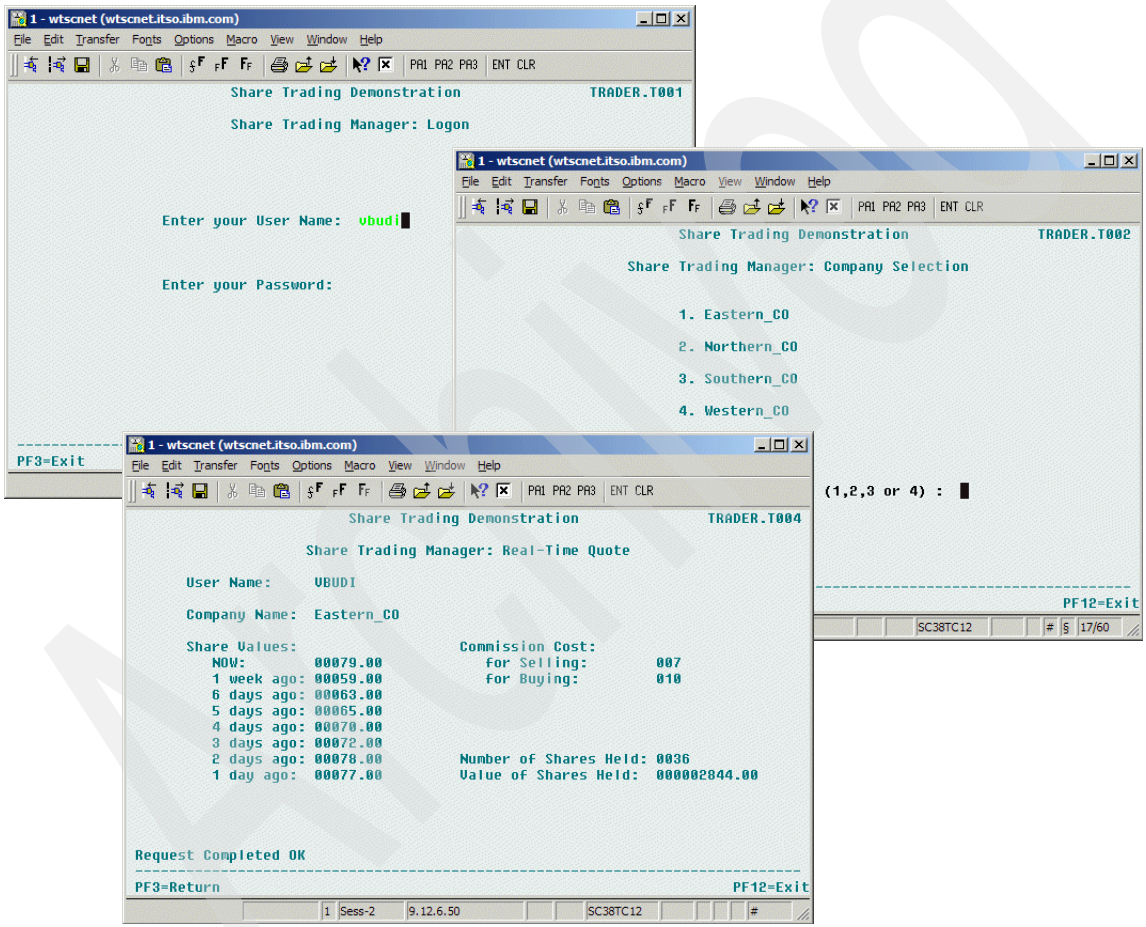

Figure 5-49 Accessing Trader using IBM Personal Communications

Client Response Time data can now be seen on the Tivoli Enterprise Portal under Transactions for Client Response Time, as shown in Figure 5-50.

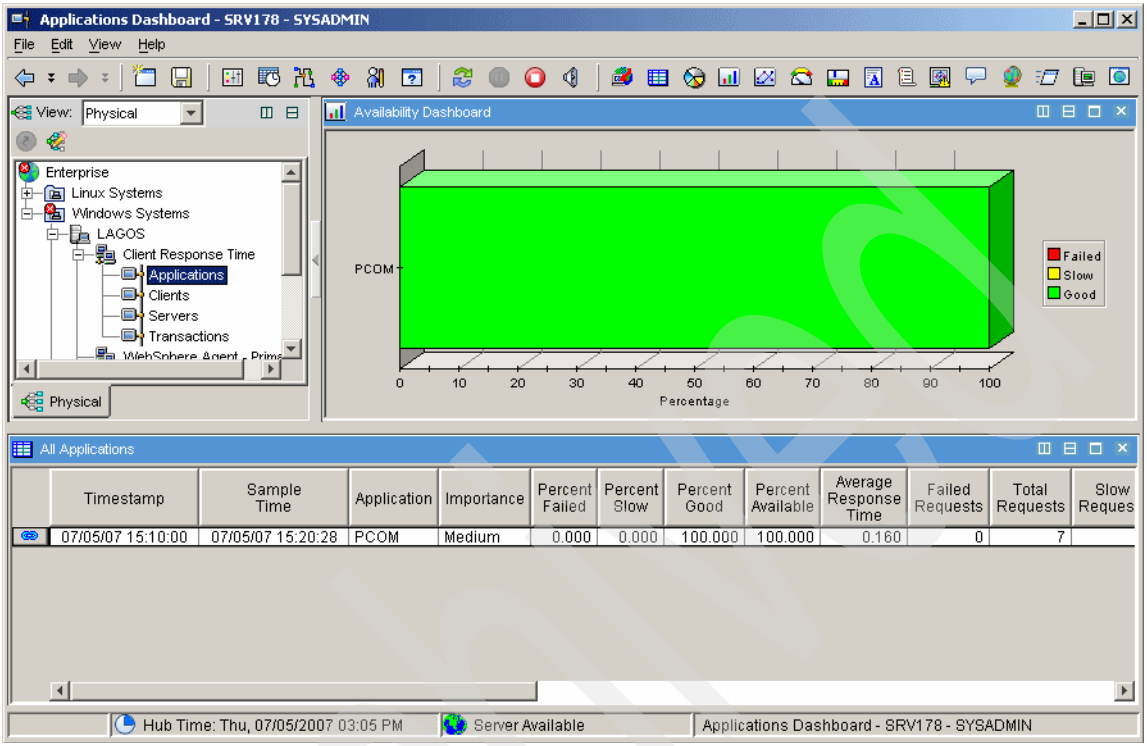

Figure 5-50 Transaction Data for Client Response Time

Clicking the chain icon takes you to the transaction detail shown in Figure 5-51.

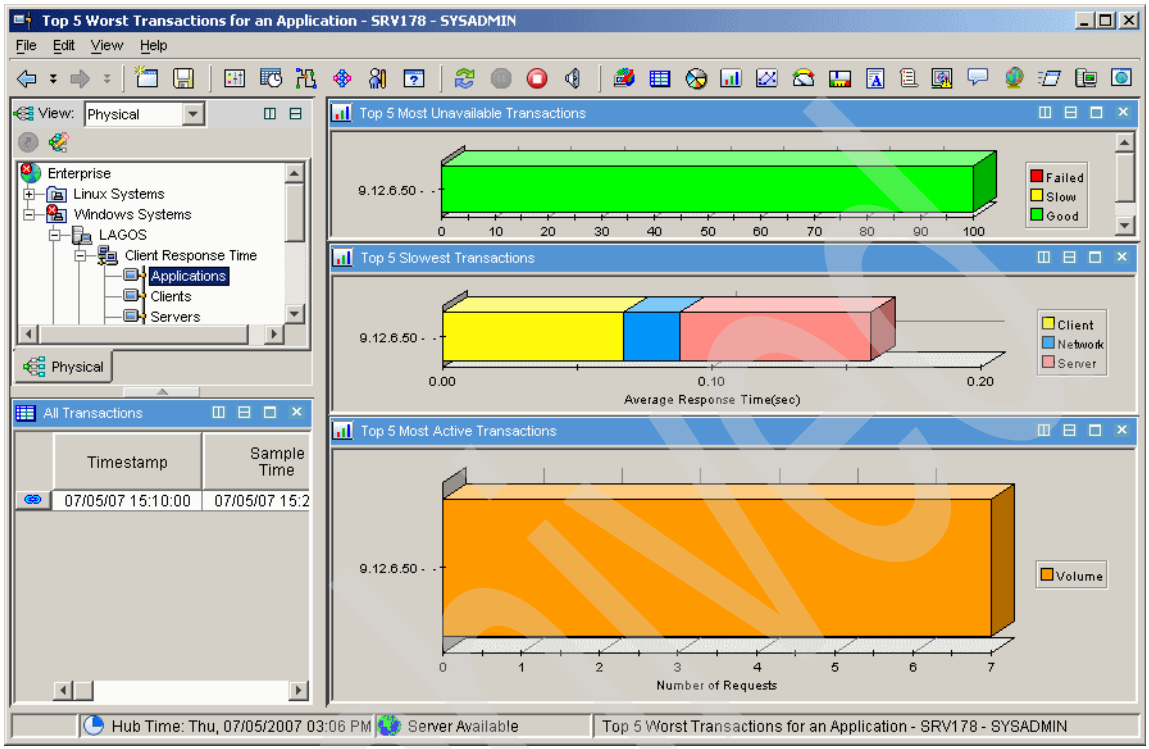

Figure 5-51 Client Response Time

6

Troubleshooting hints and tips

This chapter contains a collection of troubleshooting hints and tips. The topics covered are:

6.1 Troubleshooting tips and techniques

ITCAM for Response Time V6.2 is based on the IBM Tivoli Monitoring V6.1 architecture. As such, the troubleshooting process is in the framework of IBM Tivoli Monitoring.

A problem on the client side would involve the Tivoli Enterprise Portal desktop client or the Tivoli Enterprise Portal Web client. The desktop client logs are:

- <ITM_home>\CNP\logs\kcjras1.log
- <ITM_home>\CNP\logs\kcj.log

Tivoli Enterprise Portal Web client stores information in plugin131_0x.trace, which is stored in the user home directory. This is typically under C:\Document and Settings\<username>.

The Tivoli Enterprise Portal Server consists of two processes. Each of these generate different log files. The files are:

- <ITM_home>\CNP\logs\kfwras1.log
- <ITM_home>\CNP\logs\cmwras1.log

If you have a problem with installation, look into the following log files:

- Common installation logs:

  ```
  <ITM_home>/InstallITM/plugin/executionEvents/logs/YYYYMMDD-HHMMSS/tr
  ace_install_plugin.trc
  ```

- Platform-specific trace information:

  ```
  <ITM_home>/logs/install_plugin_trace.log
  ```

- Other agent logs:

  ```
  <ITM_home>/tmaitm6/logs/*.log
  ```

6.2 Troubleshooting End User Response Time Agent

Specific for End User Response Time agent, this section describes the relevant files and tracing activation procedures.

Table 6-1 lists important files under the IBM Tivoli Monitoring installation path (C:\IBM\ITM or /opt/IBM/ITM) related to the End User Response Time Agent. Note that some log files reside in the Tivoli common directory (C:\Program Files\ibm\tivoli\common or /var/ibm/tivoli/common).

Table 6-1 File locations

Windows file name	UNIX file name	Description
Configuration files		
tmaitm6\kt3env	config/kt3.ini	T3 agent environment configuration file
tmaitm6\$(HOSTNAME)_t3.cfg	$hostname_t3.cfg	T3 agent configuration setting file - not to be edited manually
tmaitm6\t3-logging.properties	config/t3-logging.properties	T3 agent log level configuration
Log files		
tmaitm6\logs\$hostname$_t3_*.log	$(HOSTNAME)_t3_*.log	T3 agent native diagnostic logs
tmaitm6\logs\Primary_$(HOSTNAME)_t3.LG*	logs\Primary_$(HOSTNAME)_t3.LG*	T3 agent native diagnostic log
<common-dir>\BWM\logs\trace-dashboard.log	<common-dir>/BMW/logs/trace-dashboard.log	T3 agent Java diagnostic log (in Tivoli common directory)

For other problems you may need to activate tracing. The following procedure explains the tracing process.

Note: After gathering the logs, turn off the tracing. Having tracing turned on causes a significant performance hit.

1. Set the RAS1 tracing option for the agent into:

   ```
   ERROR (UNIT:kt1 ALL) (UNIT:kt2 ALL) (UNIT:kt3 ALL) (UNIT:kra ALL)
   ```

   a. This can be performed from Manage Tivoli Enterprise Monitoring Services. Right-click the selected agent, select **Advanced** → **Edit Trace Parms**, and change the RAS1 filter.

   b. Edit the /opt/IBM/ITM/config/t3.ini file and set the option in KBB_RAS1.

2. Change all trace levels in t3-logging.properties to DEBUG_MAX using a text editor.

3. Restart the agent.

6.3 Troubleshooting Robotic Response Time Agent

Specific for Robotic Response Time agent, this section describes the relevant files and tracing activation procedures.

Table 6-2 lists important files under the IBM Tivoli Monitoring installation path (C:\IBM\ITM or /opt/IBM/ITM) related to the Robotic Response Time Agent. Note that some log files reside in the Tivoli common directory (C:\Program Files\ibm\tivoli\common or /var/ibm/tivoli/common).

Table 6-2 File locations

Windows file name	UNIX file name	Description
Configuration files		
\tmaitm6\kt6env	/config/t6.ini	Robotic agent environment configuration
\tmaitm6\${HOSTNAME}_t6.cfg	/config/${HOSTNAME}_t6.cfg	Robotic agent configuration setting file - not to be edited manually
\tmaitm6\t6-logging.properties	/config/t6-logging.properties	Robotic agent log level configuration
\tmaitm6\app\RPT\config\itcamrt-logging.properties	/tmaitm6/app/RPT/config\itcamrt-logging.properties	RPT log level configuration
\tmaitm6\app\RPT\config\managed_jvm.xml	/tmaitm6/app/RPT/config/managed_jvm.xml	RPT managed JVM™ Java configuration
Log files		
\tmaitm6\logs\${HOSTNAME}_t6_*.log	/logs/${HOSTNAME}_t6_*.log	Robotic agent native diagnostic logs
<common_dir>\BWM\logs\trace-robotic.log	<common_dir>/BWM/logs/trace-robotic.log	Robotic agent Java diagnostic logs
<common_dir>\BWM\logs\msg-robotic.log		Robotic agent message logs
<common_dir>\BWM\logs\RPT\{runtime version}\trace-rpt.log	<common_dir>/BWM/logs/RPT/{runtime version}/trace-rpt.log	RPT diagnostic logs
<common_dir>\BWM\logs\{applicationname}\{scriptname}\msg-rptHistory.log	<common_dir>/BWM/logs/{applicationname}/{scriptname}/msg-rptHistory.log	RPT execution history

For other problems you may need to activate tracing. The following procedure explains the tracing process.

Note: After gathering the logs, turn off the tracing. Having tracing turned on causes a significant performance hit.

1. Set the RAS1 tracing option for the agent into:

   ```
   ERROR (UNIT:kt2 ALL) (UNIT:kt6 ALL) (UNIT:kra ALL)
   ```

   a. This can be performed from Manage Tivoli Enterprise Monitoring Services. Right-click the selected agent, select **Advanced** → **Edit Trace Parms**, and change the RAS1 filter.

   b. Edit the /opt/IBM/ITM/config/t6.ini file and set the option in KBB_RAS1.

2. Change all trace levels in t6-logging.properties to DEBUG_MAX using a text editor, specifically for BWM.trc.playback.common.level.

   For Rational Performance Tester, tracing is controlled from the itcamrt-logging.properties file.

3. Restart the agent.

6.4 Troubleshooting Web Response Time Agent

Specific for Web Response Time agent, this section describes the relevant files and tracing activation procedures.

Table 6-2 on page 154 lists important files under the IBM Tivoli Monitoring installation path (C:\IBM\ITM or /opt/IBM/ITM) related to Web Response Time Agent.

Table 6-3 File locations

Windows file name	UNIX file name	Description
Configuration files		
\tmaitm6\kt5env	/config/t5.ini	Web Response Time Agent configuration file
\tmaitm6\${HOSTNAME}_t5.cfg	/config/${HOSTNAME}_t5.cfg	Agent configuration setting file - not to be edited manually
\tmaitm6\wrm\analyzer\kfcmenv	/tmaitm6/wrm/kfcmenv	Web Response Time Agent Analyzer configuration file

Windows file name	UNIX file name	Description
\tmaitm6\wrm\wrm\collector\kflmenv	\tmaitm6\wrm\wrm\collector\kflmenv	Web Response Time Agent Collector configuration file
Log files		
\logs\${HOSTNAME}_t5_*.log	/logs/${HOSTNAME}_t5_*.log	Web Response Time Agent diagnostic logs
\tmaitm6\wrm\analyzer\${HOSTNAME}_kfmserver_*.log	/tmaitm6/wrm/platform/${HOSTNAME}_kfcm120_numberSequence.log	Web Response Time Agent Analyzer logs
\tmaitm6\wrm\wrm\collector\${HOSTNAME}_kflm_*.log	/tmaitm6/wrm/platform/${HOSTNAME}_kflm_numberSequence.log	Web Response Time Agent Collector diagnostic logs
\tmaitm6\wrm\log*.sm3	/tmaitm6/wrm/log/*.sm3	Web Response Time Agent data files

For other problems you may need to activate tracing. The following procedure explains the tracing process.

Note: After gathering the logs, turn off tracing. Having tracing turned on causes a significant performance hit.

1. Set the RAS1 tracing option for the agent into:

   ```
   ERROR (UNIT:kt2 ALL) (UNIT:kt5 ALL) (UNIT:kra ALL)
   ```

   a. This can be performed from Manage Tivoli Enterprise Monitoring Services. Right-click the selected agent, select **Advanced** → **Edit Trace Parms**, and change the RAS1 filter.

   b. Edit the /opt/IBM/ITM/config/t5.ini file and set the option in KBB_RAS1.

2. Restart the agent.

6.5 Troubleshooting Client Response Time Agent

Specific for Client Response Time agent, this section describes the relevant files and tracing activation procedures.

Table 6-2 on page 154 lists important files under the IBM Tivoli Monitoring installation path (C:\IBM\ITM or /opt/IBM/ITM) related to Client Response Time Agent.

Table 6-4 File locations

Windows file name	UNIX file name	Description
Configuration files		
\tmaitm6\kt4env	/config/t4.ini	Client Response Time Agent configuration file
\tmaitm6\${HOSTNAME}_t4.cfg	/config/${HOSTNAME}_t4.cfg	Agent configuration setting file - not to be edited manually
Log files		
\cat\mgmt\log\keeagent.log		Application log file for keeagent
\cat\mgmt\log\keehook.log		Traces transaction information from monitored application from keehook process
\cat\mgmt\log\${DATE}.log		Client Application Tracker data files

For other problems you may need to activate tracing. The following procedure explains the tracing process.

Note: After gathering the logs, turn off tracing. Having tracing turned on causes a significant performance hit.

1. Set the RAS1 tracing option for the agent into:

   ```
   ERROR (UNIT:kt2 ALL) (UNIT:kt4 ALL) (UNIT:kra ALL)
   ```

   a. This can be performed from Manage Tivoli Enterprise Monitoring Services. Right-click the selected agent, select **Advanced** → **Edit Trace Parms**, and change the RAS1 filter.

   b. Edit the /opt/IBM/ITM/config/t4.ini file and set the option in KBB_RAS1.

2. Restart the agent.

Part 3

Appendixes

A

The Trader application

This appendix explains the Trader application. The discussion is divided into:

Application components

The Trader application is a multi-component composite application that runs on heterogeneous platforms and execution environments. It is a simple stock trading application that allows the user to list companies, get quotes, and trade stocks of the listed companies. Figure A-1 shows the Trader application conceptual interfaces.

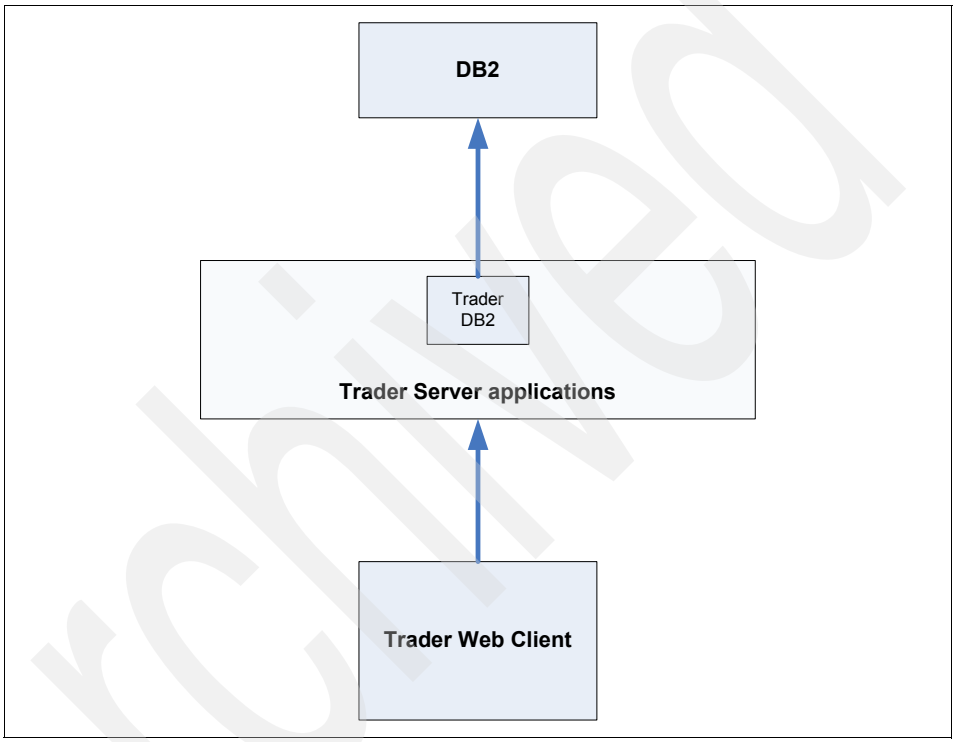

Figure A-1 The Trader application

The Trader application can be viewed as having a three-layer (three-tier) structure:

- The Trader application for this deployment guide has a Web interface. It has the ability to connect to the server application that provides the business logic. The connection to the server applications is based on Web services calls.
- The server applications are differentiated based on their different access methods to the underlying data, or the platform it resides on. These are J2EE-based applications that serve as Web services providers.

- The back-end data storage for the deployment guide version is a DB2 database. The DB2 database can reside on the same or different server.

We discuss the components in the following sections:

- “Front-end J2EE Web application” on page 163
- “Back-end implementation” on page 166
- “Back-end J2EE server” on page 166

Front-end J2EE Web application

The front-end Web application is developed using the Web services client wizard, the Trader*Services projects. The application consists of:

- Initial login page in login.html (Figure A-2)

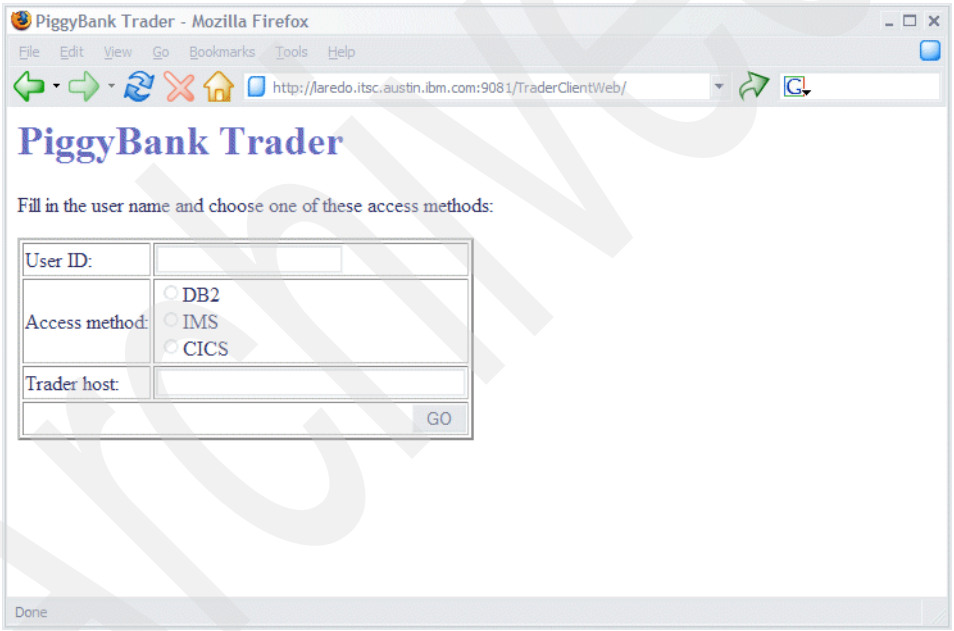

Figure A-2 Login page

Note: The DB2, IMS™, and CICS radio check boxes shown in Figure A-2 are not normally available to an end user. They are included on our sample application purely to highlight the possible back-end system. Similarly, a typical application would not select a target host, but this is shown here as part of our lab environment.

- ListCompanyServlet (Figure A-3): invokes the back-end ListCompany Web services

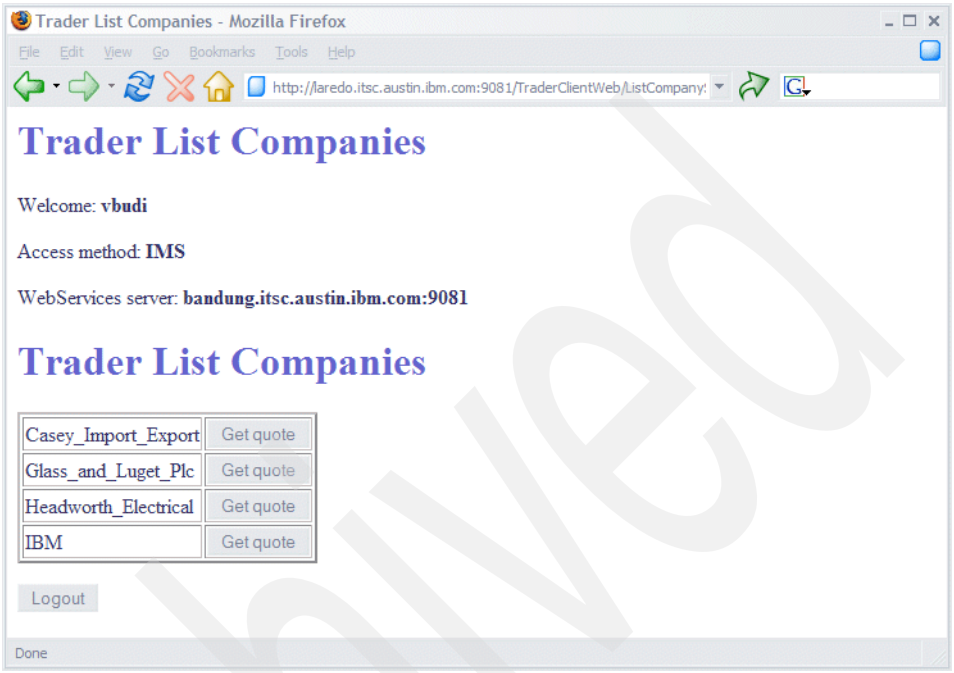

Figure A-3 List Company page

- GetQuotesServlet (Figure A-4): invokes the back-end GetQuote Web services

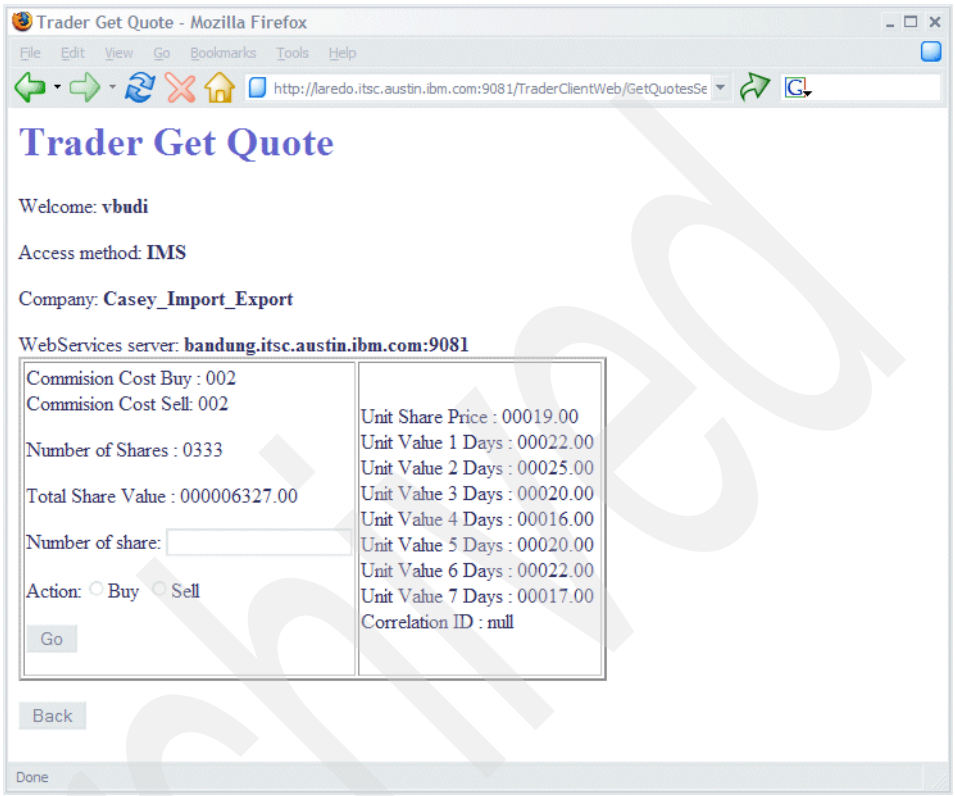

Figure A-4 Quotes window

- BuySellServlet: invokes either the buy or sell Web services
- LogoutServlet: clears up the session bean

We provide three types of enterprise application archive (ear) file for the client interface:

- TraderClientEAR: This ear file runs the TraderClientWeb application that provides the basic Trader application functionality.
- TraderClientMemEAR: This ear file runs the TraderClientMem application that has a memory leak in the logic for testing a memory leak situation.
- TraderClientLckEAR: This ear file runs the TraderClientLck application that has a lock problem injected for testing dead lock situation.

Back-end implementation

The back-end systems consist of two entities: the company and the customer. The company has the quote definitions, and the customer database has the customer's name and stock ownership. Figure A-5 shows the conceptual data structure.

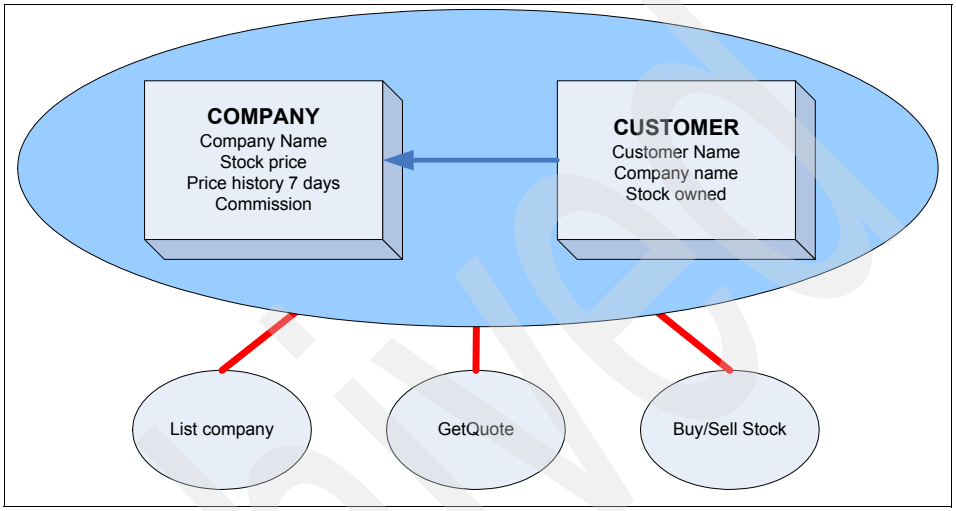

Figure A-5 Entity diagram

The back-end system is implemented in DB2. The DB2 implementation is represented in two tables, the CUSTOMER table and the COMPANY table.

Back-end J2EE server

The back-end J2EE server runs on a WebSphere server for DB2 access. The WebSphere-based Web services server has the TraderDBServices.ear modules deployed into it. This program accesses DB2 data. It consists of the following modules:

- TraderDBWeb: direct front end for the Trader DB. This is useful for validating that the Trader DB application is running.
- TraderDBServices: Web module that provides Web Services provider implementation.
- Trader_DB: contains the database access module.

Software requirements

The software required for running the Trader application is discussed here. Figure A-6 shows the detailed configuration of our Trader application.

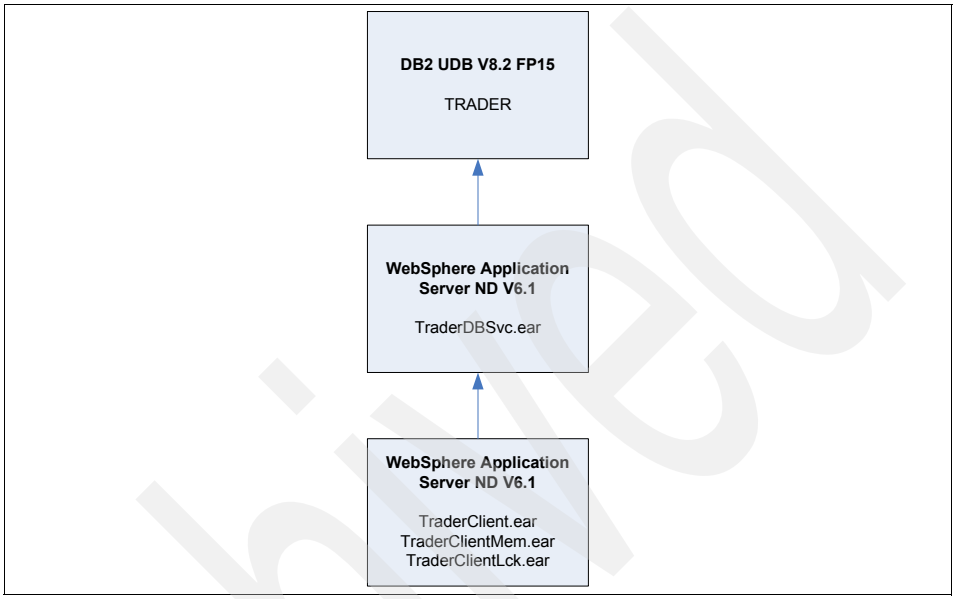

Figure A-6 Trader application detail

The application components are:

- TraderClient.ear, TraderClientMem.ear, TraderClientLck.ear
- TraderDBSvc.ear
- DB2 databases

Installation procedure

This section discusses the detailed installation guideline for installing the Trader application in our environment. The installation should be performed based on the additional material for this deployment guide. See Appendix C, “Additional material” on page 177, for how to get access to the additional material. The installation is discussed in the following sections:

- “DB2 database creation” on page 168
- “WebSphere server installation” on page 168
- “WebSphere client installation” on page 169

Initial setup for the demonstration server

The additional material is supplied as a SG247484.zip file. Extract this file to a temporary directory. In this guide, we assume that the file is extracted to the C:\Temp directory.

You must install the DB2 Universal Database and the WebSphere Application Server. We do not discuss the installation of DB2 and WebSphere in this guide. WebSphere should be set up with two application servers. We assume that you are building a network deployment environment and create two application servers called ClientSvc and ServerSvc.

DB2 database creation

The DB2 databases are created from the C:\Temp\trader.zip file. Perform the following steps:

1. On the machine on which the DB2 Universal Database has been installed, extract this file to C:\Temp\Trader.
2. Open a DB2 command window by executing the command **db2cmd**.
3. Navigate to C:\Temp\Trader.
4. Create the TRADER database using the command:

   ```
   db2 create database TRADER
   ```

5. Populate the trader database using the command:

   ```
   db2move TRADER import
   ```

6. Verify that you can connect to the database using the command:

   ```
   db2 connect to TRADER
   ```

7. Run SQL command:

   ```
   db2 select * from TRADER.COMPANY
   ```

   You should get four rows of data.

WebSphere server installation

The server part is installed on the ServerSvc application server. The installation is performed using the WebSphere administration console.

1. Extract the ear files from the C:\Temp\WASear.zip file into the C:\Temp\applear directory.

2. Modify WebSphere variables for DB2_UNIVERSAL_JDBC_NATIVEPATH and DB2_UNIVERSAL_JDBC_DRIVERPATH to point to the DB2 installation directories.
3. Create the JDBC™ datasource for the Trader database. The JNDI name should be jdbc/Trader.
4. Create a JAAS authentication user to access the database. Make sure that you map the JDBC data source to use the authentication method.
5. Create a virtual host that matches the default port for the ServerSvc application server.
6. Install the C:\Temp\applear\TraderDBSvc.ear to the ServerSvc. Make sure that you map the Web module to the appropriate virtual host that you define.
7. Save the configuration and restart the application server.

WebSphere client installation

The server part is installed on the ClientSvc application server. The installation is performed using the WebSphere administration console.

1. Extract the ear files from the C:\Temp\WASear.zip file into the C:\Temp\applear directory.
2. Create a virtual host that matches the default port for the ClientSvc application server.
3. Install the C:\Temp\applear\TraderClient.ear to the ClientSvc. Make sure that you map the Web module to the appropriate virtual host that you define.
4. Install the C:\Temp\applear\TraderClientMem.ear to the ClientSvc. Make sure that you map the Web module to the appropriate virtual host that you define.
5. Install the C:\Temp\applear\TraderClientLck.ear to the ClientSvc. Make sure that you map the Web module to the appropriate virtual host that you define.
6. Save the configuration and restart the application server.

B

Sample statement of work

In this appendix, we provide a skeleton statement of work that you can use for developing your statement of work. The content of the statement of work would be for “ITCAM for Response Time implementation service” on page 172.

ITCAM for Response Time implementation service

The ITCAM for Response Time implementation service statement of work can consist of the sections listed here.

Executive summary

The ITCAM for Response Time implementation service provides a response time management for your enterprise. It shows the overall performance of your IT applications. It highlights response time problems, whether by application or by clients. The initial implementation would cover a collection of response times for the following application <list>.

The implementation of response time monitoring will be conducted starting on <date> for three weeks. At the end of the initial implementation period, <you> will present the implementation report, including:

- Demonstration of the solution monitoring
- Highlighting of current response time health of <customer>
- Recommendations for future enhancement of monitoring

Solution description

In the ITCAM for Response Time implementation service, <you> will implement a response time management system based on IBM Tivoli Monitoring solution. This solution includes implementation of IBM Tivoli Monitoring servers, as discussed in the solution configuration. The service also includes the installation and configuration of the response time monitoring agents from ITCAM for Response Time V6.2.

The solution assumes that the server's connection to the monitoring agents would not go through a firewall.

During the implementation, we perform customization of the solution to demonstrate response time collection for <list> applications. Some development to capture these actual response time may be needed.

<You> will analyze the collected performance information and possibly perform monitoring with additional detail, as needed. The analysis is performed with the data collected in Tivoli Data Warehouse.

At the end of the implementation, <you> present the performance finding.

Assumptions

The assumptions that are used in this statement of work are:

- The applications that will be monitored are <list>
- Application <name> is monitored using <Robot / Web / Client agent>
- Application <name> is monitored using <Robot / Web / Client agent>
- Application <name> is monitored using <Robot / Web / Client agent>
- Application <name> is monitored using <Robot / Web / Client agent>
- Monitoring is performed from the following client workstations: <list>

Note: Insert any additional assumptions about specific performance or transaction problem that the customer has.

Business partner responsibilities

<You> have the following responsibilities:

- Install and configure IBM Tivoli Monitoring V6.1 servers.
- Install and configure ITCAM for Response Time V6.2 agents on the appropriate machines, as indicated in the solution configuration.
- Develop and customize the monitoring environment for robotic, Web, and client response time collection.
- Provide an operation document to use and maintain the ITCAM for Response Time solution.
- Present the solution implementation result at the end of the implementation.

Customer responsibilities

This section describes the responsibilities that the customer has to the business partner. They are:

- Designate a representative who to be the focal point for all communication with the business partner relative to this project and who has the authority to act on the customer's behalf in matters regarding this project.
- Designate operations personnel to work with the business partner as appropriate.
- Provide all required Web site content in digital form, as specified by the business partner.
- Provide all product data in a format as requested.
- Provide all data and information required for implementation

- Provide suitable workspace with telephone access for the services specialists while working on customer premises.
- Provide user IDs, passwords, and IP addresses as required, enabling the business partner to perform the service.
- Provide information to allow estimates on current and future system workload and performance expectations.

Staffing estimates

The project is performed with one ITCAM for Response Time specialist who will be on site as required by the project schedule. The project is estimated to be performed within three weeks.

Project schedule and milestones

Because this is a short project, we do not need a milestone. Figure B-1 shows a sample project schedule.

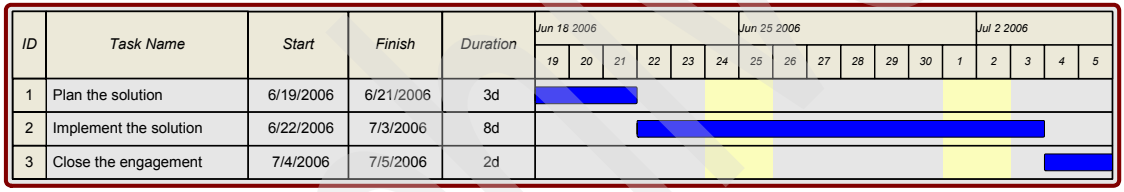

Figure B-1 Project schedule

Testing methodology

The testing of the solution is demonstrated using the Tivoli Enterprise Portal displays that show response time information for the appropriate applications. The response time can be analyzed based on its sub-transaction, client subnet, and server areas.

Deliverables

The deliverables of this project can be in the following form:

- ITCAM for Response Time customized workspaces
- Performance assessment and recommendation presentation by you

Completion criteria

Completion criteria for this project are:

- The performance finding and recommendations are accepted.
- All deliverables have been received by <customer>.
- All testing was performed successfully.

C

Additional material

This book refers to additional material that can be downloaded from the Internet, as described below.

Locating the Web material

The Web material associated with this book is available in softcopy on the Internet from the IBM Redbooks Web server. Point your Web browser at:

ftp://www.redbooks.ibm.com/redbooks/SG247484

Alternatively, you can go to the IBM Redbooks Web site at:

ibm.com/redbooks

Select the **Additional materials** and open the directory that corresponds with the IBM Redbooks form number, SG247484.

Using the Web material

The additional Web material that accompanies this book includes the following files:

File name	*Description*
SG247484.zip	Zipped code samples

This file contains the following files:

File name	*Description*
Trader.zip	Zipped database source
WASear.zip	WebSphere ear files

System requirements for downloading the Web material

The Web material is to be run in an Intel server, capable of running WebSphere Application Server and DB2 Universal Database. The configuration requires the following system requirements:

Hard disk space	8GB
Memory	1.5 GB

How to use the Web material

Create a subdirectory (folder) on your workstation, and unzip the contents of the Web material zip file into this folder. See also Appendix A, “The Trader application” on page 161, for more installation instruction.

Abbreviations and acronyms

AIX	Advanced Interactive eXecutive
API	Application Programming Interface
ARM	Application Response Measurement
CD-ROM	Compact Disc Read Only Memory
CICS	Customer Information Control Systems
CLI	Command Line Interface
CPU	Central Processing Unit
DNS	Domain Name Service
GB	Giga Byte
GUI	Graphical User Interface
HTTP	Hyper Text Transfer Protocol
HTTPS	HTTP Secure
IBM	International Business Machines Corporation
IIS	Internet Information Server
IP	Internet Protocol
IT	Information Technology
ITCAM	IBM Tivoli Composite Application Manager
ITIL	IT Infrastructure Library®
ITSO	International Technical Support Organization
JAAS	Java Authentication and Authorization Service
JDBC	Java Database Connectivity
JMX	Java Management eXtension
JNDI	Java Naming and Directory Interface™
MFU	Multi File Uploader
NIC	Network Interface Card
OS	Operating Systems
PDF	Portable Document Format
RISC	Reduced Instruction Set Computer
RPC	Remote Procedure Call
RPT	Rational Performance Tester
SLA	Service Level Agreement
SOA	Service Oriented Architecture
SOAP	Simple Object Access Protocol
SQL	Structured Query Language
SSL	Secure Socket Layer
TCP/IP	Transmission Control Protocol Internet Protocol
TDW	Tivoli Data Warehouse
TEMA	Tivoli Enterprise Monitoring Agent
TEMS	Tivoli Enterprise Monitoring Server
TEP	Tivoli Enterprise Portal
URL	Universal Resource Locator
WRM	Web Response Monitor

Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this book.

IBM Redbooks

For information about ordering these publications, see “How to get Redbooks” on page 182. Note that some of the documents referenced here may be available in softcopy only.

- *IBM Tivoli Composite Application Manager V6.1 Family Installation, Configuration, and Basic Usage*, SG24-7151
- *Deployment Guide Series: IBM Tivoli Monitoring 6.1*, SG24-7188

Other publications

These publications are also relevant as further information sources:

- IBM Tivoli Composite Application Manager for Response Time publications:
  - *IBM Tivoli Composite Application Manager for Client Response Time User's Guide Version 6.2*, SC23-6332
  - *IBM Tivoli Composite Application Manager for Web Response Time User's Guide Version 6.2*, SC23-6333
  - *IBM Tivoli Composite Application Manager for Robotic Response Time User's Guide Version 6.2*, SC23-6334
  - *IBM Tivoli Composite Application Manager for End User Response Time Dashboard User's Guide Version 6.2*, SC23-6335
  - *IBM Tivoli Composite Application Manager for Response Time Problem Determination Guide Version 6.2*, GI11-8061
- IBM Tivoli Monitoring publications:
  - *Exploring IBM Tivoli Monitoring*, SC32-1803
  - *IBM Tivoli Monitoring Administrator's Guide*, SC32-9408
  - *IBM Tivoli Monitoring: Configuring IBM Tivoli Enterprise Monitoring Server on z/OS*, SC32-9463

  - *IBM Tivoli Monitoring Installation and Setup Guide*, GC32-9407
  - *IBM Tivoli Monitoring Problem Determination Guide*, GC32-9458
  - *IBM Tivoli Monitoring User's Guide*, SC32-9409
  - *IBM Tivoli Monitoring: Upgrading from Tivoli Distributed Monitoring*, GC32-9462
  - *IBM Tivoli Universal Agent API and Command Programming Reference Guide*, SC32-9461
  - *IBM Tivoli Monitoring Universal Agent User's Guide*, SC32-9459
  - *Introducing IBM Tivoli Monitoring*, GI11-4071
- *CandleNet ETEWatch User's Guide*, GC32-9178

Online resources

These Web sites are also relevant as further information sources:

- ITCAM for Response Time online documentation

  `http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.itcamwas_rt.doc_6.6/welcome.htm`

- ITCAM for Response Time Web site

  `http://www-306.ibm.com/software/tivoli/products/composite-application-mgr-response-time/`

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W

Deployment Guide Series: ITCAM for Response Time V6.2

Response time management for end-user dashboard

Extensive deployment and usage examples

Solution guide and references

This IBM® Redbooks® publication is written as part of the deployment guide series. This book provides a step-by-step guide for deploying ITCAM for Response Time V6.2. This deployment guide can help an IBM or business partner service person plan and perform the deployment of the product.

The discussion of ITCAM for Response Time includes the explanation of product architecture and its components. We discuss planning and sizing considerations before you implement the product and some guidelines on setting up service engagement for the product.

The deployment explained in the book would fit for a demonstration or a small deployment system, although the information is highly relevant for larger deployment engagements. This book also explains some usage scenario that can be performed for demonstrating the product.

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