Note

Before using this information and the product it supports, read the information in "Notices" on page 149.
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figures</td>
<td>vii</td>
</tr>
<tr>
<td>Tables</td>
<td>ix</td>
</tr>
<tr>
<td>About this guide</td>
<td>xi</td>
</tr>
<tr>
<td>Intended audience for this guide</td>
<td>xi</td>
</tr>
<tr>
<td>Publications</td>
<td>xi</td>
</tr>
<tr>
<td>Advanced Backup and Recovery for z/OS publications</td>
<td>xi</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring publications</td>
<td>xii</td>
</tr>
<tr>
<td>Accessing publications online</td>
<td>xii</td>
</tr>
<tr>
<td>Ordering publications</td>
<td>xiii</td>
</tr>
<tr>
<td>Accessing terminology online</td>
<td>xiii</td>
</tr>
<tr>
<td>Tivoli technical training</td>
<td>xiii</td>
</tr>
<tr>
<td>Support information</td>
<td>xiv</td>
</tr>
<tr>
<td>Conventions used in this publication</td>
<td>xiv</td>
</tr>
<tr>
<td>Typeface conventions</td>
<td>xiv</td>
</tr>
<tr>
<td>Operating system-dependent variables and paths</td>
<td>xv</td>
</tr>
</tbody>
</table>

## Part 1. Planning your deployment

| Chapter 1. Introduction to the Advanced Backup and Recovery for z/OS product | 3 |
| Components of Advanced Backup and Recovery for z/OS                        | 4 |
| Features of Advanced Backup and Recovery for z/OS                          | 4 |
| Standards supported                                                         | 5 |
| Interoperability with other products                                        | 5 |

| Chapter 2. Planning your Advanced Backup and Recovery for z/OS configuration | 7 |
| Designing your Advanced Backup and Recovery for z/OS configuration          | 7 |
| Tivoli Enterprise Monitoring Servers - hub and remote                       | 9 |
| Tivoli Data Warehouse and the warehouse proxy                              | 10 |
| Advanced Backup and Recovery for z/OS monitoring agent                     | 11 |
| Tivoli Enterprise Portal client and Tivoli Enterprise Portal Server        | 12 |
| Understanding runtime environments                                         | 13 |
| Worksheets for Advanced Backup and Recovery for z/OS configuration         | 20 |
| Worksheet: Your overall configuration                                      | 20 |
| Worksheets: Information to gather when you put your hub monitoring server on a distributed system | 22 |
| Worksheets: Information to gather when you put your hub monitoring server on a z/OS system | 28 |
| Worksheet: Information for configuring your runtime environment            | 36 |
| A road map for installation and configuration of Advanced Backup and Recovery for z/OS | 37 |

| Chapter 3. Planning for prerequisites, packaging, and tools                | 39 |
| Understanding software and hardware prerequisites for installation        | 39 |
| Requirements for historical data collection                              | 39 |
| Requirements for TCP/IP communication protocols                           | 40 |
| Prerequisite for Take Action command forwarding                           | 41 |
| Checking for fixes                                                       | 41 |
| Understanding product packaging                                           | 41 |
| Understanding Advanced Backup and Recovery for z/OS installation          | 42 |
Part 2. Installation and configuration

Chapter 4. Beginning the installation and configuration
First steps: Installing the z/OS components and beginning the configuration
Step 1. Perform the SMP/E installation of the z/OS-based components
Step 2. Set up the Configuration Tool
   If you use a CSI in which the Configuration Tool is already installed
   If you use a new CSI
Step 3. Start the Configuration Tool
Step 4. Set up the Configuration Tool environment
   Setting up the work environment
   Setting up the configuration environment
Continuing the configuration procedure

Chapter 5. Configuring the hub monitoring server on a Windows system
and the monitoring agent on a z/OS image
Configuration steps
Step 1. Install the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal
   Server, and Tivoli Enterprise Portal desktop client
   Installing the DB2 Universal Database software
   Installing and configuring Tivoli Enterprise Monitoring Server, Tivoli Enterprise
   Portal Server, and Tivoli Enterprise Portal desktop client
Step 2. Install Advanced Backup and Recovery for z/OS application support
Step 3. Define the runtime environment
Step 4. Build the runtime libraries
Step 5. Configure the monitoring agent
Step 6. Load the runtime libraries
Step 7. Complete the configuration of the monitoring agent
Step 8. Verify the configuration
Setting up security
Expanding this configuration

Chapter 6. Configuring the hub monitoring server and the monitoring
agent on a z/OS image
Configuration steps
Step 1. Define the runtime environment
Step 2. Build the runtime libraries
Step 3. Configure the hub Tivoli Enterprise Monitoring Server
   Beginning the configuration
   Creating a logmode
   Specifying configuration values
   Specifying communication protocols
   Creating the runtime members
Step 4. Configure the monitoring agent
Step 5. Load the runtime libraries
Step 6. Complete the configuration of the Tivoli Enterprise Monitoring Server
   and the monitoring agent
Step 7. Install Tivoli Enterprise Portal Server and client on a Windows
   workstation
Installing the DB2 Universal Database software
Installing and configuring Tivoli Enterprise Portal Server and desktop client ........................................ 97
Step 8. Install Advanced Backup and Recovery for z/OS application support ........................................ 100
Step 9. Verify the configuration .............................................................................................................. 101
Setting up security .................................................................................................................................. 102
Expanding this configuration ..................................................................................................................... 102
Batch mode processing .............................................................................................................................. 103

Chapter 7. Setting up security ..................................................................................................................... 105
Configuring user security ............................................................................................................................ 105
Setting up user security if the hub Tivoli Enterprise Monitoring Server is running on a z/OS system .... 105
Setting up security for a hub Tivoli Enterprise Monitoring Server running on a Windows, Linux, or UNIX system .............................................................. 109
Advanced Backup and Recovery security considerations ........................................................................ 110
OMVS segment .......................................................................................................................................... 110
Setting up NetView authentication of Take Action commands ................................................................. 110
Step 1. Configure NetView authentication in the Configuration Tool ..................................................... 111
Step 2. Add the NetView CNMLINK data set to the Tivoli Enterprise Monitoring Server started task ...... 112
Step 3. Enable NetView to authorize Take Action commands ................................................................. 112

Chapter 8. Enabling system variable support ............................................................................................... 115
Sample usage scenario ............................................................................................................................... 115
Enabling system variable support ............................................................................................................ 116
Creating the system variable parameter member ....................................................................................... 118
Creating the VTAM major node rename job ............................................................................................... 119
Creating one VTAM major node for all monitoring agents in the runtime environment ....................... 119

Chapter 9. Using batch mode processing .................................................................................................. 121
Planning your runtime environment replication ......................................................................................... 122
Creating batch mode parameters ............................................................................................................. 123
Transporting the runtime environment ..................................................................................................... 124
Define a runtime environment on a local z/OS image using shared DASD ............................................... 124
Transport a runtime environment from a local z/OS image to a remote image ........................................ 125
Transport runtime environment batch jobs from a local z/OS image to a remote image equipped with the Configuration Tool .......................................................... 126
Transport runtime environment batch mode parameters from a local z/OS image to a remote image .. 127

Part 3. Appendixes ...................................................................................................................................... 129

Appendix A. Configuration services and utilities ..................................................................................... 131
Services: unlocking runtime high-level qualifiers .................................................................................. 131
Services: creating the Configuration Tool batch mode job .................................................................... 131
Utilities: specifying DEBUG options ........................................................................................................ 132
Utilities: displaying an ISPF table ............................................................................................................ 132
Utilities: running a CLIST in the TKANCUS library .............................................................................. 132
Utilities: preparing user libraries ............................................................................................................. 133

Appendix B. Configuration Tool batch utilities ......................................................................................... 135
KCISETP: setting up the environment ....................................................................................................... 135
KCICFKEY: managing PF keys ................................................................................................................. 135
KCICPGHP: displaying help for batch parameters ................................................................................... 137
Appendix C. TEDA Server Operator Commands ........................................ 139
Starting the TEDA server .............................................................. 139
Stopping the TEDA server .............................................................. 139
Quiescing Agent Activity ............................................................... 139
Resuming Agent Activity ............................................................... 139
Dynamically Changing Agent Settings ............................................. 139
Display Commands ........................................................................ 139

Appendix D. TEDA Server PARMLIB Statements ................................. 141
Global ......................................................................................... 141
  Keywords ............................................................................. 141
Resources .................................................................................... 141
  Keywords ............................................................................. 142
Agents ......................................................................................... 142
  Keywords ............................................................................. 143
Sharing a common KppSHR00 member when multiple products are installed 144

Support information ........................................................................ 145
Using IBM Support Assistant .......................................................... 145
Obtaining fixes .............................................................................. 145
Contacting IBM Software Support ................................................... 146
  Determining the business impact .................................................. 147
  Describing problems and gathering information ............................ 147
  Submitting problems ................................................................ 147

Notices .......................................................................................... 149
Trademarks .................................................................................... 150

Index ............................................................................................. 151
Figures

1. Tivoli Management Services architecture ................................. 8
2. Full runtime environment on a single system .......................... 15
3. Full runtime environments on several systems .......................... 16
4. Base runtime environment .................................................. 17
5. Sharing-with-base runtime environment ................................. 18
6. Sharing-with-full runtime environment ................................. 19
7. Sharing-with-SMP/E runtime environment .............................. 20
8. Main Menu: Configuration Tool ........................................... 49
9. Specify Options panel: Configuration Tool .............................. 50
10. Set Up Configuration Environment panel: Configuration Tool ....... 51
11. Hub Tivoli Enterprise Monitoring Server on a distributed system and monitoring agent on a z/OS system ................................. 53
12. Configure Products panel: Configuration Tool ......................... 62
13. Product Selection Menu: Configuration Tool ........................... 62
14. Runtime Environments (RTEs) panel: Configuration Tool .......... 62
15. Add Runtime Environment (1 of 2) panel: Configuration Tool ...... 64
16. Add Runtime Environment (2 of 2) panel: Configuration Tool ...... 64
17. Product Component Selection Menu: Configuration Tool ............ 66
18. Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu: Configuration Tool ........................................... 67
19. Specify Agent Parameters panel: Configuration Tool ................ 67
20. Specify Agent Address Space Parameters panel: Configuration Tool ................................. 68
21. Specify Agent Primary TEMS Values panel: Configuration Tool .... 69
22. Specify Advanced Agent Configuration Values panel: Configuration Tool ........................................... 70
23. RTE Utility menu: Configuration Tool .................................... 72
24. Hub Tivoli Enterprise Monitoring Server and monitoring agent in separate address spaces of a single z/OS image ................................. 75
25. Configure Products panel: Configuration Tool ......................... 76
26. Product Selection Menu: Configuration Tool ........................... 76
27. Runtime Environments (RTEs) panel: Configuration Tool .......... 77
28. Add Runtime Environment (1 of 2) panel: Configuration Tool ...... 78
29. Add Runtime Environment (2 of 2) panel: Configuration Tool ...... 79
30. Product Component Selection Menu: Configuration Tool ............ 81
31. Configure the TEMS menu: Configuration Tool ....................... 81
32. Create LU6.2 Logmode panel: Configuration Tool .................... 82
33. Specify Configuration Values panel: Configuration Tool .......... 83
34. Specify Advanced Configuration Values panel: Configuration Tool ........................................... 85
35. Specify Communication Protocols panel: Configuration Tool ........ 86
36. Specify IP.PIPE Communication Protocol panel: Configuration Tool ........................................... 86
37. SOAP Server KSHXHUBS List panel: Configuration Tool .......... 88
38. Specify SNA Communication Protocol panel: Configuration Tool .... 88
39. Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu: Configuration Tool ......................... 90
40. Specify Agent Parameters panel: Configuration Tool ................ 90
41. Specify Agent Address Space Parameters panel: Configuration Tool ........................................... 91
42. Specify Advanced Agent Configuration Values panel: Configuration Tool ........................................... 92
43. RTE Utility Menu: Configuration Tool .................................... 94
44. CNMSTYLE member after editing .......................................... 113
45. Batch parameter help example ............................................. 138
## Tables

1. Configuration Tool abbreviations ......................................... xiv
2. Types of libraries .................................................................. 13
3. Types of runtime environments ............................................. 13
4. Worksheet for designing your overall configuration ............. 21
5. Configuration worksheet if the hub monitoring server is on a distributed system ................................................. 22
6. Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system ................................................. 24
7. Configuration worksheet if the monitoring server is on a z/OS system ................................................. 29
8. Configuration worksheet for communication protocols if the monitoring server is on a z/OS system ................................................. 31
9. Worksheet for defining runtime environments ....................... 36
10. Advanced Backup and Recovery for z/OS packaging ............ 41
11. User security configuration methods ................................... 105
12. System variable values ....................................................... 117
13. Add runtime environment values .......................................... 117
14. Runtime environment transport methods ............................ 122
About this guide

The Advanced Backup and Recovery product collects information about backup events and reports the information in the Tivoli Enterprise Portal graphical user interface. The product workspaces provide two types of information:

- Information collected by Advanced Backup and Recovery
- Historical information

The user interface contains expert advice on alerts and corrective actions.

This book tells how to plan your deployment of the Advanced Backup and Recovery software, and how to install and configure the software in your environment.

Intended audience for this guide

This guide is intended for the system programmer or administrator responsible for installing and configuring new programs on z/OS systems. The procedures in this guide require familiarity with the following topics:

- The z/OS operating system
- The Microsoft Windows operating system

Publications

This section lists publications in the IBM Advanced Backup and Recovery for z/OS and IBM Tivoli Monitoring libraries. The section also describes how to access Tivoli publications online and how to order publications.

Advanced Backup and Recovery for z/OS publications

The following publications are included in the Advanced Backup and Recovery for z/OS library:

- **IBM Tivoli Advanced Backup and Recovery for z/OS Program Directory**, GI11-8886
  Provides hardware and software prerequisites and instructions for the Advanced Backup and Recovery for z/OS SMP/E installation.
  Provides instructions for using Advanced Backup and Recovery for z/OS.
- **IBM Tivoli Advanced Backup and Recovery for z/OS Monitoring Agent Planning and Configuration Guide**, SC23-9732
  Provides instructions for planning, installing, and configuring Advanced Backup and Recovery for z/OS. This publication includes the following types of information:
  - Information and worksheets to help you plan your configuration
  - A list of prerequisite steps to complete before configuring the product
  - Instructions for configuring the monitoring server and monitoring agent on a z/OS system
  - Instructions for installing and setting up the distributed components of the product
  - Information about using system variables and batch processing to expand a configuration across the enterprise
  - Security considerations and advice
Provides instructions for using Advanced Backup and Recovery for z/OS to monitor z/OS system and sysplex resources, and product-specific monitoring scenarios.

- **IBM Tivoli Advanced Backup and Recovery for z/OS Messages**, GC23-9731
  Lists and explains Advanced Backup and Recovery for z/OS messages.

### IBM Tivoli Monitoring publications

Basic instructions for installing and setting up the IBM Tivoli Monitoring (also called Tivoli Monitoring Services or Tivoli Management Services) components of the product are provided in this guide. You can find more detailed information about the IBM Tivoli Monitoring components in the following publications:

- **IBM Tivoli Monitoring Installation and Setup Guide**, GC32-9407
  Provides information on installing and setting up the Tivoli Enterprise Monitoring Server and the Tivoli Enterprise Portal Server and client.

- **Configuring IBM Tivoli Enterprise Monitoring Server on z/OS**, SC32-9463
  Describes how to configure and customize the Tivoli Enterprise Monitoring Server on z/OS. The book also contains platform planning information and information about setting up security on your monitoring server.

- **Introducing IBM Tivoli Monitoring**, GI11-4071
  Gives a basic introduction to the features of IBM Tivoli Monitoring.

- **IBM Tivoli Monitoring Administrator's Guide**, SC32-9408
  Describes how to perform administrative tasks associated with the Tivoli Enterprise Portal Server and client.

  Describes how to use the Tivoli Enterprise Portal client interface. This book includes a monitoring tutorial that covers workspaces, navigation, views, and responding to alerts. Different types of views and situations for event-based monitoring are also included, as well as information on automation policies.

  Lists and explains IBM Tivoli Monitoring messages, and offers troubleshooting guidance.

- **IBM Tivoli Monitoring z/OS Messages**, SC23-6065
  Lists and explains messages for z/OS-based Tivoli Monitoring Services components, such as the Tivoli Enterprise Monitoring Server on z/OS and the OMEGAMON® base components.

You can also find useful information about setting up and deploying the IBM Tivoli Monitoring components in the following IBM Redbooks®:

- **Deployment Guide Series: IBM Tivoli Monitoring**, SG24-7188
- **Getting Started with IBM Tivoli Monitoring 6.1 on Distributed Environments**, SG24-7143

### Accessing publications online

The documentation CD contains the product publications in PDF and HTML formats. Refer to the readme file on the CD for instructions on how to access the documentation.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli Information Center Web site at [http://www.ibm.com/software/tivoli/library](http://www.ibm.com/software/tivoli/library)
In the Tivoli Information Center window, click **Tivoli product manuals**. Click the letter that matches the first letter of your product name to access your product library. For example, click **M** to access the IBM Tivoli **Monitoring** library or click **O** to access the IBM Tivoli **OMEGAMON** library.

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

**Reading CCR2 online**


**Ordering publications**

You can order many Tivoli publications online at the following Web site:


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

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

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

2. Select your country from the list and click **Go**.
3. Click **About this site** in the main panel to see an information page that includes the telephone number of your local representative.

**Accessing terminology online**

The **Tivoli Software Glossary** includes definitions for many of the technical terms related to Tivoli software. The **Tivoli Software Glossary** is available at the following Tivoli software library Web site:


The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:


**Tivoli technical training**

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

Support information

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

- Obtaining fixes: You can locate the latest fixes that are already available for your product.
- Contacting IBM Software Support: If you still cannot solve your problem, and you need to work with someone from IBM, you can use a variety of ways to contact IBM Software Support.

*For more information about resolving problems, see "Support information" on page 145.*

Conventions used in this publication

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

In the books that discuss configuration and in the Configuration Tool (also called ICAT), the following abbreviations are used:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&amp;hilev</td>
<td>High-level qualifier</td>
</tr>
<tr>
<td>&amp;rhlilev</td>
<td>Runtime high-level qualifier (non-VSAM)</td>
</tr>
<tr>
<td>&amp;rte</td>
<td>Runtime environment name; used in conjunction with &amp;rhlilev</td>
</tr>
<tr>
<td>&amp;rvhlilev</td>
<td>Runtime high-level qualifier (VSAM)</td>
</tr>
<tr>
<td>&amp;shilev</td>
<td>Installation high-level qualifier of the INST* libraries</td>
</tr>
<tr>
<td>&amp;thilev</td>
<td>SMP/E target high-level qualifier</td>
</tr>
</tbody>
</table>

Table 1. Configuration Tool abbreviations

Typeface conventions

This guide uses the following typeface conventions:

**Bold**

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

**Italic**

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

Monospace

• Examples and code examples
• File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
• Message text and prompts addressed to the user
• Text that the user must type
• Values for arguments or command options

Operating system-dependent variables and paths

This guide uses the UNIX® convention for specifying environment variables and for directory notation.

When using the Windows command line, replace $variable with %variable% for environment variables and replace each forward slash (/) with a backslash (\) in directory paths. The names of environment variables are not always the same in Windows and UNIX. For example, %TEMP% in Windows is equivalent to $tmp in UNIX.

Note: If you are using the bash shell on a Windows system, you can use the UNIX conventions.
Part 1. Planning your deployment

Chapter 1. Introduction to the Advanced Backup and Recovery for z/OS product
- Components of Advanced Backup and Recovery for z/OS
- Features of Advanced Backup and Recovery for z/OS
- Standards supported
- Interoperability with other products

Chapter 2. Planning your Advanced Backup and Recovery for z/OS configuration
- Designing your Advanced Backup and Recovery for z/OS configuration
- Tivoli Enterprise Monitoring Servers - hub and remote
- Tivoli Data Warehouse and the warehouse proxy
- Advanced Backup and Recovery for z/OS monitoring agent
- Tivoli Enterprise Portal client and Tivoli Enterprise Portal Server
- Understanding runtime environments
- Possible configurations using runtime environments
- Worksheets for Advanced Backup and Recovery for z/OS configuration
- Worksheet: Your overall configuration
- Worksheets: Information to gather when you put your hub monitoring server on a distributed system
- Configuration worksheet if the hub monitoring server is on a distributed system
- Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system
- Worksheets: Information to gather when you put your hub monitoring server on a z/OS system
- Configuration worksheet if the monitoring server is on a z/OS system
- Configuration worksheet for communication protocols if the monitoring server is on a z/OS system
- Worksheet: Information for configuring your runtime environment
- A road map for installation and configuration of Advanced Backup and Recovery for z/OS

Chapter 3. Planning for prerequisites, packaging, and tools
- Understanding software and hardware prerequisites for installation
- Requirements for historical data collection
- Requirements for TCP/IP communication protocols
- Default OMVS segment
- Using the IP.PIPE communication protocol
- Configuring domain name resolution
- Prerequisite for Take Action command forwarding
- Checking for fixes
- Understanding product packaging
- Understanding Advanced Backup and Recovery for z/OS installation
- Installing Advanced Backup and Recovery for z/OS from the Web download package
- Using SMP/E to install Advanced Backup and Recovery for z/OS
- Understanding the Configuration Tool
- Using the Configuration Tool
- Display requirements in ISPF
- Restrictions
- Commands and function
- Online help for the Configuration Tool
Chapter 1. Introduction to the Advanced Backup and Recovery for z/OS product

The Advanced Backup and Recovery product collects information about backup events and reports the information in the Tivoli Enterprise Portal graphical user interface. The Advanced Backup and Recovery for z/OS product is a member of the IBM Tivoli Monitoring Services (also called Tivoli Management Services) family of mainframe monitoring products.

Advanced Backup and Recovery for z/OS displays the following types of z/OS data:

- Information collected by Advanced Backup and Recovery
- Historical information

Advanced Backup and Recovery for z/OS has a Java-based interface called the Tivoli Enterprise Portal, which transforms systems data into the business knowledge that you can use to run your enterprise. With Advanced Backup and Recovery for z/OS, you can also set threshold levels and flags as desired to alert you when the systems reach critical points.

The Tivoli Enterprise Portal presents information in a single window comprising a Navigator and a workspace:

- The Navigator shows the hierarchy of your monitored enterprise, from the top level (Enterprise) down to the nodes that represent the systems in the enterprise, and then to the subnodes that represent groupings of information collected by the monitoring agents. The Navigator lights up with critical, warning, and informational alerts so you can instantly identify problems as they occur. When you click an item in the Navigator, the default workspace for that item is displayed in the Tivoli Enterprise Portal window.
- Workspaces can be divided into multiple views containing reports in the form of tables and charts, TN3270 emulator views, Web browsers, text boxes, graphic views, and event message logs.

You can use Advanced Backup and Recovery for z/OS features to accomplish many system-management tasks:

- Monitor all systems and resources from a single, integrated browser-based interface that you can customize with filters to display only the data you want to see.
- Create comprehensive online reports about system conditions.
- Define your own queries, using the attributes provided by a monitoring agent, to monitor conditions and data and customize workspaces.
- Create situations, which let you set up monitoring for particular conditions and flag the condition with an alert when detected.
- Trace the causes leading up to an alert.
- Create and send commands to systems in your managed enterprise by means of the Take Action feature.
- Embed information about problem resolution in the product interface using Expert Advice, which can be edited to include knowledge and solutions specific to your environment.
Components of Advanced Backup and Recovery for z/OS

Advanced Backup and Recovery for z/OS is considered a client-server-agent implementation. For information about the Advanced Backup and Recovery for z/OS components, see “Designing your Advanced Backup and Recovery for z/OS configuration” on page 7.

Features of Advanced Backup and Recovery for z/OS

The following features are available with Advanced Backup and Recovery for z/OS and the Tivoli Enterprise Portal:

- **Customized workspaces for each information group**: Tivoli Enterprise Portal retrieves data from the monitoring agent and displays the results in the workspace in the form of charts and tables. You can start monitoring activity and system status immediately with the predefined workspaces and tailor your own workspaces to look at specific conditions, display critical threshold values in red, and filter incoming data according to your needs.
- **Workspace views**: Each workspace consists of one or more views. There are several types of views:
  - *Table views* display data in table format where rows represent monitored resources and columns represent data collected for each resource.
  - *Chart views* allow you to view data in graphical formats. Pie, bar, and plot charts and a gauge format are supported.
  - *Take action view* lets you enter a command or select a predefined command, and run it on any system in your managed network.
  - *Message log view* shows the status of the situations running on your managed network.
  - *Notepad view* opens a simple text editor for writing text that can be saved with the workspace.
  - *Terminal view* starts a 3270 or 5250 session for working with z/OS applications.
  - *Browser view* opens the integrated Web browser.
- **Navigator views or navigators** provide hierarchical views of the systems, resources, and applications you are monitoring. Navigators help you structure your enterprise information to reflect the interests and responsibilities of the user. The Tivoli Enterprise Portal comes with a default navigator called the physical navigator. The monitoring agent, which can be ordered separately, comes with the same default navigator, but allows you to create additional navigators for viewing enterprise information representing your business systems.
- **Linked workspaces**: If you often go from one workspace to another, you can build a link between them to speed the transition. You can also build links that originate from a table or from a bar or pie chart, and use relevant data from the source table or graph to determine the target workspace.
- **Custom queries**: Every monitoring agent comes with a set of predefined queries. These queries tell the monitoring server what monitoring data to retrieve from the agent for the chart or table view. You can create your own queries to specify exactly which attributes to retrieve, thus saving valuable resources. For example, you can build a filter into the Connections query to retrieve only records from a particular remote port. Additionally, you can write SQL queries to ODBC data sources and display the results in any chart or table. This enables you to show monitoring data and data from other sources (such as third-party databases) in a single workspace.
Interaction with systems from your console: The Take Action feature lets you enter a command or select a predefined command, and run it on any system in your managed network.

Monitor system conditions and send alerts: You can use the situation editor to create situations. A situation notifies you when an event occurs on a managed system. The monitoring server sends an alert when the conditions in a situation are evaluated to be true. The alert is displayed on the portal client with visual and sound indicators.

Managed system lists: You can create and maintain named lists of managed systems that can be applied to:
- Situation distribution lists
- Policies correlated by business application group
- Queries
- Customer Navigator-managed system assignments

User administration: The Tivoli Enterprise Portal provides a user administration feature for adding new user IDs, complete with selectable permissions for the major features and specific managed systems.

Standards supported

Monitoring agents provide a number of integration facilities and adhere to a range of industry standards to make integration with other applications easier for you. These products use industry-standard languages and protocols to facilitate integration with third-party components and tools. The products also use the following strategic IBM and Tivoli tools and platforms:
- A Web-based user interface implemented with industry-standard Web content languages, such as Java™, XML, and HTML
- Simple Network Management Protocol
- Web Services and Web Management Interface (WMI) standard
- TCP/IP-based communication between components and systems
- Support for the DB2® product, an industry-standard relational database
- Use of Structured Query Language (SQL '92, ISO/IEC 9075:1992), the standard interface for relational database access
- Use of standard shell scripts and SMP/E to assist in installation

Interoperability with other products

Interoperability is the capability of an application to integrate with other IBM and non-IBM applications that are used in the same customer environment.

Monitoring agents are compatible with each other and can coexist in a single monitoring agent environment (that is, with a common Tivoli Enterprise Monitoring Server). These products, including the Advanced Backup and Recovery for z/OS, also interoperate with Tivoli Enterprise Monitoring Agents running on distributed systems and communicating through the same monitoring server.

For more information on possible deployments of the monitoring products, see the following publications:
- IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide
- IBM Tivoli Monitoring: Configuring IBM Tivoli Enterprise Monitoring Server on z/OS
- IBM Redbooks: Deployment Guide Series: IBM Tivoli Monitoring
Chapter 2. Planning your Advanced Backup and Recovery for z/OS configuration

In this chapter, you will learn about the components of Advanced Backup and Recovery for z/OS, and gather the information you need to make decisions about your configuration.

Before you begin the tasks of installing and configuring Advanced Backup and Recovery for z/OS, be sure to complete these prerequisite steps covered in this chapter:

1. Read the IBM Tivoli Advanced Backup and Recovery for z/OS Program Directory and complete all the installation requirements listed there.
2. Read "Designing your Advanced Backup and Recovery for z/OS configuration" to determine how you want your Advanced Backup and Recovery for z/OS configuration to look. For example, you must decide:
   • Where you want to deploy Tivoli Enterprise Monitoring Servers and Advanced Backup and Recovery for z/OS monitoring agents
   • What kind and how many runtime environments you need for your configuration
3. To get ready for configuration, make all the decisions called out in decision points in "Designing your Advanced Backup and Recovery for z/OS configuration" and fill out the worksheets in "Worksheets for Advanced Backup and Recovery for z/OS configuration" on page 20.
4. When you have designed your configuration and filled out the work sheets, see "A road map for installation and configuration of Advanced Backup and Recovery for z/OS" on page 37 to determine your next step in installation and configuration.

Designing your Advanced Backup and Recovery for z/OS configuration

The Advanced Backup and Recovery for z/OS product uses the Tivoli Monitoring Services infrastructure (also referred to as IBM Tivoli Monitoring, or Tivoli Management Services). The Tivoli Monitoring Services infrastructure provides security, data transfer and storage, notification mechanisms, user interface presentation, and communication services for products in the IBM Tivoli Monitoring and monitoring agents in an agent-server-client architecture (see Figure 1 on page 3).
The components include:

- “Tivoli Enterprise Monitoring Servers - hub and remote” on page 9
- “Tivoli Data Warehouse and the warehouse proxy” on page 10
- “Advanced Backup and Recovery for z/OS monitoring agent” on page 11
- “Tivoli Enterprise Portal client and Tivoli Enterprise Portal Server” on page 12
- “Understanding runtime environments” on page 13

Some components, such as Tivoli Enterprise Portal and the Tivoli Data Warehouse, run only on distributed operating systems (Windows, Linux®, or UNIX). The Tivoli Enterprise Monitoring Server can run on either distributed or mainframe systems. The Advanced Backup and Recovery for z/OS monitoring agent runs only on z/OS systems.

The required versions of the Tivoli Monitoring Services infrastructure components are distributed with the Advanced Backup and Recovery for z/OS software.

As you read through these sections, fill out the following worksheets to get ready for the configuration process:

- “Worksheet: Your overall configuration” on page 20
- “Worksheets: Information to gather when you put your hub monitoring server on a distributed system” on page 22
- “Worksheets: Information to gather when you put your hub monitoring server on a z/OS system” on page 28
- “Worksheet: Information for configuring your runtime environment” on page 36
Tivoli Enterprise Monitoring Servers - hub and remote

All requests and data for monitoring agents, such as Advanced Backup and Recovery for z/OS agent, flow through a hub Tivoli Enterprise Monitoring Server (monitoring server). The monitoring server component performs the following tasks:

- Retrieves data from the monitoring agents and delivers data to the portal server.
- Sends alerts to the portal server when conditions specified in situations are met.
- Receives commands from the portal client and passes them to the appropriate monitoring agents.

You can install this component on a z/OS, Windows, and some UNIX and Linux operating system. See the IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide for a complete list of supported platforms.

Decision point:

Should you install a monitoring server on a z/OS, Windows, UNIX, or Linux system?

Many organizations prefer the reliability and availability characteristics of the z/OS platform for the monitoring server.

On the other hand, if your installation runs monitoring agents for other platforms, you might prefer a distributed platform such as Windows or Linux for your hub monitoring server. If you install the hub monitoring server on Windows or Linux, you have the option of deploying the portal server on the same system, which can shorten the communications path.

This decision influences the way you configure the Advanced Backup and Recovery for z/OS:

- If you choose to install the monitoring server on a distributed system, you fill out "Worksheets: Information to gather when you put your hub monitoring server on a distributed system" on page 22.
- If you choose to install the monitoring server on z/OS, you fill out "Worksheets: Information to gather when you put your hub monitoring server on a z/OS system" on page 28.

The two basic types of monitoring servers are hub and remote:

- The hub monitoring server is the focal point for managing your environment. You can configure only one hub monitoring server. It communicates with the portal server, with monitoring agents, and optionally with monitoring servers running remotely.
- You can optionally configure a remote monitoring server to distribute the workload of the hub monitoring server, but it is not required.

Each remote monitoring server must be installed on its own system or workstation. A remote monitoring server communicates with the hub monitoring server and with monitoring agents running on the same or different systems. Note that a remote monitoring server is remote only with respect to the hub monitoring server, not necessarily with respect to the monitoring agents. A monitoring agent can be installed on the same system as a remote monitoring server. The monitoring server is then local to the monitoring agent, but it is still a remote monitoring server. See "Advanced Backup and Recovery for z/OS monitoring agent" on page 11.
The configuration scenarios in this guide assume that the monitoring server being configured with the Advanced Backup and Recovery monitoring agent is a hub monitoring server. For instructions on configuring remote monitoring servers, see the IBM Tivoli Monitoring: Configuring IBM Tivoli Enterprise Monitoring Server on z/OS and IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide.

---

**Decision point:**

**Should you configure a remote monitoring server or servers for your environment?**

A remote monitoring server is designed to offload work from the hub. Whether or not your hub gets overloaded enough to slow down hub processing of situations and other data depends on the complexity of your environment. The following factors tend to boost strain on the hub and increase the likelihood that you might want a remote server to help out the hub:

- Monitoring many z/OS images. The more monitoring agents you have installed on z/OS systems, the more work for the hub.
- Monitoring many situations. Advanced Backup and Recovery for z/OS does not come with a great many situations to consume hub cycles, so unless you have other monitoring agents with lots of situations, this is probably not the deciding factor.

Configuring a remote monitoring server can also give you scalability potential and failover protection, which might be especially important when you add Advanced Backup and Recovery for z/OS to an environment with many monitoring agents. For more information on these issues, see the IBM Redbooks: Deployment Guide Series: IBM Tivoli Monitoring at the following Web site:


Look for the following topics:

- Small/medium installation
- Scalability

---

**Tivoli Data Warehouse and the warehouse proxy**

The Tivoli Data Warehouse, an optional component of Tivoli Monitoring Services, is a long-term data store for the performance and analysis data collected by the monitoring agents. The warehouse proxy is a process that periodically moves data from the Advanced Backup and Recovery for z/OS monitoring agent to the Tivoli Data Warehouse. The short-term history files are maintained in the persistent data store at the location of the monitoring agent. The warehouse proxy agent retrieves the short-term history data and stores it in the warehouse.

The Tivoli Data Warehouse and warehouse proxy are available on Windows, UNIX, and Linux. For instructions on installing and configuring the Tivoli Data Warehouse and warehouse proxy, see IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide, GC32-9407 and IBM Tivoli Monitoring: IBM Tivoli Monitoring Administrator’s Guide, SC32-9408.
Advanced Backup and Recovery for z/OS monitoring agent

The Advanced Backup and Recovery for z/OS monitoring agent, like all Tivoli Enterprise Monitoring Agents, monitors and collects data from a managed system. Monitoring agents are installed on the systems or subsystems you want to monitor. They pass data to monitoring servers (remote or hub), receive instructions from the monitoring servers, and issue commands to the managed systems.
Tivoli Enterprise Portal client and Tivoli Enterprise Portal Server

The Tivoli Enterprise Portal client (portal client) is the user interface for Advanced Backup and Recovery for z/OS. The portal client is a thin Java application that communicates with the Tivoli Enterprise Portal Server to send requests and retrieve data.

Tip
These components require IBM Java Runtime Environment (JRE) V1.4.2. You do not need to install this JRE ahead of time, because the installation program for the Tivoli Monitoring Services components includes the JRE.

You can access all portal client function through either a desktop client or an Internet Explorer browser connected to an embedded Web server in the Tivoli Enterprise Portal Server.

- The desktop portal client allows access to portal client function and is required for configuration. In the operations environment, you must install the portal client on at least one desktop. Then individual Advanced Backup and Recovery for z/OS users can either install the portal client on their desktops, or use the browser portal client to access the portal client function. The desktop client can run on Windows or Linux (RedHat or SUSE Intel® Linux only).
- The browser portal client allows individual Advanced Backup and Recovery for z/OS users to leverage an existing deployment of Internet Explorer without installing the client component on every user’s workstation. The browser client can run on Windows only, with Internet Explorer 6 as the only supported browser.

See the IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide for complete information about supported operating system version support.

The Tivoli Enterprise Portal Server (portal server) is a Java application server that enables retrieval, manipulation, and analysis of data from agents. The portal server holds all the information needed to format the workspaces viewed in the portal client. The portal server communicates with the portal clients (default port is 1920) and with the hub monitoring server (default port is 1918).

You can install the portal server on a Windows, Linux for Intel, 31-bit Linux for z/OS, or AIX® system.

Decision point:
How do you choose among Windows, Linux, and AIX for installation of the portal server, and between Windows and Linux for installation of the portal desktop client?

Base this decision on conditions and preferences at your site, such as:
- The operating systems already in use in the existing environment
- Familiarity and comfort level with each operating system
- Whether you want to bring additional operating systems into your site’s current configuration

Note that you can run with mixed portal server and desktop client components. For example, you can have a desktop client on Linux and a portal server on AIX, or a desktop client on Windows and a portal server on Linux.
The portal server requires that you have already installed DB2® Universal Database™ (DB2 UDB) Express or Enterprise. The DB2 UDB Express or Enterprise is provided in the Advanced Backup and Recovery for z/OS installation package. If you already have DB2 UDB version 8 or higher on the workstation where you plan to install the portal server, you do not need to install it again for Advanced Backup and Recovery for z/OS.

**Understanding runtime environments**

Your next planning task is to decide what types of runtime environments to set up for the components you plan to deploy on your z/OS images.

Fill out the "Worksheet: Information for configuring your runtime environment" on page 36 as you read this section.

A runtime environment is a logical grouping of runtime libraries that are referenced by started tasks as they run on a z/OS image. When you run the Configuration Tool to configure the Advanced Backup and Recovery for z/OS monitoring agent, you start this process by defining a runtime environment of a certain type, which determines the number and types of runtime libraries required.

Table 2 summarizes the types of libraries created during installation and configuration of the Advanced Backup and Recovery for z/OS product.

<table>
<thead>
<tr>
<th>Type of Library</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runtime libraries</td>
<td>General term for libraries referenced by started task procedures. Includes SMP/E target, base, and LPAR-specific libraries.</td>
</tr>
<tr>
<td>SMP/E target libraries</td>
<td>SMP/E maintained target libraries.</td>
</tr>
<tr>
<td>Abbreviated &amp;thilev.</td>
<td></td>
</tr>
<tr>
<td>Base libraries</td>
<td>Read-only runtime libraries that the configuration process does not alter and that are shareable between systems. These libraries physically exist in a full or base runtime environment, or as SMP/E target libraries (if a runtime environment shares with SMP/E). The base libraries can contain the actual data sets maintained by SMP/E, or a copy of them. Use a clone or copy of the SMP/E installation libraries for a production environment.</td>
</tr>
<tr>
<td>Abbreviated &amp;rhilev or &amp;rhilev.&amp;rte.</td>
<td></td>
</tr>
<tr>
<td>LPAR-specific libraries</td>
<td>Runtime libraries that are built during configuration to run on a specific logical partition (LPAR). These libraries contain the unique elements required for a particular LPAR and cannot be shared among z/OS images.</td>
</tr>
<tr>
<td>Abbreviated &amp;rhilev.&amp;rte.</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 explains the types of runtime environments that you can create during product configuration.

<table>
<thead>
<tr>
<th>Type of runtime environment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full (self-contained) runtime environment</td>
<td>Runtime environment containing a full set of dedicated libraries, consisting of both LPAR-specific libraries and a copy of the SMP/E installation read-only base libraries eligible for sharing with other runtime environments.</td>
</tr>
</tbody>
</table>

See "Example 1. Full (self-contained) runtime environment" on page 14.
Table 3. Types of runtime environments (continued)

<table>
<thead>
<tr>
<th>Type of runtime environment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base runtime environment</td>
<td>Runtime environment containing exclusively read-only, shareable base libraries, which are a subset of the libraries needed to run monitoring agents. Therefore, they must be shared by another runtime environment.</td>
</tr>
<tr>
<td></td>
<td>See “Example 2. Base runtime environment” on page 16.</td>
</tr>
<tr>
<td>Sharing-with-base runtime</td>
<td>Runtime environment containing LPAR-specific libraries and referencing the base libraries configured in a base runtime environment.</td>
</tr>
<tr>
<td>Sharing-with-full runtime</td>
<td>Runtime environment containing LPAR-specific libraries and referencing the base libraries configured in a full runtime environment.</td>
</tr>
<tr>
<td>Sharing-with-SMP/E runtime</td>
<td>Runtime environment containing LPAR-specific libraries and referencing the libraries managed by SMP/E.</td>
</tr>
</tbody>
</table>

The distinction among library types allows you to optimize your product environment. For example, by allocating common base libraries to a single runtime environment that can be shared by other runtime environments, you can substantially reduce the amount of disk space required, as well as simplify the application of product maintenance across remote z/OS images.

Quick start suggestion for a runtime environment configuration

There are many variables and lots of information to consider when deciding on a runtime environment configuration for your installation. To get you started quickly, here are a couple of suggestions:

- In most cases, when you're monitoring multiple z/OS images, you can get good results with a sharing-with-base or sharing-with-SMP/E type of runtime environment.
- If you want to test Advanced Backup and Recovery on an isolated test system, use a full, self-contained type of runtime environment.

Possible configurations using runtime environments

The following five examples show different types of runtime environment configurations. The way you choose to set up your runtime environments depends on your site requirements and maintenance procedures.

Tip

The data set name (DSN) is composed of the high-level qualifier (&hilev), followed by the mid-level qualifier (&rte), followed by the low-level qualifier. The field settings and library names shown are for illustrative purposes only.

Example 1. Full (self-contained) runtime environment: The full runtime environment contains all libraries required by a particular IBM product and is the
easiest runtime environment to create. This type of runtime environment can be defined in any situation but is most suitable if at least one of the following statements is true:

- Your installation comprises only a single z/OS image.
- You want each z/OS image to be independent.
- You are creating a runtime environment for a specific combination of monitoring agents that does not exist in any other runtime environment.

The following example represents a full runtime environment called RTE1 that is completely self-contained. All base libraries and LPAR-specific libraries are allocated within RTE1. The base libraries in a full runtime environment are a copy of the SMP/E installation libraries.

RTE Name: RTE1  
Type: FULL  
Hilev: IBM.OMXE  
Midlev: RTE1  
Shares with: (none)

LPAR-specific library DD DSNAME resolution:
//RKANPARU DD DSN=IBM.OMXE.RTE1.RKANPAR  
    DD DSN=IBM.OMXE.RTE1.RKANPARU

Base library DD DSNAME resolution:
//RKANMODL DD DSN=IBM.OMXE.RTE1.RKANMODL

This type of runtime environment is illustrated in Figure 2.

![Figure 2. Full runtime environment on a single system](image-url)

Figure 3 on page 16 shows the way a full runtime environment can be expanded to more than one z/OS image. Each runtime environment is self-contained; the three runtime environments X, Y, and Z on systems A, B, and C do not share any libraries.
Example 2. **Base runtime environment:** The base runtime environment allocates shareable base libraries only. A base runtime environment must be used in conjunction with a sharing-with-base runtime environment (see **Example 3. Sharing-with-base runtime environment** on page 17) to provide the complete set of libraries required to run the installed monitoring agents. The base runtime environment and the sharing-with-base runtime environment must be defined for the same combination of monitoring agents.

A base runtime environment is typically used when storage devices are shared or when monitoring agent maintenance synchronization across systems is desired. Sharing base libraries avoids unnecessary duplication, saves disk space, and simplifies the application of monitoring agent maintenance to a common point.

The following example represents a base runtime environment called RTE2.

- **RTE Name:** RTE2
- **Type:** BASE
- **Hilev:** IBM.OMXE
- **Midlev:** (none)
- **Shares with:** (none)

**LPAR-specific library DD DSNNAME resolution:**
*There are no LPAR-specific libraries in a BASE RTE.*

**Base library DD DSNNAME resolution:**
//RKANMODL DD DSN=IBM.OMXE.RKANMODL

This type of runtime environment is illustrated in **Figure 4 on page 17**.
Example 3. Sharing-with-base runtime environment:  The sharing-with-base configuration is a good choice for environments where storage devices are shared. Using the base runtime environment for common data sets, the sharing-with-base runtime environment contains only LPAR-specific libraries. The base runtime environment cannot contain the LPAR-specific libraries required to run the installed monitoring agents. The base runtime environment and the sharing-with-base runtime environment must be defined for the same combination of monitoring agents.

The Configuration Tool resolves product configuration elements to point at the LPAR-specific libraries and the base runtime environment libraries as necessary.

The following example represents a sharing-with-base runtime environment called RTE3, which obtains its base library information from the base runtime environment (RTE2).

RTE Name: RTE3  
Type: SHARING  
Hilev: IBM.OMXE  
Midlev: RTE3  
Shares with: BASE RTE2

LPAR-specific library DD DSNNAME resolution:
//RKANPARU DD DSN=IBM.OMXE.RTE1.RKANPAR
// RKANPARU DD DSN=IBM.OMXE.RTE1.RKANPARU

Base library DD DSNNAME resolution:
//RKANMODL DD DSN=IBM.OMXE.RKANMODL

This type of runtime environment is illustrated in Figure 5 on page 18.
Example 4. Sharing-with-full runtime environment:  The sharing-with-full runtime environment allocates LPAR-specific libraries only, and in this example, obtains its base library information from a full runtime environment that contains the same combination of monitoring agents.

This configuration can also be used for environments where storage devices are shared, although the base/sharing pair is the preferred approach.

The following example represents a sharing-with-full runtime environment called RTE4, which obtains its base library information from the full runtime environment (RTE1).

RTE Name: RTE4  
Type: SHARING  
Hilev: IBM.OMXE  
Midlev: RTE4  
Shares with: FULL RTE1

LPAR-specific library DD DSNNAME resolution:
//RKANPARU DD DSN=IBM.OMXE.RTE1.RKANPAR  
                              DD DSN=IBM.OMXE.RTE1.RKANPARU

Base library DD DSNNAME resolution:
//RKANMODL DD DSN=IBM.OMXE.RTE1.RKANMODL
This type of runtime environment is illustrated in Figure 6.

**Example 5. Sharing-with-SMP/E runtime environment:** The sharing-with-SMP/E runtime environment allocates LPAR-specific libraries only and obtains its base library information from target libraries managed by SMP/E. Note that the target SMP/E libraries must be copies (cloned) rather than the system libraries. See the appendix on making a copy of your system software (cloning) in *z/OS and z/OS.e Planning for Installation*.

Use the sharing-with-SMP/E configuration if at least one of the following statements is true:
- Space is limited on storage devices. This configuration method does not allocate base libraries in the runtime environment, thereby reducing storage requirements.
- You want to activate SMP/E applied monitoring agent maintenance immediately.

The following example represents a sharing-with-SMP/E runtime environment called RTE5, which obtains its base library information from SMP/E target libraries.

RTE Name: RTE5  
Type: SHARING  
Hilev: IBM.OMXE  
Midlev: RTE5  
Shares with: SMP/E Target Libraries  
Hilev (SMP): INSTALL.SMPE  

**LPAR-specific library DD DSNAME resolution:**

```
//RKANPARU DD DSN=IBM.OMXE.RTE1.RKANPARU
```

**Base library DD DSNAME resolution:**

```
//RKANMODL DD DSN=IBM.OMXE.SMPE.TKANMODL
```
The sharing-with-SMP/E type of runtime environment is illustrated in Figure 7.

![Diagram showing sharing-with-SMP/E runtime environment]

**Figure 7. Sharing-with-SMP/E runtime environment**

**Worksheets for Advanced Backup and Recovery for z/OS configuration**

- "Worksheet: Your overall configuration"
- "Worksheets: Information to gather when you put your hub monitoring server on a distributed system" on page 22
- "Worksheets: Information to gather when you put your hub monitoring server on a z/OS system" on page 28
- "Worksheet: Information for configuring your runtime environment" on page 36

**Worksheet: Your overall configuration**

As you read the following sections, you can start to fill in your own overall Advanced Backup and Recovery for z/OS configuration, using the worksheet below. Note that all elements are required, unless otherwise indicated.

Fill in the system name where you plan to install each component, using "Designing your Advanced Backup and Recovery for z/OS configuration" on page 7 as a guide:
Table 4. Worksheet for designing your overall configuration

<table>
<thead>
<tr>
<th>Advanced Backup and Recovery for z/OS component</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Backup and Recovery for z/OS monitoring agents (z/OS)</td>
<td>Number of images: _____</td>
</tr>
<tr>
<td>See “Advanced Backup and Recovery for z/OS monitoring agent” on page 11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Image 1:</td>
</tr>
<tr>
<td></td>
<td>– Host name:___________</td>
</tr>
<tr>
<td></td>
<td>– IP address:__________</td>
</tr>
<tr>
<td></td>
<td>• Image 2:</td>
</tr>
<tr>
<td></td>
<td>– Host name:___________</td>
</tr>
<tr>
<td></td>
<td>– IP address:__________</td>
</tr>
<tr>
<td></td>
<td>• Image 3:</td>
</tr>
<tr>
<td></td>
<td>– Host name:___________</td>
</tr>
<tr>
<td></td>
<td>– IP address:__________</td>
</tr>
<tr>
<td></td>
<td>• Image 4:</td>
</tr>
<tr>
<td></td>
<td>– Host name:___________</td>
</tr>
<tr>
<td></td>
<td>– IP address:__________</td>
</tr>
<tr>
<td></td>
<td>• Image 5:</td>
</tr>
<tr>
<td></td>
<td>– Host name:___________</td>
</tr>
<tr>
<td></td>
<td>– IP address:__________</td>
</tr>
<tr>
<td>Hub Tivoli Enterprise Monitoring Server</td>
<td>Hub Tivoli Enterprise Monitoring Server is located on (check one):</td>
</tr>
<tr>
<td>See “Tivoli Enterprise Monitoring Servers - hub and remote” on page 9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>— Windows server</td>
</tr>
<tr>
<td></td>
<td>— Linux server</td>
</tr>
<tr>
<td></td>
<td>— UNIX server</td>
</tr>
<tr>
<td></td>
<td>— z/OS server</td>
</tr>
<tr>
<td></td>
<td>– Host name:___________</td>
</tr>
<tr>
<td></td>
<td>– IP address:__________</td>
</tr>
<tr>
<td>Remote Tivoli Enterprise Monitoring Server?</td>
<td>Yes</td>
</tr>
<tr>
<td>See “Tivoli Enterprise Monitoring Servers - hub and remote” on page 9</td>
<td>No</td>
</tr>
<tr>
<td>Optional</td>
<td>If yes, indicate where you plan to put remote Tivoli Enterprise Server or Servers:</td>
</tr>
<tr>
<td></td>
<td>— Windows server</td>
</tr>
<tr>
<td></td>
<td>— Linux server</td>
</tr>
<tr>
<td></td>
<td>— UNIX server</td>
</tr>
<tr>
<td></td>
<td>— z/OS server</td>
</tr>
<tr>
<td></td>
<td>– Host name:___________</td>
</tr>
<tr>
<td></td>
<td>– IP address:__________</td>
</tr>
<tr>
<td>Tivoli Data Warehouse</td>
<td>Yes</td>
</tr>
<tr>
<td>See “Tivoli Data Warehouse and the warehouse proxy” on page 10</td>
<td>No</td>
</tr>
<tr>
<td>Optional</td>
<td>If yes, indicate where you plan to put the Tivoli Data Warehouse:</td>
</tr>
<tr>
<td></td>
<td>— Windows server</td>
</tr>
<tr>
<td></td>
<td>— Linux server</td>
</tr>
<tr>
<td></td>
<td>— UNIX server</td>
</tr>
<tr>
<td></td>
<td>• Host name:__________</td>
</tr>
<tr>
<td></td>
<td>• IP address:__________</td>
</tr>
<tr>
<td>Tivoli Enterprise Portal Server</td>
<td>Tivoli Enterprise Portal Server is located on (check one):</td>
</tr>
<tr>
<td>See “Tivoli Enterprise Portal client and Tivoli Enterprise Portal Server” on page 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>— Windows</td>
</tr>
<tr>
<td></td>
<td>— Linux</td>
</tr>
<tr>
<td></td>
<td>— AIX</td>
</tr>
<tr>
<td></td>
<td>• Host name:__________</td>
</tr>
<tr>
<td></td>
<td>• IP address:__________</td>
</tr>
</tbody>
</table>
Table 4. Worksheet for designing your overall configuration (continued)

<table>
<thead>
<tr>
<th>Advanced Backup and Recovery for z/OS component</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli Enterprise Portal desktop client</td>
<td>Desktop client is located on (check one):</td>
</tr>
<tr>
<td>See &quot;Tivoli Enterprise Portal client and Tivoli Enterprise Portal Server on page 12&quot;</td>
<td></td>
</tr>
<tr>
<td>____ Windows</td>
<td></td>
</tr>
<tr>
<td>____ Linux</td>
<td></td>
</tr>
<tr>
<td>Tivoli Enterprise Portal browser client</td>
<td>Windows</td>
</tr>
<tr>
<td>See &quot;Tivoli Enterprise Portal client and Tivoli Enterprise Portal Server on page 12&quot;</td>
<td></td>
</tr>
</tbody>
</table>

For complete information about operating system version support for each Tivoli Monitoring Services component, see the *IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide*.

Worksheets: Information to gather when you put your hub monitoring server on a distributed system

If you are putting your hub monitoring server on a distributed system, fill out the following tables:

- "Configuration worksheet if the hub monitoring server is on a distributed system"
- "Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system" on page 23

If you are putting your hub monitoring server on z/OS, fill out the worksheets in "Worksheets: Information to gather when you put your hub monitoring server on a z/OS system" on page 28.

Note that all fields are required, unless otherwise indicated.

**Configuration worksheet if the hub monitoring server is on a distributed system**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring server host name</td>
<td>Host name of the system where the hub monitoring server is installed. You need both the short host name (without the domain name) and the fully qualified host name of the monitoring server workstation (with the domain name).</td>
<td></td>
</tr>
<tr>
<td>Monitoring server port number</td>
<td>Port number of the system where the hub monitoring server is installed. The default is 1918. <strong>Note:</strong> The same TCP/IP port number must be used for every monitoring server in the enterprise. Also, make sure that the monitoring server well-known port is not on the TCP/IP reserved port list.</td>
<td></td>
</tr>
</tbody>
</table>
Table 5. Configuration worksheet if the hub monitoring server is on a distributed system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring server name (TEMS name, or node ID)</td>
<td>Name (TEMS name, or node ID) of the monitoring server. The default name for the hub monitoring server is HUB_hostname. For example, for host ITMSERV61, the default hub name is HUB_ITMSERV61.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The TEMS name is generally not the same as the host name. It is an arbitrary name assigned during monitoring server configuration.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• On Windows systems, you can find the TEMS name in Manage Tivoli Monitoring Services. Right-click Tivoli Enterprise Monitoring Server and select Browse Settings, and look for the value of CMS_NODEID.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• On Linux and UNIX systems, you can find the value of CMS_NODEID in the KBBENV file located in the $itmhome/tables/cms_name subdirectory.</td>
<td></td>
</tr>
<tr>
<td>Encryption key</td>
<td>You are prompted for a 32-bit encryption key when you begin configuration of components on a distributed system. You can use the default key. Be sure to document the value you use for the key, because you must use the same key in configuring any monitoring server and the portal servers that communicate with that monitoring server.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>__ Use default key: _____________________________________________________________________________________________________________________________________________________</td>
<td></td>
</tr>
<tr>
<td></td>
<td>__ Define your own key: __________________________________________________________________________________________________________________________________________________</td>
<td></td>
</tr>
<tr>
<td>Do you want to forward Take Action commands to NetView® for z/OS?</td>
<td>You can enable forwarding of z/OS console commands issued from the Tivoli Enterprise Portal to NetView for user authorization and command execution. See “Setting up NetView authentication of Take Action commands” on page 110 for instructions.</td>
<td></td>
</tr>
</tbody>
</table>

**Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system**

Fill out the following communication protocols worksheet if you plan to put your hub monitoring server on a distributed system. For information about general requirements for using the TCP/IP communication protocols, see “Requirements for TCP/IP communication protocols” on page 40.
**Table 6. Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
</table>
| **Communication protocols for a monitoring server on a distributed system** | You must plan communication protocols for a monitoring server on a distributed system to send data to other Advanced Backup and Recovery for z/OS components, such as remote monitoring servers and portal servers. | • Protocol 1 ___________
Highest-priority communication protocol. The IP.PIPE or IP.SPIPE protocol is generally the best choice for Protocol 1 in firewall environments. These protocols enable the monitoring server to communicate with the monitoring agent on z/OS and with other components on other systems, even if the components are running behind firewalls.
• Protocol 2 ___________
• Protocol 3 ___________

**IP.PIPE or IP.SPIPE Settings** (See "Configuration worksheet if the hub monitoring server is on a distributed system" on page 22.)

<table>
<thead>
<tr>
<th>Host name or IP address</th>
<th>Host name or IP address of the system where the monitoring server is installed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port number</td>
<td>Listening port for the hub monitoring server to use in communicating with the monitoring agent. The default port number is 1918 for IP.PIPE and 3660 for IP.SPIPE. <strong>Note:</strong> The same TCP/IP port number must be used for every monitoring server in the enterprise. Also, make sure that the monitoring server well-known port is not on the TCP/IP reserved port list.</td>
</tr>
</tbody>
</table>

**IP_UDP Settings** (See "Configuration worksheet if the hub monitoring server is on a distributed system" on page 22.)

<table>
<thead>
<tr>
<th>Host name or IP address</th>
<th>Host name or IP address of the system where the monitoring server is installed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port or pool number</td>
<td>Listening port for the hub monitoring server to use in communicating with the monitoring agent, or the pool from which the port is to be selected. The default number is 1918.</td>
</tr>
</tbody>
</table>

**SNA Settings**

<table>
<thead>
<tr>
<th>Network Name</th>
<th>SNA network identifier for your location.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LU name</td>
<td>LU name for the monitoring server. This LU name corresponds to the Local LU Alias in your SNA communications software.</td>
</tr>
<tr>
<td>LU 6.2 logmode</td>
<td>Name of the LU6.2 logmode. The default value is CANCTDCS.</td>
</tr>
<tr>
<td>TP name</td>
<td>Transaction program name for the monitoring server. The default value is SNASOCKETS.</td>
</tr>
</tbody>
</table>
Table 6. Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication protocols for the monitoring agent</strong></td>
<td>You must plan communication protocols for the monitoring agent to send data to the monitoring server. <strong>Tip:</strong> Make sure that at least one of the protocols you specify for the monitoring agent corresponds to a protocol specified for the agent's primary monitoring server.</td>
<td>• Protocol 1 ____________</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highest-priority communication protocol. IP.PIPE, IP.SPIPE, IP6.PIPE, or IP6.SPIPE is generally the best choice for Protocol 1 in firewall environments. These protocols enable the monitoring agent on z/OS to communicate with the monitoring server on a distributed system, even if both components are running behind firewalls.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Protocol 3 ____________</td>
</tr>
<tr>
<td><strong>Language locale</strong></td>
<td>Specify a numeric value (1-36) representing the language and region. For example, specify 1 for United States English. For a list of the language locale values, press F1 (Help) in the Configuration Tool panel where the prompt is displayed.</td>
<td></td>
</tr>
</tbody>
</table>
Table 6. Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
</table>
| TEMS name (node ID)             | Node ID of the hub monitoring server. Note that the TEMS name, or node ID, is generally not the same as the host name. It is an arbitrary name assigned during Tivoli Enterprise Monitoring Server configuration. Find the node ID as follows, depending on where the monitoring server is installed:  
  - On Windows systems, you can find the TEMS name in Manage Tivoli Monitoring Services. Right-click Tivoli Enterprise Monitoring Server and select Browse Settings, and look for the value of CMS_NODEID.  
  - On Linux and UNIX systems, you can find the value of CMS_NODEID in the KBBENV file located in the $itmhome/tables/cms_name subdirectory.                                                                                                                                                                                                                     |                               |
| IP.* or IP6.* protocols         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                               |
| Host name                       | Host name of the system where the monitoring agent is installed.  
  To obtain the host name, enter TSO HOMETEST at the command line of the z/OS system where the monitoring agent is installed.  
  If the z/OS domain name resolver configuration specifies a search path that includes the target domain suffix, specify only the first qualifier of the host name. (Example: sys is the first qualifier of the fully qualified host name sys.ibm.com.) Otherwise, specify the fully qualified host name.                                                                                                                                                                                                                     |                               |
| Address                         | IP address of the system where the monitoring agent is installed.  
  To obtain the IP address, enter TSO HOMETEST at the command line of the z/OS system where the monitoring agent is installed.                                                                                                                                                                                                                                                                                                                                                      |                               |
| Started task                    | Started task name of the TCP/IP server. You can specify * to allow the IP stack to dynamically find the TCP/IP image. * is the suggested value for the started task.                                                                                                                                                                                                                                                                                                                                   |                               |
Table 6. Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network interface list</td>
<td>A list of network interfaces for the monitoring agent to use. This parameter is required for sites that are running more than one TCP/IP interface or network adapter on the same z/OS image. Setting this parameter allows you to direct the monitoring agent to connect to a specific TCP/IP local interface.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specify each network adapter by the host name or IP address to be used for input and output. Use a blank space to separate the entries.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If your site supports DNS, you can enter IP addresses or short host names. If your site does not support DNS, you must enter fully qualified host names.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you specify an interface address or a list of interface addresses, the Configuration Tool generates the KDEB_INTERFACELIST parameter in the KDSENV member of the &amp;rhilev.&amp;rtename.RKANPARU library.</td>
<td></td>
</tr>
<tr>
<td>Address translation</td>
<td>By default, Ephemeral Pipe Support (EPS) is enabled automatically to allow IP.PIPE connections to cross a (network address) translating firewall. This feature obviates the need for a broker partition file (KDC_PARTITIONFILE=KDCPART).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you specifically want to disable EPS, specify Y for Address translation.</td>
<td></td>
</tr>
<tr>
<td>Partition name</td>
<td>If you specified Y for Address translation, specify the partition name that identifies the monitoring agent relative to the firewall used for address translation.</td>
<td></td>
</tr>
<tr>
<td>SNA settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VTAM applid prefix</td>
<td>Specify the applid prefix to create the VTAM node and applids required by the monitoring agent. These applids begin with a prefix, and end with a unique applid value. The applids are contained in the VTAM major node. The default prefix is CTDHL.</td>
<td></td>
</tr>
</tbody>
</table>
Table 6. Configuration worksheet for communication protocols if the hub monitoring server is on a distributed system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication protocols for the portal server</td>
<td>You must plan communication protocols for the portal server to receive data from the monitoring server. Choose from the following protocols: IP.PIPE Uses the TCP/IP protocol for underlying communications. IP.UDP Uses the TCP/IP User Datagram Protocol (UDP). IP.SPIPE Secure IP.PIPE protocol. SNA.PIPE Uses the SNA Advanced Program-To-Program Communications (APPC).</td>
<td>• Protocol 1 ___________ Highest-priority communication protocol. The IP.PIPE or IP.SPIPE protocol is generally the best choice for Protocol 1 in firewall environments. These protocols enable the portal server to communicate with a monitoring server on another system, even if both components are running behind firewalls. • Protocol 2 ___________ • Protocol 3 ___________</td>
</tr>
</tbody>
</table>

IP.* settings (See “Configuration worksheet if the hub monitoring server is on a distributed system” on page 22.)

<table>
<thead>
<tr>
<th>Host name or IP address</th>
<th>Host name or IP address of the hub monitoring server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port number</td>
<td>Same port number you specified for the hub monitoring server.</td>
</tr>
</tbody>
</table>

SNA settings

<table>
<thead>
<tr>
<th>Network name</th>
<th>SNA network identifier for your location.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LU name</td>
<td>LU name for the monitoring server. This LU name corresponds to the Local LU Alias in your SNA communications software.</td>
</tr>
<tr>
<td>LU 6.2 logmode</td>
<td>Name of the LU6.2 logmode. The default value is CANCTDCS.</td>
</tr>
<tr>
<td>TP name</td>
<td>Transaction program name for the monitoring server. The default value is SNASOCKETS.</td>
</tr>
</tbody>
</table>

Worksheets: Information to gather when you put your hub monitoring server on a z/OS system

If you are putting your hub monitoring server on a z/OS system, fill out the tables below:

- “Configuration worksheet if the monitoring server is on a z/OS system” on page 29
- “Configuration worksheet for communication protocols if the monitoring server is on a z/OS system” on page 31

For information about general requirements for using the TCP/IP communication protocols, see “Requirements for TCP/IP communication protocols” on page 40.
**Configuration worksheet if the monitoring server is on a z/OS system**

Note that all fields are required, unless otherwise indicated.

**Table 7. Configuration worksheet if the monitoring server is on a z/OS system**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Runtime environment settings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Host name</td>
<td>Host name of the z/OS system where the hub monitoring server is installed. To obtain the host name, enter TSO HOMETEST at the command line of the z/OS system where the hub monitoring server is installed. If the z/OS domain name resolver configuration specifies a search path that includes the target domain suffix, specify only the first qualifier of the host name. (Example: sys is the first qualifier of the fully qualified host name sys.ibm.com.) Otherwise, specify the fully qualified host name.</td>
<td></td>
</tr>
<tr>
<td>Port number</td>
<td>Address of the IP port for the z/OS system where the monitoring server is installed. <strong>Note:</strong> The same TCP/IP port number must be used for every monitoring server in the enterprise. Also, make sure that the monitoring server well-known port is not on the TCP/IP reserved port list.</td>
<td></td>
</tr>
<tr>
<td><strong>LU6.2 logmode settings:</strong></td>
<td>You must associate an SNA logmode with each monitoring server on z/OS. You can either use an existing logmode or create a new one.</td>
<td></td>
</tr>
<tr>
<td>LU6.2 logmode name</td>
<td>Name of the LU6.2 logmode defined for use by the monitoring server. The default value is CANCTDCS.</td>
<td></td>
</tr>
<tr>
<td>Logmode table name</td>
<td>Name of the logmode table that contains the LU6.2 logmode. The default name is KDSMTAB1.</td>
<td></td>
</tr>
<tr>
<td>VTAMLIB load library</td>
<td>Name of the system library used to contain VTAM logmode tables. This is usually SYS1.VTAMLIB. You can specify any load library if you do not want to update your VTAMLIB directly.</td>
<td></td>
</tr>
<tr>
<td>VTAM macro library</td>
<td>Name of the system library that contains the VTAM macros. The default is SYS1.SISTMAC.</td>
<td></td>
</tr>
<tr>
<td><strong>Configuration value settings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tivoli Enterprise Monitoring Server started task name</td>
<td>Define a name for the started task (procedure name) for the monitoring server. Follow the naming conventions used at your installation, making sure that the value has a maximum of eight characters. Check the IEASSNxx member of SYS1.PARMLIB to make sure that the name you are picking has not been used before.</td>
<td></td>
</tr>
</tbody>
</table>
**Table 7. Configuration worksheet if the monitoring server is on a z/OS system (continued)**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is this a hub or remote Tivoli Enterprise Monitoring Server?</td>
<td>Indicate whether this is a hub or remote monitoring server.</td>
<td></td>
</tr>
<tr>
<td>Do you want to use z/OS Integrated Cryptographic Service Facility (ICSF) on the z/OS hub system?</td>
<td>Ask your security team whether ICSF is installed and configured on the z/OS system where the hub monitoring server is installed. If so, answer Y. The portal server assumes that the monitoring server is using ICSF encryption. If you set the ICSF value to N, the monitoring server uses an alternative, less secure encryption scheme. In that case, you must use a workaround to ensure communication between the monitoring server on z/OS and the portal server. See <strong>Specifying configuration values</strong> on page 82 for instructions.</td>
<td>Yes</td>
</tr>
<tr>
<td>ICSF load library</td>
<td>If ICSF is installed and configured on the z/OS system, specify the load library that contains the CSNB* modules used for password encryption.</td>
<td></td>
</tr>
<tr>
<td>Encryption key</td>
<td>You are prompted for a 32-bit ICSF encryption key. You can use the default key. Be sure to document the value you use for the key, because you must use the same key during the installation of any components that communicate with this monitoring server.</td>
<td>Use default key:</td>
</tr>
<tr>
<td>Enable Web Services SOAP Server</td>
<td>The Web Services SOAP Server must be enabled for a hub monitoring server. You must accept the default value of Y for the Enable Web Services SOAP Server field if you are configuring a hub monitoring server.</td>
<td></td>
</tr>
<tr>
<td>Language locale</td>
<td>Specify a numeric value (1-36) representing the language and region. For example, specify 1 for United States English. For a list of the language locale values, press F1 (Help) in the Configuration Tool panel where the prompt is displayed.</td>
<td></td>
</tr>
<tr>
<td>Do you want to forward Take Action commands to NetView for z/OS?</td>
<td>You can enable forwarding of z/OS console commands issued from the Tivoli Enterprise Portal to NetView for user authorization and command execution. See <strong>Setting up NetView authentication of Take Action commands</strong> on page 110 for instructions.</td>
<td></td>
</tr>
<tr>
<td>VTAM network ID</td>
<td>A VTAM network ID is required for any monitoring server on z/OS. You can locate this value on the NETID parameter in the VTAMLST startup member ATCSTRnn.</td>
<td></td>
</tr>
</tbody>
</table>
Configuration worksheet for communication protocols if the monitoring server is on a z/OS system

Fill out the following communication protocols worksheet for your hub monitoring server on z/OS as well as for each remote monitoring server on z/OS. For information about general requirements for using the TCP/IP communication protocols, see “Requirements for TCP/IP communication protocols” on page 40.

Table 8. Configuration worksheet for communication protocols if the monitoring server is on a z/OS system

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value for your configuration</strong></td>
<td>• Protocol 1 ___________&lt;br&gt; Highest-priority communication protocol.&lt;br&gt;IP.PIPE, IP.SPIPE, IP6.PIPE, or IP6.SPIPE is generally the best choice for Protocol 1 in firewall environments. These protocols enable the monitoring server on z/OS to communicate with other components on other systems, even if all components are running behind firewalls.&lt;br&gt;• Protocol 2 ___________&lt;br&gt;• Protocol 3 ___________</td>
</tr>
<tr>
<td><strong>Communication protocols for the monitoring server on z/OS:</strong>&lt;br&gt;You specify the communication protocols for the monitoring server in “Specifying communication protocols” on page 85.</td>
<td>You can choose from all the protocols shown in the list below. You must specify SNA.PIPE as one of the protocols for a Tivoli Enterprise Monitoring Server on z/OS. However, it need not be Protocol 1 (the highest-priority protocol).&lt;br&gt;For a hub monitoring server on z/OS, you must specify a TCP/IP protocol as one of your protocols, for use by the Web Services SOAP Server, which must be enabled.&lt;br&gt;Choose from the following protocols:&lt;br&gt;<strong>IP.PIPE</strong>&lt;br&gt;Uses the TCP/IP protocol for underlying communications.&lt;br&gt;<strong>IP.UDP</strong>&lt;br&gt;Also a TCP/IP protocol. Uses the User Datagram Protocol (UDP).&lt;br&gt;<strong>IP6.PIPE</strong>&lt;br&gt;IP.PIPE protocol with IPV6 installed and operational. This protocol is available only for a monitoring server on a z/OS system at release level V1R7 or higher with IPV6 installed and operational.&lt;br&gt;<strong>IP6.UDP</strong>&lt;br&gt;IP.UDP protocol with IPV6 installed and operational. This protocol is available only for a monitoring server on a z/OS system at release level V1R7 or higher with IPV6 installed and operational.&lt;br&gt;<strong>IP.SPIPE</strong>&lt;br&gt;Secure IP.PIPE protocol. This protocol is available only for a monitoring server on a z/OS system at release level V1R7 or higher.&lt;br&gt;<strong>IP6.SPIPE</strong>&lt;br&gt;Secure IP.PIPE for IPV6. This protocol is available only for a monitoring server on a z/OS system at release level V1R7 or higher with IPV6 installed and operational.&lt;br&gt;<strong>SNA.PIPE</strong>&lt;br&gt;Uses the SNA Advanced Program-To-Program Communications (APPC). Because some monitoring agents require SNA, it must be one of the protocols for a Tivoli Enterprise Monitoring Server on z/OS. However, it need not be Protocol 1 (the highest-priority protocol).</td>
</tr>
</tbody>
</table>

**IP.* and IP6.* settings**
Table 8. Configuration worksheet for communication protocols if the monitoring server is on a z/OS system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host name</td>
<td>Host name of the z/OS system where the Tivoli Enterprise Monitoring Server is installed. See “Configuration worksheet if the monitoring server is on a z/OS system” on page 29.</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>IP address of the z/OS system where the Tivoli Enterprise Monitoring Server is installed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To obtain the IP address, enter TSO HOMETEST at the command line of the z/OS system where the monitoring agent is installed.</td>
<td></td>
</tr>
<tr>
<td>Started task</td>
<td>Started task name of the TCP/IP server. You can specify * to allow the IP stack to dynamically find the TCP/IP image. * is the suggested value for the started task.</td>
<td></td>
</tr>
<tr>
<td>Network interface list</td>
<td>A list of network interfaces for the monitoring server to use. This parameter is required for sites that are running more than one TCP/IP interface or network adapter on the same z/OS image. Setting this parameter allows you to direct the monitoring server to connect to a specific TCP/IP local interface.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specify each network adapter by the host name or IP address to be used for input and output. Use a blank space to separate the entries.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If your site supports DNS, you can enter IP addresses or short host names. If your site does not support DNS, you must enter fully qualified host names.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you specify an interface address or a list of interface addresses, the Configuration Tool generates the KDEB_INTERFACELIST parameter in the KDSENV member of the &amp;rhilev.&amp;rtename.RKANPARU library.</td>
<td></td>
</tr>
<tr>
<td>HTTP server port number</td>
<td>Accept the default value of 1920. This field is required for the SOAP Server, which must be enabled for a hub monitoring server on z/OS, even though Advanced Backup and Recovery for z/OS does not use the SOAP Server.</td>
<td></td>
</tr>
<tr>
<td>Access TEMS list via SOAP Server?</td>
<td>Accept the default value of Y. The Web Services SOAP Server must be enabled for a hub monitoring server on z/OS.</td>
<td></td>
</tr>
<tr>
<td>Address translation</td>
<td>By default, Ephemeral Pipe Support (EPS) is enabled automatically to allow IP.PIPE connections to cross a (network address) translating firewall. This feature obviates the need for a broker partition file (KDC_PARTITIONFILE=KDCPART). If you specifically want to disable EPS, specify Y for Address translation.</td>
<td></td>
</tr>
</tbody>
</table>
Table 8. Configuration worksheet for communication protocols if the monitoring server is on a z/OS system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partition name</td>
<td>If you specified Y for Address translation, specify the partition name that identifies the monitoring server relative to the firewall used for address translation.</td>
<td></td>
</tr>
<tr>
<td>SNA.PIPE setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applid prefix</td>
<td>Specify the applid prefix you want for all the VTAM applids required by the monitoring server. These applids begin with a prefix, and end with a unique applid value. The applids are contained in the VTAM major node. The default is CTDDS.</td>
<td></td>
</tr>
<tr>
<td>Communication protocols for the monitoring agent</td>
<td>You must plan communication protocols for the monitoring agent to send data to the monitoring server. Tip: Make sure that at least one of the protocols you specify for the monitoring agent corresponds to a protocol specified for the agent's primary monitoring server.</td>
<td></td>
</tr>
</tbody>
</table>

Choose from the following protocols:

- **IP.PIPE**
  - Uses the TCP/IP protocol for underlying communications.
- **IP.UDP**
  - Also a TCP/IP protocol. Uses the User Datagram Protocol (UDP).
- **IP6.PIPE**
  - IP.PIPE protocol with IPV6 installed and operational. This protocol is available only on a z/OS system at release level V1R7 or higher with IPV6 installed and operational.
- **IP6.UDP**
  - IP.UDP protocol with IPV6 installed and operational. This protocol is available only on a z/OS system at release level V1R7 or higher with IPV6 installed and operational.
- **IP.SPIPE**
  - Secure IP.PIPE protocol. This protocol is available only on a z/OS system at release level V1R7 or higher.
- **IP6.SPIPE**
  - Secure IP.PIPE for IPV6. This protocol is available only on a z/OS system at release level V1R7 or higher with IPV6 installed and operational.
- **SNA.PIPE**
  - Uses the SNA Advanced Program-To-Program Communications (APPC).
Table 8. Configuration worksheet for communication protocols if the monitoring server is on a z/OS system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMS name (node ID)</td>
<td>Node ID of the hub monitoring server. Note that the TEMS name, or node ID, is generally not the same as the host name. It is an arbitrary name assigned during Tivoli Enterprise Monitoring Server configuration. On z/OS systems, look for the value of CMS_NODEID in this location: &amp;rhilev.&amp;sys.RKANPARU(KDSENV)</td>
<td></td>
</tr>
<tr>
<td>IP.* or IP6.* settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Host name</td>
<td>Host name of the system where the monitoring agent is installed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To obtain the host name, enter TSO HOMETEST at the command line of the z/OS system where the monitoring agent is installed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the z/OS domain name resolver configuration specifies a search path that includes the target domain suffix, specify only the first qualifier of the host name. (Example: sys is the first qualifier of the fully qualified host name sys.ibm.com.) Otherwise, specify the fully qualified host name.</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>IP address of the system where the monitoring agent is installed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To obtain the IP address, enter TSO HOMETEST at the command line of the z/OS system where the monitoring agent is installed.</td>
<td></td>
</tr>
<tr>
<td>Started task</td>
<td>Started task name of the TCP/IP server. You can specify * to allow the IP stack to dynamically find the TCP/IP image. * is the suggested value for the started task.</td>
<td></td>
</tr>
<tr>
<td>Network interface list</td>
<td>A list of network interfaces for the monitoring agent to use. This parameter is required for sites that are running more than one TCP/IP interface or network adapter on the same z/OS image. Setting this parameter allows you to direct the monitoring agent to connect to a specific TCP/IP local interface.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specify each network adapter by the host name or IP address to be used for input and output. Use a blank space to separate the entries.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If your site supports DNS, you can enter IP addresses or short host names. If your site does not support DNS, you must enter fully qualified host names.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you specify an interface address or a list of interface addresses, the Configuration Tool generates the KDEB_INTERFACELIST parameter in the KRVENV member of the &amp;rhilev.&amp;rtename.RKANPARU library.</td>
<td></td>
</tr>
</tbody>
</table>
Table 8. Configuration worksheet for communication protocols if the monitoring server is on a z/OS system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address translation</td>
<td>By default, Ephemeral Pipe Support (EPS) is enabled automatically to allow IP.PIPE connections to cross a (network address) translating firewall. This feature obviates the need for a broker partition file (KDC_PARTITIONFILE=KDCPART). If you specifically want to disable EPS, specify Y for <strong>Address translation</strong>.</td>
<td></td>
</tr>
<tr>
<td>Partition name</td>
<td>If you specified Y for <strong>Address translation</strong>, specify the partition name that identifies the monitoring agent relative to the firewall used for address translation.</td>
<td></td>
</tr>
<tr>
<td><strong>SNA settings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applid prefix</td>
<td>Specify the applid prefix to create the VTAM node and applids required by the monitoring agent. These applids begin with a prefix, and end with a unique applid value. The applids are contained in the VTAM major node. The default prefix is CTDHL.</td>
<td></td>
</tr>
</tbody>
</table>
| **Communication protocols for the portal server** | You must plan communication protocols for the portal server to receive data from the monitoring server. Choose from the following protocols: **IP.PIPE**
  Uses the TCP/IP protocol for underlying communications. **IP.UDP**
  Uses the TCP/IP User Datagram Protocol (UDP). **IP.SPIPE**
  Secure IP.PIPE protocol. **SNA.PIPE**
  Uses the SNA Advanced Program-To-Program Communications (APPC). | • Protocol 1 ___________
  Highest-priority communication protocol. IP.PIPE or IP.SPIPE is generally the best choice for Protocol 1 in firewall environments. These protocols enable the portal server to communicate with a monitoring server on another system, even if both components are running behind firewalls. • Protocol 2 ___________
  • Protocol 3 ___________
| IP.PIPE or IP.SPIPE settings | (See “Configuration worksheet if the monitoring server is on a z/OS system” on page 29.)                                                                                                                     |                                |
| Host name or IP address    | Host name or IP address of the monitoring server.                                                                                                                                                            |                                |
| Port number                | Listening port for the hub monitoring server to use in communicating with the portal server. The default port number is 1918 for IP.PIPE and 3660 for IP.SPIPE.                                                 |                                |
| IP.UDP settings            | (See “Configuration worksheet if the monitoring server is on a z/OS system” on page 29.)                                                                                                                     |                                |
| Host name or IP address    | Host name or IP address of the monitoring server.                                                                                                                                                            |                                |
| Port or pool number        | Listening port for the hub monitoring server to use in communicating with the portal server, or the pool from which the port is to be selected. The default number is 1918.                                             |                                |
| SNA settings               |                                                                                                                                                                                                             |                                |
| Network name               | SNA network identifier for your location.                                                                                                                                                                    |                                |
Table 8. Configuration worksheet for communication protocols if the monitoring server is on a z/OS system (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>LU name</td>
<td>LU name for the monitoring server. This LU name corresponds to the Local LU Alias in your SNA communications software.</td>
<td></td>
</tr>
<tr>
<td>LU 6.2 logmode</td>
<td>The name of the LU6.2 logmode. The default value is CANCTDCS.</td>
<td></td>
</tr>
<tr>
<td>TP name</td>
<td>Transaction program name for the monitoring server. The default value is SNASOCKETS.</td>
<td></td>
</tr>
</tbody>
</table>

Worksheet: Information for configuring your runtime environment

Using the information about runtime environments above, you can decide what type of runtime environment configuration you need for your Advanced Backup and Recovery for z/OS configuration. You must define a runtime environment on each z/OS system you monitor. In most cases, you start with one full or base type and sharing types (that share either the full or base runtime environment) for subsequent z/OS images you monitor. For each runtime environment, gather the information shown in Table 9.

Table 9. Worksheet for defining runtime environments

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runtime environment name</td>
<td>Unique identifier of up to 8 characters.</td>
<td></td>
</tr>
<tr>
<td><strong>Tip:</strong> If you specify a runtime environment name no more than 4 characters long, you can specify the same name for the JCL suffix. This setup makes it easy to associate the jobs in INSTJOBS with the runtime environment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runtime environment type</td>
<td>Explained above in &quot;Understanding runtime environments&quot; on page 13</td>
<td></td>
</tr>
<tr>
<td>The base or full runtime environment associated with a sharing runtime environment</td>
<td>For a sharing runtime environment type, list the name of the base or full runtime environment from which the sharing runtime environment obtains its base library information.</td>
<td></td>
</tr>
<tr>
<td>Runtime environment description</td>
<td>Information for your installation's use.</td>
<td></td>
</tr>
<tr>
<td>Security system for the runtime environment</td>
<td>For each runtime environment, the Configuration Tool prompts you for a security system. You can specify None, RACF, TSS, or NAM.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specifying a security system here does not enable security validation of users signing on to the Tivoli Enterprise Portal. Security validation of users is enabled in a Tivoli Enterprise Monitoring Server configuration panel.</td>
<td></td>
</tr>
<tr>
<td>VTAM network ID</td>
<td>VTAM network ID for the monitoring server on z/OS identified in &quot;Worksheets: Information to gather when you put your hub monitoring server on a z/OS system&quot; on page 28. This is optional for a monitoring server on a distributed system, see &quot;Worksheets: Information to gather when you put your hub monitoring server on a distributed system&quot; on page 22.</td>
<td></td>
</tr>
</tbody>
</table>
Table 9. Worksheet for defining runtime environments  (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value for your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP host name</td>
<td>TCP/IP host name of the z/OS system where the runtime environment is being defined. To obtain the host name, enter TSO HOMETEST at the command line of the z/OS system. If the z/OS domain name resolver configuration specifies a search path that includes the target domain suffix, specify only the first qualifier of the host name. (Example: sys is the first qualifier of the fully qualified host name sys.ibm.com.) Otherwise, specify the fully qualified host name.</td>
<td></td>
</tr>
<tr>
<td>IP address</td>
<td>IP address of the z/OS system where the runtime environment is defined. To obtain the IP address, enter TSO HOMETEST at the command line of the z/OS system.</td>
<td></td>
</tr>
<tr>
<td>Started task</td>
<td>Started task of the TCP/IP server for the z/OS system.</td>
<td></td>
</tr>
<tr>
<td>Port number</td>
<td>Address of the IP port. The default is 1918 for nonsecure communication and 3660 for secure communication.</td>
<td></td>
</tr>
</tbody>
</table>

A road map for installation and configuration of Advanced Backup and Recovery for z/OS

Use the following road map to steer you though installation and configuration:

1. **Plan your installation** using the information in Chapter 3, “Planning for prerequisites, packaging, and tools,” on page 39.
2. **Perform the steps** in Chapter 4, “Beginning the installation and configuration,” on page 47.
3. **Pick one** of the following configuration procedures to perform, depending on your configuration design:
   a. Chapter 5, “Configuring the hub monitoring server on a Windows system and the monitoring agent on a z/OS image,” on page 53
   b. Chapter 6, “Configuring the hub monitoring server and the monitoring agent on a z/OS image,” on page 75
4. **Perform the steps** in Chapter 7, “Setting up security,” on page 105.
5. **Optionally make your configuration system-independent**, using the information in Chapter 8, “Enabling system variable support,” on page 115.
6. **Optionally replicate runtime environments in batch mode**, using the information in Chapter 9, “Using batch mode processing,” on page 121.
Chapter 3. Planning for prerequisites, packaging, and tools

This chapter covers the following information:

- "Understanding software and hardware prerequisites for installation" on page 41
- "Understanding product packaging" on page 41
- "Understanding Advanced Backup and Recovery for z/OS installation" on page 42
- "Understanding the Configuration Tool" on page 43

You need to understand this information before beginning the installation process in Part 2, "Installation and configuration," on page 45.

Understanding software and hardware prerequisites for installation

Versions of all the required products are provided in the Advanced Backup and Recovery for z/OS product package.

- A complete list of Advanced Backup and Recovery for z/OS hardware and software prerequisites is located in the IBM Tivoli Advanced Backup and Recovery for z/OS: IBM Tivoli Advanced Backup and Recovery for z/OS Program Directory.
- Prerequisites for the distributed IBM Tivoli Monitoring Services components are located in the IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide.

Requirements for historical data collection

You can configure historical reporting of health check data for any z/OS system on which a monitoring agent is installed and running.

Configuration of historical data collection requires that you configure the following components:

- **Persistent data store** in the z/OS runtime environment where the Advanced Backup and Recovery monitoring agent is installed.

  The persistent data store is the repository for short-term historical data, which is kept for 24 hours. A Tivoli Monitoring Services warehouse proxy periodically queries the persistent data store and retrieves any short-term historical data stored there.

  The location of historical data collection is set in two places:
  - Configuration Tool
  - History Collection Configuration window in the Tivoli Enterprise Portal

**Tip**

Both the Configuration Tool and Tivoli Enterprise Portal allow you to configure historical data collection either at the location of the monitoring agent (called TEMA, or Tivoli Enterprise Monitoring Agent, in the Tivoli Enterprise Portal) or at the location of the monitoring server to which the monitoring agent reports. However, Advanced Backup and Recovery requires that historical data collection be configured at the location of the monitoring agent.

- **Tivoli Data Warehouse** on a Windows, UNIX, or Linux system.
The Tivoli Data Warehouse is the repository for long-term historical data. It stores the historical data that the warehouse proxy agent retrieves from the persistent data store.


Requirements for TCP/IP communication protocols

Review the following TCP-related requirements before you configure Advanced Backup and Recovery for z/OS.

Default OMVS segment

To use the TCP/IP communication protocols, a Tivoli Enterprise Monitoring Server on z/OS requires a default OMVS segment. See the z/OS Communications Server IP Configuration Guide for an explanation of how to provide an OMVS segment.

Using the IP.PIPE communication protocol

IP.PIPE is the default protocol for product components. If you choose IP.PIPE as a protocol for the monitoring server and monitoring agent, be aware of the following limitations:

- The maximum number of IP.PIPE processes per host is 16.
- IP.PIPE uses only one physical port per process. Port numbers are allocated using a well-known port allocation algorithm. The first process for a host is assigned port 1918, which is the default.

**Important**

The same TCP/IP port number must be used on every monitoring server in the enterprise. Also, the monitoring server well-known port cannot be on the TCP/IP reserved port list.

Configuring domain name resolution

If the monitoring server and monitoring agent on a z/OS system are using any IP.* or IP6.* communication protocols for connection, but the IP domain name resolution is not fully configured on the system, you must specify the SYSTCPD DDNAME in the CANSDDSST started task (the monitoring server started task).

The Configuration Tool generates the CANSDDSST started task with the following commented out lines. Customize the SYSTCPD DDNAME to your environment.

```plaintext
//*SYSTCPD explicitly identifies which data set to use to obtain
//*the parameters defined by TCPIP.DATA when no GLOBALTCPIPDATA
//*statement is configured. Refer to the IP Configuration Guide
//*for information on the TCPIP.DATA search order. The data set
//*can be any sequential data set or a member of a partitioned
//*data set. TCPIP.SEZAINST(TCPDATA) is the default sample file.
//* TCPIP.TCPPARMS(TCPDATA) is another sample and is created as
//* part of the Installation Verification Program for TCP/IP.
//* Note: Uncomment this DDNAME and point to your appropriate
//* TCPIPDATA library name supported at your site if domain
//* name resolution is not fully configured.
//*SYSTCPD DD DISP=SHR,
}@*/ DSN=TCPIO.SEZAINST(TCPDATA)
```

After you finish, copy the procedures to PROCLIB.
Prerequisite for Take Action command forwarding

NetView authentication of z/OS console commands forwarded from the Tivoli Enterprise Portal requires NetView on z/OS V5.2 with APAR OA18449 applied.

Checking for fixes

To make sure you have the latest version of all components, check for any fix packs that might be available. See “Support information” on page 145.

Understanding product packaging

If you are installing monitoring agents for the first time, you will find familiar IBM packaging types (such as Passport Advantage®), installation tools (such as SMP/E or InstallShield), and installation documentation, including a program directory. You will also find a new z/OS-based Configuration Tool that streamlines the transition between the SMP/E installation and a running system. This tool works with SMP/E to save files that will be used in later steps to configure the products.

Each zSeries product provides a program directory that describes the z/OS installation steps required to move the product code from the distribution media to your DASD, whether it is distributed on tape or electronically.

The contents of the Advanced Backup and Recovery for z/OS product package are shown in Table 10.

<table>
<thead>
<tr>
<th>Media set 1 of 2: Distributed Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IBM Tivoli Advanced Backup and Recovery for z/OS Data Files on z/OS</strong> contains the predefined workspaces and situations, online help, expert advice, and Advanced Backup and Recovery for z/OS data for the Tivoli Enterprise Portal. This CD also contains data for adding Advanced Backup and Recovery for z/OS application support to the Tivoli Enterprise Monitoring Server.</td>
</tr>
<tr>
<td><strong>IBM Tivoli Monitoring Services on z/OS Language Pack</strong></td>
</tr>
<tr>
<td><strong>IBM Tivoli Monitoring on z/OS (multi-CD set)</strong> includes subdirectories and installation procedures for the Tivoli Monitoring Services components on Windows, UNIX, Intel Linux, and Linux on zSeries operating systems.</td>
</tr>
<tr>
<td><strong>IBM DB2 Universal Database Workgroup Server Edition</strong> version 8.2 (multi-CD set) provides database functions to Tivoli Monitoring Services components on Windows, UNIX, and Intel Linux, and Linux on zSeries operating systems.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Media set 2 of 2: z/OS Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IBM Tivoli Advanced Backup and Recovery for z/OS tape</strong> provides the installation software for the mainframe components:</td>
</tr>
<tr>
<td>• Advanced Backup and Recovery for z/OS monitoring agent</td>
</tr>
<tr>
<td>• Tivoli Enterprise Monitoring Server on z/OS</td>
</tr>
<tr>
<td>• Configuration Tool</td>
</tr>
<tr>
<td>• Common components</td>
</tr>
</tbody>
</table>
Understanding Advanced Backup and Recovery for z/OS installation

There are two ways to install Advanced Backup and Recovery for z/OS:
- "Installing Advanced Backup and Recovery for z/OS from the Web download package"
- "Using SMP/E to install Advanced Backup and Recovery for z/OS"

Installing Advanced Backup and Recovery for z/OS from the Web download package

You can install Advanced Backup and Recovery for z/OS, including the components and the monitoring agent, from the Web. For information, see the IBM Tivoli Advanced Backup and Recovery for z/OS: IBM Tivoli Advanced Backup and Recovery for z/OS Program Directory.

Using SMP/E to install Advanced Backup and Recovery for z/OS

About SMP/E: System Modification Program/Extended (SMP/E) is the basic tool for installing and maintaining software in z/OS systems and subsystems. It controls these changes at the element level by:
- Selecting the proper levels of elements to be installed from a large number of potential changes
- Calling system utility programs to install the changes
- Keeping records of the installed changes

SMP/E is an integral part of the installation, service, and maintenance processes for z/OS and OS/390® software products and product packages, such as CBPDO, ProductPac®, RefreshPac, and selective follow-on service for CustomPac. In addition, SMP/E can be used to install and service any software that is packaged in SMP/E system modification (SYMOD) format.

SMP/E can be run either from batch jobs or from the Interactive System Productivity Facility/Program Development Facility (ISPF/PDF). You can use ISPF to query the SMP/E database, as well as to create and submit jobs to process SMP/E commands.

The guidance for performing an SMP/E installation is a program directory. Every monitoring agent product is accompanied by a program directory.
Understanding the Configuration Tool

About the Installation and Configuration Assistance Tool (Configuration Tool):
You perform the bulk of the configuration for Advanced Backup and Recovery for z/OS using the Installation and Configuration Assistance Tool (also known as the Configuration Tool). The Configuration Tool was formerly named the Candle® Installation and Configuration Assistance Tool, or CICAT. However, for current releases of zSeries monitoring agents (including the Advanced Backup and Recovery for z/OS product), the tool is used for configuration only. These products are now installed by SMP/E.

The Configuration Tool creates and customizes all the runtime data sets, and creates the JCL to support the Advanced Backup and Recovery for z/OS software. If the Tivoli Enterprise Monitoring Server is installed on a z/OS system or if you select SNA as one of your communications protocols, the Configuration Tool also creates the VTAM major node member in SYS1.VTAMLST. The members have the started task name and major node name you specify during the configuration process.

If you restart the Configuration Tool, you can continue from the point of interruption. If you have an earlier version of CICAT on your z/OS system, it is automatically replaced by the IBM Configuration Tool version 3.1.0 during SMP/E installation. For information about supported levels of the SMP/E program and other related installation software, refer to the IBM Tivoli Advanced Backup and Recovery for z/OS: IBM Tivoli Advanced Backup and Recovery for z/OS Program Directory.

The Configuration Tool provides defaults wherever possible. These defaults are sufficient to complete the installation of products and maintenance. Change the defaults to reflect the needs of your enterprise. The tool operates in two modes:

- Interactive mode where an ISPF panel-driven facility assists you in specifying parameters and tailoring jobs for configuring new products and new versions of products
- A Batch facility that creates a single batch job that you can use to build, configure, and load a runtime environment (RTE). This single job performs all of the same RTE processing as the interactive Configuration Tool. Batch mode is a simple and useful way of replicating RTEs to other z/OS systems.

Using the Configuration Tool

The Configuration Tool provides defaults for most fields and options. The defaults can be changed to values specific to your site.

Whenever possible, the Configuration Tool checks the values you specify and verifies that you have specified the required values. If the Configuration Tool detects an error or omission, it displays a short message.

Display requirements in ISPF
If you are using a 3270 Model 2 (24 x 80) display, you must turn off the predefined function (PF) keys so that the Configuration Tool panels are not truncated. To turn off the predefined function keys, type PFSHOW on any ISPF command line and press Enter until the function keys are no longer displayed.

Restrictions
The following restrictions apply to the Configuration Tool:
- The length of the high-level qualifier for the runtime libraries must be 26 characters or less.
• You cannot use the ISPF feature for edit recovery. If you enter the ISPF RECOVERY ON command, edits produce a recovery error message. Enter the RECOVERY OFF command to suppress the error messages.

Commands and function
You can use the following commands for navigation and display control in the Configuration Tool:

End key
Returns to the previous panel.

Enter key
Accepts the values you have specified and displays the next panel in the process.

HELP Displays information about a panel or the extended description for a message.

README Displays the README for the Configuration Tool.

README APP Displays information about VTAM applids.

README ERR Displays a list of CLIST error codes and descriptions (for both interactive and batch mode).

README SYS Displays information about system variable support.

UTIL Displays the Installation Services and Utilities menu.

Online help for the Configuration Tool
Online help contains detailed information about using the Configuration Tool panels. To display help from any Configuration Tool panel, press the Help key (F1) or enter HELP on the command line.

You can also display help for the help. For example, you can display information about the command to use to return to the previous topic in the help system. To display the help for help from any help panel, press the Help key (F1) or enter HELP on the command line.
Part 2. Installation and configuration

Chapter 4. Beginning the installation and configuration ........................................... 47
First steps: Installing the z/OS components and beginning the configuration ............... 47
Step 1. Perform the SMP/E installation of the z/OS-based components ...................... 47
Step 2. Set up the Configuration Tool: ................................................................. 47
  If you use a CSI in which the Configuration Tool is already installed .................... 48
  If you use a new CSI .............................................................................. 48
Step 3. Start the Configuration Tool ...................................................................... 48
Step 4. Set up the Configuration Tool environment ................................................. 50
  Setting up the work environment .................................................................. 50
  Setting up the configuration environment ...................................................... 51
Continuing the configuration procedure .............................................................. 52

Chapter 5. Configuring the hub monitoring server on a Windows system and the monitoring agent on a z/OS image ....................................................... 53
Configuration steps .......................................................................................... 54
Step 1. Install the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client ........................................... 54
  Installing the DB2 Universal Database software ......................................... 54
Step 2. Install Advanced Backup and Recovery for z/OS application support .......... 60
Step 3. Define the runtime environment .............................................................. 61
Step 4. Build the runtime libraries .................................................................... 65
Step 5. Configure the monitoring agent .............................................................. 66
Step 6. Load the runtime libraries ..................................................................... 71
Step 7. Complete the configuration of the monitoring agent ................................. 72
Step 8. Verify the configuration ....................................................................... 73
Setting up security ............................................................................................. 73
Expanding this configuration ............................................................................ 73

Chapter 6. Configuring the hub monitoring server and the monitoring agent on a z/OS image ................................................................. 75
Configuration steps .......................................................................................... 75
Step 1. Define the runtime environment .............................................................. 76
Step 2. Build the runtime libraries .................................................................... 80
Step 3. Configure the hub Tivoli Enterprise Monitoring Server ........................... 80
  Beginning the configuration ..................................................................... 80
  Creating a logmode .............................................................................. 82
  Specifying configuration values .............................................................. 82
  Specifying communication protocols ...................................................... 85
  Creating the runtime members ................................................................. 89
Step 4. Configure the monitoring agent .............................................................. 89
Step 5. Load the runtime libraries .................................................................... 93
Step 6. Complete the configuration of the Tivoli Enterprise Monitoring Server and the monitoring agent .......................................................... 93
Step 7. Install Tivoli Enterprise Portal Server and client on a Windows workstation .......................................................................................................................... 95
  Installing the DB2 Universal Database software ......................................... 95
  Installing and configuring Tivoli Enterprise Portal Server and desktop client .... 97
Step 8. Install Advanced Backup and Recovery for z/OS application support .... 100
Step 9. Verify the configuration ....................................................................... 101
Setting up security ............................................................................................. 102
Expanding this configuration ............................................................................ 102

45
Chapter 4. Beginning the installation and configuration

If you are installing the Advanced Backup and Recovery for z/OS software for the first time, follow the instructions in this chapter, which describes the first steps of installing and configuring Advanced Backup and Recovery for z/OS V2.1.0:

- “First steps: Installing the z/OS components and beginning the configuration”
- “Step 1. Perform the SMP/E installation of the z/OS-based components”
- “Step 2. Set up the Configuration Tool”
- “Step 3. Start the Configuration Tool” on page 48
- “Step 4. Set up the Configuration Tool environment” on page 50
- “Continuing the configuration procedure” on page 52

First steps: Installing the z/OS components and beginning the configuration

For any deployment you choose, you must complete the first steps in the same way:

- “Step 1. Perform the SMP/E installation of the z/OS-based components”
- “Step 2. Set up the Configuration Tool”
- “Step 3. Start the Configuration Tool” on page 48
- “Step 4. Set up the Configuration Tool environment” on page 50

The rest of this chapter gives instructions for those steps.

Step 1. Perform the SMP/E installation of the z/OS-based components

Follow the instructions in the IBM Tivoli Advanced Backup and Recovery for z/OS: IBM Tivoli Advanced Backup and Recovery for z/OS Program Directory to install the following components:

- Configuration Tool
- Advanced Backup and Recovery for z/OS monitoring agent
- Tivoli Enterprise Monitoring Server on z/OS (if your planned deployment includes a hub Tivoli Enterprise Monitoring Server on z/OS)
- Common components

This product includes several common components that are also included in other monitoring agents. If you install into an existing environment, you might need to delete the function modification identifiers (FMIDs) for the common components from the SMP/E installation jobs to avoid errors. See the IBM Tivoli Advanced Backup and Recovery for z/OS: IBM Tivoli Advanced Backup and Recovery for z/OS Program Directory for a list of the common components.

If an earlier version of a product component is installed in the same consolidated software inventory (CSI), the earlier version is automatically replaced by the new version provided with the product.

Step 2. Set up the Configuration Tool

Your first step after installing the contents of the product tape is to copy the contents from one of the target libraries into the appropriate Configuration Tool work library. If you are using an existing CSI that already has the Configuration Tool installed, you copy the contents of the target library into your existing Configuration
Tool work library. If you are using a new CSI, you copy the contents of the target library to a newly created Configuration Tool library.

**If you use a CSI in which the Configuration Tool is already installed**

If you use an existing CSI that already has the Configuration Tool installed, copy the contents of the &thilev.TKCIINST library to the &shilev.INSTLIBW library as follows:

```plaintext
//COPY EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=* 
//IN DD DSN=&thilev.TKCIINST,DISP=SHR
//OUT DD DSN=&shilev.INSTLIBW,DISP=SHR
//SYSIN DD *
 C O=OUT,I=((IN,R))
```

where &thilev is the SMP/E target high-level qualifier and &shilev is the installation high-level qualifier.

**Tip**

To receive notification of the results of a job, add this option to your job card:

```
NOTIFY=userid
```

**If you use a new CSI**

If you are using a new CSI, perform the following steps to copy the contents of the target library to the newly created Configuration Tool library:

1. Allocate the &shilev.INSTLIB library using the sample JCL below:

   ```plaintext
   //JOBCARD
   //ALLOCDS EXEC PGM=IEFBR14
   //*
   //INSTLIB DD DSN=&shilev.INSTLIB,
   //   DISP=(NEW,CATLG,DELETE),
   //   UNIT=&tunit,
   //   VOL=SER=&tvol,
   //   DCB=(RECFM=FB,LRECL=80,BLKSIZE=8880),
   //   SPACE=(TRK,(90,15,132))
   ```

   Replace the following parameters with the values specific to your site:

   - **JOBCARD** is your job card.
   - &shilev is the high-level qualifier for the installation environment.
   - &tunit is the disk unit type for the target library.
   - &tvol is the disk volser for the target library.

2. Copy the contents of the &thilev.TKCIINST library into the &shilev.INSTLIB library:

   ```plaintext
   COPY EXEC PGM=IEBCOPY
   SYSPRINT DD SYSOUT=* 
   IN DD DSN=&thilev.TKCIINST,DISP=SHR
   OUT DD DSN=&shilev.INSTLIB,DISP=SHR
   SYSIN DD *
   C O=OUT,I=((IN,R))
   ```

   where &thilev is the SMP/E target high-level qualifier and &shilev is the installation high-level qualifier.

---

**Step 3. Start the Configuration Tool**

To start the Configuration Tool, complete the following steps:

1. Log on to a TSO session on the target system.
The target system is the logical partition (LPAR) where you are going to create and configure a runtime environment for the Advanced Backup and Recovery for z/OS monitoring agent.

2. Invoke ISPF.
3. Go to a TSO command line. (In most cases, this is option 6 on the ISPF Primary Option Menu.)
4. Enter the following command:
   
   ```
   EX 'shilev.INSTLIB'
   ```
   
   where `shilev` is the high-level qualifier you specified for the Configuration Tool.

   **Tip**
   
   You do not need to specify a member name in this command.

   The Configuration Tool displays the copyright panel and then the **Main Menu**.

   ![Main Menu: Configuration Tool](image)

   **Tip**
   
   Some Configuration Tool menus contain items that apply only to the former Candle products. On the **Main Menu**, only options 1 (Set up work environment, for setting up a new Configuration Tool environment) and 3 (Configure products) apply to the Advanced Backup and Recovery for z/OS product.

   If you are configuring Advanced Backup and Recovery in an existing runtime environment, you can skip the next step and go to "Continuing the configuration procedure" on page 52.

   If this is the first time that you are setting up a runtime environment in this CSI, you need to set working and configuration values before you define the runtime environment. Continue to "Step 4. Set up the Configuration Tool environment" on page 50.
Step 4. Set up the Configuration Tool environment

Setting up the Configuration Tool environment involves two short procedures:
1. Setting up the work environment, by specifying the allocation and processing values that the tool uses to create the work data sets it needs and to allocate its work libraries.
2. Setting up the configuration environment, by specifying the values the tool uses to customize the JCL it creates.

Setting up the work environment

To set up the work environment, complete the following steps:
1. From the Configuration Tool Main Menu, enter 1 (Set up work environment).
   The Set Up Work Environment menu is displayed.
   a. Select Specify options to specify allocation and processing values that are used to create the work data sets needed by the Configuration Tool. These settings provide operational values for generating batch jobs.
   b. Select Allocate work libraries to allocate the Configuration Tool work libraries. The initial library, INSTLIB, contains both the operational code and the tables and jobs created by the installer. This job creates additional libraries and populates them with the data initially stored in INSTLIB.
2. From the Set Up Work Environment menu, enter 1 (Specify Options).

---

---------- SPECIFY OPTIONS ----------
COMMAND ==> Specify allocation and processing options:

SMP/E JCL REGION value ==> 0M (Specify K/M suffix)

Unit/ VolSer Storclas/ Mgmtclas PDSE

Installation work datasets 3390 name

Specify the job statement for Installer-generated JCL:

==> //userid A JOB (ACCT),'NAME',CLASS=A
==> //* DEFAULT JCL
==> /*
==> /*

Enter=Next  F1=Help  F3=Back

Figure 9. Specify Options panel: Configuration Tool

The Specify Options panel shows the defaults for your system. Edit these values as needed.

---

**Tip**
To receive notification of the results of the job, add this option to your job card:

NOTIFY=userid

For details of the parameters, press F1 (Help).
3. When you have entered the relevant information, press Enter to return to the **Set Up Work Environment** menu.

4. From the **Set Up Work Environment** menu, enter 2 (**Allocate Work Libraries**). The JCL is displayed for you to review, edit if necessary, and submit.

**Tip**
The default space allocations for the INSTDATA and INSTJOBS libraries are sufficient for typical installations. However, the size of the libraries grows with increases in the number of runtime environments and the number of applications configured in them. If you are planning to have dozens of runtime environments, each of which contains several products, increase the space allocations.

5. After submitting the job, exit the Configuration Tool and allow the job to run. (It will not run while you are in the tool.) Verify that the job completes successfully. All return codes must be zero.

**Setting up the configuration environment**

When the Allocate Work Libraries job completes, perform the following steps:

1. Start the Configuration Tool:
   
   ```
   EX 'shilev.INSTLIB'
   ```

2. From the **Main Menu** of the Configuration Tool (Figure 8 on page 49), enter 3 (**Configure products**), and then enter 1 (**Set up configuration environment**). The **Set Up Configuration Environment** panel is displayed. On this panel, specify values for the JCL created by the Configuration Tool. For details of the parameters, press F1 (Help).

   ![Set Up Configuration Environment panel: Configuration Tool](Figure 10)

   **Figure 10. Set Up Configuration Environment panel: Configuration Tool**

3. Press Enter to accept the values.
Tip
If you enter the Set Up Configuration Environment panel again after specifying values, the high-level qualifiers are locked and cannot be modified. If you need to modify these values, you can unlock them by selecting Unlock runtime high-level qualifiers on the Configuration Services and Utilities menu.

Continuing the configuration procedure

The rest of your configuration procedure depends on the deployment you have planned, based on the information in Part 1, “Planning your deployment.” Go to the chapter that contains instructions for the configuration you want:

- Chapter 5, “Configuring the hub monitoring server on a Windows system and the monitoring agent on a z/OS image,” on page 53
- Chapter 6, “Configuring the hub monitoring server and the monitoring agent on a z/OS image,” on page 75
Chapter 5. Configuring the hub monitoring server on a Windows system and the monitoring agent on a z/OS image

This procedure describes the steps to follow in configuring the hub Tivoli Enterprise Monitoring Server on Windows, and the Advanced Backup and Recovery for z/OS monitoring agent in a z/OS image, as shown in Figure 11.

For this deployment, you install and configure the hub Tivoli Enterprise Monitoring Server on a distributed system. You then configure a monitoring agent on each z/OS system you want to monitor, with all monitoring agents defined to communicate with the hub Tivoli Enterprise Monitoring Server. The configuration can be expanded by adding remote monitoring servers and monitoring agents.

Tips

- Be sure to complete the steps in "First steps: Installing the z/OS components and beginning the configuration" on page 47 before beginning the procedure in this chapter.
- If you completed the worksheets in Chapter 2, “Planning your Advanced Backup and Recovery for z/OS configuration,” on page 7, refer to them for the values to supply on the configuration panels.
- The instructions in this chapter assume that you are installing the hub Tivoli Enterprise Monitoring Server and the other distributed components of Tivoli Monitoring Services on a single Windows workstation. If you want to install any of these components on a Linux or UNIX system, see IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide and IBM Tivoli Advanced Backup and Recovery for z/OS: IBM Tivoli Advanced Backup and Recovery for z/OS Monitoring Agent Planning and Configuration Guide for instructions.

Figure 11. Hub Tivoli Enterprise Monitoring Server on a distributed system and monitoring agent on a z/OS system
Configuration steps

To configure the product, complete the following steps in order:

1. **Step 1. Install the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client**

   In this step, you install the hub Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client on a distributed system. These instructions assume that the operating system on the workstation is Windows XP Professional Edition with Service Pack 1. For complete information about hardware and software requirements for the Tivoli Monitoring Services components, and for instructions for installing and configuring the components on a Linux or UNIX system, see the *IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide*.

   This procedure installs a Tivoli Enterprise Monitoring Server, a Tivoli Enterprise Portal Server, and a Tivoli Enterprise Portal desktop client on a single Windows workstation. If you decide to install these components on different workstations, install them in this order:
   1. Tivoli Enterprise Monitoring Server
   2. Tivoli Enterprise Portal Server
   3. Tivoli Enterprise Portal desktop client

2. **Step 2. Install Advanced Backup and Recovery for z/OS application support**

3. **Step 3. Define the runtime environment**

4. **Step 4. Build the runtime libraries**

5. **Step 5. Configure the monitoring agent**

6. **Step 6. Load the runtime libraries**

7. **Step 7. Complete the configuration of the monitoring agent**

8. **Step 8. Verify the configuration**

---

**Step 1. Install the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client**

In this step, you install the hub Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client on a distributed system.

Installing the DB2 Universal Database software

Tivoli Enterprise Portal Server requires DB2 Universal Database (DB2 UDB). DB2 UDB version 8.2 is provided in the Advanced Backup and Recovery for z/OS installation package. If DB2 UDB version 8 or higher is already installed on the workstation where you plan to install a Tivoli Enterprise Portal Server, you can skip this procedure and go directly to "Installing and configuring Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client" on page 57.

1. On the Windows system where you plan to install the Tivoli Enterprise Portal Server, log on with a local ID that has Administrator authority. The DB2 Universal Database installation adds a local `db2admin` user account to Windows, and local Administrator authority is required for creating this account. Without the `db2admin` ID, DB2 UDB is unable to create the Tivoli Enterprise Portal Server database, and the Tivoli Enterprise Portal Server cannot start.

2. Insert the *DB2 Universal Database Workgroup Server Edition CD* to start the installer.

3. Select Install Products. Read and accept the license agreement, and proceed through the installer windows until you reach the **Installation Type** window.
4. On the **Installation Type** window, accept the defaults. Do not select **Data warehousing**.
5. On the **Select the installation folder** window, change the installation drive if necessary.
6. Set user information for the DB2 Administration Server:
   a. You can either accept the user name of **db2admin** or use a different name.
   b. Enter a password.

```
<table>
<thead>
<tr>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 UDB requires the user name and password for all administrative tasks, including installation and configuration of the Tivoli Enterprise Portal Server.</td>
</tr>
<tr>
<td>• If the Local Security Settings on the Windows system require complex passwords, use a password that fits the system requirements:</td>
</tr>
<tr>
<td>– Not containing the user's account name.</td>
</tr>
<tr>
<td>– Being at least six characters in length.</td>
</tr>
<tr>
<td>– Containing characters from three of the following categories:</td>
</tr>
<tr>
<td>- English uppercase characters (A through Z)</td>
</tr>
<tr>
<td>- English lowercase characters (a through z)</td>
</tr>
<tr>
<td>- Base 10 digits (0 through 9)</td>
</tr>
<tr>
<td>- Non-alphanumeric characters (Examples: !, $, #, %)</td>
</tr>
<tr>
<td>For information about Local Security Settings and password complexity, see the Windows system help.</td>
</tr>
<tr>
<td>• If you change the <strong>db2admin</strong> password after DB2 UDB installation, you receive error messages when you try to install the Tivoli Enterprise Portal Server. If your Local Security Settings require you to change the password, wait to do so until you finish installing the Tivoli Enterprise Portal Server. See <strong>IBM Tivoli Advanced Backup and Recovery for z/OS: IBM Tivoli Advanced Backup and Recovery for z/OS Monitoring Agent Planning and Configuration Guide</strong> and <strong>IBM Tivoli Monitoring: IBM Tivoli Monitoring Problem Determination Guide</strong> for troubleshooting information.</td>
</tr>
<tr>
<td>c. Do not enter a domain name in the drop-down list.</td>
</tr>
</tbody>
</table>
```
7. On the remaining windows, select the defaults.
8. Click **Install** to start copying the files.
9. After the DB2 UDB installation is complete, restart Windows before installing the Tivoli Enterprise Portal Server. Do this even if the DB2 UDB installer does not ask you to.
10. If the Local Security Settings on the Windows system require complex passwords, you must create a new Windows user account for the Tivoli Enterprise Portal Server before you begin installing it. The default database user account name of the Tivoli Enterprise Portal Server is **TEPS**, but you can assign any name no longer than eight characters that meets your site's requirements for user IDs. Use a password that fits the Windows system requirements for complex passwords:
    • Not containing the user account name.
    • Being at least six characters long.
    • Containing characters from three of the following categories:
      – English uppercase characters (A through Z)
      – English lowercase characters (a through z)
– Base 10 digits (0 through 9)
– Non-alphanumeric characters (Examples: !, $, #, %)

For information about Local Security Settings and password complexity, see the Windows system help.
Installing and configuring Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client

Complete the following steps to install Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client on a Windows workstation where DB2 UDB is already installed:

1. Begin the installation.
   a. Log on to Windows with an ID that has local Administrator authority, and close any running applications.
   b. Insert the *IBM Tivoli Monitoring Services on z/OS CD* into the CD-ROM drive.
      Installation begins automatically. If the installer does not start, go to the Windows directory on your CD-ROM drive and run *setup.exe*. If *setup.exe* initialization fails, you might not have enough free disk space to extract the setup files.
   c. Read the text that welcomes you to the installation, and click Next to continue.
   d. On the Install Prerequisites window, read the information about the required levels of IBM Global Security Kit and IBM Java.
      The check box for each prerequisite is cleared if the correct level of the software is already installed on the workstation. Otherwise, the check box is selected to indicate that the software is to be installed.
   e. Click Next to continue.
      If Global Security Kit or Java is selected for installation, it is installed now.
      After installation of the prerequisite software is complete, you might be prompted to reboot the computer. In that case, you receive an abort message with a Severe error heading. This is normal and does not indicate a problem.
      If you are prompted to reboot, do the following:
      1) Click OK on the window prompting you to reboot.
      2) Click No on the window asking whether you want to view the abort log.
      3) Restart the computer.
      4) Restart the installation program.
   f. Read the software license agreement and click Accept.
      The Choose Destination Location window is displayed. The default is C:\IBM\ITM.
   g. Accept the default and click Next.
   h. On the User Data Encryption Key window, type a 32-bit encryption key.
      You can use the default key.
      **Note:** Be sure to record the value you use for the key. You must use the same key during the installation of any components that communicate with this monitoring server.
   i. Click Next and then click OK to confirm the encryption key.

2. Select the components to install.
   a. On the Select Features window, expand the list of features and select the following:
      • Tivoli Enterprise Monitoring Agent Framework
      • Tivoli Enterprise Monitoring Server
      • Tivoli Enterprise Portal Server Framework
• Tivoli Enterprise Portal Desktop Client
• IBM Eclipse Help Server

Tips
• If you want to enable historical reporting select both Tivoli Enterprise Monitoring Agent Framework and Warehouse Proxy from the list of features under Tivoli Enterprise Monitoring Agents. Otherwise, select only Tivoli Enterprise Monitoring Agent Framework. Even though the Advanced Backup and Recovery for z/OS monitoring agent is installed on z/OS, the Tivoli Enterprise Monitoring Agent Framework must be selected here to enable installation of application support on the distributed Tivoli Monitoring Services components (see "Step 2. Install Advanced Backup and Recovery for z/OS application support" on page 60).
• Do not select any agents or support features that are not in the list shown above.

b. Click Next.
c. On the Agent Deployment window, clear the check boxes for both Universal Agent and Monitoring Agent for Windows OS. These selections do not apply to the Advanced Backup and Recovery for z/OS product.
   Click Next.
d. On the Select Program Folder window, accept the default and click Next.
3. On the TEPS Desktop and Browser Signon ID and Password window, provide and confirm a password to be used by the Tivoli Enterprise Portal desktop or browser client for initial access to the Tivoli Enterprise Portal Server. The initial user ID sysadmin cannot be changed. You can add other user IDs after installation. For instructions, see the Tivoli Enterprise Portal online help or the IBM Tivoli Monitoring: IBM Tivoli Monitoring Administrator's Guide.
4. Click Next and review the installation summary details. This summary identifies what you are installing and where you chose to install it. Click Next to install the components.
5. On the Setup Type window, select these items:
   • Configure Tivoli Enterprise Portal
   • Configure Tivoli Enterprise Monitoring Server
   • Launch Manage Tivoli Monitoring Services
   Click Next.
6. Configure the Tivoli Enterprise Portal.
   a. On the TEPS Hostname window, make sure that the host name of the Tivoli Enterprise Portal Server is correct and does not include the domain name.
      Click Next.
   b. On the TEPS Data Source Config Parameters window, enter the db2admin account password and a password for the Tivoli Enterprise Portal Server database user.
Tip
To have one less password to remember, you can use the same password for the **db2admin** account and the Tivoli Enterprise Portal Server database user account (default user account name **TEPS**, or the account name you set in [10 on page 55](#)). If the Local Security Settings on the Windows system require complex passwords, use a password that fits the system requirements:

- Not containing the user account name.
- Being at least six characters in length.
- Containing characters from three of the following categories:
  - English uppercase characters (A through Z)
  - English lowercase characters (a through z)
  - Base 10 digits (0 through 9)
  - Non-alphanumeric characters (Examples: !, $, #, %)

For more information about Local Security Settings and password complexity, see the Windows system help. See *IBM Tivoli Monitoring: IBM Tivoli Monitoring Problem Determination Guide* for Tivoli Enterprise Portal Server troubleshooting information.

c. Click **OK**.
   This step takes a few moments to complete while it populates the database.
d. On the **Success** window, click **OK**.
e. If you want to enable historical reporting, supply a user ID and password for use by the Tivoli Enterprise Portal Server to access the Tivoli Data Warehouse, and click **Next**. Otherwise, click **Next** without specifying any values on the **Warehouse ID and Password for TEP Server** window.
f. On the **TEP Server Configuration** window, click **OK** to accept **IP.PIPE** (the default) as the protocol for communication with the hub Tivoli Enterprise Monitoring Server installed on the same workstation.
g. On the next **TEP Server Configuration** window, enter the host name of the workstation where the hub Tivoli Enterprise Monitoring Server is installed. In this case it is the name of your workstation without the domain name. Also enter the port number for the Tivoli Enterprise Monitoring Server. Because IBM Tivoli Monitoring is case-sensitive, select **Convert to upper case** to reduce the chance of user error. Click **OK**.
h. When you are prompted to reconfigure the warehouse connection information, click **Yes** if you are enabling historical data collection. Otherwise, click **No** and go on to **Configure the Tivoli Enterprise Monitoring Server**.
   If you clicked **Yes**, follow these steps:
   1) On the **Warehouse Proxy Database Selection** window, select the type of database you want to use for the warehouse data source and click **OK**.
   2) Provide the values required for the selected database type and click **OK**.
   3) Click **OK** on the **Successfully configured warehouse data source** window.

7. Configure the Tivoli Enterprise Monitoring Server.
a. On the **Tivoli Enterprise Monitoring Server Configuration** window, select the type of monitoring server you are configuring: **Hub** or **Remote**. For this procedure, select **Hub**.

For complete information on this configuration window and its values, see the *IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide*.

b. Make a note of the value shown for the **TEMS name**. You will need to specify it later, when you configure the monitoring agent on z/OS. A good place to record it is **Configuration worksheet if the hub monitoring server is on a distributed system** on page 22. The **TEMS name** parameter is case-sensitive on all platforms.

The default name is **HUB_hostname**.

c. Identify up to three communication protocols for the monitoring server to use in communicating with the other components. When communication with another component is initiated, the monitoring server tries Protocol 1 first and goes to Protocol 2 and then to Protocol 3 in case of failure.

IP.PIPE (the default) or IP.SPIPE is generally the best choice for Protocol 1 in firewall environments. These protocols enable the monitoring server to communicate with the monitoring agent on z/OS and with other components on other systems, even if the components are running behind firewalls. At least one of the protocols chosen must match a protocol that you intend to specify for the Advanced Backup and Recovery monitoring agent (see **Table 6 on page 24**).

d. Click **OK**.

e. On the **Hub TEMS Configuration** window, complete the settings for communications with the monitoring agent. Use the values you established in **Table 5 on page 22**.

f. Because the Tivoli Monitoring Services components are case-sensitive, select **Convert to upper case** to reduce the chance of user error. Click **OK**.

g. On the **Configuration Defaults for Connecting to a TEMS** windows, select the same communication protocols and values you specified for the monitoring server to use in communicating with the other components.

8. On the **InstallShield Wizard Complete** window, select **Display the README file** and click **Finish**.

---

**Step 2. Install Advanced Backup and Recovery for z/OS application support**

The *IBM Tivoli Advanced Backup and Recovery for z/OS Data Files for z/OS CD* contains the product-specific application support data required by distributed components and by the hub Tivoli Enterprise Monitoring Server (on any platform).

To install Advanced Backup and Recovery for z/OS application support, follow this procedure:

1. Insert the *IBM Tivoli Advanced Backup and Recovery for z/OS Data Files for z/OS CD* into the CD-ROM drive of the Windows workstation that hosts the Tivoli Enterprise Portal Server and desktop client.

   Installation begins automatically. If the installer does not start, go to the Windows directory on your CD-ROM drive and run **setup.exe**. If **setup.exe** initialization fails, you might not have enough free disk space to extract the setup files.

2. Read the text that welcomes you to the installation, and click **Next** to continue.
3. On the **Install Prerequisites** window, both check boxes are cleared, to indicate that the required software is already installed. Click **Next** to continue.

4. Read the software license agreement and click **Accept**.

5. On the **Select Features** window, select IBM Tivoli Advanced Backup and Recovery for z/OS for these components:
   - Tivoli Enterprise Monitoring Server
   - Tivoli Enterprise Portal Server
   - Tivoli Enterprise Portal Desktop Client

6. Click **Next** to continue.

7. On the **Start Copying Files** window, read the list of actions to be performed, and click **Next**.

   Application support for Advanced Backup and Recovery is installed on the IBM Tivoli Monitoring components you selected.

8. On the **Setup Type** window, select **Configure Tivoli Enterprise Portal** and **Install application support for a local/remote Tivoli Enterprise Monitoring Server**, and clear the check boxes for any other items. Click **Next**.

9. On the **TEPS Hostname** window, make sure that the host name of the Tivoli Enterprise Portal Server is correct and does not include the domain name. Click **Next**.

10. On the two Tivoli Enterprise Monitoring Server configuration windows that are displayed, make sure the information is correct and click **Next**.

11. On the **Add application support to the TEMS** window, select **On this computer** and click **OK**.

12. On the **Select the application support to add to the TEMS** window, select IBM Tivoli Advanced Backup and Recovery for z/OS and click **OK**.

13. On the **Application support addition complete** window, click **Next**.

14. On the **InstallShield Wizard Complete** window, select **Display the README file** and click **Finish**.

---

**Step 3. Define the runtime environment**

In this step you define the runtime environment for configuring the Advanced Backup and Recovery monitoring agent.

---

**Tip**

Be sure you have completed the steps in **First steps: Installing the z/OS components and beginning the configuration** on page 47 before beginning this procedure.

- If you installed the Advanced Backup and Recovery software onto a z/OS image that contains no other monitoring agents, you must add the runtime environment and then build its libraries. This procedure is described immediately below.
- If you installed the Advanced Backup and Recovery software onto a z/OS image that already contains another monitoring agent, and if you want to use an existing runtime environment (rather than creating a new one) for configuring the Advanced Backup and Recovery product, you do not need to add a runtime environment. Go directly to **Step 4. Build the runtime libraries** on page 65 and continue from there.

To define the runtime environment for the Advanced Backup and Recovery monitoring agent, complete the following procedure:
1. On the **Configure Products** menu of the Configuration Tool, enter 2 (*Select product to configure*).

   ![Configure Products panel](image1)

The **Product Selection Menu** is displayed, listing the products available for configuration.

![Product Selection Menu](image2)

2. Type **S** to the left of **IBM Tivoli Advanced Backup and Recovery for z/OS V2.1.0** and press Enter.

The **Runtime Environments (RTEs)** panel is displayed. This panel lists all the runtime environments defined to the Configuration Tool, along with the actions you can perform to create and manage runtime environments.

![Runtime Environments (RTEs) panel](image3)

See “Worksheet: Information for configuring your runtime environment” on page 36 for the values you have decided to specify for the runtime environment.
3. On the **Runtime Environments (RTEs)** panel, type **A (Add RTE)** in the **Action** field beside the first (empty) row and type a **Name** for your new runtime environment.

   The runtime environment name is a unique identifier of up to 8 characters. It is automatically used as the mid-level qualifier for full and sharing runtime environments. You can optionally specify a mid-level qualifier for base runtime environments.

   **Tip**
   
   If you specify a runtime environment name no more than 4 characters long, you can specify the same name for the JCL suffix. This setup makes it easy to associate the jobs in INSTJOBS with the runtime environment.

4. Specify the type of runtime environment being created. In this case, start by creating either a base or full type, which is essential if you intend to add sharing runtime environments later on.

   **Tip**
   
   A base runtime environment is not configurable. For information about the different types of runtime environments, see "Understanding runtime environments" on page 13.

5. (For sharing runtime environments only) Type the name of the base or full runtime environment from which this runtime environment obtains its base library information. If SMP/E target libraries are to be shared, type **SMP**.

6. Type a description for this runtime environment.

   The description can be any information that is useful for you and others at your site.

7. When you have specified all required values on the **Runtime Environments (RTEs)** panel, press Enter.

   The first of two **Add Runtime Environment** panels is displayed. This panel shows the defaults for your system.

   a. Specify a **JCL suffix** no more than 4 characters long, to be used as the suffix of the name of the member containing the JCL in the INSTJOBS dataset.

   If possible, specify the runtime environment name as the JCL suffix, to make the output of your Configuration Tool batch jobs easier to find in the SDSF queue.

   b. You can change the started task (STC) prefix to avoid confusion with others at your site.

   c. Type **N** for **Will this RTE have a Tivoli Enterprise Monitoring Server** (because Tivoli Enterprise Monitoring Server is installed on a different system).

   For details of the parameters, press F1 (Help).
8. From the Add Runtime Environment (1 of 2) panel, press Enter. The Add Runtime Environment (2 of 2) panel is displayed.

9. Leave NONE as the value of the Security system field. Because this runtime environment does not include a Tivoli Enterprise Monitoring Server, security validation for users signing on to the Tivoli Enterprise Portal is handled by the hub monitoring server on Windows.

10. If you intend to use the SNA communication protocol, supply the name of your network ID in the VTAM section.
Important

If you do not intend to use SNA, clear the system defaults displayed in the VTAM section. Otherwise, you will be required to define SNA as one of your communication protocols during “Step 5. Configure the monitoring agent” on page 66.

11. For TCP/IP communications between the monitoring agent and the Tivoli Enterprise Monitoring Server, supply the following information:

Hostname
The TCP/IP host name of the z/OS system where the runtime environment is being defined. To obtain the host name, enter TSO HOMETEST at the command line.

If the z/OS domain name resolver configuration specifies a search path that includes the target domain suffix, specify only the first qualifier of the host name. (Example: sys is the first qualifier of the fully qualified host name sys.ibm.com.) Otherwise, specify the fully qualified host name.

Address
The IP address of the z/OS system. To obtain the IP address, enter TSO HOMETEST at the command line.

Started task
The started task name of the TCP/IP server. The default value of * (asterisk) allows the IP stack to find the TCP/IP image dynamically, if it is available.

Port number
The address of the IP port. The default is 1918.

12. When you have finished defining your runtime environment, press Enter to return to the Runtime Environments (RTEs) panel (Figure 14 on page 62).

Tip
Select View Values (V) to verify the runtime environment information and Update (U) to make the necessary changes.

This completes the addition of your runtime environment. You must build the runtime libraries before continuing to configure Advanced Backup and Recovery. Go on to Step 4. Build the runtime libraries.

Step 4. Build the runtime libraries

Complete the following steps to allocate the required runtime libraries:

1. Type B next to the name of the runtime environment for which you want to build the libraries, and press Enter.

   The JCL is displayed for you to review, edit if necessary, and submit. Verify that the job completes successfully and that all return codes are zero.

2. Press F3 (Back) to return to the Runtime Environments (RTEs) panel (Figure 14 on page 62).
You can now configure Advanced Backup and Recovery in the runtime environment. Go on to [Step 5. Configure the monitoring agent](#).

### Step 5. Configure the monitoring agent

To configure the Advanced Backup and Recovery monitoring agent to communicate with a hub Tivoli Enterprise Monitoring Server on a distributed system, complete the following steps:

1. On the Runtime Environments (RTEs) panel (Figure 14 on page 62), type C (Configure) next to the runtime environment in which you want to configure Advanced Backup and Recovery for z/OS.

   The Product Component Selection Menu is displayed.

   ![PRODUCT COMPONENT SELECTION MENU](image)

   **COMMAND ===>**

   The following list of components requires configuration to make the product operational. Refer to the appropriate configuration documentation if you require additional information to complete the configuration. To configure the desired component, enter the selection number on the command line. You should configure the components in the order they are listed.

   **COMPONENT TITLE**
   
   1. Tivoli Enterprise Monitoring Server
   2. Advanced Backup and Recovery for z/OS Agent

   **Figure 17. Product Component Selection Menu: Configuration Tool**

2. From the Product Component Selection Menu, enter 2 to select Advanced Backup and Recovery for z/OS Agent.

   The Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu shown in [Figure 18 on page 67](#) is displayed.
For this configuration, you select options 1, 3, and 4 (Specify Agent parameters, Specify agent address space parameters and Create runtime members). Because the hub Tivoli Enterprise Monitoring Server is not on this system, you do not select option 2. If you want to enable historical reporting, select option 5 (Configure persistent datastore in Agent) as well. You complete the configuration (option 6) later, after completing options 3 and 4 (and possibly option 5) and then loading the runtime libraries.

3. From the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu, enter 1 to display the Specify Agent Parameters panel.

4. On the Specify Agent Parameters panel, provide the required information:
   - Supply the started task name for the Data Collector.
   - Supply the agent communications port.
   - Specify the number of seconds before Take Action commands will timeout.
Supply the number of asynchronous events to cache in each pure event table.

Specify the number of seconds before data collection requests timeout.

5. When you are finished specifying the agent parameters, press Enter to return to the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu.

6. From the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu, enter 3 to display the Specify Agent Address Space Parameters panel.

7. On the Specify Agent Address Space Parameters panel, provide the required information:
   - Supply the started task name for the agent.
   - Supply N for Connect to TEMS (Tivoli Enterprise Monitoring Server) in this RTE (runtime environment).
   - Supply the priority number for each protocol you want to select. When communication with the monitoring server is initiated, the monitoring agent tries Protocol 1 first and goes to Protocol 2 and then to Protocol 3 in case of failure. Be sure to specify the same protocols you specified for the monitoring server (see "Installing and configuring Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client" on page 57). For definitions of the communication protocols, see Table 6 on page 24.

8. Press Enter to display a list of monitoring servers on z/OS systems. Because your Tivoli Enterprise Monitoring Server is on a distributed system, it is not included in the list.

9. Press F5 (Advanced) to display the Specify Agent Primary TEMS Values panel.
Supply the TEMS name (node ID) of the hub Tivoli Enterprise Monitoring Server.

Tip

The TEMS name (node ID) is generally not the same as the host name. It is an arbitrary name assigned during Tivoli Enterprise Monitoring Server configuration. If you made a note of the TEMS name during configuration of the Tivoli Monitoring Services distributed components, find it now. You might have recorded it in "Configuration worksheet if the hub monitoring server is on a distributed system" on page 22. Otherwise, you can find it in one of the following locations:

- On Windows systems, you can find the TEMS name in Manage Tivoli Monitoring Services. Right-click the Tivoli Enterprise Monitoring Server and select Browse Settings, and look for the value of CMS_NODEID.
- On Linux and UNIX systems, you can find the value of CMS_NODEID in the KBBENV file located in the $CANDLEHOME/tables/cms_name subdirectory.

If SNA is one of the protocols you selected for the Tivoli Enterprise Monitoring Server, complete the SNA section of the panel.

LU6.2 logmode

Name of the LU6.2 logmode defined for use by the monitoring server. The default name is CANCTDCS.

Logmode table name

Name of the logmode table that contains the LU6.2 logmode. The default name is KDSMTAB1.

Local location broker applid

Local location broker applid of the monitoring server the agent communicates with.

Network ID

Identifier of the VTAM network where the monitoring server is
running. You can locate this value on the NETID parameter in the VTAMLST startup member ATCSTRnn.

- If IP.PIPE or IP.UDP is one of the protocols you selected for the Tivoli Enterprise Monitoring Server, complete the TCP section:

**Hostname**
Host name of the system where the monitoring server with which the agent communicates is installed.

**Address**
IP address of the system where the monitoring server with which the agent communicates is installed.

**IP.PIPE port number**
Supply the same port number you specified for the monitoring server the agent communicates with.

**IP.UDP port number**
Supply the same port number you specified for the monitoring server the agent communicates with.

10. Press Enter to display the **Specify Advanced Agent Configuration Values** panel.

![Figure 22. Specify Advanced Agent Configuration Values panel: Configuration Tool](image)

Accept the defaults or specify other values.

**Language locale** is a required field and has no default. Specify a numeric value (1 through 36) representing the language and region for the z/OS system. (Example: 1 for United States English.) For a list of the language locale values, press F1.

The **Program to Program Interface (PPI) information** section is optional. If desired, specify the PPI values that enable forwarding of Take Action commands to NetView for z/OS for authorization and execution. If you enable forwarding, you must also enable NetView to authorize the commands. See “Setting up NetView authentication of Take Action commands” on page 110.

11. Press Enter, then press Enter again to display a series of panels prompting you for values for each communication protocol you selected. Enter the values you recorded in Table 6 on page 24.
12. Press Enter to return to the **Configure IBM Tivoli Advanced Backup and Recovery for z/OS** menu (Figure 18 on page 67).
13. Enter 4 (Create runtime members) to open JCL that you can review, edit, and submit. Check to make sure the return code is zero.
14. After the job completes, press F3 (Back) to return to the **Configure IBM Tivoli Advanced Backup and Recovery for z/OS** menu.
15. If you want to enable historical reporting, select option 5 to configure the persistent data store. Otherwise, skip this step.
   For instructions on configuring the persistent data store, see *IBM Tivoli Monitoring: Configuring IBM Tivoli Enterprise Monitoring Server on z/OS* and *IBM Tivoli Monitoring: IBM Tivoli Monitoring Administrator’s Guide*.

   **Important**
   Both the Configuration Tool and Tivoli Enterprise Portal allow you to configure historical data collection either at the location of the monitoring agent (called TEMA, or Tivoli Enterprise Monitoring Agent, in the Tivoli Enterprise Portal) or at the location of the monitoring server to which the monitoring agent reports. However, Advanced Backup and Recovery requires that historical data collection be configured at the location of the monitoring agent.


   **Tip**
   Even though **Complete the configuration** is an option on the **Configure IBM Tivoli Advanced Backup and Recovery for z/OS** menu, you must load the runtime libraries from the SMP/E target libraries before you perform the tasks required to complete the configuration. If you select **Complete the configuration** (option 6 on the **Configure IBM Tivoli Advanced Backup and Recovery for z/OS** menu), the Configuration Tool displays a list of the steps you must take outside the Configuration Tool. You can examine and print the list now.

---

### Step 6. Load the runtime libraries

Before you complete the configuration of the product outside the Configuration Tool, you must load the runtime libraries from the SMP/E target libraries. The load job requires shared access to the runtime libraries.

1. From the **Configure IBM Tivoli Advanced Backup and Recovery for z/OS** menu (Figure 18 on page 67), press F3 (Back) to return to the **Product Component Selection Menu** and then press F3 again to return to the **Runtime Environments (RTEs)** panel (Figure 14 on page 62).
2. Type L in the **Action** field to the left of the runtime environment in which you have just configured Advanced Backup and Recovery, and press Enter.
3. Review the JCL and submit the job. Verify that the job completes successfully and that the return code is 04 or less.
4. When you finish loading the libraries, press F3 (Back) to return to the **Runtime Environments (RTEs)** panel.
Step 7. Complete the configuration of the monitoring agent

To complete the configuration, perform the following steps in the order shown.

1. Copy the started task procedures to your procedure library.
   a. From the Runtime Environments (RTEs) panel, enter Z (Utilities) next to your runtime definition.

   ![RTE Utility Menu Screenshot]

   Option 6: Generate sample system procedure copy JCL

   *Important: After the CB4VJH job runs, edit the RKANPARU(midlvl) parameter member and follow the directions to ensure the proper resolution of cross-system variables.

   Figure 23. RTE Utility menu: Configuration Tool

   b. From the RTE Utility Menu, enter 6 to display the Generate sample system procedure copy JCL panel.

   c. Type the name of your procedure library (for example, USER.PROCLIB). Press Enter.

   d. The JCL is displayed for you to review, edit if necessary, and submit. Verify that the job completes successfully and that all return codes are zero.

   This job creates a member called KCISYPJB in the RKANSAMU library.

   e. Edit KCISYPJB and submit the job. Verify that the job completes successfully and that all return codes are zero.

   This job copies all the required started tasks from your RKANSAMU library to the specified procedure library. The code contains the names of all the started tasks created during configuration.

2. APF-authorize the runtime load libraries concatenated in the STEPLIB DDNAME and in the RKANMODL DDNAME of all started tasks.

3. To enable collection of UNIX System Services (USS) data by the monitoring agent, give the monitoring agent USS superuser authority by associating its started task (CANSRV) with USS uid(0). This RACF® statement gives a user ID superuser authority:

   ALTUSER userid OMVS(uid(0)) HOME(/) PROGRAM(/BIN/SH)

   If your enterprise does not use RACF, see your security package documentation for information about granting superuser authority.

4. Start the started task for the monitoring agent, and check the RKLVLOG for this message, which indicates success.

   KRAIRA000 Starting HEARTBEAT
Step 8. Verify the configuration

Now that you have completed the configuration, you can verify that it is successful. Verification involves starting these components through Manage Tivoli Monitoring Services on your workstation:

- Tivoli Enterprise Monitoring Server
- Tivoli Enterprise Portal Server
- Tivoli Enterprise Portal desktop client

To do this, complete the following procedure:

1. On your workstation, select Start > Programs (or All Programs) > IBM Tivoli Monitoring > Manage Tivoli Monitoring Services.
2. To start the Tivoli Enterprise Monitoring Server, right-click its entry in Manage Tivoli Monitoring Services and click Start.
3. To start the Tivoli Enterprise Portal Server, right-click its entry in Manage Tivoli Monitoring Services and click Start.
4. To start the Tivoli Enterprise Portal desktop client, right-click its entry in Manage Tivoli Monitoring Services and click Start.
5. When prompted, supply the user ID sysadmin and the password you specified for initial access to the Tivoli Enterprise Portal Server.
6. When Tivoli Enterprise Portal opens, you can expand the navigator pane to see the Advanced Backup and Recovery workspaces.
   For information about using the Advanced Backup and Recovery workspaces and situations to monitor your sysplex resources and z/OS systems, see the online help and IBM Tivoli Advanced Backup and Recovery for z/OS User’s Guide.

Setting up security

Now you can set up security for the product components. See Chapter 7, “Setting up security,” on page 105.

Expanding this configuration

You can add monitoring agents to other z/OS images that you want to monitor, and configure them to communicate with the hub Tivoli Enterprise Monitoring Server or with a remote monitoring server that reports to the hub. To add a monitoring agent, repeat Steps 5-8 in this chapter. Alternatively, you can use batch mode processing to replicate the monitoring agent runtime environment in other z/OS images. See Chapter 9, “Using batch mode processing,” on page 121.
Chapter 6. Configuring the hub monitoring server and the monitoring agent on a z/OS image

This procedure describes the steps to follow in configuring a hub Tivoli Enterprise Monitoring Server and an Advanced Backup and Recovery for z/OS monitoring agent in separate address spaces of the same z/OS image.

The configuration shown in Figure 24 depicts the monitoring agent and hub Tivoli Enterprise Monitoring Server installed in separate address spaces of the same z/OS image. This configuration is a basic one that can be expanded easily to accommodate multiple systems. (See “Expanding this configuration” on page 102.)

Tips

- Be sure to complete the steps in “First steps: Installing the z/OS components and beginning the configuration” on page 47 before beginning the procedure in this chapter.
- If you completed the worksheets in Chapter 2, “Planning your Advanced Backup and Recovery for z/OS configuration,” on page 7, refer to them for the values to supply on the configuration panels.

Configuration steps

To configure the product, complete the following steps in order:

- “Step 1. Define the runtime environment” on page 76
- “Step 2. Build the runtime libraries” on page 80
- “Step 3. Configure the hub Tivoli Enterprise Monitoring Server” on page 80
- “Step 4. Configure the monitoring agent” on page 89
- “Step 5. Load the runtime libraries” on page 93
- “Step 6. Complete the configuration of the Tivoli Enterprise Monitoring Server and the monitoring agent” on page 93
- “Step 7. Install Tivoli Enterprise Portal Server and client on a Windows workstation” on page 95
- “Step 8. Install Advanced Backup and Recovery for z/OS application support” on page 100
Step 1. Define the runtime environment

In this step you define the runtime environment for configuring the Advanced Backup and Recovery software.

- If you installed the Advanced Backup and Recovery software onto a z/OS image that contains no Tivoli Enterprise Monitoring Server and no other monitoring agents, you must add the runtime environment and then build its libraries. This procedure is described immediately below.

- If you installed the Advanced Backup and Recovery software onto a z/OS image that already contains a Tivoli Enterprise Monitoring Server or another monitoring agent, and if you want to use an existing runtime environment (rather than creating a new one) for configuring the Advanced Backup and Recovery product, you do not need to add a runtime environment. Go directly to "Step 2. Build the runtime libraries" on page 80 and continue from there.

To define the runtime environment for the Advanced Backup and Recovery software, complete the following procedure:

1. On the Configure Products menu, enter 2 (Select product to configure).

   ![Configure Products panel](image)

   **Figure 25. Configure Products panel: Configuration Tool**

   The Product Selection Menu is displayed, listing the products available for configuration.

   ![Product Selection Menu](image)

   **Figure 26. Product Selection Menu: Configuration Tool**

2. Type S to the left of IBM Tivoli Advanced Backup and Recovery for z/OS V2.1.0 and press Enter.

   The Runtime Environments (RTEs) panel is displayed. This panel lists all the runtime environments defined to the Configuration Tool, along with the actions you can perform to create and manage runtime environments.
See "Worksheet: Information for configuring your runtime environment" on page 36 for the values you have decided to specify for the runtime environment.

3. On the Runtime Environments (RTEs) panel, type A (Add RTE) in the Action field beside the first (empty) row and type a Name for your new runtime environment.

   The runtime environment name is a unique identifier of up to 8 characters. It is automatically used as the mid-level qualifier for full and sharing runtime environments. You can optionally specify a mid-level qualifier for base runtime environments.

   **Tips**
   - If you specify a runtime environment name no more than 4 characters long, you can specify the same name for the JCL suffix (used as the suffix of the name of the member containing the JCL in the INSTJOBS dataset). This setup makes it easy to associate the jobs in INSTJOBS with the runtime environment.
   - When you enter a C (Configure), B (Build), or L (Load) next to a runtime environment that has a previous version of the Tivoli Enterprise Monitoring Server installed, the Configuration Tool prompts you to confirm that you want to migrate to the newer version. A batch migration job completes the upgrade and retains all previously configured values for the Configuration Tool.

4. Specify the type of runtime environment being created. In this case, start by creating either a base or full type, which is essential if you intend to add sharing runtime environments later on.

   **Tip**
   - A base runtime environment is not configurable. For information about the different types of runtime environments, see "Understanding runtime environments" on page 13.

5. (For sharing runtime environments only) Type the name of the base or full runtime environment from which this runtime environment obtains its base library information. If SMP/E target libraries are to be shared, type SMP.

6. Type a description for this runtime environment.

   The description can be any information that is useful for you and others at your site.
7. When you have specified all required values on the **Runtime Environments (RTEs)** panel, press Enter.

   The first of two **Add Runtime Environment** panels is displayed. These panels show the defaults for your system.

   a. Specify a **JCL suffix** no more than 4 characters long, to be used as the suffix of the name of the member containing the JCL in the INSTJOBS dataset.

      If possible, specify the runtime environment name as the JCL suffix. This setup makes it easy to associate the jobs in INSTJOBS with the runtime environment.

   b. You can change the started task (STC) prefix to avoid confusion with others at your site.

   c. Type Y for **Will this RTE have a Tivoli Enterprise Monitoring Server**.

   **Tip**

   Make a note of the **TEMS name** value displayed here. You will need to specify it later, when you configure the other components. A good place to record the **TEMS name** value is **Configuration worksheet if the monitoring server is on a z/OS system** on page 29. The **TEMS name** parameter is case-sensitive on all platforms.

   For details of the parameters, press F1 (Help).

   ![ADD RUNTIME ENVIRONMENT (1 of 2) panel: Configuration Tool](image)

   **Figure 28. Add Runtime Environment (1 of 2) panel: Configuration Tool**

8. From the **Add Runtime Environment (1 of 2)** panel, press Enter. The **Add Runtime Environment (2 of 2)** panel is displayed.
9. You can leave NONE as the value of the Security system field, or specify the security system of your choice. Specifying a security system here indicates the system to be used for security validation of users signing on to the Tivoli Enterprise Portal, but it does not enable the validation. Security validation of users is enabled in a Tivoli Enterprise Monitoring Server configuration panel (see “Specifying configuration values” on page 82). For more information about product security, see Chapter 7, “Setting up security,” on page 105.

10. Supply the name of your network ID in the VTAM section.

11. For TCP/IP communications between the Tivoli Enterprise Monitoring Server and the other product components, supply the following information:

   **Hostname**
   The TCP/IP host name of the z/OS system where the runtime environment is being defined. To obtain the host name, enter TSO HOMETEST at the command line.

   If the z/OS domain name resolver configuration specifies a search path that includes the target domain suffix, specify only the first qualifier of the host name. (Example: sys is the first qualifier of the fully qualified host name systest.ibm.com.) Otherwise, specify the fully qualified host name.

   **Address**
   The IP address of the z/OS system. To obtain the IP address, enter TSO HOMETEST at the command line.

   **Started task**
   The started task name of the TCP/IP server. The default value of * (asterisk) allows the IP stack to find the TCP/IP image dynamically, if it is available.

   **Port number**
   The address of the IP port. The default is 1918.

12. When you have finished defining your runtime environment, press Enter to return to the Runtime Environments (RTEs) panel (Figure 27 on page 77).
Tip
Select View Values (V) to verify the runtime environment information and Update (U) to make the necessary changes.

This completes the addition of your runtime environment. You must build the runtime libraries before continuing to configure Advanced Backup and Recovery. Go on to “Step 2. Build the runtime libraries” on page 80.

---

**Step 2. Build the runtime libraries**

Complete the following steps to allocate the required runtime libraries:

1. Type B next to the name of the runtime environment for which you want to build the libraries, and press Enter.
   
   The JCL is displayed for you to review, edit if necessary, and submit. Verify that the job completes successfully and that all return codes are zero.

2. Press F3 (Back) to return to the Runtime Environments (RTEs) panel (Figure 27 on page 77).

You can now configure the hub Tivoli Enterprise Monitoring Server and the Advanced Backup and Recovery monitoring agent in the runtime environment. Go on to “Step 3. Configure the hub Tivoli Enterprise Monitoring Server” on page 80.

---

**Step 3. Configure the hub Tivoli Enterprise Monitoring Server**

Before you configure Advanced Backup and Recovery, configure the hub Tivoli Enterprise Monitoring Server.

Tip
If you completed the worksheets in Chapter 2, “Planning your Advanced Backup and Recovery for z/OS configuration,” on page 7, refer to them for the values to supply on the configuration panels.

---

**Beginning the configuration**

Perform the following steps to begin the configuration:

1. On the Runtime Environments (RTEs) panel (Figure 27 on page 77), type C (Configure) next to the runtime environment in which you want to configure Advanced Backup and Recovery for z/OS.
   
   The Product Component Selection Menu is displayed.
2. From the Product Component Selection Menu, enter 1 to select Tivoli Enterprise Monitoring Server. The Configure the TEMS menu is displayed.

Tips
- You can select option 1 (Configuration information: What's New) to read about updates to the Configuration Tool.
- Skip option 5, because the Advanced Backup and Recovery for z/OS product requires that the persistent data store be configured at the monitoring agent, not at the monitoring server.
- Option 6 (Complete the configuration) involves steps to be performed outside the configuration panels. Therefore, the instructions are provided later in this chapter (Step 6. Complete the configuration of the Tivoli Enterprise Monitoring Server and the monitoring agent on page 93).
Creating a logmode

To create a logmode, complete the following procedure:

1. From the **Configure the TEMS** menu (Figure 31 on page 81), enter 1 (Create LU 6.2 logmode).
   
   The **Create LU6.2 Logmode** panel is displayed. This panel lets you specify the name of the LU6.2 logmode and logmode table required by the Tivoli Enterprise Monitoring Server.

   ![CREATE LU6.2 LOGMODE panel: Configuration Tool](image)

   **Figure 32. Create LU6.2 Logmode panel: Configuration Tool**

   **Tips**
   
   • If you use an existing LU6.2 logmode, you do not need to submit the job created from this panel. However, you must ensure that the existing logmode has the same VTAM attributes as the logmode contained in the job. Be sure to provide the logmode information, even if you do not intend to submit the job.
   
   • The default value for **VTAMLIB load library** is SYS1.VTAMLIB, but you can specify another load library if you cannot or do not want to update VTAMLIB directly.

2. Review the values on the panel and specify site-specific values as needed.
   
   For the full list of parameters, press F1 (Help).

3. To accept the values, press Enter.
   
   The JCL to create the logmode is displayed.

4. Review the JCL, edit it if necessary, and submit it. Verify that the job completes successfully and that all return codes are zero.
   
   You are returned to the **Configure the TEMS** menu (Figure 31 on page 81).

Specifying configuration values

To specify the configuration values for the Tivoli Enterprise Monitoring Server, complete the following procedure:

1. From the **Configure the TEMS** menu (Figure 31 on page 81), enter 2 to display the **Specify Configuration Values** panel.
Accept the defaults or provide the values appropriate for your site. If this is your first Tivoli Enterprise Monitoring Server, you must define it as a hub. Follow these guidelines for the Security settings section:

**Validate security?**

This option determines whether the hub Tivoli Enterprise Monitoring Server validates the user IDs and passwords of users signing on to the Tivoli Enterprise Portal. Leave the value N for now. If you set security validation to Y at this point, you will have difficulty completing the configuration steps and verifying the configuration. You can return to this panel and set security validation to Y later, after you set up security for the monitoring server (see Chapter 7, “Setting up security,” on page 105). When security validation is enabled on this panel, validation of users is handled by the security system specified for the runtime environment (see Figure 29 on page 79).

**Integrated Cryptographic Service Facility (ICSF) installed?**

If the IBM Integrated Cryptographic Service Facility (ICSF) is installed and configured on the z/OS system, set the value to Y.
Important

The Tivoli Enterprise Portal Server assumes that the Tivoli Enterprise Monitoring Server is using ICSF encryption. If you set the ICSF value to N, the Tivoli Enterprise Monitoring Server uses an alternative, less secure encryption scheme.

Perform the following steps so that the portal server can connect to a monitoring server without ICSF:

a. When you specify configuration values for the hub monitoring server on z/OS, answer N to the prompt Integrated Cryptographic Service Facility (ICSF) installed?

b. After the monitoring server has been configured and is running, modify the portal server configuration to use the older, less robust encoding algorithm used by the hub monitoring server in the absence of ICSF:
   1) In a text editor, edit the file kfwenv in drive:\IBM\ITM\CNPS.
   2) In a line by itself, type the text USE_EGG1_FLAG=Y
   3) Save the file and exit.
   4) Stop and restart the portal server.

ICSF load library

If ICSF is installed and configured on the z/OS system, specify the ICSF load library that contains the CSNB* modules used for password encryption.

If ICSF is not installed on the system, clear the field.

ITMS encryption key

Specify a unique, 32-byte password encryption key. When written to the key file, the encryption key value cannot be changed. The value is case-sensitive.

Note: Be sure to record the value you use for the key. You must use the same key during the installation of any components that communicate with this monitoring server.

If ICSF is not installed on the system, clear the field.

The Program to Program Interface (PPI) information section is optional. If desired, specify the PPI values that enable forwarding of Take Action commands to NetView for z/OS for authorization and execution. If you enable forwarding, you must also enable NetView to authorize the commands. See “Setting up NetView authentication of Take Action commands” on page 110. For a full description of the parameters, press F1 (Help).

3. Press Enter to display the Specify Advanced Configuration Values panel.
Accept the defaults or specify other values.

- Accept the default value of Y for **Enable Web Services SOAP Server**. The Web Services SOAP Server is required to be enabled for a hub monitoring server. Press F1 for information about the SOAP Server.

- **Language locale** is a required field and has no default. Specify a numeric value (1 through 36) representing the language and region for the z/OS system. (Example: 1 for United States English.) For a list of the language locale values, press F1.

- The first two parameters in the **Persistent datastore parameters** section of the panel are required, even though Advanced Backup and Recovery for z/OS requires that historical data collection be configured at the location of the monitoring agent rather than at the location of the monitoring server. Accept the default values.

4. Press **Enter** twice to return to the **Configure the TEMS** menu (Figure 31 on page 81).

### Specifying communication protocols

To specify protocols for communications between the Tivoli Enterprise Monitoring Server and the other components of Advanced Backup and Recovery for z/OS, complete the following procedure:

1. From the **Configure the TEMS** menu, enter 3 to display the **Specify Communication Protocols** panel.
This panel lists the communication protocols to be used by the monitoring server. The number beside each protocol indicates its priority. When communication with another component is initiated, the monitoring server tries Protocol 1 first and goes to Protocol 2 and then to Protocol 3 in case of failure.

2. Supply the priority number for each protocol you want to select. SNA.PIPE must be one of the protocols chosen but need not be Protocol 1. At least one of the protocols chosen must match a protocol that you intend to specify for the Advanced Backup and Recovery monitoring agent. For definitions of the communication protocols, see "Configuration worksheet for communication protocols if the monitoring server is on a z/OS system" on page 31.

3. When you have listed the protocols, press Enter. You are presented with panels for the protocols you specified.

- **IP.PIPE**
  
  Figure 36 shows the Specify IP.PIPE Communication Protocol panel.

---

**Specify Communication Protocols panel: Configuration Tool**

This panel lists the communication protocols to be used by the monitoring server. The number beside each protocol indicates its priority. When communication with another component is initiated, the monitoring server tries Protocol 1 first and goes to Protocol 2 and then to Protocol 3 in case of failure.

2. Supply the priority number for each protocol you want to select. SNA.PIPE must be one of the protocols chosen but need not be Protocol 1. At least one of the protocols chosen must match a protocol that you intend to specify for the Advanced Backup and Recovery monitoring agent. For definitions of the communication protocols, see "Configuration worksheet for communication protocols if the monitoring server is on a z/OS system" on page 31.

3. When you have listed the protocols, press Enter. You are presented with panels for the protocols you specified.

- **IP.PIPE**

  Figure 36 shows the Specify IP.PIPE Communication Protocol panel.

---

**Specify IP.PIPE Communication Protocol panel: Configuration Tool**

Specify the communication protocols in priority sequence for TEMS RTEname:CMS.

IP_PIPE => 1 (Non-secure NCS RPC)
IP.UDP => 2 (Non-secure NCS RPC)
IP6.PIPE => (IP.PIPE for IPV6)
IP6.UDP => (IP.UDP for IPV6)
IP6.SPIPE => (Secure IP.PIPE)
IP6.SPIPE => (Secure IP.PIPE for IPV6)
SNA.PIPE => 3 (Non-secure NCS RPC)

Note: One of the protocols chosen must be SNA.PIPE.

* Web Services SOAP Server is enabled: TCP protocol is required.
Hostname
The TCP/IP host name of the z/OS system where the hub monitoring server is installed. To obtain the host name, enter TSO HOMETEST at the command line.

If the z/OS domain name resolver configuration specifies a search path that includes the target domain suffix, specify only the first qualifier of the host name. (Example: sys is the first qualifier of the fully qualified host name sys.ibm.com.) Otherwise, specify the fully qualified host name.

Address
The IP address of the z/OS system where the Tivoli Enterprise Monitoring Server is installed. To obtain the IP address, enter TSO HOMETEST at the command line.

Started task
The started task name of the TCP/IP server. The default value of * (asterisk) allows the IP stack to find the TCP/IP image dynamically, if it is available.

Network interface list
A list of network interfaces for the monitoring server to use. This parameter is required for sites that are running more than one TCP/IP interface or network adapter on the same z/OS image. Setting this parameter allows you to direct the monitoring server to connect to a specific TCP/IP local interface.

Specify each network adapter by the host name or IP address to be used for input and output. Use a blank space to separate the entries.

If your site supports DNS, you can enter IP addresses or short host names. If your site does not support DNS, you must enter fully qualified host names.

If you specify an interface address or a list of interface addresses, the Configuration Tool generates the KDEB_INTERFACELIST parameter in the KDSENV member of the &rhilev &rtename.RKANPARU library.

Port number
The address of the IP port. The default port number is 1918 for nonsecure IP protocols and 3660 for secure IP protocols.

Note: The same TCP/IP port number must be used for every monitoring server in the enterprise. Also, make sure that the monitoring server well-known port is not on the TCP/IP reserved port list.

HTTP server port number
Accept the default value of 1920. This field is required for the SOAP Server.

Access TEMS list via SOAP Server?
Accept the default value of Y, The Web Services SOAP Server is required to be enabled for a hub monitoring server. Press F1 for information about the SOAP Server.

Address translation
By default, Ephemeral Pipe Support (EPS) is enabled automatically to allow IP.PIPE connections to cross a (network address) translating
firewall. This feature obviates the need for a broker partition file (KDC_PARTITIONFILE=KDCPART). If you specifically want to disable EPS, specify Y for Address translation.

When you press Enter after providing the IP.PIPE configuration values, you are presented with the SOAP Server KSHXHUBS List panel.

---

Command: Specify SNA Communication Protocol

Specify the SNA communication values for this TEMS.

Applid prefix => DS
Network ID => (NETID value from SYS1.VTAMLST(ATCSTRnn))

Enter=Next F1=Help F3=Back F6=Applids

Figure 38. Specify SNA Communication Protocol panel: Configuration Tool

Applid prefix

This value is used to create the VTAM applids required by the monitoring server. These applids begin with the prefix, and end with a specific value that makes each applid unique. The applids are contained in the VTAM major node.

Tip:

Enter README APP on the command line for more information on how the Configuration Tool processes VTAM applids. If System Variable support is enabled, enter README SYS on the command line for more information on how the Configuration Tool processes VTAM applids.
information on how the Configuration Tool processes VTAM applids using z/OS system symbols. Press F6 (Applids) for a list of the VTAM major node and applid values.

Network ID
The identifier of your VTAM network. You can locate this value on the NETID parameter in the VTAMLST startup member ATCSTRnn.

For detailed help about the required values, press F1.
When you press Enter on the last panel, you are returned to the Configure the TEMS menu.

Creating the runtime members
To create the runtime members required by Tivoli Enterprise Monitoring Server, complete the following procedure:

1. From the Configure the TEMS menu, enter 4 to display the job that creates the runtime members required by Tivoli Enterprise Monitoring Server. These members are created in the runtime libraries for this runtime environment.
2. Review the JCL, edit if necessary, and submit. Verify that the job completes successfully and that all return codes are zero.
3. When the job finishes, return to the Configure the TEMS menu and then to the Product Component Selection Menu.

Tip
Even though Configure persistent datastore and Complete the configuration are included in the list of required steps on the Configure the TEMS menu, you do not need to perform them now. The Advanced Backup and Recovery for z/OS product requires that the persistent data store be configured at the monitoring agent, not at the monitoring server. Option 6 (Complete the configuration) involves steps to be performed outside the configuration panels. Therefore, the instructions are provided later in this chapter (see Step 6. Complete the configuration of the Tivoli Enterprise Monitoring Server and the monitoring agent on page 93).

Step 4. Configure the monitoring agent
In this step, you register the Advanced Backup and Recovery monitoring agent with the hub Tivoli Enterprise Monitoring Server, specify parameters for the agent address space, and create runtime members for the agent address space.

1. From the Product Component Selection Menu (Figure 30 on page 81), enter 2 to select Advanced Backup and Recovery for z/OS Agent.

The Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu is displayed.
For this configuration, you select options 1, 2, 3, and 4 (Specify Agent parameters, Register with local TEMS, Specify agent address space parameters, and Create runtime members). If you want to enable historical reporting, select option 5 (Configure persistent datastore in Agent) as well.  You can also select option 1 (Configuration information: What's New) to read about updates to the Configuration Tool. You complete the configuration (option 6) later, after completing the first three options and loading the runtime libraries.

2. From the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu, enter 1 (Specify Agent parameters) to displays the Specify Agent Parameters panel.

For this configuration, you select options 1, 2, 3, and 4 (Specify Agent parameters, Register with local TEMS, Specify agent address space parameters, and Create runtime members). If you want to enable historical reporting, select option 5 (Configure persistent datastore in Agent) as well. You can also select option 1 (Configuration information: What's New) to read about updates to the Configuration Tool. You complete the configuration (option 6) later, after completing the first three options and loading the runtime libraries.

3. On the Specify Agent Parameters panel, provide the required information:
   - Supply the started task name for the Data Collector.
• Specify the agent communications port.
• Specify the timeout (in seconds) for Take Action commands.
• Specify the number of asynchronous events to cache in each pure event table.
• Specify the timeout, in seconds, for data collection requests.

4. When you are finished specifying the agent parameters, press F3 (Back) to return to the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu.

5. From the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu, enter 2 (Register with local TEMS).
   This step produces and displays JCL for the job that enables the Advanced Backup and Recovery monitoring agent to transmit data to the Tivoli Enterprise Monitoring Server.

6. Review the JCL, edit if necessary, and submit. Verify that the job completes successfully. All return codes must be zero.

7. After the job completes, press F3 (Back) to return to the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu.

8. From the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu, enter 3 to display the Specify Agent Address Space Parameters panel.

---

<table>
<thead>
<tr>
<th>COMMAND</th>
<th>SPECIFY AGENT ADDRESS SPACE PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following information is needed to define the Agent address space.</td>
<td></td>
</tr>
<tr>
<td>Agent started task</td>
<td>CANSRV</td>
</tr>
<tr>
<td>Connect to TEMS in this RTE</td>
<td>Y (Y, N)</td>
</tr>
<tr>
<td>Name of Primary TEMS</td>
<td>None</td>
</tr>
<tr>
<td>Specify the communication protocols in priority sequence.</td>
<td></td>
</tr>
<tr>
<td>IP.PIPE</td>
<td>1 (Non-secure NCS RPC)</td>
</tr>
<tr>
<td>IP.UDP</td>
<td>2 (Non-secure NCS RPC)</td>
</tr>
<tr>
<td>SNA.PIPE</td>
<td>(Non-secure NCS RPC)</td>
</tr>
<tr>
<td>IP6.PIPE</td>
<td>(IP.PIPE for IPV6)</td>
</tr>
<tr>
<td>IP6.UDP</td>
<td>(IP.UDP for IPV6)</td>
</tr>
<tr>
<td>IP.SPIPE</td>
<td>(Secure IP.PIPE)</td>
</tr>
<tr>
<td>IP6.SPIPE</td>
<td>(Secure IP.PIPE for IPV6)</td>
</tr>
</tbody>
</table>

Note: Enable only protocol(s) in use by the Primary TEMS.

Figure 41. Specify Agent Address Space Parameters panel: Configuration Tool

9. On the Specify Agent Address Space Parameters panel, provide the required information:
   • Supply the started task name for the agent.
   • Specify Y for Connect to TEMS in the RTE. Leave the name of the primary Tivoli Enterprise Monitoring Server blank for now.
   • Supply the priority number for each protocol you want to select. When communication with the monitoring server is initiated, the monitoring agent tries Protocol 1 first and goes to Protocol 2 and then to Protocol 3 in case of failure. Be sure to specify the same protocols you specified for the monitoring server (see “Specifying communication protocols” on page 85). For definitions of the communication protocols and values to provide for each, see “Configuration worksheet for communication protocols if the monitoring server is on a z/OS system” on page 31.
10. Press Enter to display the **Specify Advanced Agent Configuration Values** panel.

```
------------------------ SPECIFY ADVANCED AGENT CONFIGURATION VALUES ------------------------

COMMAND ===>

Specify the advanced configuration options for this Agent.

Enable secondary TEMS ==> N (Y, N)
Name of secondary TEMS ==> None
Enable startup console messages ==> N (Y, N)
Enable WTO messages ==> N (Y, N)

Intervals (hh:mm):
  Storage detail logging: Hours ==> 0 (0-24) Minutes ==> 60 (0-60)
  Flush VSAM buffers: Hours ==> 0 (0-24) Minutes ==> 30 (0-60)
  Virtual IP Address (VIPA) type ==> N (S=Static, D=Dynamic, N=None)
  Minimum extended storage ==> 60000 K

Language locale ==> (Press F1=Help for a list of codes)

Forward Take Action commands to NetView for z/OS? ==> N (Y, N)
NetView PPI receiver ==> CNMPCMDR
Agent PPI sender ==> 

Enter=Next  F1=Help  F3=Back  F10=CMS List
```

**Figure 42. Specify Advanced Agent Configuration Values panel: Configuration Tool**

Accept the defaults or specify other values.

**Language locale** is a required field. Specify a numeric value (1 through 36) representing the language and region for the z/OS system. (Example: 1 for United States English.) For a list of the language locale values, press F1.

The **Program to Program Interface (PPI) information** section is optional. If desired, specify the PPI values that enable forwarding of Take Action commands to NetView for z/OS for authorization and execution. If you enable forwarding, you must also enable NetView to authorize the commands. See **“Setting up NetView authentication of Take Action commands” on page 110.**

11. Press Enter, then press Enter again to display a series of panels prompting you for values for each communication protocol you selected. Enter the values you recorded in **“Configuration worksheet for communication protocols if the monitoring server is on a z/OS system” on page 31.**

12. Press Enter to return to the **Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu** (Figure 39 on page 90).

13. Enter 4 (Create runtime members) to open JCL that you can review, edit, and submit. Check to make sure the return code is zero.

14. After the job completes, press F3 (Back) to return to the **Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu.**

15. If you want to enable historical reporting, select option 5 to configure the persistent data store. Otherwise, skip this step.

For instructions on configuring the persistent data store, see **IBM Tivoli Monitoring: Configuring IBM Tivoli Enterprise Monitoring Server on z/OS** and **IBM Tivoli Monitoring: IBM Tivoli Monitoring Administrator’s Guide.**
Important

Both the Configuration Tool and Tivoli Enterprise Portal allow you to configure historical data collection either at the location of the monitoring agent (called TEMA, or Tivoli Enterprise Monitoring Agent, in the Tivoli Enterprise Portal) or at the location of the monitoring server to which the monitoring agent reports. However, Advanced Backup and Recovery requires that historical data collection be configured at the location of the monitoring agent.

Tip

Even though Complete the configuration is an option on the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu, you must load the runtime libraries from the SMP/E target libraries before you perform the tasks required to complete the configuration. If you select Complete the configuration (option 6 on the Configure IBM Tivoli Advanced Backup and Recovery for z/OS menu), the Configuration Tool displays a list of the steps you must take outside the Configuration Tool. You can examine and print the list now.

Step 5. Load the runtime libraries

Before you complete the configuration of the product outside the Configuration Tool, you must load the runtime libraries from the SMP/E target libraries. The load job requires exclusive access to the runtime libraries.

1. From the Configure Advanced Backup and Recovery for z/OS menu, return to the Runtime Environments (RTES) panel (Figure 27 on page 77).
2. Type L in the Action field to the left of the runtime environment in which you have just configured Advanced Backup and Recovery, and press Enter.
3. Review the JCL and submit the job. Verify that the job completes successfully and that the return code is 04 or less.
4. When you finish loading the libraries, press F3 (Back) to return to the Runtime Environments (RTES) panel.

Step 6. Complete the configuration of the Tivoli Enterprise Monitoring Server and the monitoring agent

To complete the configuration, perform the following steps in the order shown.

1. Copy the started task procedures to your procedure library.
   a. From the Runtime Environments (RTES) panel (Figure 27 on page 77), enter Z (Utilities) next to your runtime definition to open the RTE Utility Menu.
b. On the RTE Utility Menu, enter 6 to display the Generate sample system procedure copy JCL panel.

c. Type the name of your procedure library (for example, USER.PROCLIB). Press Enter.

d. The JCL is displayed for you to review, edit if necessary, and submit. Verify that the job completes successfully and that all return codes are zero.

This job creates a member called KCISYPJB in the RKANSAMU library.

e. Edit KCISYPJB and submit the job. Verify that the job completes successfully and that all return codes are zero.

This job copies all the required started tasks from your RKANSAMU library to the specified procedure library. The code contains the names of all the started tasks created during configuration.

2. Copy the VTAM definitions to your SYS1.VTAMLST. Even if you have not configured the monitoring agent to use SNA, the Tivoli Enterprise Monitoring Server on z/OS requires SNA as one of its communication protocols, so you must copy the VTAM definitions from your Tivoli Enterprise Monitoring Server configuration to SYS1.VTAMLST.

a. On the RTE Utility Menu, enter 7 to display the Generate sample system VTAMLST copy JCL panel.

b. Type the name of your VTAM major node and press Enter.

c. The JCL is displayed for you to review, edit if necessary, and submit. Verify that the job completes successfully and that all return codes are zero.

This job creates a member called KCISYNJB in the RKANSAMU library.

d. Edit KCISYNJB and submit the job. Verify that the job completes successfully and that all return codes are zero.

This job copies all the required VTAM definitions from your RKANSAMU library to the specified VTAMLST.

3. Vary the VTAM major node active. Example:

   V NET,ACT,ID=OMEGZMC

4. APF-authorize the runtime load libraries concatenated in the STEPLIB DDNAME and in the RKANMODL DDNAME of the started tasks.

5. Start the started tasks for the monitoring server and the monitoring agent.
6. Verify successful startup.
   a. In the RKLVLOG for the monitoring server address space, look for the following messages to indicate successful startup:
      KO4SRV032  Tivoli Enterprise Monitoring Server (TEMS) startup complete.
   b. Look also for the following messages to indicate successful establishment of a communications path by local and global location brokers:
      KDSNC004  Bind of local location broker complete= protocol_name:address
      KDSNC005  Bind of global location broker complete= protocol_name:address
      The number of messages depends on the number of protocols defined.
   c. In the RKLVLOG for the monitoring agent address space, look for the following message to indicate successful startup:
      KRAIRA000  Starting HEARTBEAT
      If you do not find the messages shown, review the steps performed and look for errors. If you need assistance, see “Support information” on page 145.

### Step 7. Install Tivoli Enterprise Portal Server and client on a Windows workstation

Install at least one Tivoli Enterprise Portal Server for each hub Tivoli Enterprise Monitoring Server. You can connect more than one Tivoli Enterprise Portal Server to a hub Tivoli Enterprise Monitoring Server, for example, to provide a test environment and a production environment.

The instructions in this step assume that the operating system on the workstation is Windows XP Professional Edition with Service Pack 1. For complete information about hardware and software requirements for the Tivoli Monitoring Services components, and for instructions for installing and configuring the components on a Linux or UNIX system, see the IBM Tivoli Monitoring: IBM Tivoli Monitoring Installation and Setup Guide.

#### Tip
Install only the Tivoli Enterprise Portal Server and desktop client components. You do not need to install the hub Tivoli Enterprise Monitoring Server on the Windows system, because you already installed and configured it on a z/OS system. If you plan to install the hub Tivoli Enterprise Monitoring Server on Windows, UNIX, or Linux, see Chapter 5, “Configuring the hub monitoring server on a Windows system and the monitoring agent on a z/OS image,” on page 53.

### Installing the DB2 Universal Database software

Tivoli Enterprise Portal Server requires DB2 Universal Database (DB2 UDB) Workgroup Server Edition. DB2 UDB version 8.2 is provided in the Advanced Backup and Recovery for z/OS installation package. If DB2 UDB version 8 or higher is already installed on the workstation where you plan to install a Tivoli Enterprise Portal Server, you can skip this procedure and go directly to “Installing and configuring Tivoli Enterprise Portal Server and desktop client” on page 97.

1. On the Windows system where you plan to install the Tivoli Enterprise Portal Server, log on with a local ID that has Administrator authority. The DB2 Universal Database installation adds a local db2admin user account to Windows, and local Administrator authority is required for creating this account.
Without the **db2admin** ID, DB2 UDB is unable to create the Tivoli Enterprise Portal Server database, and the Tivoli Enterprise Portal Server cannot start.

2. Insert the *DB2 Universal Database Workgroup Server Edition CD* to start the installer.

3. Select **Install Products**. Read and accept the license agreement, and proceed through the installer windows until you reach the **Installation Type** window.

4. On the **Installation Type** window, accept the defaults. Do not select **Data warehousing**.

5. On the **Select the installation folder** window, change the installation drive if necessary.

6. Set user information for the DB2 Administration Server:
   a. You can either accept the user name of **db2admin** or use a different name.
   b. Enter a password.

   **Important**
   DB2 UDB requires the user name and password for all administrative tasks, including installation and configuration of the Tivoli Enterprise Portal Server.
   - If the Local Security Settings on the Windows system require complex passwords, use a password that fits the system requirements:
     - Not containing the user's account name.
     - Being at least six characters in length.
     - Containing characters from three of the following categories:
       - English uppercase characters (A through Z)
       - English lowercase characters (a through z)
       - Base 10 digits (0 through 9)
       - Non-alphanumeric characters (Examples: !, $, #, %)
   For information about Local Security Settings and password complexity, see the Windows system help.
   - If you change the **db2admin** password after DB2 UDB installation, you receive error messages when you try to install the Tivoli Enterprise Portal Server. If your Local Security Settings require you to change the password, wait to do so until you finish installing the Tivoli Enterprise Portal Server. See *IBM Tivoli Monitoring: IBM Tivoli Monitoring Problem Determination Guide* for troubleshooting information.
   c. Do not enter a domain name in the drop-down list.

7. On the remaining windows, select the defaults.

8. Click **Install** to start copying the files.

9. After the DB2 UDB installation is complete, restart Windows before installing the Tivoli Enterprise Portal Server. Do this even if the DB2 UDB installer does not ask you to.

10. If the Local Security Settings on the Windows system require complex passwords, you must create a new Windows user account for the Tivoli Enterprise Portal Server before you begin installing it. The default database user account name of the Tivoli Enterprise Portal Server is **TEPS**, but you can assign any name no longer than eight characters that meets your site's requirements for user IDs. Use a password that fits the Windows system requirements for complex passwords:
Not containing the user account name.
• Being at least six characters long.
• Containing characters from three of the following categories:
  – English uppercase characters (A through Z)
  – English lowercase characters (a through z)
  – Base 10 digits (0 through 9)
  – Non-alphanumeric characters (Examples: !, $, #, %)

For information about Local Security Settings and password complexity, see the Windows system help.

Installing and configuring Tivoli Enterprise Portal Server and desktop client

Complete the following steps to install Tivoli Enterprise Portal Server and desktop client on a Windows workstation where DB2 UDB is already installed:

1. Begin the installation.
   a. Log on to Windows with an ID that has local Administrator authority, and close any running applications.
   b. Insert the IBM Tivoli Monitoring Services on z/OS CD into the CD-ROM drive.
      Installation begins automatically. If the installer does not start, go to the Windows directory on your CD-ROM drive and run setup.exe. If setup.exe initialization fails, you might not have enough free disk space to extract the setup files.
   c. Read the text that welcomes you to the installation, and click Next to continue.
   d. On the Install Prerequisites window, read the information about the required levels of IBM Global Security Kit and IBM Java.
      The check box for each prerequisite is cleared if the correct level of the software is already installed on the workstation. Otherwise, the check box is selected to indicate that the software is to be installed.
   e. Click Next to continue.
      If Global Security Kit or Java is selected for installation, it is installed now. After installation of the prerequisite software is complete, you might be prompted to reboot the computer. In that case, you receive an abort message with a Severe error heading. This is normal and does not indicate a problem.
      If you are prompted to reboot, do the following:
      1) Click OK on the window prompting you to reboot.
      2) Click No on the window asking whether you want to view the abort log.
      3) Restart the computer.
      4) Restart the installation program.
   f. Read the software license agreement and click Accept.
      The Choose Destination Location window is displayed. The default is c:\IBM\ITM.
   g. Accept the default and click Next.
   h. On the User Data Encryption Key window, type the same 32-bit encryption key you set for the monitoring server on z/OS (see "Specifying configuration values" on page 82), and click Next, then click OK to confirm the encryption key.

2. Select the components to install.
a. On the **Select Features** window, expand the list of features and select the following:
   - Tivoli Enterprise Monitoring Agent Framework
   - Tivoli Enterprise Portal Server Framework
   - Tivoli Enterprise Portal Desktop Client
   - IBM Eclipse Help Server

   **Tips**
   - Do not select **Tivoli Enterprise Monitoring Server**. You have installed the hub monitoring server on a z/OS system.
   - If you want to enable historical reporting, select both **Tivoli Enterprise Monitoring Agent Framework** and **Warehouse Proxy** from the list of features under **Tivoli Enterprise Monitoring Agents**. Otherwise, select only **Tivoli Enterprise Monitoring Agent Framework**. Even though the Advanced Backup and Recovery for z/OS monitoring agent is installed on z/OS, the **Tivoli Enterprise Monitoring Agent Framework** must be selected here to enable installation of application support on the distributed Tivoli Monitoring Services components (see "Step 8. Install Advanced Backup and Recovery for z/OS application support" on page 100).
   - Do not select any agents or support features that are not in the list shown above.

b. Click **Next**.

c. On the **Agent Deployment** window, clear the check boxes for both **Universal Agent** and **Monitoring Agent for Windows OS**. These selections do not apply to the Advanced Backup and Recovery for z/OS product.
   
   Click **Next**.

d. On the **Select Program Folder** window, accept the default and click **Next**.

3. On the **TEPS Desktop and Browser Signon ID and Password** window, provide and confirm a password to be used by the Tivoli Enterprise Portal desktop or browser client for initial access to the Tivoli Enterprise Portal Server. The initial user ID `sysadmin` cannot be changed. You can add other user IDs after installation. For instructions, see the Tivoli Enterprise Portal online help or the *IBM Tivoli Monitoring: IBM Tivoli Monitoring Administrator’s Guide*.

4. Click **Next** and review the installation summary details. This summary identifies what you are installing and where you chose to install it. Click **Next** to begin the installation of components.

5. On the **Setup Type** window, clear the **Launch Manage Tivoli Monitoring Services** check box, and make sure that **Configure Tivoli Enterprise Portal** is selected. Click **Next**.

6. Configure the Tivoli Enterprise Portal.
   a. On the **TEPS Hostname** window, make sure that the host name of the Tivoli Enterprise Portal Server is correct and does not include the domain name. Click **Next**.

   b. On the **TEPS Data Source Config Parameters** window, enter the `db2admin` account password and a password for the Tivoli Enterprise Portal Server database user.
Tip
To have one less password to remember, you can use the same password for the db2admin account and the Tivoli Enterprise Portal Server database user account (default user account name TEPS, or the account name you set in [10 on page 96]). If the Local Security Settings on the Windows system require complex passwords, use a password that fits the system requirements:
• Not containing the user account name.
• Being at least six characters in length.
• Containing characters from three of the following categories:
  – English uppercase characters (A through Z)
  – English lowercase characters (a through z)
  – Base 10 digits (0 through 9)
  – Non-alphanumeric characters (Examples: !, $, #, %)


c. Click OK.
   This step takes a few moments to complete while it populates the database.
d. On the Success window, click OK.
e. If you want to enable historical reporting, supply a user ID and password for use by the Tivoli Enterprise Portal Server to access the Tivoli Data Warehouse, and click Next. Otherwise, click Next without specifying any values on the Warehouse ID and Password for TEP Server window.
f. On the TEP Server Configuration window, select the same communication protocols you specified for the monitoring server to use in communicating with the other components. Click OK.
g. On the next TEP Server Configuration window, enter the fully qualified host name of the z/OS system where the hub Tivoli Enterprise Monitoring Server is installed. Also enter the port number you specified when configuring the hub Tivoli Enterprise Monitoring Server. Supply any other values required for the selected communication protocols. Use the values you established in [Configuration worksheet for communication protocols if the monitoring server is on a z/OS system] on page 31. Because IBM Tivoli Monitoring is case-sensitive, select Convert to upper case to reduce the chance of user error. Click OK.
h. When you are prompted to reconfigure the warehouse connection information, click Yes if you are enabling historical data collection. Otherwise, click No and skip the rest of this step.
   If you clicked Yes, follow these steps:
   1) On the Warehouse Proxy Database Selection window, select the type of database you want to use for the warehouse data source and click OK.
   2) Provide the values required for the selected database type and click OK.
3) Click OK on the Successfully configured warehouse data source window.

7. On the InstallShield Wizard Complete window, select Display the README file and click Finish.

### Step 8. Install Advanced Backup and Recovery for z/OS application support

The IBM Tivoli Advanced Backup and Recovery for z/OS Data Files for z/OS CD contains the product-specific application support data required by distributed components and by the hub Tivoli Enterprise Monitoring Server (on any platform).

To install Advanced Backup and Recovery for z/OS application support, follow this procedure:

1. Insert the IBM Tivoli Advanced Backup and Recovery for z/OS Data Files for z/OS CD into the CD-ROM drive of the Windows workstation that hosts the Tivoli Enterprise Portal Server and desktop client. Installation begins automatically. If the installer does not start, go to the Windows directory on your CD-ROM drive and run setup.exe. If setup.exe initialization fails, you might not have enough free disk space to extract the setup files.

2. Read the text that welcomes you to the installation, and click Next to continue.

3. On the Install Prerequisites window, both check boxes are cleared, to indicate that the required software is already installed. Click Next to continue.

4. Read the software license agreement and click Accept.

5. On the Select Features window, select Advanced Backup and Recovery for z/OS Support for these components:
   - Tivoli Enterprise Portal Server
   - Tivoli Enterprise Portal Desktop Client

6. Click Next to continue.

7. On the Start Copying Files window, read the list of actions to be performed, and click Next.

   Application support for Advanced Backup and Recovery is installed on the components you selected.

8. On the Setup Type window, select Configure Tivoli Enterprise Portal and clear the check boxes for the other items. Click Next.

9. On the TEPS Hostname window, make sure that the host name of the Tivoli Enterprise Portal Server is correct and does not include the domain name. Click Next.

10. On the InstallShield Wizard Complete window, select Display the README file and click Finish.

11. Add application support to the hub Tivoli Enterprise Monitoring Server on z/OS.
    a. Ensure that the hub Tivoli Enterprise Monitoring Server is running.
    b. On the Windows workstation, select Start > Programs (or All Programs) > IBM Tivoli Monitoring > Manage Tivoli Monitoring Services.
    c. Select Actions > Advanced > Add TEMS application support.
    d. On the Add application support to the TEMS window, select On a different computer and click OK.
    e. When you are prompted to ensure that the Tivoli Enterprise Monitoring Server is configured and running, click OK.
f. On the **Non-Resident TEMS Connection** window, provide the hub monitoring server TEMS name (node ID) and select the communication protocol to use in sending the application support to the hub monitoring server on z/OS.

If you made a note of the TEMS name displayed in the **Add Runtime Environment (1 of 2)** panel (Figure 28 on page 78), find it now. You might have recorded it in "Configuration worksheet if the monitoring server is on a z/OS system" on page 29. Otherwise, you can find the TEMS name as the value of the CMS_NODEID variable in this location:

```bash
&rhilev.&sys.RKANPARU(KDSENV)
```

g. On the next window, provide any values required by the communication protocol.

For example, if the protocol is IP.PIPE, you are prompted for the fully qualified TCP/IP host name and port number of the z/OS system where the hub Tivoli Enterprise Monitoring Server is installed. See "Configuration worksheet if the monitoring server is on a z/OS system" on page 29 for the values you recorded during installation planning.

h. On the **Select the application support to add to the TEMS** window, select **Advanced Backup and Recovery for z/OS Support** and click **OK**.

i. When the application support has been added to the monitoring server (this might take several minutes), a window gives you information about the status and location of the application support (also called *seeding* or *seed data*). Click **Save As** if you want to save the information in a text file. Click **Close** to close the window.

j. Stop and restart the hub Tivoli Enterprise Monitoring Server.

---

**Step 9. Verify the configuration**

Now that you have completed the configuration, you can verify that it is successful. Verification involves starting these components:

- Tivoli Enterprise Monitoring Server and monitoring agent started tasks on your z/OS system.
- Tivoli Enterprise Portal Server through Manage Tivoli Monitoring Services on your workstation.
- Tivoli Enterprise Portal desktop client through Manage Tivoli Monitoring Services on your workstation.

To do this, complete the following procedure:

1. Start the started tasks for the monitoring server, the monitoring agent, and the data collection agent.
2. Verify successful startup.
   a. In the RKLVLOG for the monitoring server address space, look for the following messages to indicate successful startup:
      ```
      KO4SRV032 Tivoli Enterprise Monitoring Server (TEMS) startup complete.
      ```
   b. Look also for the following messages to indicate successful establishment of a communications path by local and global location brokers:
      ```
      KDSNC004 Bind of local location broker complete= protocol_name:address
      KDSNC005 Bind of global location broker complete= protocol_name:address
      ```
      The number of messages depends on the number of protocols defined.
   c. In the RKLVLOG for the monitoring agent address space, look for the following message to indicate successful startup:
d. In the JOBLOG for the data collection agent address space, look for the following message to indicate successful startup:

KRV0008I KRV Agent KRVSYNC connected to TEMA.

If you do not find the messages shown, review the steps performed and look for errors. If you need assistance, see "Support information" on page 145.

3. On your workstation, select Start > Programs (or All Programs) > IBM Tivoli Monitoring > Manage Tivoli Monitoring Services.

4. To start the Tivoli Enterprise Portal Server, right-click its entry in Manage Tivoli Monitoring Services and click Start.

5. To start the Tivoli Enterprise Portal desktop client, right-click its entry in Manage Tivoli Monitoring Services and click Start.

6. When prompted, supply the user ID sysadmin and the password you specified for initial access to the Tivoli Enterprise Portal Server.

7. When Tivoli Enterprise Portal opens, you can expand the navigator pane to see the Advanced Backup and Recovery workspaces.

   For information about using the Advanced Backup and Recovery workspaces and situations to monitor your sysplex resources and z/OS systems, see the online help and IBM Tivoli Advanced Backup and Recovery for z/OS User’s Guide.

---

### Setting up security

Now you can set up security for the product components. See Chapter 7, “Setting up security,” on page 105.

### Expanding this configuration

After you configure the hub Tivoli Enterprise Monitoring Server and an Advanced Backup and Recovery monitoring agent in different address spaces of the same z/OS image, you can add agents in other z/OS images that you want to monitor. These additional agents are called remote agents because they are not on the same z/OS image as the hub Tivoli Enterprise Monitoring Server. To add remote monitoring agents, complete the following steps:

- **“Step 1. Define the runtime environment” on page 76**
  
  In this step, answer N for this RTE have a Tivoli Enterprise Monitoring Server on the Add Runtime Environment panel.

- **“Step 2. Build the runtime libraries” on page 80**

  You can skip Step 3 (Configure the hub Tivoli Enterprise Monitoring Server) because all the Advanced Backup and Recovery monitoring agents can communicate with the same hub Tivoli Enterprise Monitoring Server.

- **“Step 4. Configure the monitoring agent” on page 89**

  1. Register the remote monitoring agents with the hub Tivoli Enterprise Monitoring Server on the z/OS image where the hub is installed, not on the z/OS image where the monitoring agent is installed.

  2. To configure a remote monitoring agent, follow the instructions in "Step 5 Configure the monitoring agent” on page 66.

- **“Step 5. Load the runtime libraries” on page 93**

- **“Step 6. Complete the configuration of the Tivoli Enterprise Monitoring Server and the monitoring agent” on page 93**
You can skip Steps 7 and 8 (Install Tivoli Enterprise Portal Server and client on a Windows workstation, and Install Advanced Backup and Recovery for z/OS application support) because you performed these steps during configuration of the first monitoring agent.

"Step 9. Verify the configuration" on page 101

Batch mode processing

The Configuration Tool offers batch mode processing for several configuration scenarios. You can use the batch mode processing utility to configure runtime environments and monitoring agents without going through the ISPF panels and filling in parameter values there. After you establish and configure a runtime environment in a z/OS image, you can use the batch mode processing utility to replicate your runtime environment in other z/OS images. See Chapter 9, "Using batch mode processing," on page 121.
Chapter 7. Setting up security

This chapter explains three aspects of product security:

- Configuring user security
- “Advanced Backup and Recovery security considerations” on page 110
- “Setting up NetView authentication of Take Action commands” on page 110

Configuring user security

You can control who has access to the Tivoli Enterprise Portal through authentication of user IDs and passwords. Initially, the Tivoli Enterprise Portal has only one valid user ID, sysadmin. You use this user ID to log on and create other users.

How you configure user security depends on the operating system where the hub Tivoli Enterprise Monitoring Server is installed.

Table 11. User security configuration methods

<table>
<thead>
<tr>
<th>Operating system of the hub monitoring server</th>
<th>Method of Tivoli Enterprise Portal user authentication</th>
</tr>
</thead>
<tbody>
<tr>
<td>z/OS</td>
<td>Security product specified in the Configuration Tool</td>
</tr>
<tr>
<td>Windows</td>
<td>User accounts</td>
</tr>
<tr>
<td>Linux and UNIX</td>
<td>Password files</td>
</tr>
</tbody>
</table>

For complete information about user security issues in the Tivoli Monitoring Services environment, see the Tivoli Enterprise Portal online help and the following IBM Tivoli Monitoring publications:

- IBM Tivoli Monitoring Installation and Setup Guide
- Configuring IBM Tivoli Enterprise Monitoring Server on z/OS
- IBM Tivoli Monitoring Administrator’s Guide

Setting up user security if the hub Tivoli Enterprise Monitoring Server is running on a z/OS system

If your hub Tivoli Enterprise Monitoring Server is running on z/OS, you need to configure RACF or another supported security product to authenticate your Tivoli Enterprise Portal users. User IDs must also be defined on any Linux, UNIX, and Windows systems where distributed components are installed.

After you specify a security product and activate security validation by the hub monitoring server in the Configuration Tool, user access to the Tivoli Enterprise Portal is controlled by user ID and password validation at the monitoring server, using the selected security product.
The first time you configure the Tivoli Enterprise Monitoring Server, you can select a security system for the runtime environment if desired, but be sure to leave security turned off in the **Security validation** field of the **Specify Configuration Values** panel (Figure 33 on page 83) for the monitoring server.

Security validation?  ==> N (Y, N)
Steps to perform before turning on security validation

Before turning on security validation, perform the following steps:

1. Configure and start the Tivoli Enterprise Monitoring Server, Advanced Backup and Recovery for z/OS monitoring agent, and Tivoli Enterprise Portal Server, following the instructions in Chapter 6, “Configuring the hub monitoring server and the monitoring agent on a z/OS image,” on page 75.

2. Use the sysadmin user ID to log on to the Tivoli Enterprise Portal, and create other user accounts with different levels of permissions. Be sure to create at least one Tivoli Enterprise Portal user account with administrator authority. All user accounts need valid TSO user IDs and passwords, for signing on to the Tivoli Enterprise Portal after security validation is turned on at the hub Tivoli Enterprise Monitoring Server on z/OS.

To create an administrator user account in the Tivoli Enterprise Portal, follow these steps:

   a. Click Administer Users.
   b. On the Administer Users window, select the sysadmin user account and click Create Another User.
   c. Create a user account with the same user ID as a valid TSO user ID. The new user account is based on the sysadmin account and therefore has administrator authority in the Tivoli Enterprise Portal.

For further instructions on managing user accounts, see the Tivoli Enterprise Portal online help or the IBM Tivoli Monitoring: IBM Tivoli Monitoring Administrator’s Guide.

3. Verify that your security product is installed and configured correctly.

Activating user security

After you have performed all the steps listed above, you can turn on user security at the Tivoli Enterprise Monitoring Server.

1. If you have already specified a security system for the runtime environment where the hub Tivoli Enterprise Monitoring Server is installed and configured, skip to step 3. Otherwise, navigate in the Configuration Tool to the Runtime Environments (RTEs) panel (Figure 27 on page 77) and enter U (Update) in the Action field beside the name of the runtime environment where the hub Tivoli Enterprise Monitoring Server is installed and configured.

2. On the Update Runtime Environment panel, specify the security system you want to use, and press Enter. This example specifies RACF:

   Security system ==> RACF (RACF, ACF2, TSS, NAM, None)

   If you select ACF2, you must also specify the ACF2 macro library in the next field.

3. On the Product Component Selection Menu (Figure 30 on page 81), enter 1 to select Tivoli Enterprise Monitoring Server.

4. On the Configure the TEMS menu (Figure 31 on page 81), select option 2 (Specify configuration values).

5. On the Specify Configuration Values panel (Figure 33 on page 83), specify Y in the Security validation? field:

   Security validation? ==> Y (Y, N)

6. Press Enter to return to the Configure the TEMS menu.

7. On the Configure the TEMS menu, select option 4 (Create runtime members) to open JCL that you can review, edit, and submit. Check to make sure the return code is zero.
8. After the job completes, press F3 (Back) repeatedly to exit the Configuration Tool.

9. Locate the section for the security system you are using and follow the instructions:
   - “Defining security for RACF”
   - “Defining security for Network Access Method (NAM)”
   - “Defining security for CA-ACF2”
   - “Defining security for CA-TOP SECRET”

10. Verify that the user account you created, using a TSO user ID, can log on to the Tivoli Enterprise Portal.

**Defining security for RACF**
To implement RACF security, recycle the Tivoli Enterprise Monitoring Server started task.

**Defining security for Network Access Method (NAM)**
You can use the product-provided security feature NAM (Network Access Method) to secure your Tivoli Enterprise Monitoring Server. Complete the following steps to implement NAM security.
1. Access the z/OS system console.
2. Define a password for each user who accesses the Tivoli Enterprise Monitoring Server:
   
   ```
   F taskname,NAM SET user_id PASSWORD=password
   ```
   where `taskname` is the name of your Tivoli Enterprise Monitoring Server started task, `user_id` is the user ID, and `password` is the NAM password you want to define for that user.
3. Recycle the Tivoli Enterprise Monitoring Server started task.

**Defining security for CA-ACF2**
Complete the following steps to install an exit for CA-AF2 security validation.
1. Stop the Tivoli Enterprise Monitoring Server started task.
2. Follow the instructions in KLVA2NEV to assemble and link KLVA2NEV. Change the variables as directed. Member KLVA2NEV in `&hilev.&rte.TKANSAM` is the product-supplied interface to CA-ACF2. The product-supplied member KLVA2ASM in `&hilev.&rte.RKANSAM`, contains sample assembly JCL, which is assembled into the RKANMODU data set for the specific runtime environment.
3. Define the Tivoli Enterprise Monitoring Server started task as a MUSASS to CA-ACF2:
   - Log on to TSO. At the READY prompt, type `ACF` and press Enter.
   - At the ACF prompt, type `SET LID` and press Enter.
   - At the LID prompt, type `CH `taskname` MUSASS`
     where `taskname` is the name of the Tivoli Enterprise Monitoring Server started task. Press Enter.
   - At the LID prompt, type `END` and press Enter.
4. Start the Tivoli Enterprise Monitoring Server started task.

**Defining security for CA-TOP SECRET**
Complete the following steps to implement CA-TOP SECRET security.
1. Stop the Tivoli Enterprise Monitoring Server started task.
2. Define the Tivoli Enterprise Monitoring Server as a started task in the STC record and relate it to a master facility accessor identifier. For example:

TSS ADD(STC) PROC(taskname) ACID(master_facility_acid)

where taskname is the name of your Tivoli Enterprise Monitoring Server started task. The value for master_facility_acid might be the same as taskname.

3. Define the name of your Tivoli Enterprise Monitoring Server started task as a FACILITY in the CA-TOP SECRET Facility Matrix Table. Set the SIGN parameter as SIGN(M) and set MODE to MODE=FAIL. Make sure the name of your Tivoli Enterprise Monitoring Server started task and the FACILITY name match.

Example: This example shows FACILITY statements for a site that uses CA-TOP SECRET. Some statements might not be relevant to your site or might need to be modified to fit the standards and configuration of your site.

FACILITY(USER3=NAME=task)  
FACILITY(task=MODE=FAIL,ACTIVE,SHRPRF)  
FACILITY(task=PGM=KLV,NOASUBM,NOABEND,NOXDEF)  
FACILITY(task=ID=3,MULTIUSER,RES,WARNPW,SIGN(M))  
FACILITY(task=NOINSTDATA,NORNDPW,AUTHINIT,NOPROMPT,N OAUDIT,NOMRO)  
FACILITY(task=NOTSOC,LOG(INIT,SMF,MSG,SEC9))

4. Start the Tivoli Enterprise Monitoring Server started task.

Setting up security for a hub Tivoli Enterprise Monitoring Server running on a Windows, Linux, or UNIX system

When you install and configure the hub Tivoli Enterprise Monitoring Server on a Windows, Linux, or UNIX system, do not turn on security validation immediately. Make sure the Security: Validate User check box is cleared. To see this setting in Manage Tivoli Monitoring Services, right-click Tivoli Enterprise Monitoring Server and click Reconfigure.

Steps to perform before turning on security validation

Before turning on security validation, perform the following steps:


2. Use the sysadmin user ID to log on to the Tivoli Enterprise Portal, and create other user accounts with different levels of permissions. Be sure to create at least one Tivoli Enterprise Portal user account with administrator authority and with the same user ID as one already set up in your network domain user accounts or in the operating system where the hub Tivoli Enterprise Monitoring Server is installed.

To create an administrator user account in the Tivoli Enterprise Portal, follow these steps:

a. Click Administrate Users.

b. On the Administrate Users window, select the sysadmin user account and click Create Another User.

c. Create a user account with the same user ID as one already set up in your network domain user accounts or in the operating system where the hub Tivoli Enterprise Monitoring Server is installed. The new user account is based on the sysadmin account and therefore has administrator authority in the Tivoli Enterprise Portal.
For further instructions on managing user accounts, see the Tivoli Enterprise Portal online help or the *IBM Tivoli Monitoring: IBM Tivoli Monitoring Administrator’s Guide*.

### Activating user security

After you have performed the steps listed above, you can activate user security validation by the hub Tivoli Enterprise Monitoring Server:

1. In **Manage Tivoli Monitoring Services**, right-click **Tivoli Enterprise Monitoring Server** and click **Reconfigure**.
2. Select **Security: Validate User**.
3. Click **OK** twice.
4. Recycle the **Tivoli Enterprise Monitoring Server**.
5. Verify that the user account you created can log on to the Tivoli Enterprise Portal.

### Advanced Backup and Recovery security considerations

Access to the Advanced Backup and Recovery for z/OS workspaces and authority to perform various functions with the product are controlled through password validation. Administrative users of the Tivoli Enterprise Portal can set permissions for specific product features. It is important to provide access to the product only to users who can be trusted with the information and capabilities the product provides. For information about user administration, see *IBM Tivoli Monitoring: IBM Tivoli Monitoring Administrator’s Guide*.

Advanced Backup and Recovery for z/OS does not provide user-based security with respect to z/OS information displayed. All users of the product have access to the same z/OS reports. If you configure forwarding of Take Action commands to NetView on z/OS, then NetView performs user authorization and command execution. Otherwise, all users have the same Take Action command authority. See "Setting up NetView authentication of Take Action commands."

### OMVS segment

To use the TCP/IP communication protocols, a Tivoli Enterprise Monitoring Server on z/OS requires a default OMVS segment. See the *z/OS Communications Server IP Configuration Guide* for an explanation of how to provide an OMVS segment.

### Setting up NetView authentication of Take Action commands

You can configure a monitoring server or monitoring agent address space to redirect z/OS Take Action commands to NetView through the Program to Program Interface (PPI). Take Action commands issued in NetView make full System Authorization Facility (SAF) calls for authorization. NetView uses the Tivoli Enterprise Portal user ID to determine the NetView operator on which the command authorization is performed. If command authorization passes, the command is executed on the NetView operator. Messages are written to the NetView log to provide an audit trail of the commands and the users that issued them.

If you enable NetView command authorization on the monitoring server, you must also enable NetView to execute the commands.

Take Action forwarding requires NetView on z/OS V5.2 with APAR OA18449 applied.
To set up NetView authentication of Take Action commands, complete the steps below:

1. "Step 1. Configure NetView authentication in the Configuration Tool"
2. "Step 2. Add the NetView CNMLINK data set to the Tivoli Enterprise Monitoring Server started task" on page 112
3. "Step 3. Enable NetView to authorize Take Action commands" on page 112

Step 1. Configure NetView authentication in the Configuration Tool

You configure NetView authentication of Take Action commands on the following Configuration Tool panels:
- Tivoli Enterprise Monitoring Server: The Specify Configuration Values panel (Figure 33 on page 83).
- Advanced Backup and Recovery for z/OS monitoring agent: The Specify Advanced Agent Configuration Values panel (Figure 42 on page 92).

The parameters for the monitoring server and the monitoring agent are the same.

Forward Take Action commands to NetView for z/OS?

Indicate whether you want z/OS console commands issued as Take Action commands to be forwarded to NetView for authorization and execution.

NetView PPI receiver

Specify the name of the PPI receiver on NetView that is to receive Take Action commands. This name is required if you answer Y to Forward Take Action commands to NetView for z/OS? and must match the receiver name specified on the NetView APSERV command. (The default name is CNMPCMDR.) If the specified name is incorrect or the receiver is not active on NetView for z/OS, default (MGCR) command routing is performed. The Configuration Tool generates the KGLHC_PPI_RECEIVER parameter in the KppENV member of the &rhilev.&rtename.RKANPARU library (where pp is DS for the monitoring server or HL for the Advanced Backup and Recovery for z/OS monitoring agent).

The receiver name must be a unique identifier, up to 8 characters in length. It can contain alphabetic characters A-Z or a-z, numeric characters 0-9, and the following special characters: dollar sign ($), percent sign (%), ampersand (&), at sign (@), and number sign (#). This value must match the value specified in the NetView DSIPARM initialization member, CNMSTYLE (see “Step 3. Enable NetView to authorize Take Action commands” on page 112).

The value for the monitoring agent defaults to the value set for the monitoring server, if one is configured in the same runtime environment. Otherwise, the default is CNMPCMDR.

TEMS PPI sender

Optionally, specify the name of the PPI sender. The value must be a unique identifier, up to 8 characters in length. It can contain alphabetic characters A-Z or a-z, numeric characters 0-9, and the following special characters: dollar sign ($), percent sign (%), ampersand (&), at sign (@), and number sign (#). This name must not conflict with any NetView for z/OS domain name, as it is used in logging the command and command response in the NetView log. If a value is specified, the Configuration Tool generates the KGLHC_PPI_SENDER parameter in the KppENV member of the
&hilev.&rtename.RKANPARU library (where pp is DS for the monitoring server or HL for the Advanced Backup and Recovery for z/OS monitoring agent).

If you do not specify a value in this field, the default is the job name of the Tivoli Enterprise Monitoring Server that is the source of the command.

**Step 2. Add the NetView CNMLINK data set to the Tivoli Enterprise Monitoring Server started task**

To connect to NetView, the monitoring server must reference the NetView CNMLINK data set. Concatenate the NetView CNMLINK data set to the RKANMODL statement in the Tivoli Enterprise Monitoring Server started task.

To provide the location, uncomment the CNMLINK DD card in the Tivoli Enterprise Monitoring Server started task and specify the NetView CNMLINK data set. For example:

```
000350 //RKANMODL DD DISP=SHR,
000351 // DSN= &HILEV.&SYS.RKANMODU
000352 // DD DISP=SHR,
000353 // DSN= &HILEV.&SYS.RKANMODUL
000354 // DD DISP=SHR,
000355 // DSN= &HILEV.&SYS.RKANMOD
000356 //*****************************************************************************
000357 // RKANMODL DD: CNMLINK
000358 //*****************************************************************************
000359 // Uncomment this DD card and specify the location of the CNMLINK
000360 /// load module for NetView for z/OS. This library is required for the
000361 /// "Forward Take Action commands to NetView for z/OS" support which
000362 /// is enabled for this Agent. The CNMLINK library must also be
000363 /// APF-authorized.
000364 /// DD DISP=SHR,
000365 /// DSN=NETVIEW.V5R2M0.CNMLINK
```

Contact your NetView for z/OS system programmer for the data set name, if necessary. The default NetView 5.2 CNMLINK data set is NETVIEW.V5R2M0.CNMLINK. The CNMLINK library must be APF-authorized.

**Step 3. Enable NetView to authorize Take Action commands**

If you have configured the monitoring server or monitoring agent address spaces to forward z/OS Take Action commands to NetView, you must also enable NetView to receive and execute the commands. NetView performs command authorization as part of the execution.

To enable execution of forwarded commands, complete the following steps:

1. Define Tivoli Enterprise Portal user IDs to NetView.
   

2. Optionally, define the NetView PPI receiver in the NetView DSIPARM member CNMSTYLE (see Figure 44 on page 113).
   
   Follow the instructions in the member. The PPI receiver for APSERV will be started during NetView initialization.
3. If you do not customize CNMSTYLE to define the receiver, start the NetView PPI receiver manually by issuing the APSERV command.

Figure 44. CNMSTYLE member after editing

```
************************************************************************
* Tivoli Management Services infrastructure server *
* *
* Uncomment the following (and, optionally, supply preferred OPID) to *
* initialize support for commands and messages from Tivoli Management *
* Services infrastructure and/or other APF authorized clients. See *
* command help for APSERV for information about the function and *
* clients depending on it. *
* *
************************************************************************
function.autotask.APSERV = AUTOTMISI
* AUTOTASK.APSERV.Console = *NONE*  //
AUTOTASK.APSERV.InitCmd = APSERV CNMPCMDR
************************************************************************
```
Chapter 8. Enabling system variable support

This chapter provides detailed instructions for enabling system variable support and using it to run your monitoring agents on any z/OS system. With system variables, the software becomes z/OS system-independent. The software can then be ported and started on any z/OS system without extensive Configuration Tool reconfiguration.

**Tips**

- The system variables discussed in this chapter are not the same as JCL system symbols.
- For additional information, you can access the README file for system variable support by issuing the `README SYS` command from any Configuration Tool panel.

By using system variable support, the components inherit the system values for the system on which they are started (the host z/OS system). These system-specific values are then automatically loaded into dynamic in-memory parameter members that exist only while the component runs. The result is that the software runs correctly using the system-specific parameter values for the host z/OS system.

Using system variable support includes the following benefits:

- You can deploy the same software unit, consisting of any or all monitoring agents, on any system without modification. LPAR-specific values are automatically resolved and substituted at product startup.
- The number of unique runtime environments required is smaller. This feature saves storage space, CPU, and labor.
- The same started task JCL and the same VTAM node can be used on any system without modification.
- You can choose to use a single VTAM major node in place of the individual product major nodes. When generated, a single VTAM major node contains all VTAM applids for all monitoring agents you have configured in the runtime environment.

When using system variable support, consider the following facts:

- Product started tasks (STCs) contain a new preprocessing step (STEP1 in the STC JCL). This new step resolves all system variable specifications in the product parameter members.
- Product parameter members contain many variables, instead of values, that are resolved when the STC starts. For example, the members contain &SVXDSNV instead of the VSAM high-level qualifier value.

**Sample usage scenario**

The following steps describe the process for enabling and using system variable support.

1. Define and configure a runtime environment. During runtime environment configuration, specify the values to enable system variable support. See Chapter 5 for details on configuring a runtime environment.
Note: Multiple runtime environments might be required depending on the runtime environment structure (full, sharing, base, or SMP/E), the CMS type (hub or remote), and variations in product mixtures.

2. Create the system variable parameter member.
   After configuring a runtime environment, you can create the system variable parameter member. Each runtime environment contains one user system variable parameter member named RKANPARU(\textit{rtename}), which contains all system-specific values.
   See "Creating the system variable parameter member" on page 118 for information on creating the \textit{rtename} system variable parameter member in the RKANPARU library.

3. Create the VTAM major node rename job.
   After configuring a runtime environment, you can create the VTAM major node rename job. This job creates VTAM major nodes on remote systems with names that are resolved from your system variable specification.
   See "Creating the VTAM major node rename job" on page 119 for information on creating a VTAM major node rename job.

4. Create the runtime environment transport job by using the RTE Utility option \textbf{Generate sample transport JCL}.

5. Copy the runtime environment to a remote system by using the runtime environment transport job (or any other copy utility).

6. After the copy completes, edit the system variable parameter member RKANPARU (\textit{rtename}). If necessary, set values for components running on other systems. For example, set values for a hub CMS running on a different LPAR.

7. Perform other remote system setup tasks as required.
   - Copy the new started tasks to your system procedure library. These started tasks have been enabled for system variables.
   - If you are not using an existing system variable for the runtime environment name on the LPAR, set the \&SYSNAME system variable to the name of the runtime environment. This is set in SYS1.PARMLIB(IEASYMxx).
   - If you are using VTAM system variable support, you must run the VTAM major node rename job. This job creates new major nodes that are named according to your system variable specifications. After the new nodes are created, copy them to SYS1.VTAMLST.
   - VSAM file allocation and seeding are required on every system.

8. Start the components.

**Enabling system variable support**

You enable system variable support from the \textbf{Add Runtime Environment} panel. In an existing runtime environment, use the \textbf{Update (U)} command to enable system variable support.

Some older versions of monitoring agents might not support the system variable feature. These monitoring agents can exist in the same runtime environment, and you need not reconfigure them in the runtime environment.

Complete the following steps to enable system variable support.

1. From the \textbf{Main Menu}, select \textbf{Configure products} > \textbf{Select product to configure} and select the product you are configuring.
   The Configuration Tool displays the \textbf{Runtime Environments (RTEs)} panel.
2. Add a new runtime environment or update an existing runtime environment:
   a. If you are adding a new runtime environment, type A in the Action field and
      specify all other required information.
   b. If you are updating a runtime environment, type U in the Action field.
   c. Press Enter.
   d. On the first Add Runtime Environment panel, enter all of the required
      information.
   e. Press Enter to access the second Add Runtime Environment panel.

3. Specify the following values to enable system variable support:

   Table 12. System variable values
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use z/OS system variables?</td>
<td>Specify Y to enable support. The default is N.</td>
</tr>
<tr>
<td>RTE name specification</td>
<td>Specify the system variable name by which the runtime environment is identified in the SYS1.PARMLIB LPAR system definition member. The default is &amp;SYSNAME. This value becomes the value of the SYS parameter in all started tasks (for example, SYS='&amp;SYSNAME').</td>
</tr>
</tbody>
</table>

   Note: Resolved system variable values cannot exceed the length of the variable name (maximum length of 8 characters).

   Important
   If you change the status of system variable support in an existing runtime environment (on to off or vice versa), you must reconfigure all monitoring agents in that runtime environment. This includes specifying VTAM values and creating runtime members.

4. (Optional) Specify the following values on the second Add Runtime Environment panel to enable other functions:

   Table 13. Add runtime environment values
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
</table>
Table 13. Add runtime environment values (continued)

| **RTE base alias specification** | If this runtime environment is sharing with a base runtime environment, specify an optional system variable specification for the base runtime environment. This value is inserted into the base runtime environment library references in all started tasks. The resolved name must be a valid library name qualifier. This field is commonly used to switch between base runtime environments at different maintenance levels. You can use the runtime environment base alias as one of the following:
| **Applid prefix specification** | Specify the VTAM applid prefix that contains system variables. Be sure to place a period after the last symbol in the specification. The resolved prefix can be a maximum of four characters. The default is K&SYSCLONE. |
| **Use VTAM model applids?** | If you want to use model applids (wildcards), specify y. Model applids generate VTAM nodes that contain applids with wildcard suffixes wherever possible. These wildcards allow you to use any applids that match the pattern within the VTAM node. The default is n. |

Note: A label of n/a might be next to this field if the current runtime environment is not sharing with a base runtime environment.

5. When you have finished specifying the values to enable system variable support, press F3 until you return to the Main Menu.

Creating the system variable parameter member

You enable system variable support from the Add Runtime Environment panel. In an existing runtime environment, use the Update (U) command to enable system variable support.

After configuring a runtime environment, you can create the system variable parameter member.

Each runtime environment contains one user system variable parameter member named RKANPARU(rtename). All system-specific values are contained in this member.

Complete the following steps to create the system variable parameter member, rtename, in the RKANPARU library.

1. From the Configuration Tool Main Menu, select Configure products > Select product to configure and select the product you are configuring.
   Result: The Configuration Tool displays the Runtime Environments (RTEs) panel.
2. Create the system variable parameter member:
   a. Type Z next to the name of the runtime environment you have configured and press Enter.
   b. On the RTE Utility Menu, select Create System Variable parameter member and press Enter.
      Result: The JCL that creates the system variable parameter member (CB#V.xxxx) job is displayed.
   c. Review the JCL and submit the job. Verify that the job completes successfully and that all return codes are zero.
   d. Edit the RKANPARU(rename) parameter member. Follow the directions to ensure proper resolution of cross-system variables.
3. When you have finished creating the system variable parameter member, press F3 until you return to the Main Menu.

Creating the VTAM major node rename job

After configuring a runtime environment, you can create the VTAM major node rename job. This job creates VTAM major nodes on remote systems with names that are resolved from your system variable specification.

Complete the following steps to create a VTAM major node rename job in the INSTJOBS library.

1. From the Configuration Tool Main Menu, select Configure products > Select product to configure and select the product you are configuring.
   Result: The Configuration Tool displays the Runtime Environments (RTEs) panel.

2. Create the VTAM major node rename job:
   a. Type Z next to the name of the runtime environment you have configured and press Enter.
   b. On the RTE Utility Menu, select Create System Variable VTAM major node rename job, and then press Enter. Result: The JCL that renames the VTAM major node (CB#7.xxxx) job is displayed.
   c. Review the JCL. Do not submit the job yet.

   Note: You must submit this job on each remote system where the monitoring software is to run. The job is in the RKANSAMU library.

3. When you have finished creating the VTAM major node rename job, press F3 until you return to the Main Menu.

Creating one VTAM major node for all monitoring agents in the runtime environment

A single VTAM major node can contain all the VTAM applids for all of the monitoring agents you have configured in the runtime environment. This single major node is then used in place of the individual product major nodes.

If you choose to use a single VTAM major node, you must create it after all monitoring agents have been configured in the runtime environment. After the node is created and copied to your system VTAM system library (SYS1.VTAMLST), you vary it active and then start all of the components (started tasks).
Complete the following steps to create a single VTAM major node in the RKANSAMU library.

1. From the Configuration Tool Main Menu, select Configure products > Select product to configure and select the product you are configuring.
   
   **Result:** The Configuration Tool displays the Runtime Environments (RTEs) panel.

2. Create the VTAM major node:
   
   a. Type Z next to the name of the runtime environment you have configured and press Enter.

   b. On the RTE Utility Menu, select Create VTAM major node(one node for all products) and press Enter.

   c. On the Create VTAM Major Node panel, type the name you want to use for the single node and press Enter.
      
      The JCL that creates the single node is displayed.

   d. Review the JCL and submit the job. Verify that the job completed successfully and that all return codes are zero.

3. When you have finished creating a single VTAM major node, press F3 until you return to the Configuration Tool Main Menu.
Chapter 9. Using batch mode processing

The Configuration Tool offers batch mode processing for several configuration scenarios. You can use the batch mode processing utility to configure runtime environments and monitoring agents without going through the ISPF panels and filling in the required parameter values. After you establish and configure a runtime environment in a z/OS image or address space, you can use the batch mode processing utility to replicate your runtime environment in other z/OS images or address spaces.

This chapter provides instructions on using batch mode processing to perform these tasks:

- Create a new runtime environment by running a single batch job
- Replicate an existing runtime environment
- Transport a replicated runtime environment to other z/OS images

Batch mode processing using the Configuration Tool is an alternative way of building and configuring a runtime environment. Instead of using the interactive Configuration Tool to build and configure a runtime environment, you can submit a single batch job that performs the same processing.

Batch mode processing in the Configuration Tool includes the following components:

**Configuration Tool batch job (CICATB)**

CICATB is a new job that is generated into the INSTJOBS library. You submit this job to build and configure a runtime environment.

**Configuration Tool batch parameter member**

This is a single member in INSTJOBS, containing all of the configuration values for all monitoring agents to be configured in the runtime environment.

**RTE Utility to create Configuration Tool batch parameter member**

This utility creates the batch parameter member for an existing runtime environment, which can then be used for running subsequent CICATB jobs. The name of the parameter member is the runtime environment name.

You create the Configuration Tool batch job only once on an image and then use it for all subsequent batch mode processing on that image.

**Tips**

- You must recreate the Configuration Tool batch job if your ISPF environment has changed.
- When the SUBMIT parameter is set to YES, the generated runtime environment configuration jobs are submitted automatically if the job names do not currently exist in the INSTJOBS library. If the generated jobs already exist, then the jobs are regenerated but not automatically submitted.
- The JCL suffix must be unique for each runtime environment, because when the Configuration Tool batch job runs, it is used in every member name that is generated in INSTJOBS. If the suffix is not unique, the jobs that are generated conflict with other runtime environment jobs that might already exist in INSTJOBS.
For more information about the Configuration Tool batch utilities, see Appendix B. “Configuration Tool batch utilities,” on page 135.

Planning your runtime environment replication

The Configuration Tool batch mode process involves the following three broad steps:

- Creating batch mode parameters
- Adding and configuring parameter input decks
- Creating the new runtime environment on the appropriate z/OS image, using the appropriate runtime environment transportation method

Tip
After you create a runtime environment in batch mode, you can use Configuration Tool to configure it further.

1. Edit the newly created member and invoke Configuration Tool edit macros to add additional product parameter decks to it.
2. Configure the product by changing the default parameter values as required.
3. Create the new runtime environment on the appropriate z/OS image using one of the following transport methods.

Table 14. Runtime environment transport methods

<table>
<thead>
<tr>
<th>Transport method</th>
<th>Mode used</th>
<th>Advantages and disadvantages</th>
</tr>
</thead>
</table>
| Define the runtime environment on the local z/OS image using shared DASD. | Interactive and batch mode Configuration Tool on the local z/OS image, to create a runtime environment accessible to the target image. | Advantages of this method:  
- The interactive Configuration Tool, located on the local image, contains the configuration information for all images.  
- Only one copy of the runtime libraries is created.  
- Only one batch job is submitted.  
The disadvantage of this method is that it applies only to z/OS images with shared DASD. |
| Transport the runtime environment from the local image to the remote image. | Interactive and batch mode Configuration Tool on the local image to create a runtime environment. After the runtime environment is defined, you use sample transport jobs to distribute the runtime libraries and parameters to the remote image. | Advantages of this method:  
- The interactive Configuration Tool, located on the local image, contains the configuration information for all images.  
- Only one batch job is submitted.  
- The method applies to remote z/OS images that do not share storage.  
The disadvantage of this method is that two copies of the runtime libraries are created. |
Table 14. Runtime environment transport methods (continued)

<table>
<thead>
<tr>
<th>Transport method</th>
<th>Mode used</th>
<th>Advantages and disadvantages</th>
</tr>
</thead>
</table>
| Transport runtime environment batch jobs from the local z/OS image to the remote | Interactive and batch mode Configuration Tool on the local image to create a set of batch jobs that can build a runtime environment. You use the sample transport jobs to distribute the batch jobs to the remote image. Then you submit the jobs on the remote image to create the runtime libraries and parameters. | Advantages of this method:  
  • The interactive Configuration Tool, located on the local image, contains the configuration information for all images.  
  • The method applies to remote z/OS images that do not share storage.  
  • Only one copy of the runtime libraries is created.  

The disadvantage of this method is that you must submit a series of batch jobs, or use the Auto Submit CLIST to submit the jobs that create the runtime environment. |
| image.                                                                           |                                                                           |                                              |
Transporting the runtime environment

Use any of the following methods to transport the new runtime environment to the appropriate z/OS image.

- “Define a runtime environment on a local z/OS image using shared DASD”
- “Transport a runtime environment from a local z/OS image to a remote image” on page 125
- “Transport runtime environment batch jobs from a local z/OS image to a remote image equipped with the Configuration Tool” on page 126
- “Transport runtime environment batch mode parameters from a local z/OS image to a remote image” on page 127

Before using the transport methods within this section, make sure that sufficient space and library security authorizations exist.

For a list of the advantages and disadvantages for each transport method, see Table 14 on page 122.

Define a runtime environment on a local z/OS image using shared DASD

Complete the following steps to define a runtime environment on a local z/OS image using shared DASD.

1. Start the Configuration Tool on your local image.
2. Create the Configuration Tool batch mode job:
   - Starting from the Main Menu, select Configure products > Services and utilities > Create batch mode job. Press Enter.
3. Exit the Configuration Tool.
4. Perform a scan on your runtime environment parameters:
   a. Edit CICATB, updating the BATCHLIB and BATCHMEM parameters as required, and setting the SUBMIT parameter to SCAN.
   b. Submit the CICATB job to scan your runtime environment parameters.
   c. Verify that the job completes successfully; review the parameter report; correct any errors in the parameter member; repeat the scan until a clean report is generated.
5. Create a new runtime environment that is accessible to the target image:
   a. Edit CICATB again, setting the SUBMIT parameter to YES. This submits the runtime environment configuration jobs that allocate and populate runtime libraries.
   b. Submit the CICATB job to create the runtime environment.
   c. Verify that the job completes successfully.
6. Perform the following manual configuration steps on the target image:
   • Copying procedures to PROCLIB.
   • Copying VTAM definitions to VTAMLST.
   • APF-authorizing libraries.

**Transport a runtime environment from a local z/OS image to a remote image**

Complete the following steps to transport a runtime environment from a local z/OS image to a remote image:

1. Start the Configuration Tool on your local image.
2. Create the Configuration Tool batch mode job:
   a. Starting from the Main Menu, select Configure products > Services and utilities > Create batch mode job.
   b. Press Enter.
3. Exit the Configuration Tool.
4. Perform a scan on your runtime environment parameters:
   a. Edit CICATB, updating the BATCHLIB and BATCHMEM parameters as required, and setting the SUBMIT parameter to SCAN.
   b. Submit the CICATB job to scan your runtime environment parameters.
   c. Verify that the job completes successfully; review the parameter report; correct any errors in the parameter member; repeat the scan until a clean report is generated.
5. Create a new runtime environment that is accessible to the target image runtime environment:
   a. Edit CICATB again, setting the SUBMIT parameter to YES. This submits the runtime environment configuration jobs that allocate and populate runtime libraries.
   b. Submit the CICATB job to create the runtime environment.
   c. Verify that the job completes successfully.
6. Start the Configuration Tool again.
7. Select the runtime environment you want to transport:
   a. Access the Runtime Environments (RTEs) panel. (From the Main Menu, select Configure products > Select product to configure, and then select a product.)
   b. Type Z next to the runtime environment you want to transport and press Enter.
8. On the RTE Utility Menu, select Generate sample transport JCL and press Enter. This action generates several sample transport jobs in the RKANSAMU library. Member $XPRTNDX provides a description of all generated members. For example, to use DFDSS to transport the runtime libraries to the target image, use the following sample jobs:
   • XDFDMP01 on the master image to dump the runtime libraries.
   • XDFRST01 on the target image to restore the runtime libraries.
9. Perform the following manual configuration steps on the target image:
   • Copying procedures to PROCLIB.
   • Copying VTAM definitions to VTAMLST.
   • APF-authorizing libraries.
Transport runtime environment batch jobs from a local z/OS image to a remote image equipped with the Configuration Tool

Complete the following steps to transport runtime environment batch jobs from a local z/OS image to a remote image that is equipped with the Configuration Tool.

1. Start the Configuration Tool on your local image.
2. Create the Configuration Tool batch mode job:
   a. Starting from the Main Menu, select Configure products > Services and utilities > Create batch mode job.
   b. Press Enter.
3. Exit the Configuration Tool.
4. Perform a scan on your runtime environment parameters:
   a. Edit CICATB, updating the BATCHLIB and BATCHMEM parameters as required, and setting the SUBMIT parameter to SCAN.
   b. Submit the CICATB job to scan your runtime environment parameters.
   c. Verify that the job completes successfully; review the parameter report; correct any errors in the parameter member; repeat the scan until a clean report is generated.
5. Create the runtime environment generation jobs:
   a. Edit CICATB again, setting the SUBMIT parameter to NO. This creates the runtime environment configuration jobs that allocate and populate runtime libraries.
   b. Submit the CICATB job to create the runtime environment generation jobs.
   c. Verify that the job completes successfully.
6. Start the Configuration Tool again.
7. Select the runtime environment you want to transport:
   a. Access the Runtime Environments (RTEs) panel. (From the Main Menu, select Configure products > Select product to configure, and then select a product.)
   b. Type Z next to the runtime environment you want to transport and press Enter.
8. On the RTE Utility Menu, select Generate sample transport JCL and press Enter. This action generates several sample transport jobs in the RKANSAMU library. Member $XPRTNDX provides a description of all generated members.
   For example, to use DFDSS to transport the targets, INSTLIB, INSTDATA, and INSTJOBS to the remote image, use the following sample jobs:
   - XDFDMP03 on the master image to dump the batch jobs.
   - XDFRST03 on the target image to restore the batch jobs.
9. Submit the batch jobs on the target image in the order listed in the Jobs Sorted By Generation Sequence section of the Configuration Tool Batch Mode job report.
   You can submit each job manually or use the Auto Submit CLIST to automatically submit the Configuration Tool jobs on the target image. To use the Auto Submit CLIST, complete the following steps:
   a. Verify that the SMP/E target libraries are available on the image where the CLIST is to run.
   b. Edit the member named SUB#jclsuffix in INSTJOBS, where jclsuffix identifies the JCL suffix for the new runtime environment.
   c. Run the CLIST to submit the Configuration Tool jobs that create the runtime environment.
10. Perform the following manual configuration steps on the target image:
   • Copying procedures to PROCLIB
   • Copying VTAM definitions to VTAMLST
   • APF-authorizing libraries

Transport runtime environment batch mode parameters from a local z/OS image to a remote image

Complete the following steps to transport runtime environment batch mode parameters from a local z/OS image to a remote image.

1. Start the Configuration Tool on your local image.
2. Select the runtime environment you want to transport:
   a. Access the Runtime Environments (RTEs) panel. (From the Main Menu, select Configure products > Select product to configure, and then select a product.)
   b. Type Z next to the runtime environment you want to transport and press Enter.
3. On the RTE Utility Menu, select Generate sample transport JCL and press Enter. Several sample transport jobs are generated in the RKANSAMU library. Member $XPRTNDX provides a description of all generated members.
   For example, to use DFDSS to transport the targets, INSTLIB, INSTDATA, and INSTJOBS to the remote image, use the following sample jobs:
   • XDFDMP03 on the master image to dump the batch jobs.
   • XDFRST03 on the target image to restore the batch jobs.
4. Create the Configuration Tool batch mode job:
   a. Starting from the Main Menu, select Configure products > Services and utilities > Create batch mode job.
   b. Press Enter.
5. Exit the Configuration Tool.
6. Perform a scan on your runtime environment parameters:
   a. Edit CICATB, updating the BATCHLIB and BATCHMEM parameters as required, and setting the SUBMIT parameter to SCAN.
   b. Submit the CICATB job to scan your runtime environment parameters.
   c. Verify that the job completes successfully; review the parameter report; correct any errors in the parameter member; repeat the scan until a clean report is generated.
7. Create the runtime environment on the target image:
   a. Edit CICATB again, setting the SUBMIT parameter to YES. This submits the runtime environment configuration jobs that allocate and populate runtime libraries.
   b. Submit the CICATB job to create the runtime environment.
   c. Verify that the job completes successfully.
8. Perform the following manual configuration steps on the target image:
   • Copying procedures to PROCLIB.
   • Copying VTAM definitions to VTAMLST.
   • APF-authorizing libraries.
Part 3. Appendixes
Appendix A. Configuration services and utilities

You can use the configuration services and utilities to perform various services on the runtime environment and specify diagnostic information. Some of the services can modify the Configuration Tool values stored in ISPF tables.

Note: Do not modify any values unless you are told to do so in the documentation or by IBM Software Support personnel. If the Configuration Tool values are modified incorrectly, the Configuration Tool can stop functioning or produce unpredictable results.

To access the configuration services and utilities,
1. From the Configuration Tool Main Menu, select Configure products.
2. Select Services and utilities.

Services: unlocking runtime high-level qualifiers

You can use this option to unlock the high-level qualifier values that you specified when you set up your configuration environment. If you need to modify these values, you must first unlock them.

Warning: If you unlock and change the high-level qualifiers, the Configuration Tool does not automatically delete and reallocate the existing libraries. The jobs generated by the Configuration Tool fail if they are pointing at incorrect libraries.

Complete the following steps to unlock and modify runtime high-level qualifiers.
1. From the Main Menu, select Configure products > Services and utilities > Unlock runtime high-level qualifiers.
2. Unlock and modify the high-level qualifiers:
   a. On the Unlock Runtime High-Level Qualifiers panel, specify Y.
   b. On the Set Up Configuration Environment panel, make your modifications to the high-level qualifiers and press Enter
3. Press F3 until you return to the Main Menu.

Services: creating the Configuration Tool batch mode job

You can use this option to generate the JCL that runs the Configuration Tool steps under batch.

This option also creates the KCASETUP REXX™ exec. Invoking KCASETUP enables your ISPF environment to use the ISPF macros provided with the Configuration Tool. You can use these macros to compose and manage the parameter members used for the Configuration Tool batch mode process.

Complete the following steps to create the Configuration Tool batch mode job.
1. From the Main Menu, select Configure products > Services and utilities > Create batch mode job.
   
   Result: The Configuration Tool displays a message at the top of the panel indicating the job has been created.

   To view additional information about this job press F1.
2. Press F3 until you return to the Main Menu.
Utilities: specifying DEBUG options

Complete the following steps to specify or modify DEBUG parameter values.

1. From the Configuration Tool Main Menu, select Configure products > Services and utilities > DEBUG options.
   
   Result: The Configuration Tool displays the Debug Options panel with all of the existing DEBUG values that you entered when invoking the Configuration Tool.

2. Contact IBM Software Support.
   
   Note: IBM Software Support personnel direct you in specifying or modifying the DEBUG parameter values.

3. Press F3 until you return to the Main Menu.

Utilities: displaying an ISPF table

You can use this option to specify the contents of an ISPF table located in the data library.

Complete the following steps to display an ISPF table.

1. From the Configuration Tool Main Menu, select Configure products > Services and utilities > Display an ISPF table.

2. Specify and view an ISPF table:
   a. Specify the name of the ISPF table you want to display. You can limit the information displayed for an ISPF table by specifying one to three sets of display criteria under Optional section parameters. For each set you must specify the variable name and matching value.
   b. Press Enter to view the ISPF table you specified. You can take the following actions:

<table>
<thead>
<tr>
<th>Action</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>END (PF3)</td>
<td>Go to the previous record.</td>
</tr>
<tr>
<td>ENTER</td>
<td>Go to the next record.</td>
</tr>
<tr>
<td>CANCEL</td>
<td>Go back to the previous panel.</td>
</tr>
<tr>
<td>UP/DOWN</td>
<td>Use scroll variables.</td>
</tr>
</tbody>
</table>

3. Press F3 until you return to the Main Menu.

Utilities: running a CLIST in the TKANCUS library

Complete the following steps to run a specific CLIST/REXX exec in the TKANCUS library.

1. From the Configuration Tool Main Menu, select Configure products > Services and utilities > Execute a CLIST in the TKANCUS library.

2. Contact IBM Software Support.
   
   Note: Software Support personnel direct you in selecting and running a CLIST in the TKANCUS library.

3. Press F3 until you return to the Main Menu.
Utilities: preparing user libraries

The Configuration Tool supports the allocation of the following user libraries required for product operation:

- `&hilev.&rte.RKANCMDU`
- `&hilev.&rte.RKANMODU`
- `&hilev.&rte.RKANPARU`
- `&hilev.&rte.RKANSAMU`
- `&hilev.&rte.RKANSQLU` (applicable to the Tivoli Enterprise Monitoring Server only)

The Prepare user libraries utility generates a batch job to create, from the existing target libraries, the necessary user libraries.

1. From the Configuration Tool Main Menu, select Configure products > Services and utilities > Prepare user libraries.
   
   The Runtime Environments (RTEs) for Conversion panel lists all the runtime environments whose libraries are eligible for conversion to user libraries.

2. On the Runtime Environments (RTEs) for Conversion panel, you can accept the default (all runtime environments listed) or delete from the list any runtime environments you want to exclude from conversion.

3. When you finish reviewing the list, press Enter to generate the KCIJSP01 batch job.

4. Edit the job as needed, then submit it.
Appendix B. Configuration Tool batch utilities

Several Configuration Tool utilities are available for batch mode processing. These utilities are designed to run outside the Configuration Tool, but can also be used while in the Configuration Tool.

**KCISETUP**

Sets up the environment that is required to use the Configuration Tool batch utilities.

**KCICFKEY**

Manages the PF keys that are used for the Configuration Tool batch utilities.

**KCICPGHP**

Displays help information for parameters in a batch parameter deck member.

---

**KCISETUP: setting up the environment**

You use the KCISETUP utility to set up the environment that is required for using the other Configuration Tool batch utilities. This utility must be run after starting your TSO ISPF session and can be run only from an ISPF session.

Before using the KCISETUP utility, you must generate the KCISETUP member in your INSTLIB. KCISETUP can be run only once per session. There is no confirmation message issued to indicate successful completion of KCISETUP.

Complete the following steps to generate KCISETUP.

1. Start the Configuration Tool on your master image.
2. From the Main Menu, select Configure products > Services and utilities > Create batch mode job.
   
   **Result:** The Configuration Tool generates member KCISETUP in your INSTLIB.
3. Press F3 until you return to the Main Menu.

   **Note:** KCISETUP must be created on an image and can be used for all subsequent parameter deck processing on that image. If your ISPF environment changes or you split your INSTLIB, you must recreate KCISETUP.

You can invoke the environment setup utility, using either of the following methods.

<table>
<thead>
<tr>
<th>Location</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISPF command line</td>
<td>TSO EXEC 'shilev.INSTLIB(KCISETUP)'</td>
</tr>
<tr>
<td>ISPF Primary Option Menu &gt; Enter TSO or Workstation commands</td>
<td>EXEC 'shilev.INSTLIB(KCISETUP)' where shilev is the high-level qualifier of the INSTLIB.</td>
</tr>
</tbody>
</table>

---

**KCICFKEY: managing PF keys**

You use the KCICFKEY utility to manage ISPF session PF keys that are used for batch utilities. This includes turning the PF keys on and off, and toggling which set of keys display. This utility can be run only under an ISPF session.
**Note:** If you are using KCICFKEY to manage the ISPF session PF keys for the batch utilities, you must turn on the predefined function keys. To do this, issue the PFSHOW command from either the ISPF command line or any of the Configuration Tool panel command lines.

Before using this Configuration Tool batch utility, you must use the KCISETUP utility to set up the environment.

To use the KCICFKEY utility, the ISPF session must support 24 PF keys. Complete the following steps to set up the ISPF session to support 24 PF keys.

1. From the **ISPF Primary Option Menu**, select **Terminal and user parameters** > **Function keys** > **Non-Keylist PF Key settings**.
2. Type 24 for **Number of PF Keys**.
3. Press F3 to return to the **ISPF Primary Option Menu**.

If the ISPF session is not set up to support 24 PF keys, the KCICFKEY utility runs but issues the following ISPF warning message:

```plaintext
"PFKEYS COUNT ERROR", "Number of PF Keys must be 24. See ISPF Settings."
```

When setting PF keys, the Configuration Tool PF Key Manager owns PF keys 13–24. On keyboards that do not support 24 PF keys, PF keys 13–24 are enabled by holding the Shift key and pressing a function key. While the Shift key is pressed, function keys 1–12 become 13–24.

When the Configuration Tool PF keys are active, any change in the PF Key Show State is preserved. If you have set the PF Key Show State to **Show All** and then turned off the PF keys, when you turn the PF keys back on, the PF Key Show State is restored to **Show All**.

While using the Configuration Tool PF Key Manager, all of your original PF key and Show State settings are preserved. After exiting the PF Key Manager, all of your original PF key and Show State settings are restored.

You invoke the PF Key Manager utility using one of the following methods.

<table>
<thead>
<tr>
<th>Method</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISPF edit</td>
<td>From the Edit command line, enter KCICFKEY state</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> To use this method you must be running under an ISPF session, editing a member or data set.</td>
</tr>
<tr>
<td>TSO command</td>
<td>From the ISPF command line, enter TSO KCICFKEY state</td>
</tr>
</tbody>
</table>

The *state* is the desired state of the Configuration Tool PF keys. Valid states are:

- **ON** Turn on the PF keys.
- **OFF** Turn off the PF keys.
- **SHOW** If the PF keys are active, then toggle the PF keys between All (1–24), Alternate (13–24), and Primary (1–12).
- **HELP** Display the PF Key Manager help information.
If state is not specified, the Configuration Tool PF keys toggle between ON and OFF.

**KCICPGHP: displaying help for batch parameters**

You use the KCICPGHP utility to display help information for parameters in a batch parameter deck member. The detailed help information for each of the batch parameters is provided to help you modify or construct a batch parameter deck.

This utility must be run from an ISPF Edit session.

Before using this batch utility, you must use the KCISETP utility to set up the environment.

You invoke the Batch Parameter Deck Help utility using either of the following methods:
- From an ISPF Edit command line, enter the command `KCICPGHP`, position the cursor on the row that contains a batch parameter, and then press Enter.
- Position your cursor on the row that contains a batch parameter and then select the PF key assigned by the Configuration Tool PF Key Manager.

**Note:** This is the preferred method for invoking Batch Parameter Deck Help. The PF Key Manager assigns a PF key to invoke this function.

With either method, you must position the cursor on the row that contains the batch parameter. The utility then isolates the parameter, looks it up, and displays detailed help information.

The batch parameter online help contains the following sections:

**Description Area**
- The detailed help information for the parameter. This area is scrollable, as indicated by the (+) indicator on the bottom right. PF7 and PF8 are assigned to scroll this area.

**Attribute Area**
- The attributes of the parameter. This information can help you determine what type of data is expected for this parameter.

**PF Key Area**
- The PF key assignments that apply only to the dialog box.

**Note:** PF5 (Show All) displays the help information for all parameters that make up this product.

Following is an example of a batch parameter help:
**KMV_CMS_NAME** - CMS Name

**Description:**
This is the nodeid of the CMS to which you are connecting the agent. This name must match the domain name of a non-z/OS CMS, or the nodeid parameter in the KDSENV member of the RKANPARU library for a z/OS CMS. If the NODEID parameter contains the literal "*SMFID", the CMS Name definition must use the actual z/OS SMFID in place of this literal value.

The value of this field is case sensitive for both z/OS and

**Attributes:**
- Required: Yes
- Maximum Length: 32
- Type of Data: Character (Mixed Case)
- Default value:

F1=Help    F3=End    F5=Show All    +-=Backward    F8=Forward

*Figure 45. Batch parameter help example*
Appendix C. TEDA Server Operator Commands

This appendix describes the TEDA server operator commands.

Note: In the following descriptions, where mask is used, you can specify an asterisk wildcard character (*) to match multiple characters and percent-sign placeholder (%) to match a single character.

Starting the TEDA server

S KppTEDA

Start the TEDA server.

Stopping the TEDA server

P KppTEDA

Stop the TEDA server.

Quiescing Agent Activity

F KppTEDA,Q AGENT(mask)

Temporarily halt (quiesce) activity for any agents whose NAME() matches the mask.

Resuming Agent Activity

F KppTEDA,R AGENT(mask)

Resume activity for previously quiesced agents whose NAME() matches the mask.

Dynamically Changing Agent Settings

F KppTEDA,T AGENT(mask),MsgLevel(n)

Change the message level setting for agents whose NAME() matches the mask.
F KppTEDA,T AGENT(mask),Interval(hh:mm:ss.th)

Change the sample interval for agents whose NAME() matches the mask.

Display Commands

F KppTEDA,D AGENT(mask)

Show the quiesce state and agent control block address of all agents matching the mask.
Appendix D. TEDA Server PARMLIB Statements

Each TEDA server is supplied with two PARMLIB members: KppPRD00 and KppSHR00. The KppPRD00 member contains the set of product specific PARMLIB statements that are required to activate the data collection services. The KppSHR00 member contains the set of common PARMLIB statements that are shared between the following IBM Tivoli TEP-enabled products:

- IBM Tivoli Advanced Audit
- IBM Tivoli Allocation Optimizer
- IBM Tivoli Advanced Catalog Management

The TEDA server PARMLIB statements enable you to define global, resource, and agent options.

Global

These options define the global options and settings for the server address space. The syntax of the GLOBAL statement is:

```
GLOBAL=BATCHBUFFER(nnnnn),
       KRNPORT(nnnnn),
       KRJPORT(nnnnn),
       KRGPORT(nnnnn),
       KRHPORT(nnnnn),
       KRKPORT(nnnnn),
       KRWPORT(nnnnn),
       KRVPORT(nnnnn),
       MSGLEVEL(n)
```

Keywords

**BATCHBUFFER(nnnnn)**

The maximum amount of storage in kilobytes (K) to obtain by a single data collection agent task. The valid range is 1000-16380. The default is 8000.

**KRGPORT(nnnnn)**

The TCPIP Port number used by the TEDA server to communicate with the TEMA for IBM Tivoli Advanced Audit. The valid range is 1023-65535.

**MSGLEVEL(n)**

The level of messages produced by the monitoring agent. Values greater than zero cause some agents to generate more messages than the default setting. The valid range is 0-9. The default is 0.

*Note: Do not change this definition without direct instructions from IBM.*

Resources

Defines the resources required by the TEDA server. The resources typically persist for the duration of the started task and sometimes until next IPL. The syntax of the RESOURCE statement is:

```
RESOURCE=TYPE(resource_type),
       NAME(resource_name),
       MODULE(module_name),
       INDEX(internal_index),
       SCOPE(dataspace_scope),
       BLOCKS(dataspace_blocks),
       PARM='runtime_parameters'
```
Keywords

**TYPE(resource_type)**
The type of resource. Specify one of the following:
- Dataspace—A dataspace owned by the TEDA server. The scope of the dataspace is defined by the SCOPE() keyword and its maximum size set by the BLOCKS() keyword.
- Signal—A general purpose signal object. The signal object maintains a count field that can be updated externally using the KppSIGNL utility program. Signals provide a means that external users can “wake up” data collection agents.
- SMFExit—An SMF exit intercept. The specific SMF exit is nominated using the NAME() keyword and the exit load module specified using the MODULE() keyword. The TEDA will install the nominated module as an SMF exit in all SMF subsystems that have the associated SMF exit name activated.

**Note**: SMFExit remains defined and active after the TEDA address space terminates. You can manually remove the exit using the “SETPROG EXIT” z/OS operator command.

**NAME(resource_name)**
The name of the resource. Where resource_name is one of the following:
- Dataspace — The 1-4 character name appended to “Kpp” to form the actual name of the dataspace.
- Signal — The 1-8 character signal name.
- SMFExit — The 6-8 character name of the SMF exit point (for example IEFU83, IEFU84).

**MODULE(module_name)**
The 1-8 character name of the SMF exit load module.

**INDEX(internal_index)**
The internal index of the dataspace. The valid range is 0-254. The default is 0.

**SCOPE(dataspace_scope)**
The scope of the dataspace as follows:
- ALL — A SCOPE=ALL dataspace
- COMMON — A SCOPE=COMMON dataspace (typically used by the TEDA SMF exit intercepts).

**BLOCKS(dataspace_blocks)**
The maximum number of blocks the dataspace can use. This value is used to limit the amount of real storage consumed by any CADS (Common Access DataSpace). The valid range is 160-524288 . The default is 524288.

**PARM='runtime_parameters'**
0-63 characters that can be passed to the resource. The meaning and format varies depending on the resource.

---

Agents

Defines the agents used by the TEDA server. There are various types of agents and each type defines when and how the agent is used. The syntax of the AGENT statement is:

AGENT=TYPE(agent_type),
NAME(agent_name),
MODULE(module_name),
INTERVAL(sample_interval),
INDEX(internal_index),
MSGLEVEL(message_level),
RESTART(restart_limit),
MODE(asc_mode),
SSWITCH(space_switch)
PARM='runtime_parameters'

Keywords

**TYPE(agent_type)**
The type of agent. Specify one of the following:

- INIT — An initialization agent routine. The nominated load module in the MODULE() keyword is called during server initialization. INIT agents typically build the infrastructure and global settings for later TASK agents.

  **Note:** There are four levels of initialization, and whether the agent is called depends on its INDEX() value. INIT agent routines with the lowest INDEX() values are called first.

- TERM — A termination agent routine. The nominated load module in the MODULE() keyword is called during server termination. TERM agents typically cleanup resources built by INIT or TASK agents.

  **Note:** There are four levels of termination, and whether the agent is called depends on its INDEX() value. TERM agent routines with the highest INDEX() values are called first.

- TASK — A task agent routine. The nominated load module in the MODULE() keyword is ATTACHED and is expected to remain active until TEDA server termination. Task agents typically sample performance data periodically or on a demand or event driven basis.

- SMF — An SMF exit intercept agent. These agents process the intercepted SMF records that are dealt by the DEALER agent. If the SMF record number is a variable, it can be passed to the agent using the INDEX() keyword.

- PIPI — A Language Environment® function called by CEEPIPI. The TEDA server uses several C function stub programs to interface to the TEMA.

- LOAD — A LOAD agent. These agents statement nominate which load modules will be pre-loaded by the TEDA server.

- PCR — A PC Routine agent. Nominates the PC routine to be established by the TEDA server. The PC routine is referred to by its internal index number.

**NAME(agent_name)**
The name of the agent.

  **Note:** It is important that the KppSYNC and KppASYNC agents are named exactly as provided as there are internal checks performed based on the names.

**MODULE(module_name)**
The 1-8 character load module name.

**INTERVAL(sample_interval)**
The interval at which the agent is to wake-up and perform its actions. This could include sampling performance data or checking for system or internal resources. The sampling interval is in the following format: \texttt{hh:mm:ss.th}

  **Note:** Leading and trailing zeros must always be specified.
INDEX(internal_index)
An internal index value. The valid range is 0-255. The default is 0. The usage of INDEX() depends upon the agent TYPE():
- INIT—The initialization level (0 = first, 3 = last)
- TERM—The termination level (3 = first, 0 = last)
- SMF—The SMF record number for non-fixed SMF record types.
- PCR—The PC Routine index number.

MSGLEVEL(message_level)
The level of messages produced by the monitoring agent. Values greater than zero cause some agents to generate more messages than the default setting. This value overrides the MSGLEVEL() setting from the GLOBAL() statement. The valid range is 0-9. The default is 0.

Note: Do not change this definition without direct instructions from IBM.

RESTART(restart_limit)
The maximum number of times that the TEDA server will restart the TASK agent after it terminates normally or abnormally outside or server termination. The valid range is 0-65535. The default is 0.

MODE(asc_mode)
The address space control setting for PCR agents. Valid values are:
- PRIMARY — PC Routine receives control in Primary mode (Default).
- AR — PC Routine receives control in Access Register mode.

SSWITCH(space_switch)
Whether or not the PCR agent is for a space-switch PC routine. Valid values are:
- NO — PC Routine is not space-switch (Default).
- YES— PC Routine is space-switch.

PARM='runtime_parameters'
0-63 characters that can be passed to the agent as runtime parameters. The meaning and format varies depending on the specific agent.

Sharing a common KppSHR00 member when multiple products are installed

If you are licensed for two or more of the products, you can run a single TEDA server address space with one common KppSHR00 member and each product's KppPRD00 member concatenated to the SYSIN DD for the KppTEDA started task. The following example started task JCL assumes all three products are installed and are sharing the KRVTEDA address space:

```
//KRVTEDA  PROC SHR=00,PRD=00,
  //   KRVLQ='KRV'
  //*
//*-------------------------------------------------------------------
//* THE KRV TEDA CUSTOM DATA COLLECTOR
//*-------------------------------------------------------------------
//* //KRVMST00 EXEC PGM=KppMST00,PARM='TEDA(KRG)',REGION=64M
//STEPLIB DD DISP=SHR,DSN=&KRVHLQ..RKANMOD
//KRVMQS DD DISP=SHR,DSN=&KRVHLQ..RKANMOD
//SYSIN  DD DISP=SHR,DSN=&KRVHLQ..RKANPARU(KRVSHEL00) <= (1) Shared
//    DD DISP=SHR,DSN=&KRVHLQ..RKANPARU(KRVPD00) <= (2) ITABR
//    DD DISP=SHR,DSN=&KRVHLQ..RKANPARU(KRJPRD00) <= (3) IT/A0
//    DD DISP=SHR,DSN=&KRVHLQ..RKANPARU(KRGRD00) <= (4) IT/AA
```
Support information

If you have a problem with your IBM software, you want to resolve it quickly. This section describes the following options for obtaining support for IBM software products:

- "Using IBM Support Assistant"
- "Obtaining fixes"
- "Contacting IBM Software Support" on page 146

Tip
Before using the resources listed below, look for troubleshooting information in IBM Tivoli Monitoring: IBM Tivoli Monitoring Problem Determination Guide.

Using IBM Support Assistant

The IBM Support Assistant is a free, stand-alone application that you can install on any workstation. You can then enhance the application by installing product-specific plug-in modules for the IBM products you use.

The IBM Support Assistant saves you time searching product, support, and educational resources. The IBM Support Assistant helps you gather support information when you need to open a problem management record (PMR) or Electronic Tracking Record (ETR), which you can then use to track the problem.

Tip
The Log and Trace Analyzer tool can help you prepare logs to submit with a PMR.

The product-specific plug-in modules of the IBM Support Assistant provide you with the following resources:

- Support links
- Education links
- Ability to submit problem management reports

For more information and to download the IBM Support Assistant, see http://www.ibm.com/software/support/isa/.

Obtaining fixes

A product fix might be available to resolve your problem. To determine which fixes are available for your Tivoli software product, follow these steps:

2. Under Select a brand and/or product, select Tivoli.
3. Under Select a product, select a product and click Go.
4. Under Download, click the name of a fix to read its description and, optionally, to download it.
If there is no Download heading for your product, supply a search term, error code, or APAR number in the field provided under Search Support (this product), and click Search.

For more information about the types of fixes that are available, see the IBM Software Support Handbook at [http://techsupport.services.ibm.com/guides/handbook.html](http://techsupport.services.ibm.com/guides/handbook.html).

**Contacting IBM Software Support**

IBM Software Support provides assistance with product defects. The easiest way to obtain that assistance is to open a PMR or ETR directly from the IBM Support Assistant (see “Using IBM Support Assistant” on page 145), and attach the logs you prepare with the help of the Log and Trace Analyzer Tool (see IBM Tivoli Advanced Backup and Recovery for z/OS: Problem Determination Guide).

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, and Rational® products, as well as DB2 and WebSphere® products that run on Windows, or UNIX operating systems), enroll in Passport Advantage in one of the following ways:
  
  **Online**
  

  **By phone**
  
  For the phone number to call in your country, go to the IBM Software Support Web site at [http://techsupport.services.ibm.com/guides/contacts.html](http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.

- For customers with Subscription and Support (S & S) contracts, go to the Software Service Request Web site at [https://techsupport.services.ibm.com/ssr/login](https://techsupport.services.ibm.com/ssr/login).


- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries, pSeries, and iSeries environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web site at [http://www.ibm.com/servers/eserver/techsupport.html](http://www.ibm.com/servers/eserver/techsupport.html).

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States. From other countries, go to the contacts page of the IBM Software Support Handbook on the Web at [http://techsupport.services.ibm.com/guides/contacts.html](http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region for phone numbers of people who provide support for your location.
If you prefer to contact IBM Software support without the help of the IBM Support Assistant, complete the following steps:

1. “Determining the business impact”
2. “Describing problems and gathering information”
3. “Submitting problems”

**Determining the business impact**

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem that you are reporting. Use the following criteria:

**Severity 1**
The problem has a *critical* business impact. You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.

**Severity 2**
The problem has a *significant* business impact. The program is usable, but it is severely limited.

**Severity 3**
The problem has *some* business impact. The program is usable, but less significant features (not critical to operations) are unavailable.

**Severity 4**
The problem has *minimal* business impact. The problem causes little impact on operations, or a reasonable circumvention to the problem was implemented.

**Describing problems and gathering information**

When describing a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information. See IBM Tivoli Advanced Backup and Recovery for z/OS: Problem Determination Guide.
- Can you re-create the problem? If so, what steps were performed to re-create the problem?
- Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, and so on.
- Are you currently using a workaround for the problem? If so, be prepared to explain the workaround when you report the problem.

**Submitting problems**

You can submit your problem to IBM Software Support in one of two ways:

**Online**
Click Submit and track problems on the IBM Software Support site at http://www.ibm.com/software/support/probsub.html Type your information into the appropriate problem submission form.

**By phone**

For the phone number to call in your country, go to the contacts page of the
IBM Software Support Handbook at [http://techsupport.services.ibm.com/guides/contacts.html](http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the Software Support Web site daily, so that other users who experience the same problem can benefit from the same resolution.
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of others.
configuration (continued)
  verifying 73, 101
  worksheets 7
configuration scenarios
  hub Tivoli Enterprise Monitoring Server on
  Windows 53
  separate address spaces 75
Configuration Tool
  abbreviations xiv
  batch mode 43, 121, 124, 135
    creating batch mode parameters 123
    planning runtime environment replication 122
  commands 44
    defined 43
  display requirements 43
  errors 43
  interactive mode 43
  online help 44
  requirements 43
  services 131
  setting up 47, 50
  starting 48
  system variable support 115
    creating the system variable parameter
    member 118
    creating the VTAM major node rename job 119
    enabling 116
    sample usage 115
  transporting the runtime environment 124
  using 43
  utilities 131
    DEBUG options utility 132
    display ISPF table utility 132
    prepare user libraries utility 133
    run a CLIST in the TKANCUS library utility 132
  work environment 50
Configuration Tool panels (continued)
  Specify SNA Communication Protocol 88
  Configure IBM Tivoli Advanced Backup and Recovery
    for z/OS menu, Configuration Tool 66, 89
  Configure Products panel, Configuration Tool 62, 76
  Configure the TEMS menu, Configuration Tool 81
  conventions
    abbreviations xiv
typeface xiv
  Create LU6.2 Logmode panel, Configuration Tool 82
  CSI
    existing 48
    new 48
customer support
  See Software Support

D
data files, installing 60, 100
DB2 Universal Database
  installing 54, 95
  password requirements 55, 56, 96, 97
  required by Tivoli Enterprise Portal Server 54, 95
  security 55, 96
db2admin user account 54, 95
desktop client 12
directory names, notation xv
display commands 139
downloading Advanced Backup and Recovery for
  z/OS 42

E
education 145
  see Tivoli technical training xiii
  encryption 57, 84, 97
  environment variables xv
  Ephemeral Pipe Support (EPS) 87
  errors
    Configuration Tool 43
    installation, Tivoli Enterprise Portal Server 55, 96

F
features
  product 4
  firewalls
    address translation 87
    Ephemeral Pipe Support (EPS) 87
    with IP.PIPE protocol 87
  fix packs 145
  full runtime environment 13, 14

G
  global options
    TEDA server 141
glossary, accessing online xiii
H
help, Configuration Tool 44
host name
  fully qualified 99
  hub Tivoli Enterprise Monitoring Server 59
monitoring agent 87
runtime environment 65, 79
TCP/IP 87
hub Tivoli Enterprise Monitoring Server
  defined 9
  installing application support 60, 100
  registering monitoring agent 66, 89
  requirements 85, 87
  seeding 60, 100
Web Services SOAP Server 85, 87

I
IBM Health Checker for z/OS
  historical data collection 39
  requirement
    TCP/IP protocols 40
IBM Redbooks 145
IBM Support Assistant 145
IBM Tivoli Monitoring
  library xii
  publications xii
ICAT
  See Configuration Tool
installation
  application support 60, 100
  data files 60, 100
  DB2 Universal Database 54, 95
  errors 55, 96
  road map 37
  SMP/E 42
  Tivoli Enterprise Monitoring Server on Windows 54, 57
  Tivoli Enterprise Portal Server and client 54, 57, 95, 97
  Integrated Cryptographic Service Facility (ICSF) 84
  interoperability 5
IP.PIPE protocol
  address translation 87
  Ephemeral Pipe Support (EPS) 87
  with firewalls 87

K
KCICFKKEY utility 135
KCICPGHP utility 135, 137
KCISETUP utility 135
KCISYNJB member 94
KCISYPJB member 72, 94
KDEB_INTERFACELIST parameter 27, 32, 34
KDSENV member 32
KHLENV member 27, 34
KppPRD00 141
KppSHR00 141

L
language locale 70, 85, 92
libraries
  base 13
  LPAR-specific 13
  procedure 72, 93
  RKANSAMU 72, 94
runtime
  building 65, 80
  defined 13
  loading 71, 93
  SMP/E target 13
  target 13
  types 13
Local Security Settings, Windows 55, 56, 96, 97
logmode
  creating 82
  LU6.2 82
  LPAR-specific libraries 13
  LU6.2 logmode 82

M
Main Menu, Configuration Tool 49
managed system list 5
managing ISPF session PF keys 135
manuals
  see publications xi, xii
message log view 4
monitoring agent
  adding 73, 102
  decisions 11
  expanding configuration 73, 102
  permissions for product features 110
  security considerations 110
  started task 68, 73, 91
  starting 101
monitoring server
  decisions 9
  hub 9
    on a distributed system 22
    on a z/OS system 29
  remote 9

N
navigation tree 3, 4
NetView 110
network interface list 27, 32, 34, 87
node ID 60, 69, 101
notation
  environment variables xv
  path names xv
  typeface xv
notepad view 4

O
OMVS segment
  Advanced Backup and Recovery for z/OS 110
online help, Configuration Tool 44
overview, product 3

P
packaging
download 42
explained 41
Web download 42
panels, Configuration Tool
Add Runtime Environment 63, 78, 116
Configure IBM Tivoli Advanced Backup and
Recovery for z/OS menu 66, 89
Configure Products 62, 76
Configure the TEMS menu 81
Create LU6.2 Logmode 82
Main Menu 49
Product Component Selection Menu 66, 80
Product Selection Menu 62, 76
RTE Utility Menu 72, 93
Runtime Environments (RTEs) 62, 76
Set Up Configuration Environment 51
SOAP Server KSHXHUBS List 88
Specify Advanced Agent Configuration Values 70, 92
Specify Advanced Configuration Values 84
Specify Agent Address Space Parameters 68, 91
Specify Agent Parameters 67
Specify Agent Primary TEMS Values 68
Specify Communication Protocols 85
Specify Configuration Values 82
Specify IP.PIPE Communication Protocol 86
Specify Options 50
Specify SNA Communication Protocol 88
password problems 55, 96
password requirements, DB2 Universal Database 55, 56, 96, 97
path names, notation xv
permissions for product features 110
PF Key Manager 136
planning 7
portal client
  browser 12
decisions 12
desktop 12
portal server
decisions 12
prerequisites
  encryption 84
  experience xi
  hardware 39
  ICSF 84
  knowledge xi
  software 39
preventive service planning (PSP) maintenance 61, 76
problem determination
  describing problems 147
determining business impact 147
submitting problems 147
problem resolution 145
problems, password 55, 96
Product Component Selection Menu, Configuration Tool 66, 80
Product Selection Menu, Configuration Tool 62, 76
Program to Program Interface (PPI) 110
publications
  accessing online xii
  Advanced Backup and Recovery for z/OS xi
  IBM Tivoli Monitoring xii
  ordering xiii
qualifiers, Configuration Tool xiv
queries 4

R
Redbooks, IBM 145
remote Tivoli Enterprise Monitoring Server 9
requirements
  Configuration Tool 43
  encryption 84
  hardware 39
  IBM Health Checker for z/OS
    historical data collection 39
  ICSF 84
  software 39
  Web Services SOAP Server 85, 87
resources
  TEDA server 141
RKANSAMU library
  KCISYNJNB member 94
  KCISYPJB member 72, 94
RTE
  See runtime environment
RTE Utility Menu, Configuration Tool 72, 93
runtime environments
  adding 61, 76
  base 14, 16
  configuration worksheet 36
  configuring 14
  creating 61, 76
  defining 61, 76
  existing 61, 76
  full 13, 14
  libraries 13
  new 61, 76
  overview 13
  security 64, 79
  self-contained 13, 14
  sharing with base 14, 17
  sharing with full 14, 18
  sharing with SMP/E 14, 19
  types 13
  worksheet 36
Runtime Environments (RTEs) panel, Configuration Tool 62, 76
runtime libraries
  building 65, 80
runtime libraries (continued)
defined 13
loading 71, 93
runtime members
Tivoli Enterprise Monitoring Server on z/OS
creating 89

S
security
Advanced Backup and Recovery for z/OS monitoring agent 110
APF authorization 72, 94
command authorization 110
DB2 Universal Database 55, 96
monitoring agent 110
NetView authentication 110
runtime environment 64, 79
Take Action commands 110
Tivoli Enterprise Monitoring Server 83, 105
on a distributed system 109
on z/OS 105
Windows Local Security Settings 55, 96
Windows Local Security System 56, 97
z/OS console commands 110
seeding Tivoli Enterprise Monitoring Server 60, 100
Set Up Configuration Environment panel, Configuration Tool 51
sharing runtime environments
base 14, 17
full 14, 18
SMP/E 14, 19
situation editor 5
SMP/E
defined 42
sharing target libraries 14, 19
target libraries 13
SMP/E installation
z/OS components 47
SOAP Server 85, 87
SOAP Server KSHXHUBS List panel, Configuration Tool 88
Software Support 145
contacting 146
describing problems 147
determining business impact 147
submitting problems 147
Specify Advanced Agent Configuration Values panel,
Configuration Tool 70, 92
Specify Advanced Configuration Values panel,
Configuration Tool 84
Specify Agent Address Space Parameters panel,
Configuration Tool 68, 91
Specify Agent Parameters panel, Configuration Tool 67
Specify Agent Primary TEMS Values panel,
Configuration Tool 68
Specify Communication Protocols panel, Configuration Tool 85
Specify Configuration Values panel, Configuration Tool 82
Specify IP.PIPE Communication Protocol panel,
Configuration Tool 86
Specify Options panel, Configuration Tool 50
Specify SNA Communication Protocol panel,
Configuration Tool 88
standards supported 5
started task
monitoring agent 68, 73, 91, 101
procedures 72, 93
TCP/IP server 65, 79, 87
Tivoli Enterprise Monitoring Server 83
starting
Advanced Backup and Recovery for z/OS monitoring agent 73, 101
Configuration Tool 48
monitoring agent 73, 101
Tivoli Enterprise Monitoring Server 73, 101
Tivoli Enterprise Portal Server and client 73, 101
support 145
support assistant 145
SYS1.VTAMLST 94
system variable support 115
changing in a runtime environment 117
creating the system variable parameter member 118
creating the VTAM major node rename job 119
enabling 116
sample usage 115
values 117
system variable values 117

T
table views 4
Take Action commands, security 110
Take action view 4
target libraries, SMP/E 13, 14, 19
TCP/IP
host name 65, 79, 87, 99
interface list 27, 32, 34, 87
network interfaces 27, 32, 34, 87
server started task 65, 79, 87
TEDA server
agents 142
global options 141
PARMLIB statements 141
resources 141
starting 139
stopping 139
TEMS name 60, 69, 101
terminal view 4
terminology xiii
Tivoli Data Warehouse 10
Tivoli Enterprise Monitoring Server
configuring on Windows 54, 57
configuring on z/OS 80
decisions 9
encryption 57, 84
hub
configuring on Windows 54, 57
configuring on z/OS 80

IBM Confidential
Tivoli Enterprise Monitoring Server (continued)
hub (continued)
defined 9
installing application support 60, 100
installing on Windows 54
node ID 60, 69, 101
on Windows 53
on z/OS
  runtime members 89
registering monitoring agent 66, 89
requirements 85, 87
security 83, 105
  on a distributed system 109
  on z/OS 105
seeding 60, 100
started task 83, 101
starting
  on Windows 73
  on z/OS 101
TEMS name 60, 69, 101
Web Services SOAP Server 85, 87

Tivoli Enterprise Portal 3
Tivoli Enterprise Portal client
  browser 12
decisions 12
desktop 12
Tivoli Enterprise Portal Server
configuring 54, 57, 97
DB2 Universal Database requirement 54, 95
decisions 12
encryption 57, 97
errors during installation 55, 96
installation problems 55, 96
installing 54, 57, 95, 97
starting 73, 101

Tivoli Software Information Center xii
Tivoli technical training xiii
training, Tivoli technical xiii
typeface conventions xiv

U
user administration 5

V
variables
  environment xv
  system 115
    creating the system variable parameter
    member 118
    creating the VTAM major node rename job 119
  enabling 116
  sample usage 115
values 117
views
  browser 4
  chart 4
  message log 4
  notepad 4
table 4