

MAINVIEW[®] for Linux – Servers Customization Guide

Version 1.3

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Contacting BMC Software

You can access the BMC Software Web site at <http://www.bmc.com>. From this Web site, you can obtain information about the company, its products, corporate offices, special events, and career opportunities.

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Customer Support

You can obtain technical support by using the Support page on the BMC Software Web site or by contacting Customer Support by telephone or e-mail. To expedite your inquiry, please see “Before Contacting BMC Software.”

Support Web Site

You can obtain technical support from BMC Software 24 hours a day, 7 days a week at <http://www.bmc.com/support.html>. From this Web site, you can

- read overviews about support services and programs that BMC Software offers
- find the most current information about BMC Software products
- search a database for problems similar to yours and possible solutions
- order or download product documentation
- report a problem or ask a question
- subscribe to receive e-mail notices when new product versions are released
- find worldwide BMC Software support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

Support by Telephone or E-mail

In the United States and Canada, if you need technical support and do not have access to the Web, call 800 537 1813. Outside the United States and Canada, please contact your local support center for assistance. To find telephone and e-mail contact information for the BMC Software support center that services your location, refer to the Contact Customer Support section of the Support page on the BMC Software Web site at www.bmc.com/support.html.

Before Contacting BMC Software

Before you contact BMC Software, have the following information available so that Customer Support can begin working on your problem immediately:

- product information
 - product name
 - product version (release number)
 - license number and password (trial or permanent)
- operating system and environment information
 - machine type
 - operating system type, version, and service pack or other maintenance level such as PUT or PTF
 - system hardware configuration
 - serial numbers
 - related software (database, application, and communication) including type, version, and service pack or maintenance level
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
 - product error messages
 - messages from the operating system, such as `file system full`
 - messages from related software



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About This Book

This book contains detailed information about <Product Name> and is intended for system programmers and other computer personnel.

To use this book, you should be familiar with the following items:

- z/OS
- Multiple Virtual Storage (MVS) systems, job control language (JCL), and the Interactive System Productivity Facility (ISPF)
- System Modification Program Extended (SMP/E)
- your client and host operating systems
- Linux systems
- z/VM

How This Book Is Organized

This book is organized as follows. In addition, this book contains an index.

Chapter/Appendix	Description
Chapter 1, "Installation Overview"	provides an overview of the installation process, describes the preparations you must make, and explains the information you need before you can begin installing MAINVIEW for Linux – Servers
Chapter 2, "Installation Preparation"	describes how to prepare to install MAINVIEW for Linux – Servers

Chapter/Appendix	Description
Chapter 3, "Installation Customization"	describes how to customize the MAINVIEW for Linux – Servers SMP/E installation
Appendix A, "Adding New Linux Systems To Be Monitored"	describes how to add new Linux images to be monitored by MAINVIEW for Linux – Servers
Appendix B, "Managing the Components"	describes how to start, stop, and update the MAINVIEW for Linux – Servers components

Related Documentation

BMC Software products are supported by several types of documentation:

- online and printed books
- online Help
- release notes and other notices

Note: MAINVIEW for Linux – Servers also provides online message information. For details about how to view the messages that MAINVIEW for Linux – Servers generates, see *MAINVIEW for Linux – Servers User Guide*.

In addition to this book and the Help, you can find useful information in the publications listed in the following table. As "Online and Printed Books" on page xv explains, these publications are available on request from BMC Software.

Category	Document	Description
installation documents	<i>OS/390 and z/OS Installer Guide and MAINVIEW Installation Requirements Guide</i> (formerly the <i>Product Installation and Maintenance Guide</i>)	provides information about product distribution, installation methods, installation requirements, creating product libraries with CPO or SMP, applying SMP maintenance, tape formats, FMIDs, and SYSMODs

Category	Document	Description
core documents	<i>Using MAINVIEW</i>	provides information about working with MAINVIEW products in windows mode and full-screen mode
	<i>MAINVIEW for Linux – Servers User Guide</i>	provides information about using MAINVIEW for Linux – Servers at your location
	<i>MAINVIEW Administration Guide</i>	provides information about MAINVIEW operations, targets, single-system image contexts, MAINVIEW Alarm Manager, data sets, view customization, and diagnostic facilities
	<i>MAINVIEW Alarm Manager User Guide</i>	explains how to create and install alarm definitions that indicate when exceptions occur in a sysplex
	<i>MAINVIEW Common Customization Guide</i>	provides instructions for manually customizing the MAINVIEW environment for your products
	<i>MAINVIEW Quick Reference</i>	introduces the MAINVIEW family of products and lists the commands used to manage the MAINVIEW windows environment
SAF security for MAINVIEW products	<i>Implementing Security for MAINVIEW Products</i>	explains basic MAINVIEW security, enhanced security, and MAINVIEW Alternate Access security
supplemental documents	release notes, flashes, technical bulletins	provide updated information about MAINVIEW for Linux – Servers

Online and Printed Books

The books that accompany BMC Software products are available in online and printed formats. Online books are formatted as Portable Document Format (PDF) files. Some online books are also formatted as HTML files.

To Access Online Books

To view any online book that BMC Software offers, visit the Customer Support page of the BMC Software Web site at <http://www.bmc.com/support.html>. You can also access PDF books from the documentation compact disc (CD) that accompanies your product.

Use the free Acrobat Reader from Adobe Systems to view, print, or copy PDF files. In some cases, installing the Acrobat Reader and downloading the online books is an optional part of the product-installation process. For information about downloading the free reader from the Web, go to the Adobe Systems site at <http://www.adobe.com>.

To Request Additional Printed Books

BMC Software provides some printed books with your product order. To request additional books, go to <http://www.bmc.com/support.html>.

Online Help

The MAINVIEW for Linux – Servers product includes Help. In the MAINVIEW for Linux – Servers ISPF interface, you can access Help by pressing **F1** from any ISPF panel.

Release Notes and Other Notices

Printed release notes accompany each BMC Software product. Release notes provide current information such as

- updates to the installation instructions
- last-minute product information

In addition, BMC Software sometimes provides updated product information between releases (in the form of a flash or a technical bulletin, for example). The latest versions of the release notes and other notices are available on the Web at <http://www.bmc.com/support.html>.

Conventions

This section provides examples of the conventions used in this book and explains how to read ISPF panel-flow diagrams and syntax statements.

General Conventions

This book uses the following general conventions:

Item	Example
information that you are instructed to type	Type SEARCH DB in the designated field. Type search db in the designated field. (Unix)
specific (standard) keyboard key names	Press Enter .

Item	Example
field names, text on a panel	Type the appropriate entry in the Command field.
directories, file names, Web addresses, e-mail addresses	The BMC Software home page is at www.bmc.com .
Linux commands, command options, database names	Use the sbacktrack program to create a backup script. Note: Linux commands are case sensitive
code examples, syntax statements, system messages, screen text	//STEPLIB DD The table <i>tableName</i> is not available.
emphasized words, new terms	The instructions that you give to the software are called <i>commands</i> .
variables	In this message, the variable <i>fileName</i> represents the file that caused the error.

This book uses the following types of special text:

Note: Notes contain important information that you should consider.

Warning! Warnings alert you to situations that could cause problems, such as loss of data, if you do not follow instructions carefully.

Tip: Tips contain information that might improve product performance or that might make procedures easier to follow.

Syntax Statements

Syntax statements appear in Courier. The following example shows a sample syntax statement:

```
COMMAND KEYWORD1 [KEYWORD2|KEYWORD3] KEYWORD4={YES|NO}
    fileName...
```

The following table explains conventions for syntax statements and provides examples:

Item	Example
Items in italic type represent variables that you must replace with a name or value. If a variable is represented by two or more words, initial capitals distinguish the second and subsequent words.	<i>alias</i> <i>databaseDirectory</i>
Brackets indicate a group of options. You can choose at least one of the items in the group, but none of them is required. Do not type the brackets when you enter the option. A comma means that you can choose one or more of the listed options. You must use a comma to separate the options if you choose more than one option. Linux options are indicated with a hyphen.	[<i>tableName, columnName, field</i>] [-full, -incremental, -level] (Linux)
Braces enclose a list of required items. You must enter at least one of the items. Do not type the braces when you enter the item.	{ <i>DBDName tableName</i> } {-a -c} (Linux)
A vertical bar means that you can choose only one of the listed items. In the example, you would choose either <i>commit</i> or <i>cancel</i> .	{ <i>commit cancel</i> } {-commit -cancel} (Linux)
An ellipsis indicates that you can repeat the previous item or items as many times as necessary.	<i>columnName . . .</i>

Summary of Changes

This section summarizes changes to the functionality of the product, listing the changes by product version and release date. The summary includes enhancements to the product and any major changes to the documentation.

Version 1.3

November 21, 2003

This book contains the following changes for MAINVIEW for Linux – Servers version 1.3.

- The RTLOCT startup procedure was removed from the AutoCustomization and the manual customization steps.
- The specific member names for each supported Linux distribution has been reduced to one member name for each supported platform (x86, zSeries)
- The BMC Standard Install for VM has replaced several steps for installing, customizing, and updating the VM components.
- MAINVIEW for Linux – Servers no longer requires RTM by IBM. MAINVIEW for Linux – Servers now supports all of the following VM monitors and monitor readers:
 - BMC Software’s VM Monitor Reader (packaged with this version of MAINVIEW for Linux – Servers)
 - ESAMON and zMON by Velocity Software
 - FCON/ESA by IBM
 - Performance Toolkit by IBM
 - RTM by IBM



Chapter 1 Installation Overview

This chapter provides an overview of the installation and customization processes for MAINVIEW for Linux – Servers.

This chapter discusses the following topics:

Introduction	1-2
Installation Checklist	1-2
Combining Checklists for Multiple Products	1-2
Products	1-3
Preparation Steps	1-3
Installation Steps	1-4
Customization Steps	1-5
Where To Go From Here	1-6

Introduction

MAINVIEW for Linux – Servers uses the OS/390 and z/OS Installer. The installation checklist provides an outline of the installation process. It does not describe or contain every step of the process. The checklist contains generalized tasks and references to the appropriate book to perform each task.

Installation Checklist

The installation checklist outlines the steps that you must perform to install and run your product (or products). The checklist summarizes what you must do and refers you to detailed instructions.

The checklist is divided into the following sections:

- “Preparation Steps” on page 1-3
- “Installation Steps” on page 1-4
- “Customization Steps” on page 1-5

When you have completed the installation, see “Where To Go From Here” on page 1-6.

Combining Checklists for Multiple Products

The checklist is for the product (or products) that are listed in “Products” on page 1-3. You can use the Installation Checklist Generator to create a checklist that integrates the checklist in this book with checklists in other product books.

When you use the checklist generator, you select the products that you are going to install and the checklist generator produces an integrated checklist. The integrated checklist outlines all steps that you must complete for successful installation of all your products.

The checklist generator is available on your documentation CD. For information about running the checklist generator, see the *OS/390 and z/OS Installer Guide*.

Note: The Installation Checklist Generator runs only with Microsoft Internet Explorer version 4.01 or later. Future versions of the Installation Checklist Generator will support Netscape Navigator.

Products

This checklist pertains to the following BMC Software products:

- MAINVIEW for Linux – Servers 1.3

Preparation Steps

The following preparation steps help you prepare for installation of your products. The steps describe the tasks that you must complete and the items that you must assemble before you start installation.

✓	Step	Task	Description	Reference
	1	assemble needed materials	Gather all installation tapes, tape cover letters, product release notes, product technical bulletins, the <i>OS/390 and z/OS Installer Guide</i> , customization guides, planning guides, and so on.	your product shipment and support page on the BMC Software Web site at http://www.bmc.com/support.html To log on, first-time users can request access by registering online; you can request temporary access from your BMC Software sales representative. On the support page, select a product to view the related documentation.
	2	review product release notes	The release notes describe enhancements, changes, and fixes for a product and contain important information you need to know.	your product shipment
	3	review technical bulletins and flashes	Technical bulletins and flashes contain information about problems that have been identified since the product was last released.	your product shipment or support page on the BMC Software Web site at http://www.bmc.com/support.html To log on, first-time users can request access by registering online; you can request temporary access from your BMC Software sales representative. On the support page, select a product to view the related documentation.
	4	obtain product passwords	Contact BMC Software to obtain the passwords for your products.	<i>OS/390 and z/OS Installer Guide</i> , “BMC Software Product Authorization” appendix password request form or cover letter

✓	Step	Task	Description	Reference
	5	read prerequisites	Prerequisites state the operating system version requirements, space requirements, authorization requirements, and so on.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , “Prerequisites” on page 2-8 section
	6	read installation considerations	Installation considerations describe information about running with other products and product implementation.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , “Installation Considerations” section
	7	obtain authorization to complete the installation	Reading the installation tapes or creating the installation data sets might require RACF authorization.	contact your system administrator
	8	obtain authorization to complete customization	Customization of some products might require APF authorization.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , “Installation Preparation” chapter

Installation Steps

The following installation steps help you run the BMC Software OS/390 and z/OS Installer to successfully complete installation for all of your OS/390 and z/OS BMC Software products. The installation system combines tape images, copies files to your system (Standard or SMP/E), creates installation JCL, and applies maintenance to installed products.

✓	Step	Task	Description	Reference
	1	understand the installation system	The installation system has features and functions that you should be familiar with before using it.	<i>OS/390 and z/OS Installer Guide</i> , “Introduction” chapter
	2	unload the base installation libraries from the installation tape	The base installation libraries contain the installation system.	<i>OS/390 and z/OS Installer Guide</i> , “Using the Installation System” chapter
	3	create the customized installation libraries	The customized installation libraries specify a site-specific installation environment.	<i>OS/390 and z/OS Installer Guide</i> , “Using the Installation System” chapter
	4	start the installation system	The installation system automates many installation steps.	<i>OS/390 and z/OS Installer Guide</i> , “Using the Installation System” chapter
	5	specify repository information	The repository profile contains installation and customization options that are used when performing subsequent installations.	<i>OS/390 and z/OS Installer Guide</i> , “Using the Installation System” chapter
	6	specify user options	The user options determine how the installation system runs and specify where installation JCL is stored.	<i>OS/390 and z/OS Installer Guide</i> , “Using the Installation System” chapter

✓	Step	Task	Description	Reference
	7	select the products to install	The installation system generates all the steps necessary for the products you want to install.	<i>OS/390 and z/OS Installer Guide</i> , "Using the Installation System" chapter
	8	run the JCL that was created by the installation system	The installation system presents installation JCL for your approval and helps you to run the JCL.	<i>OS/390 and z/OS Installer Guide</i> , "Running Installation JCL" chapter
	9	specify product authorization passwords	Permission to run your products is granted.	<i>OS/390 and z/OS Installer Guide</i> , "Using the Installation System" chapter

Customization Steps

The following customization steps describe the tasks that you must complete to run your product (for some products, additional customization options might be available once the product is running). Some tasks might be performed by using the installation system, while other tasks might be performed by using a separate utility.

✓	Step	Task	Description	Reference
	1	choose the customization option in the installation system	Customization is started through the customization option in the installation system.	<i>OS/390 and z/OS Installer Guide</i> , "Using the Installation System" chapter
	2	create or update system objects, components, or resources	System objects, components, and resources include such items as sysplex or coupling facility, VTAM, TCP/IP, and LPARs.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , "Installation Customization" chapter
	3	create or update subsystem objects, components, or resources	Subsystem objects, components, and resources include such items as DB2 plans, DB2 table spaces, and APPLIDs.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , "Installation Customization" chapter
	4	allocate, create, or update data sets or files	Many products require specific data sets or files.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , "Installation Customization" chapter
	5	set up data collectors	Many products use a data collector to store system data that they have collected.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , "Installation Customization" chapter
	6	install or update the interface	Some products require customization of ISPF or require the use of an interface other than ISPF.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , "Installation Customization" chapter
	7	create or update profiles or global parameters	Most products require profiles or parameters to be set or updated.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , "Installation Customization" chapter

✓	Step	Task	Description	Reference
	8	create or update the initialization PROC, CLIST, REXX EXEC, or started task	Most products require a startup routine to run.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , “Installation Customization” chapter
	9	define or update security	All products provide information for interfacing to RACF or other security products. Some products include their own security features in addition to or instead of RACF security.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , “Installation Customization” chapter
	10	implement user exits	Some products provide user exits for interfacing with the product.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , “Installation Customization” chapter
	11	perform additional customization tasks for your products	Some products require additional tasks to be performed before the products are completely installed.	<i>MAINVIEW for Linux – Servers Customization Guide</i> , “Installation Customization” chapter

Where To Go From Here

When installation of your products is complete, refer to the following books:

Product	Book
MAINVIEW for Linux – Servers	<i>MAINVIEW for Linux – Servers User Guide</i>

Chapter 2 Installation Preparation

This chapter provides information on preparing to install MAINVIEW for Linux – Servers.

This chapter discusses the following topics:

Overview	2-8
Required Materials	2-8
Prerequisites	2-8
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Overview

Before you install MAINVIEW for Linux – Servers, you must gather specific information. This chapter describes the materials that can help you install and customize MAINVIEW for Linux – Servers.

Required Materials

To prepare to install MAINVIEW for Linux – Servers, you should gather the following materials:

- installation tapes
- product documentation

Table 2-1 describes all of the product documentation necessary to install and customize MAINVIEW for Linux – Servers.

Table 2-1 Installation and Customization Materials

Material	Description
MAINVIEW for Linux – Servers cover letter	describes the documentation that is shipped with MAINVIEW for Linux – Servers
release notes, flashes, and technical bulletins	provide important product information and last minute information
<i>OS/390 and z/OS Installer Guide</i>	provides information about the OS/390 and z/OS installer
MAINVIEW Common Customization Guide	provides instructions for manually customizing the MAINVIEW environment for your products
MAINVIEW for Linux – Servers Customization Guide	provides instruction for manually customizing the MAINVIEW for Linux – Servers product

Prerequisites

Make sure you meet the following prerequisites before installing the product.

System Software Requirements

The requirements that are listed in Table 2-2 on page 2-9 and Table 2-3 on page 2-9 include the operating system software needed for the installation and use of MAINVIEW for Linux – Servers.

Table 2-2 MAINVIEW for Linux – Servers Requirements

Product	Requirements
MAINVIEW for Linux – Servers (MAINVIEW Product Group 4)	IBM OS/390 versions 2.8, 2.9, or 2.10 or IBM z/OS
	MVI-4.1 or higher

Table 2-3 Supported Linux Distributions

Linux on x86	Linux on S/390 or zSeries
Red Hat Linux 7.1 (i32)	Red Hat Linux zSeries 7.2 (31-bit) SuSE Linux Enterprise Server 7.2 for zSeries (31- and 64-bit) SuSE Linux Enterprise Server 8 for zSeries (31- and 64-bit)
Red Hat Linux 7.2 (i32)	
Red Hat Linux 7.3 (i32)	
Red Hat Enterprise Linux Advanced Server (i 32)	
SuSE Linux 7.2 (i32)	
SuSE Linux Enterprise Server 7 (i32)	
SuSE Linux 7.3 (i32)	
SuSE 8.0 (i32)	
SuSE Linux Enterprise Server 8 (i32)	

The following requirements are needed to view z/VM data with MAINVIEW for Linux – Servers:

- z/VM 4.2 or higher
- VMARC utility

Note: The VMARC utility is available for download from the IBM web site.

Authorization Requirements

Table 2-4 lists the authorization requirements necessary to install MAINVIEW for Linux – Servers.

Table 2-4 Authorization Requirements

System	Requirement
load library on OS/390 (z/OS) <ul style="list-style-type: none"> • <i>hilevel.install.BBLINK</i> • <i>hilevel.install.PGMLIB</i> 	APF Authorization
Linux	signed on as root
MMLPAS on OS/390 (z/OS)	RACF OMVS TCP/IP access
RTSERVER on OS/390 (z/OS)	

z/VM Requirements

The following requirements are necessary to view z/VM data.

- VM data server running on z/VM
- At least one Linux system running on z/VM and the data server must be running on this Linux system

Product Authorization

Before you can use MAINVIEW for Linux – Servers, you must perform product authorization. For more information about the BMC Software Product Authorization utility, see the *OS/390 and z/OS Installer Guide*.

Chapter 3 Installation Customization

This chapter provides the information that you need to customize to make the basic functions operational in your environment. This chapter discusses the following topics:

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Installing the Data Server on a Linux System	3-42
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Customizing MAINVIEW for Linux – Servers

You can customize MAINVIEW for Linux – Servers in one of the following ways:

- by using AutoCustomization
- by using manual customization

MAINVIEW for Linux – Servers Customization Steps

Table 3-1 describes the different MAINVIEW for Linux – Servers components that you will need to install and customize prior to running the MAINVIEW for Linux – Servers product.

Table 3-1 MAINVIEW for Linux – Servers Customization Steps

Component	Task	See
MAINVIEW	customizing MAINVIEW environment	<i>MAINVIEW Common Customization Guide</i>
MAINVIEW for Linux – Servers	customizing the MAINVIEW for Linux – Servers product using AutoCustomization or manual customization	“AutoCustomization” on page 3-13 or “Manual Customization” on page 3-17
Linux data server	installing and customizing a data server on a Linux system	“Installing the Data Server on a Linux System” on page 3-42
VM data server	installing and customizing a data server on a Virtual Machine (VM)	“Installing the VM Data Server” on page 3-51
VM Monitor Reader	customizing the MAINVIEW for Linux – Servers Monitor Reader	“Installing the PATROL for Performance Data Collector” on page 3-56
PATROL Performance data collector	installing and customizing the data collector on a Linux image	“Installing the PATROL for Performance Data Collector” on page 3-56

AutoCustomization

AutoCustomization lets you perform the minimum steps that are required to make MAINVIEW for Linux – Servers operational.

You can customize MAINVIEW for Linux – Servers by completing the SHR and MML steps of AutoCustomization. The AutoCustomization SHR steps customize the MAINVIEW online environment. The AutoCustomization MML steps are the product-specific steps. When you invoke AutoCustomization and access the Product Customization Steps panel for MAINVIEW for Linux – Servers, the product customization steps are displayed. Figure 3-1 shows the Product Customization Steps panel that is displayed for MAINVIEW for Linux – Servers (MML).

If you need help with AutoCustomization, refer to the manual steps in this chapter. For detailed information about invoking and using AutoCustomization to customize your MAINVIEW environment, see the *OS/390 and z/OS Installer Guide*.

Table 3-2 Summary of AutoCustomization Steps

Task	Description
1	Execute the MAINVIEW SHR steps. For more information on executing the MAINVIEW SHR steps, see the <i>MAINVIEW Common Customization Guide</i> .
2	Execute the product-specific SHR steps. For more information on executing the product-specific SHR step, see “Task 2—Executing Product-specific SHR Steps” on page 3-16.
3	Execute the MML steps. For more information on executing the product-specific SHR step, see “Task 3—Executing MML Steps” on page 3-17.

Figure 3-1 Sample Product Customization Steps Panel

```

Valid line commands:
S - Select a step (Must be selected in sequence)  -----
B - Browse a step (No action is taken; step may  + completed  o optional
           be browsed out of sequence)          - bypassed

Step S F Description
-----
 1 + Specify jobcards and other operational defaults SHR
 2 + o Generate JCL to run Installation Verification Program SHR
 3 - o Implement GDDM/PGF support SHR
 4 - o Implement Katakana terminal support SHR
 5 - Product Authorization SHR
 6 + Create site data sets for use with MainView products SHR
 7 + Create site security data set for use with MainView products SHR
 8 - o Add the BMC Software load library to your system APF list SHR
 9 + o Add the BMC Software load library to your system link list SHR
10 + Create CLIST for invoking MainView products SHR
11 + Create the CAS (Coordinating Address Space) startup procedure SHR
12 + Create Mainview Explorer Host Server startup procedure SHR
13 + Create User Parameter Library SHR
14 + Create RTSERVER startup procedure SHR
15 + Create MAINVIEW for Linux PAS (Product Address Space) SYSIN mbr MML
16 + Allocate MAINVIEW for Linux PAS IMAGE data set MML
17 + Allocate MAINVIEW for Linux PAS RULES data set MML
18 + Allocate MAINVIEW for Linux PAS history data sets MML
19 + Create MAINVIEW for Linux PAS startup procedure MML
20 + Create MAINVIEW for Linux job to FTP RPMS files to Linux MML
21 + Create MAINVIEW for Linux job to FTP files to VM MML
***** Bottom of data *****
    
```

Task 1—Executing MAINVIEW SHR Steps

To customize your MAINVIEW online environment using AutoCustomization, see the *MAINVIEW Common Customization Guide*.

Note: Because of the library allocations, the product-specific SHR steps (see “Task 2—Executing Product-specific SHR Steps” on page 3-16) and the MML steps (see “Task 3—Executing MML Steps” on page 3-17) cannot be performed until you have completed the customization for the MAINVIEW online environment.

Task 2—Executing Product-specific SHR Steps

Summary: In this task you will execute the SHR steps that are only used by MAINVIEW for Linux – Servers customization.

Before You Begin

Before you execute the MAINVIEW for Linux – Servers-specific SHR steps, you must complete the MAINVIEW common SHR steps. The MAINVIEW common SHR steps are described in the *MAINVIEW Common Customization Guide*.

Note: If you have not used AutoCustomization, or if you are unsure about a step, use the browse (B) line command to browse the step before selecting it. For more information about AutoCustomization, see the *MAINVIEW Common Customization Guide*.

The MAINVIEW for Linux – Servers SHR step is described in Table 3-3. The panels for this step prompt you for specific customization information; Help is available when you press **F1**. For more information about each of the steps, see “Manual Customization” on page 3-17.

Note: MAINVIEW for Linux – Servers requires APF authorization, and MAINVIEW for Linux – Servers requires RACF OMVS authorization for using TCP/IP.

Table 3-3 SHR AutoCustomization Step

Step	Description
create RTSERVER JCL startup procedure	(required) Lets you create and configure the RTSERVER JCL startup procedure.

Task 3—Executing MML Steps

Note: If you have not used AutoCustomization, or if you are unsure about a step, use the browse (B) line command to browse the step before selecting it. For more information about AutoCustomization, see the *MAINVIEW Common Customization Guide*.

Each MML step is described in Table 3-4. The panels for each step prompt you for specific customization information; Help is available when you press **F1**. For more information about each MML step, see “Manual Customization” on page 3-17.

Table 3-4 MML AutoCustomization Steps

Step	Description
create MAINVIEW for Linux – Servers Product Address Space (PAS) SYSIN member	(required) Lets you specify the SYSIN Member Name, PAS Subsystem ID, and the CAS Subsystem ID.
allocate MAINVIEW for Linux – Servers PAS image data set	(required) Lets you specify the data set name you wish to use to allocate the MAINVIEW for Linux – Servers PAS image data set.
allocate MAINVIEW for Linux – Servers rules data set	(required) Lets you specify the data set name you wish to use to allocate the MAINVIEW for Linux – Servers PAS rules data set.
allocate MAINVIEW for Linux – Servers history data sets	(required) Lets you specify the data set names you wish to use to allocate the MAINVIEW for Linux – Servers history data sets.
create the MAINVIEW for Linux – Servers PAS JCL startup procedure	(required) Lets you specify the data set name and password (if protected) of your system's procedure library, and the member name to use to save the PAS start-up procedure.
create MAINVIEW for Linux – Servers job to FTP data server installation files to a Linux system	(required) Lets you specify the network host name, username, and password for the Linux system to which you want to FTP the MAINVIEW for Linux – Servers install package.
create MAINVIEW for Linux – Servers job to FTP files to VM	(required) Lets you specify the network host name, username, and password for the host VM system to which you want to FTP the MAINVIEW for Linux – Servers install package.

Manual Customization

Manual customization lets you customize MAINVIEW for Linux – Servers to best suit your needs. BMC Software provides AutoCustomization procedures that help you customize the environment automatically. This section describes the steps for customizing the environment manually.

Table 3-5 summarizes the manual customization process. The right column names the data set member containing the sample JCL that is included on the tape. These samples are in the *hilevel.BBPARM* and the *hilevel.BBSAMP* data sets on the tape.

Table 3-5 Summary of Manual Customization Process

Task	Description	Data Set Member	Data Set
1	customize the MAINVIEW online environment	N/A	N/A
2	create the RTSERVER JCL startup procedure	RTSRVJCL	BBSAMP
3	customize the RTSERVER command parameters member	RTSRVCM	STDCM
4	create the MAINVIEW for Linux – Servers PAS SYSIN data set	MMLPRM00	BBPARM
5	create MAINVIEW for Linux – Servers PAS image data set	MMLIMG	BBSAMP
6	create MAINVIEW for Linux – Servers Rules data set	MMLRUL	BBSAMP
7	create the MAINVIEW for Linux – Servers history data set	MMLHST	BBSAMP
8	create the MAINVIEW for Linux – Servers PAS startup procedure	MMLPAS	BBSAMP
9	customize the MAINVIEW for Linux – Servers data server installation script	MMLDINST	BBSAMP
10	create MAINVIEW for Linux – Servers job to FTP data server installation files to a Linux system	MMLFTP	BBSAMP
11	create MAINVIEW for Linux – Servers job to FTP VM installation files to the VM system on which the VM data server runs	MMLFTPVM	BBSAMP

Task 1—Customizing the MAINVIEW Online Environment

To perform manual customization of the MAINVIEW online environment, see the *MAINVIEW Common Customization Guide*.

Note: Because of library allocations, MAINVIEW for Linux – Servers manual customization cannot be performed until you have completed manual customization for the MAINVIEW online environment. Instructions for manually customizing the MAINVIEW online environment are provided in the *MAINVIEW Common Customization Guide*.

Task 2—Creating the RTSERVER JCL Startup Procedure

Summary: In this task you will create the RTSERVER startup procedure. The RTServer is the communication server for MAINVIEW for Linux – Servers. The RTServer startup procedure creates the startup task for the communication server for MAINVIEW for Linux – Servers

Before You Begin

A sample RTSERVER JCL startup procedure is provided with the distribution tape in member *hilevel.BBSAMP(RTSRVJCL)*.

Note: RTSERVER program libraries require APF authorization. RTSERVER started task requires RACF OMVS authorization for using TCP/IP.

Creating the RTserver JCL Startup Procedure

To create the RTSERVER JCL startup procedure, complete the following steps:

Step 1 Select *hilevel.BBSAMP* member RTSRVJCL.

A sample of the member is shown in Figure 3-2.

Figure 3-2 Sample BBSAMP Member RTSRVJCL

```

/*-----
/*
/* Change Log:
/*
/*          Created by ?USER on ?DATE at ?TIME
/* BPN0125 Add RTTIMESTAMPOUTPUT parm to put time on messages      JMW
/*
/*-----
//RTSERVER PROC HLQ=?BBCHILV',
//          PRM='',
//          ENV='=RTHOME=?RTHOME'
/*
/* Note: "stderr" in the PARM statement below must be in lower case
/*
//RTSERVER EXEC PGM=RTSERVER,TIME=1440,REGION=0M,
// PARM='&PRM &ENV =RTTIMESTAMPOUTPUT=1 =RTDEBUGFILENAME=stderr'
/*
//STEPLIB DD DISP=SHR,DSN=&HLQ..PGMLIB
//          DD DISP=SHR,DSN=&HLQ..BBLINK
//RTSLIB DD DISP=SHR,DSN=&HLQ..PGMLIB
//MSGFILE DD DISP=SHR,DSN=&HLQ..STDTXT(MESSAGE)
/*
//SYSTEM DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
//SYSPRINT DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
//STDOUT DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
//STDERR DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
//SRVOUT DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
//RTSERVER DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
***** Bottom of Data *****

```

Step 2 Copy the member to *hilevel.UBBSAMP*.

Step 3 Change ?BBCHILV to the high-level qualifier of the product libraries.

Step 4 Change ?RTHOME to a high-level qualifier, such as MVLNX.RTHOME (*rthome*).

Note: The ?RTHOME high-level qualifier can be a maximum of two levels. The communication server uses this high-level qualifier to find the run-time data sets.

Step 5 Allocate two new data sets at the *rthome* high-level qualifier:

- *rthome.STANDARD.CM*
- *rthome.STANDARD.TXT*

Step 6 Copy all members from *hilevel.STDCM* to *rthome.STANDARD.CM*.

Step 7 Copy all members from *hilevel.STDTXT* to *rthome.STANDARD.TXT*.

Step 8 In *hilevel.STANDARD.CM*, rename RTSRVCM member to RTSERVER.

Step 9 Copy *hilevel.UBBSAMP* member RTSRVJCL to your system procedure library as member RTSERVER.

Step 10 Edit the *rthome.STANDARD.CM* data set TCPNAME member to contain the name of the TCP/IP address space.

- Step 11** Copy *hilevel*.UBBSAMP data set member RTSRVJCL to your system procedure library as RTSERVER.
- Step 12** To start the procedure automatically when you IPL the system, add the RTSERVER procedure to your system startup parameter library, for example, SYS1.PARMLIB(COMMNDxx).

Task 3—Customizing the RTServer Command Parameters Member

Summary: The RTServer is the communication server for MAINVIEW for Linux – Servers. This task is only required if port 5101 is in use, and you must specify an unused port number.

Before You Begin

A sample RTServer command parameters member is provided with the distribution tape in member hilevel.STDCM (RTSRVCM).

Note: RTServer program libraries require APF authorization. RTServer started task requires RACF OMVS authorization for using TCP/IP. If you have an External Security Manager (ESM) other than RACF, consult the product documentation for information on this requirement.

Step 1 Select rthome.STANDARD.CM member RTSERVER.

A sample of the member is shown in Figure 3-3.

Figure 3-3 Sample STANDARD.CM Member RTSERVER

```
***** Top of Data *****
setopt default_protocols tcp
setopt conn_names tcp
setopt server_names UNKNOWN
setopt max_client_conns 512
setopt conn_names tcp:_node:5101
***** Bottom of Data *****
```

Step 2 Change 5101 to a port number that is not in use.

Step 3 Save the member.

Task 4—Creating the MAINVIEW for Linux – Servers Product Address Space (PAS) SYSIN Member

Summary: In this task, you will provide the PAS startup parameters.

To customize MAINVIEW for Linux – Servers, you must specify the following information:

- network host name of the communication server (RTServer)
- port number of the communication server
- CAS subsystem ID
- PAS subsystem ID
- member name of the of the UBBPARM data set where this information will be saved

Table 3-6 describes the parameters for the information that you must provide.

Table 3-6 PAS SYSIN Parameters (Part 1 of 2)

Parameter Keyword	Description	Parameter Values	Default
SUBSYSID	PAS subsystem ID	4-character (alphanumeric) This value must be unique, cannot be the same as the CAS.	MML0
SUBSTR	specifies how to derive the image name from the host name The host name can be many characters in length, but the image name is restricted to only 8 characters. This parameter specifies how the image name is derived from the host name.	1st position numeric value of 1–60 that indicates where to start scanning in the host name	(1,8,B)
		2nd position numeric value of 1–8 that indicates the length of the image target name	
		3rd position B indicates start scanning from the beginning of the host name E indicates start scanning from the end of the host name	
COMMHOST	network host name that is running the communication server (RTServer)	host name or IP address	N/A

Table 3-6 PAS SYSIN Parameters (Part 2 of 2)

Parameter Keyword	Description	Parameter Values	Default
COMMPORT	network port number on which the communication server is listening	any unused port number	5101
SSID	CAS Subsystem ID	4-character (alphanumeric) This value must be unique, cannot be same as PAS.	BBCS
LOGLEVEL	level of PAS communication subtask information logging	100 provides severe messages	400
		200 provides error and severe messages	
		300 provides warning, error, and severe messages	
		400 provides informational, warning, error, and severe messages	
MXCMMWT	maximum amount of delay time when refreshing a view	numeric value (in milliseconds)	1000

To create the MAINVIEW for Linux – Servers PAS SYSIN member, complete the following steps:

Step 1 Select *hilevel.BBPARM* member MMLPRM00.

A sample of the member is shown in Figure 3-10 on page 3-34.

Figure 3-4 Sample BBPARM Member MMLPRM00

```

*-----
*
* Change Log:
*
*       Created by ?USER on ?DATE at ?TIME
*
*-----
SUBSYSID=?PASSID,           PAS subsystem name (default=MML0)
SUBSTR=(1,8,B),             How to form image names from host names
COMMHOST=?HOST,
COMMPORT=?PORT,            Communication Server port number
SSID=?BBCS,                CAS subsystem id to connect to
LOGLEVEL=400,              Communication sub-task logging level
MXCOMMWT=1000,             Communication sub-task max wait (ms)
END                          End configuration parameters
***** Bottom of Data *****

```

Step 2 Copy the member to *hilevel*.UBBPARM.

Step 3 Verify that SUBSTR=(1,8,B) will work in your environment.

The SUBSTR parameter identifies how you want to specify your image names. The host names can be many characters in length; however the image names are limited to 8 characters. You can specify the image name starting from any character in the character string. The default, (1,8,B), should work in most environments; however, if you have a naming convention where the unique characters are at the end of the character string, and the character string is longer than 8 characters, you may want to specify the last characters as the image name.

For example, your environment could have the following Linux host names:

- ABCCOMPANYLINUX010
- ABCCOMPANYLINUX123
- ABCCOMPANYLINUX965

Table 3-7 describes some of the different image name that are possible if you have a host name of ABCCOMPANYLINUX010.

Table 3-7 SUBSTR Parameter Examples

Host Name	SUBSTR=	Image Name
ABCCOMPANYLINUX010	(1,8,B)	ABCCOMPA
ABCCOMPANYLINUX010	(6,4,E)	NUX0
ABCCOMPANYLINUX010	(8,8,E)	LINUX010
ABCCOMPANYLINUX010	(9,8,B)	NYLINUX0

Step 4 Change ?PASSID to the PAS subsystem ID (MML0).

Step 5 Change ?HOST to the host name or IP address of the system running the communication server.

If you are running the communication server and the MAINVIEW for Linux – Servers PAS on the same host, you can change ?HOST to localhost or 127.0.0.1.

Step 6 Change ?PORT to 5101 (the port number of the communication server).

Note: If port 5101 is in use, specify an unused port number.

Step 7 Change ?BBCS to the CAS subsystem ID (default=BBCS).

Task 5—Allocating the MAINVIEW for Linux – Servers Image Data Set

Summary: In this task, you will allocate the MAINVIEW for Linux – Servers image data set. This data set contains information about automatically discovered Linux systems.

To allocate the MAINVIEW for Linux – Servers image data set, complete the following steps:

Step 1 Select *hilevel.BBSAMP* member MMLIMG.

A sample of the member is shown in Figure 3-5.

Figure 3-5 Sample BBSAMP Member MMLIMG

```

//*-----
//*
//* Change log:
//*
//*      Created by ?USER on ?DATE at ?TIME
//*
//*-----
//IEFBR14 EXEC PGM=IEFBR14
//DELETE DD DISP=(MOD,DELETE),
//          DSN=?BBCHILV.MML.?PASSSID.IMAGE,
//          SPACE=(TRK,0)
//*-----
//* Write a single blank line to the dataset
//*-----
//IEBGENER EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT2 DD DISP=(NEW,CATLG),
//          DSN=?BBCHILV.MML.?PASSSID.IMAGE,
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120,DSORG=PS),
//          UNIT=SYSDA,SPACE=(TRK,(2,1)),VOL=SER=?BBVOL
//SYSIN DD *
//          GENERATE MAXFLDS=2
//          RECORD FIELD=(40,1,,1),FIELD=(40,1,,41)
//SYSUT1 DD *
//*
***** Bottom of Data *****

```

Step 2 Copy the member to *hilevel.UBBSAMP*.

Step 3 Edit the JOB statement to specify the appropriate system parameters.

Step 4 Change ?BBCHILV to the high-level qualifier of the product libraries.

Step 5 Change ?PASSSID to the PAS subsystem ID (MML0).

Step 6 Change ?BBVOL to a specific DASD volume.

Note: If you do not want the DASD to run on a specific volume, you can remove the VOL=SER=?BBVOL statement.

Step 7 Submit the JCL to run the job and allocate the data sets.

Task 6—Allocating the MAINVIEW for Linux – Servers Rules Data Set

Summary: In this task, you will allocate the MAINVIEW for Linux – Servers monitor rules data set.

Step 1 Select *hilevel*.BBSAMP member MMLRUL.

A sample of the member is shown in Figure 3-6.

Figure 3-6 Sample BBSAMP Member MMLRUL

```

//*-----
//*
//* Change log:
//*
//*      Created by ?USER on ?DATE at ?TIME
//*
//*-----
//IEFBR14 EXEC PGM=IEFBR14
//DELETE DD DISP=(MOD,DELETE),DSN=?BBCHILV.MML.DATA,
//          SPACE=(TRK,0)
//*-----
//ALLOCD5 EXEC PGM=IEFBR14
//SYSUT2 DD DISP=(NEW,CATLG),DSN=?BBCHILV.MML.DATA,
//          DCB=(RECFM=FB,LRECL=512,BLKSIZE=30720,DSORG=PO),
//          UNIT=SYSDA,SPACE=(TRK,(5,1,5)),VOL=SER=?BBVOL
/*
***** Bottom of Data *****

```

Step 2 Copy the member to *hilevel*.UBBSAMP.

Step 3 Edit the JOB statement to specify the appropriate system parameters.

Step 4 Change ?BBCHILV to the high-level qualifier of the product libraries.

Step 5 Change ?BBVOL to a specific DASD volume.

Note: If you do not want the DASD to run on a specific volume, you can remove the VOL=SER=?BBVOL statement.

Step 6 Submit the JCL to run the job and allocate the data set.

Task 7—Allocating the MAINVIEW for Linux – Servers History Data Set

Summary: In this task, you will create the data set that contains the output from the historical data recorder.

To create the history data set, complete the following steps:

Step 1 Select *hilevel.BBSAMP* member MMLHST.

A sample of the member is shown in Figure 3-7 and Figure 3-8 on page 3-32.

Figure 3-7 Sample BBSAMP Member MMLHST (Part 1 of 2)

```

/*-----
/*
/* Change log:
/*
/* Created by ?USER on ?DATE at ?TIME
/*-----
//DELETE EXEC PGM=IDCAMS,REGION=4M
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DELETE ?MMLVHLQ.?MMLPASID.HISTDS00 -
PURGE
DELETE ?MMLVHLQ.?MMLPASID.HISTDS01 -
PURGE
DELETE ?MMLVHLQ.?MMLPASID.HISTDS02 -
PURGE
SET MAXCC=0

```

Figure 3-8 Sample BBSAMP Member MMLHST (Part 2 of 2)

```

/*
/*
//DEFINE EXEC PGM=IDCAMS,REGION=4M
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DEFINE CLUSTER (NAME(?MMLVHLQ.?MMLPASID.HISTDS00) -
                RECORDSIZE(4200 32000) -
                VOLUMES(?VOLUME) -
                KEYS(28 24) -
                SHR(3,3) -
                REUSE) -
DATA
    (NAME(?MMLVHLQ.?MMLPASID.HISTDS00.DATA) -
CYLINDERS(?CYL)) -
INDEX
    (NAME(?MMLVHLQ.?MMLPASID.HISTDS00.INDX) -
CISZ(4096) -
CYLINDERS(1))

DEFINE CLUSTER (NAME(?MMLVHLQ.?MMLPASID.HISTDS01) -
                RECORDSIZE(4200 32000) -
                VOLUMES(?VOLUME) -
                KEYS(28 24) -
                SHR(3,3) -
                REUSE) -
DATA
    (NAME(?MMLVHLQ.?MMLPASID.HISTDS01.DATA) -
CYLINDERS(?CYL)) -
INDEX
    (NAME(?MMLVHLQ.?MMLPASID.HISTDS01.INDX) -
CISZ(4096) -
CYLINDERS(1))

/*
/*
//SEED EXEC PGM=IDCAMS,REGION=4M
//SYSPRINT DD SYSOUT=*
//IN DD DISP=SHR,DSN=?BBCHILV.BBILIB(@@YZZ052)
//SYSIN DD *
REPRO INFILE (IN) -
      OUTDATASET(?MMLVHLQ.?MMLPASID.HISTDS00)
REPRO INFILE (IN) -
      OUTDATASET(?MMLVHLQ.?MMLPASID.HISTDS01)
REPRO INFILE (IN) -
      OUTDATASET(?MMLVHLQ.?MMLPASID.HISTDS02)

/*
//
***** Bottom of Data *****

```

- Step 2** Copy the member to *hilevel.UBBSAMP*.
- Step 3** Edit the JOB statement to specify the appropriate system parameters.
- Step 4** Change ?MMLVHLQ to the high-level qualifier of the VSAM data sets you create for MAINVIEW for Linux – Servers.

Note: You can make ?MMLVHLQ the same value as ?BBCHILV.

- Step 5** Change ?MMLPASID to the name of the PAS subsystem ID that was created in a previous task. See “Task 3—Customizing the RTServer Command Parameters Member” on page 3-23 for more information.
- Step 6** Submit the JCL to run the job and allocate the data set.

History Interval

If you have allocated the historical data sets, historical reporting begins as soon as the PAS is initialized. Data is recorded at the interval that is specified in the *hilevel*.BBPARM data set member MMLTIR00. The default length of the recording interval is 15 minutes.

Intervals are usually synchronized on the hour (SYNCVAL=0). For example, if the interval value (INTVAL) is specified as 15 minutes and extraction begins at 09:49 a.m., the first interval lasts 11 minutes until 10:00 a.m. Successive intervals are 10:00 to 10:15, 10:15 to 10:30, and so on.

A sample of the MMLTIR00 is shown in

Figure 3-9 **Sample BBPARM Member MMLTIR00**

```
<INTERVAL INTVAL="15" SYNCVAL="0"/>
```

Task 8—Creating the MAINVIEW for Linux – Servers Product Address Space (PAS) JCL Startup Procedure

Summary: In this task, you will create the MAINVIEW for Linux – Servers PAS startup procedure.

To run the MAINVIEW for Linux – Servers PAS, you must create a procedure in your system procedure library.

Note: The PAS program library requires APF authorization. The PAS started task requires RACF OMVS authorization for using TCP/IP.

To customize the MAINVIEW for Linux – Servers PAS JCL startup procedure, complete the following steps:

Step 1 Select *hilevel*.BBSAMP member MMLPAS. A sample of the member is shown in Figure 3-10 and Figure 3-11 on page 3-35.

Figure 3-10 Sample BBSAMP Member MMLPAS (Part 1 of 2)

```

/*-----
/*
/* Change Log:
/*
/*      Created by ?USER on ?DATE at ?TIME
/*
/*-----
/*
/* Note: Any region size greater than 16MB and less than
/*       32MB, causes MVS to make available all storage below
/*       the 16MB line and 32MB of storage (the IBM default)
/*       above the line.
/*
/*-----
//MMLPAS  PROC REG=46,
//          BBCHILV='?BBCHILV',
//          BBLINK='?BBLINK',
//          UBBPARM='?UBBPARM',
//          PASID='?MMLPASID',
//          MMLSYSIN='?MMLPRM',
//          MMLIMAGE='?MMLIMG',
//          MMLRULES='?MMLRUL',
//          MMLVHLQ='?MMLVHLQ'
/*-----

```

Figure 3-11 Sample BBSAMP Member MMLPAS (Part 2 of 2)

```

//MML9DSP4 EXEC PGM=MML9DSP4,REGION=&REG.M
/**
//STEPLIB DD DISP=SHR,DSN=&BBLINK
//BBILINK DD DISP=SHR,DSN=&BBLINK
/**
/** Action definition tables.
/**
//BBACTDEF DD DISP=SHR,DSN=&BBCHILV..BBACTDEF
/**
/** View definitions.
/**
//BBVDEF DD DISP=SHR,DSN=&BBCHILV..BBVDEF
/**
/** Parameter definitions.
/**
//BBIPARM DD DISP=SHR,DSN=&UBBPARM
// DD DISP=SHR,DSN=&BBCHILV..BBIPARM
/**
/** Customized security definitions.
/**
//BBSECURE DD DISP=SHR,DSN=&BBCHILV..BBSECURE
/**
/** History file definitions (need unique DSNames per PAS)
/** &PASID can be the same value used for SUBSYSID= in SYSIN.
/**
//HISTDS00 DD DISP=SHR,DSN=&MMLVHLQ..&PASID..HISTDS00
//HISTDS01 DD DISP=SHR,DSN=&MMLVHLQ..&PASID..HISTDS01
//HISTDS02 DD DISP=SHR,DSN=&MMLVHLQ..&PASID..HISTDS02
/**
/** Product license password.
/**
//BMCPSWD DD DISP=SHR,DSN=&BBCHILV..BMCPSWD
/**
/** Product input parameters.
/**
//SYSIN DD DISP=SHR,DSN=&UBBPARM(&MMLSYSIN)
/**
/** Automatically discovered systems
/**
//MMLIMAGE DD DISP=SHR,DSN=&MMLIMAGE
/**
/** Monitor rules.
/**
//MMLDATA DD DISP=SHR,DSN=&MMLRULES
/**
/** Communication Sub-task message log
/**
//MMLERRLG DD SYSOUT=*
/**
/** History Sub-task message log
/**
//MMLHERLG DD SYSOUT=*
/**
//SYSUDUMP DD SYSOUT=*
//SYSTEM DD SYSOUT=*
//STDOUT DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
***** Bottom of Data *****

```

- Step 2** Copy the member to *hilevel.UBBSAMP*.
- Step 3** Change ?BBCHILV to the high-level qualifier of the MAINVIEW for Linux – Servers product libraries.
- Step 4** Change ?UBBPARM to data set name *hilevel.UBBPARM* (see Step 2 of “Task 3—Customizing the RTServer Command Parameters Member” on page 3-23).

- Step 5** Change ?BBLINK to *hilevel.BBLINK*.
- Step 6** Change ?MMLPRM to MMLPRM00, (see Step 2 of “Task 3—Customizing the RTServer Command Parameters Member” on page 3-23).
- Step 7** Change ?MMLIMG to the image data set name that you allocated in a previous task. See “Task 5—Allocating the MAINVIEW for Linux – Servers Image Data Set” on page 3-28 (*hilevel.MML.passsid.IMAGE*) for more information.
- Step 8** Change ?MMLRULE to the rules data set name that you allocated in “Task 6—Allocating the MAINVIEW for Linux – Servers Rules Data Set” on page 3-30 (*hilevel.MML.DATA*).
- Step 9** Change ?MMLVHLQ to the high-level qualifier of the VSAM data sets you create for MAINVIEW for Linux – Servers (see “Task 7—Allocating the MAINVIEW for Linux – Servers History Data Set” on page 3-31).
- Note:** You can make ?MMLVHLQ the same value as ?BBCHILV.
- Step 10** Copy the MMLPAS member to your system procedure library.
- Step 11** To start the procedure automatically when you IPL the system, add the MMLPAS procedure to your system startup parameter library, for example, SYS1.PARMLIB(COMMNDxx).

Task 9—Customizing the MAINVIEW for Linux – Servers Data Server Installation Script

Summary: In this task, you will customize the MAINVIEW for Linux – Servers data server installation script that runs on a Linux system.

To customize the MAINVIEW for Linux – Servers data server installation script:

Step 1 Select *hilevel*.BBSAMP member MMLDINST.

A sample of the member is shown in Figure 3-13.

Figure 3-12 Sample BBSAMP Member MMLDINST

```

000017 #-----
000018 #
000019 # Change Log:
000020 #
000021 # Created by ?USER on ?DATE at ?TIME
000022 #
000023 #-----
000024 RTSERVHOST=?COMMHOST
000025 RTSERVPORT=?COMMPORT
000026 DATASRVUSER=?RUNUSER
000027 INSTSTART=?STRINST
000028 #
000029 #-----
000030 # Do not change anything below this comment block.
000031 #-----

```

Step 2 Copy the member to *hilevel*.UBBSAMP.

Step 3 Change ?COMMHOST to the communication server (RTServer) host name.

Step 4 Change ?COMMPORT to the communication server port number (default=5101).

Step 5 Change ?RUNUSER to a specific user name, such as root.

Note: You can remove the DATASERVER=?RUNUSER statement if you do not want to identify a specific user name. The data server will run as root.

Step 6 Change ?STRTINST to **Yes** to start the data server automatically after completing the installation.

Note: If you select **No**, do not start the data server automatically, you must manually start the data server after completing the installation. To manually start the data server, see Appendix B, “Managing the Components.” The data server will still start automatically when the Linux system is started.

Task 10—Creating a Job to FTP the Data Server Installation Files to a Linux System

Summary: In this task, you will FTP the data server installation files to a Linux system.

To FTP the files to a Linux system, complete the following steps:

Step 1 Select *hilevel.BBSAMP* member MMLFTP.

A sample of the member is shown in Figure 3-13.

Figure 3-13 Sample BBSAMP Member MMLFTP

```

/*-----
/*
/* Change log:
/*
/* Created by ?USER on ?DATE at ?TIME
/*
/*-----
//STEP1 EXEC PGM=FTP,PARM=(EXIT,REGION=2048K
//SYSPRINT DD SYSOUT=*
//OUTPUT DD SYSOUT=*
//INPUT DD *
?RMTHOST
?USERNAME
?PASSWORD
TYPE A
cd /tmp
LCD '?BBCHILV.UBBSAMP'
PUT MMLDINST mmldinst
SITE chmod 755 mmldinst
TYPE I
LCD '?BBCHILV.RPMS'
?PUTLIST
QUIT
/*
***** Bottom of Data *****

```

Step 2 Copy the member to *hilevel.UBBSAMP*.

Step 3 Change ?BBCHILV to the high-level qualifier of the product libraries.

Step 4 Change ?RMTHOST to the host name of the Linux system where you will install the data server.

Step 5 Change ?USERNAME to a valid logon ID of the Linux system.

Step 6 Change ?PASSWORD to the password of the logon ID that you entered in Step 5.

Step 7 Change ?PUTLIST to a list of PUT commands to transfer the data server RPM to the target Linux system. The following two commands are needed:

- PUT command for the RPM file
- SITE command to set the correct Linux permissions on the file

Example

```
PUT member_name
```

```
SITE chmod 644 member_name
```

Table 3-8 shows the specific member name for each supported Linux distribution.

Table 3-8 Specific Member Names for Supported Linux Distributions

Member Name	Distribution
MMLDS390	all supported Linux distributions for the z/OS or S/390 platforms
MMLDX86	all supported Linux distributions for the x86 platform

Step 8 Submit the JCL to run the job and FTP the files to the Linux system.

Step 9 Repeat Step 4 through Step 8 to send the files to other Linux systems (if necessary). For more information, see “Installing the Data Server on a Linux System” on page 3-42.

Task 11—Creating a Job to FTP the VM Installation Files to a VM System

Summary: In this task, you will FTP the VM installation files to a VM system.

To FTP the files to a VM system, complete the following steps:

Step 1 Select *hilevel.BBSAMP* member MMLFTPVM.

A sample of the member is shown in Figure 3-14.

Figure 3-14 Sample BBSAMP Member MMLFTPVM

```

/*-----
/*
/* Change log:
/*
/* Created by ?USER on ?DATE at ?TIME
/*
/*-----
//STEP1 EXEC PGM=FTP,PARM=(EXIT',REGION=2048K
//SYSPRINT DD SYSOUT=*
//OUTPUT DD SYSOUT=*
//INPUT DD *
?RMTHOST
?USERNAME
?PASSWORD
TYPE E
MODE B
cd ?USERNAME ?VADDR
ACCT ?DISKPASS
LCD '?BBCHILV.UBBSAMP'
PUT MMLINI mmlvsrv.ini.a
LCD '?BBCHILV.RPMS'
PUT MMLUVCMS mml1300.vmarc.a
PUT BMCINSTL bmcinstl.vmarc.a
PUT VMMSVCMS vmm1100.vmarc.a
QUIT
/*
***** Bottom of Data *****

```

Step 2 Copy the member to *hilevel.UBBSAMP*.

Step 3 Change ?RMTHOST to the host name of the VM data server.

Step 4 Change ?USERNAME to BMCINSTL.

Note: If you change the BMC Standard Install for VM userid in “Installing the VM Data Server” on page 3-51, you will need to change this userid to the one that you specify in “Installing the VM Data Server” on page 3-51 before you submit this job.

Step 5 Change ?PASSWORD to the valid password of the BMC Standard Install for VM virtual machine.

Step 6 If you have a multi-write password on the destination BMCINSTL 191 minidisk, change ?DISKPASS to the multi-write password.

If you have only have a write password on the destination BMCINSTL 191 minidisk, change ?DISKPASS to the write password.

If a password is not needed, delete the entire ACCT ?DISKPASS line.

Step 7 Save the JCL member.

Note: You will need to submit the job after you create the BMCINSTL data server userid on VM (see “Installing the VM Data Server” on page 3-51).

Installing the Data Server on a Linux System

Whether you use AutoCustomization or manual customization to customize MAINVIEW for Linux – Servers, you must install the data server on all of the Linux systems you wish to monitor.

Before You Begin

You must FTP the data server RPM package to the Linux system where you wish to install the data server (see “Task 10—Creating a Job to FTP the Data Server Installation Files to a Linux System” on page 3-39).

Note: You must be logged in as root to complete this task.

Installing the Data Server

Once the data server RPM package is on the Linux System, type the following command as root user on the Linux system to install the data server:

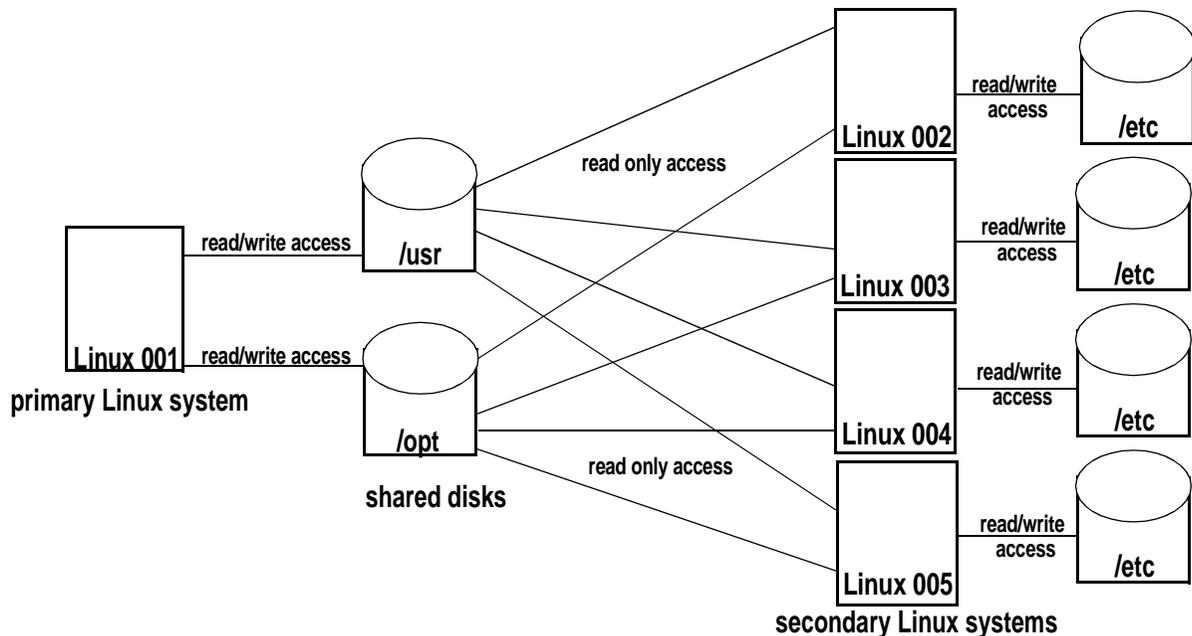
```
/tmp/mmlldinst -v
```

Note: The parameter, -v (verbose), is optional. It allows you to view the installation progress.

Sharing an Installation Across Multiple Linux Systems

If you share a single installation across several Linux systems that share files from a primary Linux system, you must run a second command on all of the secondary Linux systems. A primary Linux system is a system that owns the shared disks. The primary Linux system has read/write access to the disks. The secondary Linux systems are systems that have read only access to the shared disks. For an illustration of the primary and secondary Linux systems, see Figure 3-15 on page 3-43.

Figure 3-15 Primary and Secondary Linux Systems



To set up each secondary Linux system to share the data server installation, after you have installed the data server on the primary Linux system, complete the following steps:

Step 1 Type the following command on each Linux system:

```
/opt/BMCS/mml/mmludins.sh
```

Step 2 Restart each Linux system.

Note: It is necessary to restart each Linux system because the updates to the read-only disks cannot be detected by the secondary Linux systems, until each Linux system is restarted.

Editing the Data Server Parameters

You have the ability to change the current host name and port number of the communication server and the Run-As-User name. For example, if you move the location of your communication server, you will need to update the host name and/or port number.

From a Linux system, complete the following steps:

Step 1 Log on as root.

Step 2 Type `mmlsrv edit`.

Step 3 At the prompt, type the number of one of the options described in Table 3-9.

Table 3-9 Data Server Parameters

Option Number	Description
1	current host name of the communication server (alphanumeric)
2	port number of the communication server (numeric)
3	run-as-user name (ID)(alphanumeric)

Step 4 Enter the new host name, port number, or user name.

Step 5 Repeat Step 3 and Step 4 for each parameter you want to change.

Step 6 When you are finished updating the parameters, type `q` to quit.

Uninstalling the Data Server

To uninstall the data server, from the Linux system, complete the following steps:

Note: This will stop the data server and data collector processes.

- Step 1** Log on as root.
- Step 2** Type `/opt/BMCS/mml/mmludinu.sh`
- Step 3** Type `rpm -e package_name`

where *package_name* indicates the RPM package name. For example, the package name for MAINVIEW for Linux – Servers version 1.3 is `bmcmmml-1.3-0`.

Running the BMC Standard Install for VM

This section describes how to install the VM data server and the BMC Software VM Monitor Reader using the BMC Standard Install for VM.

Complete the following steps to install the BMC Standard Install for VM:

Step 1 Verify that you have the VMARC utility installed.

Note: The VMARC utility is available for download from the IBM web site.

Step 2 Create the following VM/CMS userids:

USERID	Component	Notes
BMCINSTL	BMC Standard Install for VM	<p>You can use a userid that currently exists with the appropriate permissions, such as MAINT.</p> <p>The VM userid must have the LNKNOPAS option in its CP directory to perform the install.</p> <p>Allocate a minidisk, which must hold the BMC Standard Install for VM software along with any product VMARC files you wish to install. BMC Software recommends a virtual device address -191. This is your BMCINSTL minidisk. The BMCINSTL minidisk should be at least 30 cylinders.</p> <p>If you are installing another product by BMC Software that uses the BMC Standard Install for VM, for example Deployment Manager for Linux, you should increase the size of the BMCINSTL minidisk to 300 cylinders.</p>
VMMAVMSR	BMC Software Monitor Reader	<p>Create this userid only if you are using the BMC Software Monitor Reader to collect VM performance data.</p> <p>A sample user directory entry is located in the data set <i>hilevel.BBSAMP(VMMVMNDR)</i>.</p> <p>You may need to adjust the virtual machine storage size for VMMAVSR depending on the virtual address and size of the MONDCSS shared segment.</p>
MMLVSRV	VM data server	<p>A sample user directory entry is located in the data set <i>hilevel.BBSAMP(MMLVDRCT)</i>.</p>

Step 3 Submit the job that you created in “Task 11—Creating a Job to FTP the VM Installation Files to a VM System” on page 3-41.

Step 4 Log on to the BMCINSTL userid.

Step 5 Verify that you have the correct files in the correct format.

5.A Issue the following command:

```
LISTFILE BMCINSTL VMARC A (L
```

5.B Verify that there is an **F** in the Format field.

5.C Verify that **80** is specified in the LRECL field.

Step 6 If the conditions in 5.B and 5.C are not met, issue the following command to format the files:

```
PIPE < BMCINSTL VMARC A | FBLOCK 80 | BUFFER | > BMCINSTL  
VMARC A F 80
```

Step 7 Unpack the VMARC file by entering the following command:

```
VMARC UNPK BMCINSTL VMARC A = = A
```

Step 8 Issue the following command to start the BMC Standard Install for VM:

```
BMCINSTL
```

Step 9 Press **Enter**.

This will display the BMC Standard Install for VM menu (shown in Figure 3-16).

Figure 3-16 BMC Standard Install for VM

```

MM/DD/YY                BMC Standard Install for VM                10:08:37
                        V1.1.01

Following is a list of the VM products/components which have been
installed, uninstalled or may be installed by BMCINSTL.

                                Date                Date
Cmd Product Description          v.r.mm  Installed  Uninstalled
_  MAINVIEW for Linux - Servers  1.3.00  -          -
_  BMC VM Monitor Reader         1.1.00  -          -

                                Copyright 2003 BMC Software, Inc. All rights reserved.

PF1= Help   PF3= Exit   PF5= Option List

```

Installing BMC Software's VM Monitor Reader

MAINVIEW for Linux – Servers requires one of the following VM performance monitors:

- BMC Software's VM Monitor Reader
- ESAMON or zMON by Velocity Software
- FCON/ESA by IBM
- Performance Toolkit by IBM
- RTM by IBM

BMC Software's VM Monitor Reader is packaged with this version of MAINVIEW for Linux – Servers. You must install and configure the VM monitor reader by BMC Software, if you choose to use it.

This section describes how to install and configure BMC Software's VM Monitor Reader. If you are not using BMC Software's VM Monitor Reader, you may skip to "Installing the VM Data Server" on page 3-51.

Step 1 From the BMC Standard Install for VM menu (shown in Figure 3-16 on page 3-48), type **I** next to the **BMC VM Monitor Reader** option to install the monitor reader.

The valid commands for this screen are described in Table 3-10.

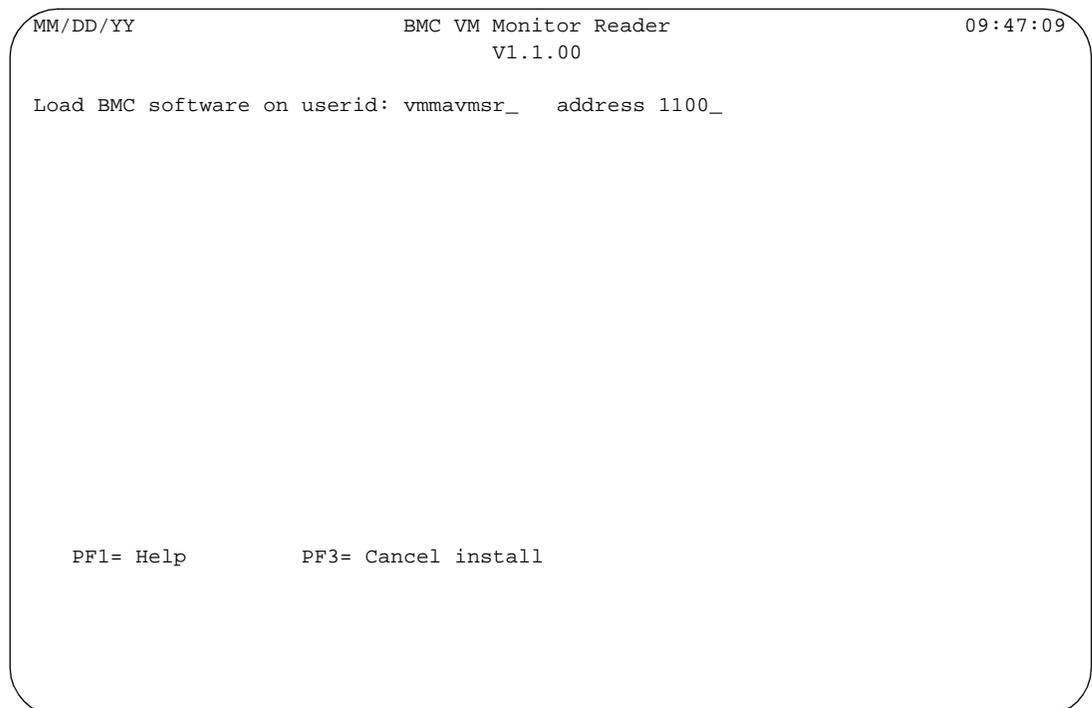
Table 3-10 BMC Standard Install for VM Commands

Command	Description
C	configure the product
D	view details of the software (when it was installed, where it is installed, etc.)
I	install or upgrade the product
R	removes the all of the installation software for the product Note: If you choose this option you are unable to reinstall.
U	uninstalls the selected product
V	opens an xedit session of the log files to view errors

Step 2 Press **Enter**.

This will display the Product Install Information screen (shown in Figure 3-17).

Figure 3-17 Product Install Information Screen



Step 3 Enter the userid and the virtual address of the minidisk on which you want to install the VM monitor reader. BMC Software recommends the following userid and virtual address:

Table 3-11 BMC Software VM Monitor Reader Minidisk

Userid	Virtual Address
vmmavmsr ^a	1100

^a Use the userid that you created for the BMC Software VM Monitor Reader that you created in Step 2 on page 3-46.

Step 4 Press **Enter**.

This will install the BMC Software VM Monitor Reader. While the BMC Software VM Monitor Reader is installing, an Install Status screen will be displayed (similar to the one shown in Figure 3-20 on page 3-53.)

After the BMC Software VM Monitor Reader is installed, the BMC Software VM Monitor Reader Configuration screen (shown in Figure 3-18) will be displayed.

Figure 3-18 BMC Software's VM Monitor Reader Configuration Screen

```

MM/DD/YYYY                      Modify VMMAVMSR CONFIG                      10:05:31
                                on VMMAVMSR 1100

Log files will be on the 100 mini-disk and you will keep 5 logs.

Your BMC VM Monitor Reader is running on VMMAVMSR

The monitor DCSS name is MONDCSS

Authorization  Authorization
Type           Userids                               Entry 1 of 2
ADMINISTRATOR MMLVSRV
OPERATOR      MMLVSRV OPERATOR

PF1= Help    PF3= Cancel    PF6= Add Entry    PF7= Up    PF8= Down

```

Step 5 Accept the defaults or alter the information for your environment.

- Step 6** Enter the VM data server userid (MMLVSRV) to the **Authorization Userids** fields for the Administrator and Operator Authorization Types.
- Step 7** Press **Enter**.

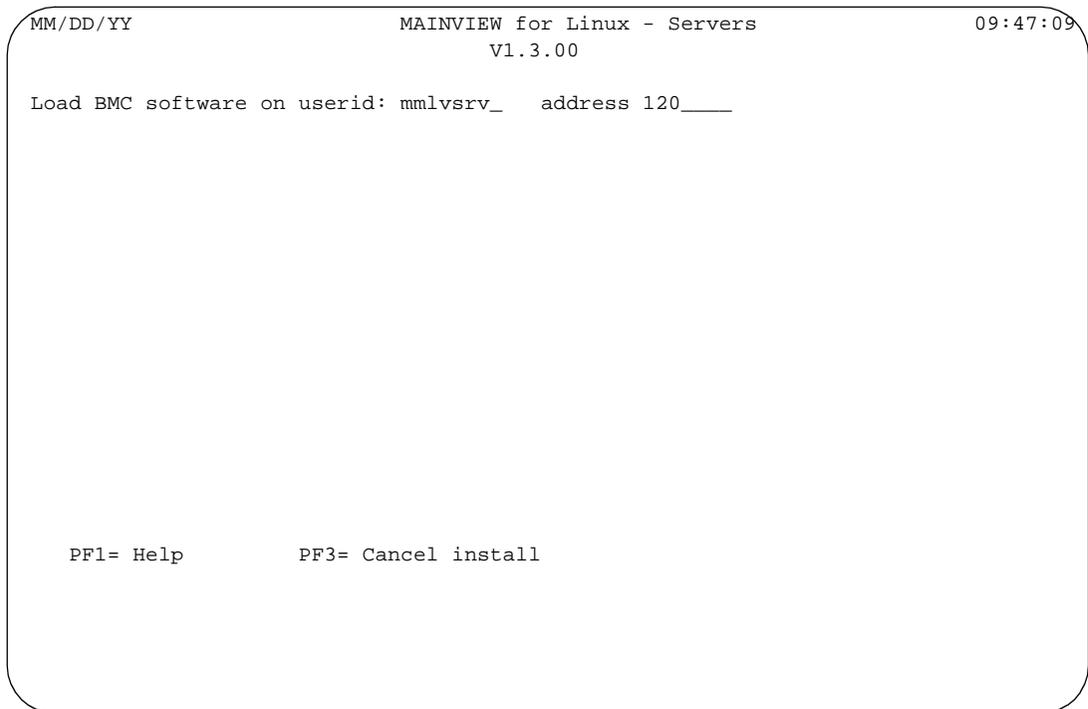
Installing the VM Data Server

If you plan to monitor Linux images running in a VM environment and you want to view VM performance data, you must install the VM data server using the BMC Standard Install for VM. If you are not running any Linux images in a VM environment, you may skip to “Installing the PATROL for Performance Data Collector” on page 3-56.

This section describes how to use the BMC Standard Install for VM to install the VM data server.

- Step 1** From the BMC Standard Install for VM menu (shown in Figure 3-16 on page 3-48), type **I** next to the MAINVIEW for Linux – Servers option to install the VM data server for MAINVIEW for Linux – Servers.
- Step 2** Press **Enter**.

This will display the Product Install Information screen (shown in Figure 3-19 on page 3-52).

Figure 3-19 Product Install Information Screen

- Step 3** Enter the userid and the virtual address of the minidisk on which you want to install the VM data server. BMC Software recommends the following userid and virtual address:

Table 3-12 VM Data Server Minidisk

Userid	Virtual Address
mmlvsrv ^a	120

^a Use the userid that you created for the VM data server that you created in Step 2 on page 3-46.

- Step 4** Press **Enter**.

This will install the VM data server. While the VM data server is installing, an Install Status screen will be displayed (shown in Figure 3-20 on page 3-53.)

Figure 3-20 Install Status Screen

```
MM/DD/YY                MAINVIEW for Linux - Servers          09:47:09
                        V1.3.00
Installing Software. Please wait....

Installing: MMLAVV32 EXEC      on MMLVSRV 120

*****                                     52%
```

After the install has finished, the Modify MMLVSRV INI screen (shown in Figure 3-21 on page 3-54) is displayed.

Figure 3-21 Modify MMLVSRV INI Screen

MM/DD/YY Modify MMLVSRV INI 09:48:11
on MMLVSRV 0191

Remote Host: _____

Port: 5101

Monitor ID: _____

PF1 Help

Step 5 Edit the necessary fields. These fields are described in Table C-13.

Table C-13 VM Data Server ini File Screen Fields

Field	Description
Remote Host	host name of the communication server (alphanumeric) See "Task 9—Customizing the MAINVIEW for Linux – Servers Data Server Installation Script" on page 3-37.
Port	port number of the communication server (numeric) See "Task 9—Customizing the MAINVIEW for Linux – Servers Data Server Installation Script" on page 3-37
Monitor ID	userid of the virtual machine running a VM real-time performance monitor or the BMC Software VM Monitor Reader (VMMAVMSR) See "Task 4—Creating the MAINVIEW for Linux – Servers Product Address Space (PAS) SYSIN Member" on page 3-24

Step 6 Press **Enter**.

This will display the Modify PROFILE EXEC screen (shown in Figure 3-22 on page 3-55).

Figure 3-22 Modify PROFILE EXEC Screen

```

MM/DD/YY                      Modify PROFILE EXEC                      09:50:34
                               on MMLVSRV 191

The TCPIP DATA file must be on an accessed mini-disk for MMLVSRV
to make a connection to the PAS. Leave blank to not perform link.

      Userid   vaddr
VMLINK _____ <--- TCPIP DATA file location

Some monitors require you to link to their software mini-disk.
Indicate below which ID and mini-disk you want MMLVSRV
to link to. Leave blank to not perform any links.

      Userid   vaddr   Comment
VMLINK _____
VMLINK _____
VMLINK _____
VMLINK _____

                               BMCUTI0923I Configure PROFILE EXEC

PF1= Help

```

Step 1 Update the necessary fields.

For example, if you choose to use BMC Software's VM Monitor Reader to obtain VM performance data, enter the following information:

Field	Value
Userid	VMMVA/MSR
vaddr	1100

Step 2 Press **Enter**.

This will display the BMC Standard Install for VM menu (shown in Figure 3-16).

Installing the PATROL for Performance Data Collector

The MAINVIEW for Linux – Servers product uses PATROL for Performance data collector (bgscollect) to collect data from each monitored Linux system.

Many of the PATROL Performance products also use the PATROL for Performance data collector. Since you could install multiple products that require the PATROL for Performance data collector, MAINVIEW for Linux – Servers version 1.3 requires you to install the PATROL for Performance data collector using the PATROL Performance Assurance Solutions Agents and Collectors CD3 (Linux, Linux for z/Series) CD.

This section describes the steps to run the PATROL for Performance data collector installation on the platforms listed in Table 3-14.

Table 3-14 Installation Platforms

Mount CD Platform	Target Platform	See
Linux on x86	Linux on S/390	page 3-57
Linux on x86	local system	page 3-57
Unix	Linux on S/390	page 3-59

Do not install the software on the `/usr` file system which is intended for system software.

Mounting the CD on an x86-Based Linux Drive

To mount the installation CD on an x86-based Linux drive, complete the following steps:

- Step 1** Log on as root.
- Step 2** Insert the PATROL Performance Assurance Solutions Agents and Collectors CD3 (Linux, Linux for z/Series) CD into your CD device.

- Step 3** Enter the following mount command to mount the CD device so it is available from the system where you are performing the installation.

```
mount -ro /dev/hdc /media/cdrom
```

Note: Skip to step Step 8, if you are not exporting the file to an S/390 Linux system.

- Step 4** Enter the following command to export the filesystem to the S/390 Linux system:

```
'exportfs -I host_target: /media/cdrom'
```

- Step 5** Verify that the target S/390 Linux system has the following directory:

```
/media/cdrom
```

- Step 6** From the target S/390 Linux system, enter the following command:

```
'mount Intel_hostname: /media/cdrom /media/cdrom'
```

- Step 7** Log on to the target S/390 Linux system with a non-root userid.

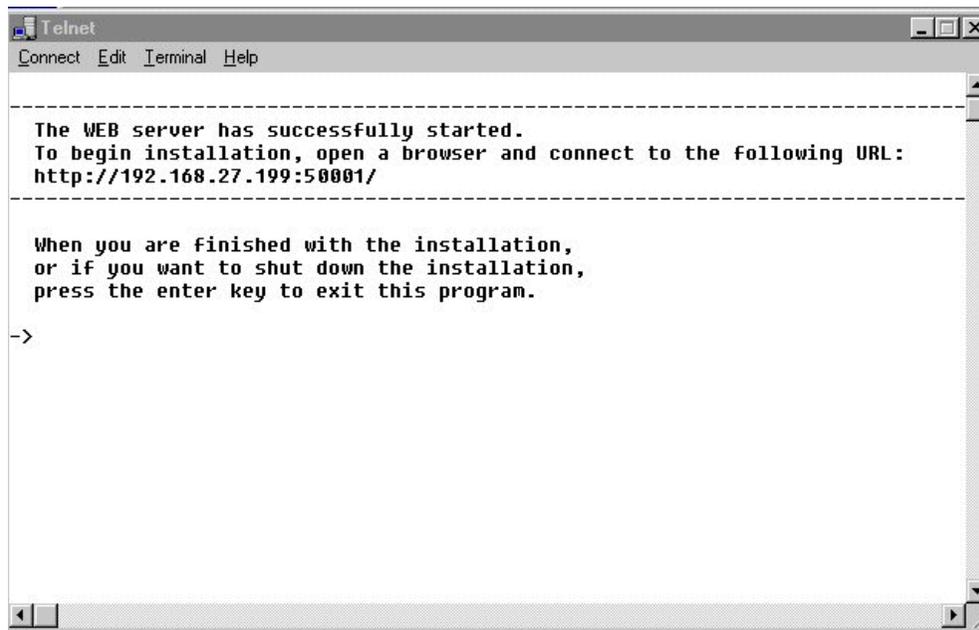
Note: This userid will be the owner of the installation directories for the PATROL for Performance data collector.

- Step 8** Issue the following command:

```
'/media/cdrom/setup.sh'
```

- Step 9** The installation program will attempt to launch Netscape in a Telnet window (shown in Figure 3-23). This will fail, because Netscape is not available on S/390 Linux systems.

Figure 3-23 Telnet Window



- Step 10** Copy the URL that is displayed (shown in Figure 3-23) and paste it into a Netscape or Internet Explorer browser.

Mounting the CD on a Unix Drive

To mount the installation CD on the drive:

- Step 1** Insert the PATROL Performance Assurance Solutions Agents and Collectors CD3 (Linux, Linux for z/Series) CD into your CD device.
- Step 2** Enter the mount command to mount the CD device so it is available from the system where you are performing the installation.

Note: To enter the mount command, you must know the CD device type (device driver) and the mount point. To determine the device type, see your system administrator. In general, operating systems provide the mount point/cdrom.

Mount commands vary according to the operating system and individual configuration. The following table shows examples of mount commands for the major Unix operating systems. See your system administrator for the exact command syntax for your system.

The example commands assume that your CD drive is at SCSI ID 6. Substitute the appropriate device file name for your CD drive.

On Solaris systems: The CD device usually mounts automatically after the CD is inserted.

Table 3-15 Example Commands to Mount the CD

OS	Command
AIX	# mount -v cdrfs -r /dev/cd0 /cdrom
HP-UX	# pfs_mount -t rrip -x unix /dev/dsk/c0t6d0 /cdrom (See "Drives on HP-UX 11.00 and 10.20 only" on page 3-59 below.)
Tru64 UNIX (Digital UNIX)	mount -r -t cdfs -o rrip,noversion,nodefperm \ /dev/rz6c /cdrom
Solaris	# mount -F hsfs -r /dev/dsk/c0t6d0s0 /cdrom

Drives on HP-UX 11.00 and 10.20 only

On HP-UX 11.00 and 10.20, the pfs_mount utility presents the installation file names in the format compatible with the installation program. If not mounted properly, file names on the CD appear in upper case characters followed by a semicolon and the number 1 (*FILENAME;1*). Use the following procedure to ensure that the pfs_mountd daemon is running before you begin the installation.

- Log on as root.
- Check that pfs_mountd is running by entering the following command:

```
# ps -ef | grep pfs_mountd
```
- If it is not running, start it by entering:

```
# pfs_mountd &
```
- Check that the pfsd daemon is running by entering:

```
# ps -ef | grep pfsd
```
- If it is not running, enter the following command:

```
# pfsd &
```
- Use pfs_mount to mount the CD_ROM drive. The pfs_mount utility can only mount a drive properly when /SD_CDRom is used as the mount point. Do not use /sbin/mount.
- HP-UX # Ppfs_mount -t rrip -x unix /dev/dsk/xx /mnt

Run the Installation Utility

The following procedure describes how to install PATROL for Performance on Unix systems.

Warning! Log on as a non-privileged user (*not* root). The owner of the installation **must** be a non-privileged, not-root user. BMC Software strongly recommends that the installation utility not be run as root.

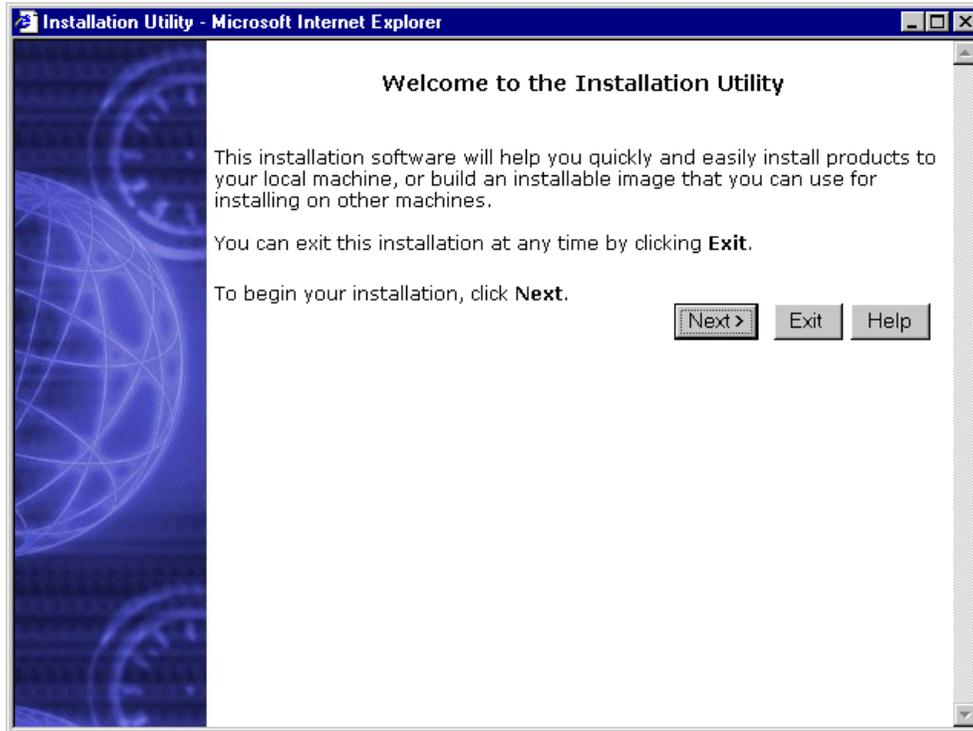
Note: The Perform Agent is now automatically installed during the PATROL Performance Manager installation process.

Step 1 Insert the installation CD into the CD drive on your machine.

Note: The console CD installs the Predict console or the Investigate console, or both the Predict and Investigate consoles together as well as the Perform agent. The console CD also installs the example files as an option. The OSR utility automatically installs from the console CD.

- Step 2** Change to the directory that contains the mounted CD. For example, `/cdrom/PAT_ADV_CONS_UNX`.
- Step 3** Type `setup.sh` and press **Enter** to run the installation script. The **Welcome to the Installation Utility** page displays, as shown in Figure 3-24 on page 3-61.

Figure 3-24 Welcome to the Installation Utility

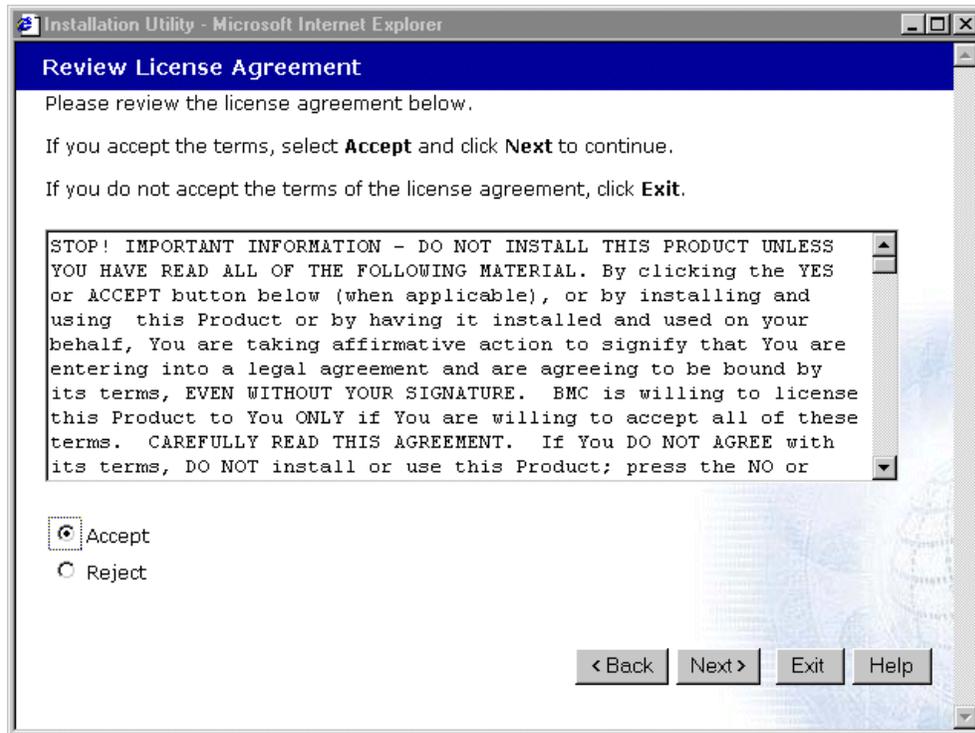


- Step 4** Click **Next**.

The **Review License Agreement** page is displayed (Figure 3-25).

- Step 5** On the **Review License Agreement** page, read the license agreement, select **Accept**, and click **Next**.

If you do not accept the license agreement, the installation program will exit.

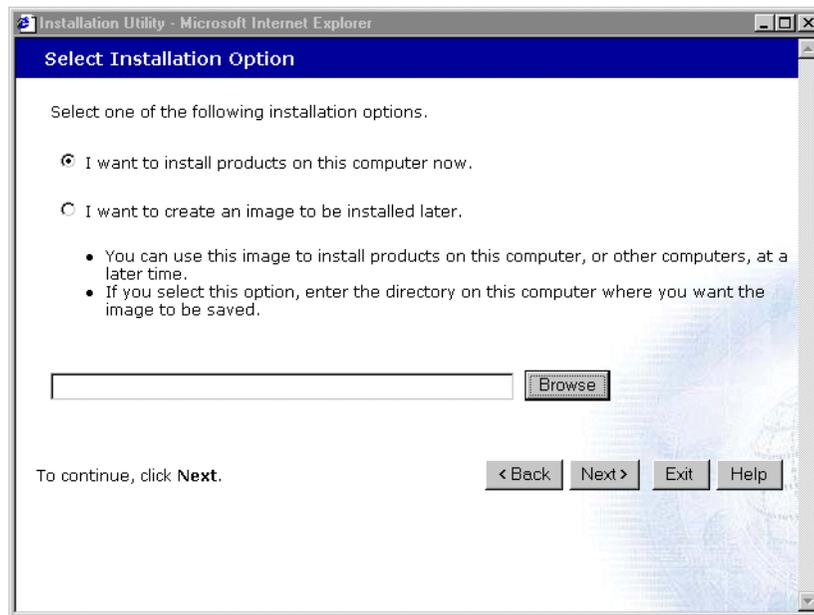
Figure 3-25 Review License Agreement Page

Step 6 On the **Select Installation Option** page (Figure 3-26), select one of the following options and click **Next**:

- I want to install products on this computer now
- I want to create an image to be installed later

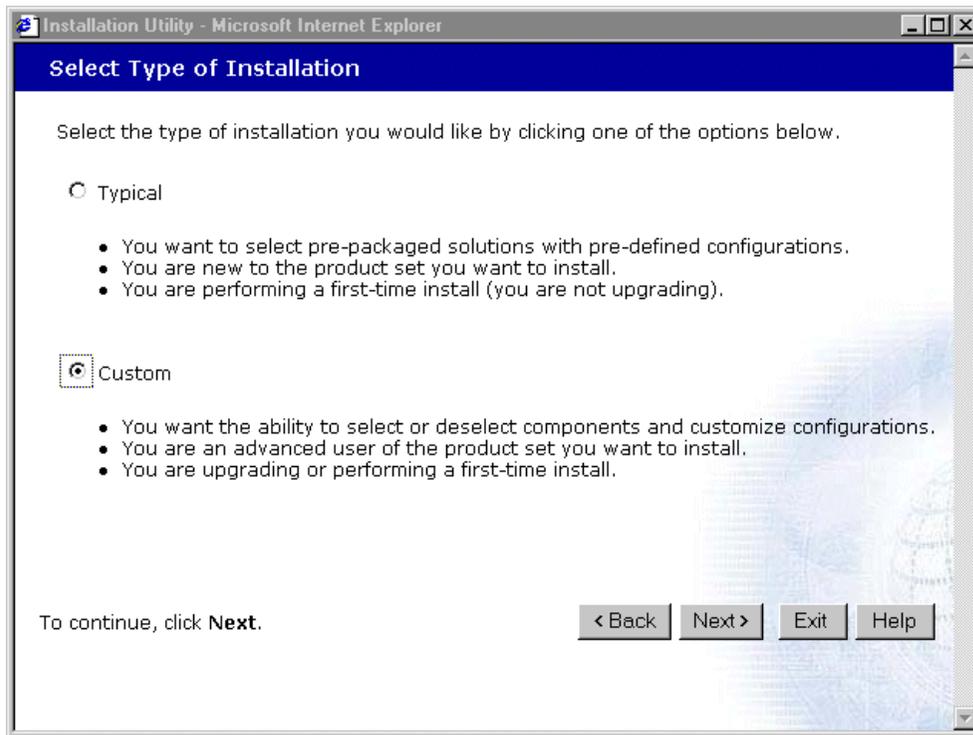
The only type of installation you can perform is a local installation. The following steps describe how to install products to a local computer for Unix operating systems.

However, the **I want to create an image to be installed later** option allows you to create an image of the products that you have selected in a specified local directory. This image can be transferred to any other computer on which you want to install products. The product image contains a **install.ctl** file and an **install.sh** file. You can run the installation file from a command prompt to install the image locally. See “Creating an Installation Image for Another Computer” on page 3-73.

Figure 3-26 Select Installation Option Page

Step 7 On the **Select Type of Installation Page** (Figure 3-27), choose **Custom** installation path and then click **Next**.

Option	Description
Typical	<p>The Typical path allows you to select only product solutions, and requires you to enter only mandatory product configuration information. The Typical install path offers a quick installation path with fewer panels, and uses default specifications.</p> <p>Choose the Typical path if you are installing the product for the first time on a given system (or set of systems if you are creating an installation image).</p>
Custom	<p>The Custom path allows you to select product solutions, and then select or deselect individual products within a solution and enter optional configuration information.</p> <p>The Custom path offers you greater control over your installation configuration. Choose the Custom installation path if you are an advanced user and want to customize the installation configuration, or if you have any version 6.6.xx component already installed.</p>

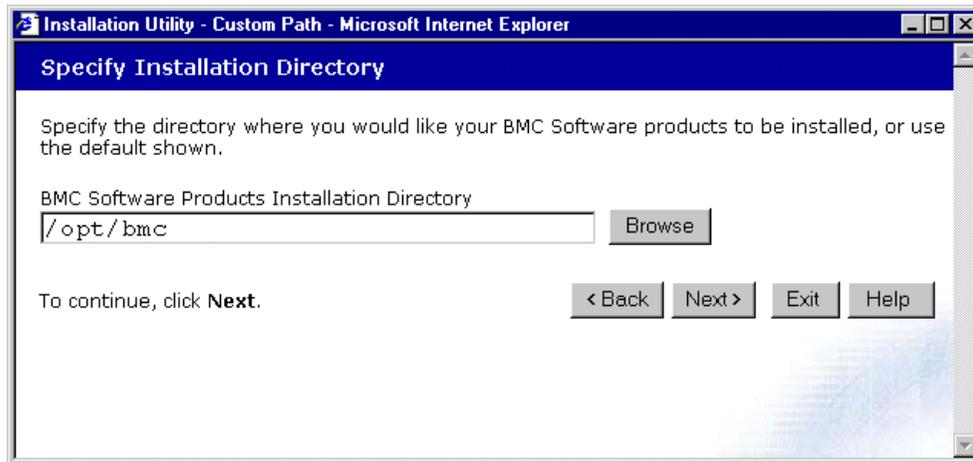
Figure 3-27 Select Type of Installation Page

Step 8 The installation utility includes two pages into which you must enter product installation directory information: the **Specify Installation Directory** page, and the **Provide the PATROL 3.x Product Directory** page. The full installation directory path is the concatenation of the directory names you specify on these pages.

On the **Specify Installation Directory** page (Figure 3-28), you must define a base directory for installing all BMC Software products. Enter the installation directory path or accept the default and click **Next**.

Note: Be sure you have write permissions for the directory where you plan to install PATROL Performance data collector or the installation will fail.

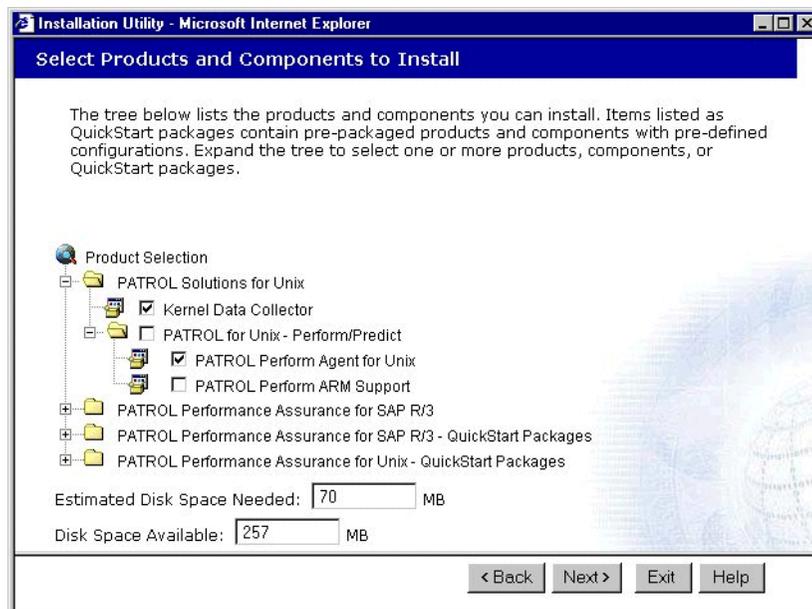
Figure 3-28 Specify Installation Directory Page



Note: The directory must be a directory on a local file system.

- Step 9** On the **Select Products and Components** page (Figure 3-29), expand the tree directory and select **Kernel Data Collector** under **PATROL Solutions for Unix** and **PATROL Perform Agent for Unix** under **PATROL for Unix - Perform/Predict**. When you are finished, click **Next**.

Figure 3-29 Select Products and Components Page



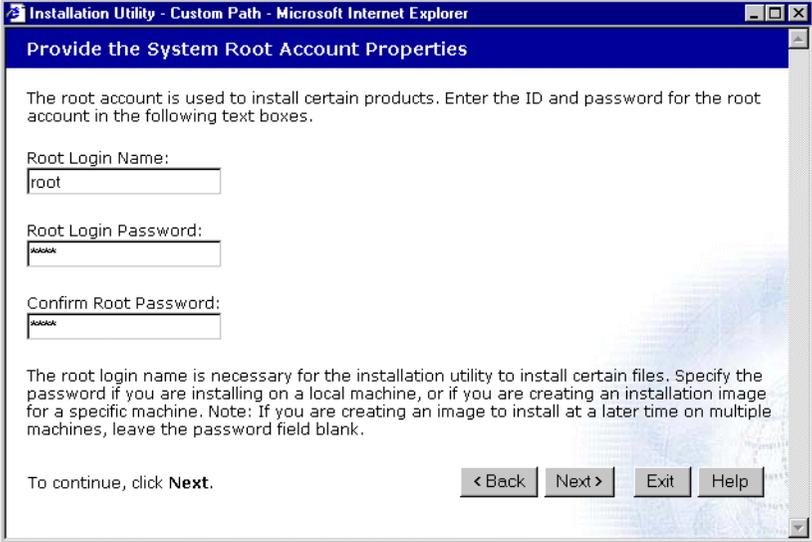
Step 10 On the **Provide the System Root Account Properties** page (Figure 3-30), enter the root login name and root login password and click **Next**. The root login name is necessary for the installation utility to install the Perform files that need the privileges of root ownership (such as **bgscollect**, the system collect program).

Specify the password in the **Root Login Password** and **Confirm Root Password** fields for the machine on which you are installing the product as follows:

- If you are installing on a local machine, specify the root login name and root login password for the local machine.
- If you are creating an installation image for a specific machine, specify the root login name and root login password for the target machine.

Note: If you are creating an image to install at a later time on multiple machines, leave the password field **blank**. You may need to supply different root passwords for the different machines on which you install the image. If you leave the password blank, or specify incorrectly, you must run the **b1config.sh** file manually, as described in Step 8 on page 3-79.

Figure 3-30 Provide the System Root Account Properties Page

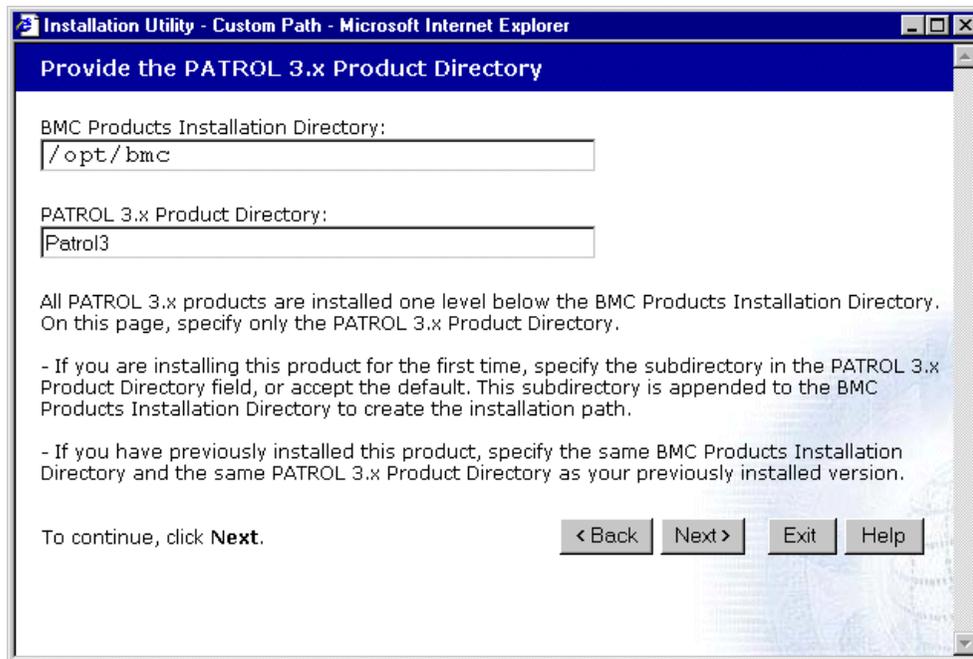


The screenshot shows a web browser window titled "Installation Utility - Custom Path - Microsoft Internet Explorer". The page has a blue header with the text "Provide the System Root Account Properties". Below the header, there is a paragraph: "The root account is used to install certain products. Enter the ID and password for the root account in the following text boxes." There are three text input fields: "Root Login Name:" with the value "root", "Root Login Password:" with masked characters "*****", and "Confirm Root Password:" with masked characters "*****". Below the fields is another paragraph: "The root login name is necessary for the installation utility to install certain files. Specify the password if you are installing on a local machine, or if you are creating an installation image for a specific machine. Note: If you are creating an image to install at a later time on multiple machines, leave the password field blank." At the bottom, there is a prompt "To continue, click **Next**." and four buttons: "< Back", "Next >", "Exit", and "Help".

Step 11 On the **Provide the PATROL 3.x Product Directory** page (Figure 3-31), you must specify where you want to install PATROL products and click **Next**. This subdirectory is appended to the BMC Products Installation Directory to create the full installation path.

Note: If you have previously installed this product, specify the same BMC Products Installation Directory and the same PATROL 3.x Product Directory as the previously installed version.

Figure 3-31 Provide the PATROL 3.x Product Directory Page



The screenshot shows a web browser window titled "Installation Utility - Custom Path - Microsoft Internet Explorer". The page has a blue header with the text "Provide the PATROL 3.x Product Directory". Below the header, there are two text input fields. The first field is labeled "BMC Products Installation Directory:" and contains the text "/opt/bmc". The second field is labeled "PATROL 3.x Product Directory:" and contains the text "Patrol3". Below the input fields, there is a paragraph of text: "All PATROL 3.x products are installed one level below the BMC Products Installation Directory. On this page, specify only the PATROL 3.x Product Directory." followed by two bullet points: "- If you are installing this product for the first time, specify the subdirectory in the PATROL 3.x Product Directory field, or accept the default. This subdirectory is appended to the BMC Products Installation Directory to create the installation path." and "- If you have previously installed this product, specify the same BMC Products Installation Directory and the same PATROL 3.x Product Directory as your previously installed version." At the bottom of the page, there is a line of text: "To continue, click **Next**." followed by four buttons: "< Back", "Next >", "Exit", and "Help".

Step 12 On the **Provide the PATROL Default Account Properties** page (Figure 3-32), enter your account login name and click **Next**.

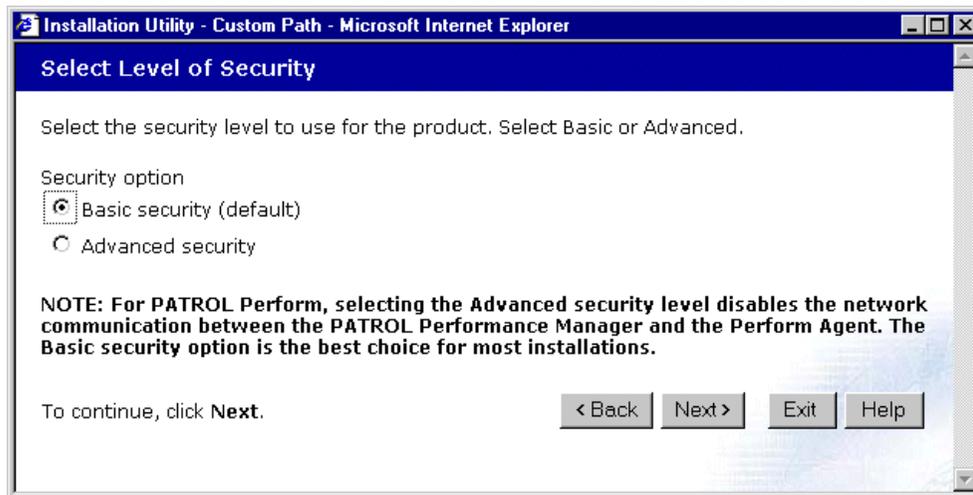
Note: You must create the default PATROL account before you run the installation utility or create and install an image of products. The installation utility asks for the user ID for the account during the installation procedure, but it **does not create the account for you**. For more details on setting up accounts for installation, see the *PATROL Installation Reference Manual* or see your system administrator.

Figure 3-32 PATROL Default Account Properties Page



- Step 13** On the **Select Level of Security** page (Figure 3-33), specify the security settings that are appropriate for your environment:
- 13.A** For **Security Option**, select **Basic Security**. This option does not restrict access to the Perform Agent and is appropriate for most installations. For PATROL Perform, selecting **Advanced Security** disables network communication between the PATROL Performance Manager and the Perform agent.
 - 13.B** Click **Next**.

Figure 3-33 Select Level of Security Page



- Step 14** On the **Perform Agent Properties - General** page (Figure 3-34), complete the following steps:
- 14.A** Choose to enable or disable the collection of historical data in the **History Collection** field. History data is used with the Investigate component. The default is to enable history collection. Deselect the box if you want to disable history collection.
 - 14.B** Specify the path names for the History Data and Collect Data data repositories and for the Unix Service Daemon, or accept the default paths. For more information about these repositories, see *Managing Performance with PATROL for Unix Performance* guide.
 - 14.C** In the **Default Link** field, leave this option selected to update the Collect Home environment variable to reference the new installation directory. Deselect this option if you choose not to update this link.
 - 14.D** Click the **Start PATROL Perform Agent** checkbox to start the Perform Agent automatically. Note that this option is not available if you chose Advanced Security on the Select Level of Security page.
 - 14.E** Click **Next**.

Figure 3-34 Perform Agent Properties Unix - General Page

Installation Utility - Custom Path - Microsoft Internet Explorer

Perform Agent Properties Unix - General

Specify the following general properties for the Perform Agent.

History Collection:
 Enable collection of historical data for Investigate.

Enter the path names for the following items.

Perform Unix History Data Repository Path:

Perform Unix Service Daemon Location:

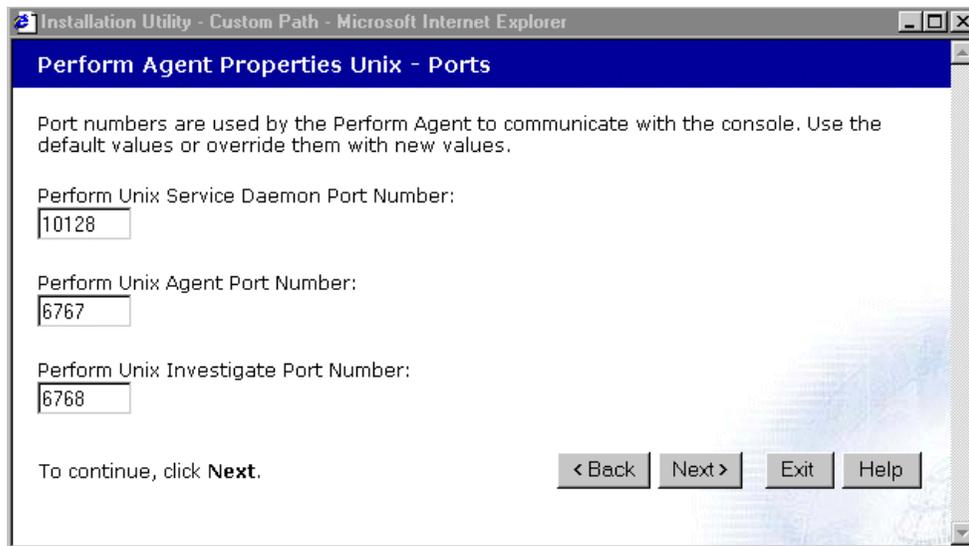
Perform Unix Collect Repository Path:

Default Link:
 Create Link /usr/adm/best1_default to create a new path for running data collectors.

Start PATROL Perform Agent:
 Start PATROL Perform Agent automatically.

To continue, click **Next**.

- Step 15** On the **Perform Agent Properties Unix - Ports** page (Figure 3-35), complete the following steps:
- 15.A** Specify the port number for the Perform Service Daemon, or accept the default. The Service Daemon resides on the remote node, communicates with Investigate and the Collect programs, and dynamically starts the Perform Agent.
 - 15.B** Specify the port number for the Perform Agent, or accept the default.
 - 15.C** Specify the port number for Investigate, or accept the default.
 - 15.D** Click **Next**.

Figure 3-35 Perform Agent Properties - Ports Page

Step 16 On the **Performance Migration Options** page (Figure 3-36), complete the following steps:

Note: This page is displayed only if you have a prior version of PATROL for Performance installed on the local computer.

16.A Select the Custom File Migration checkbox if you have customized any Perform product files and would like them migrated to the new version.

Note: Selecting this option migrates all of the configuration files in the **local/setup** directory.

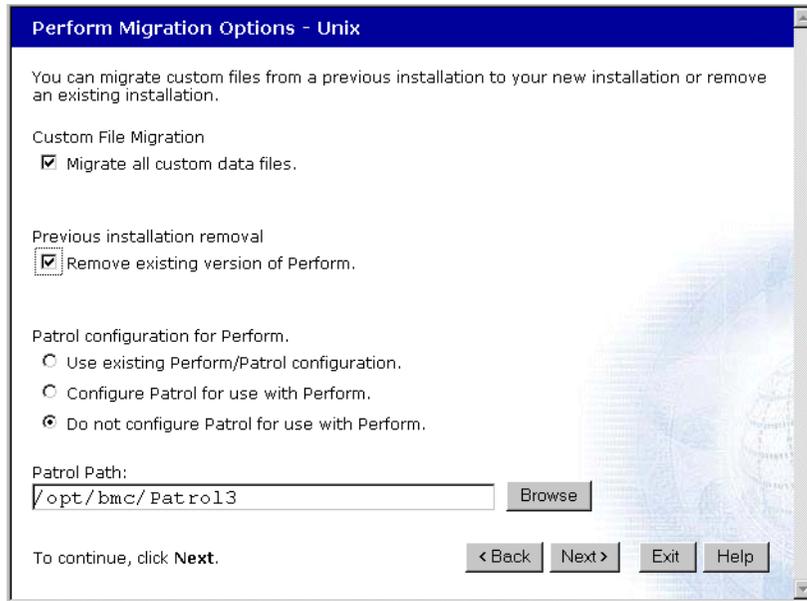
16.B To automatically uninstall the previous version of MAINVIEW for Linux – Servers, select **Remove existing version of Perform**. Should you have more than one version of Perform installed on the machine, the most recent version will be removed.

16.C Select the PATROL and Perform interoperability option, based on the following criteria:

- If you have existing versions of PATROL and Perform working together, and do not want to disable that connection, select **Use existing Perform/Patrol configuration**.
- If you want to have an existing version of PATROL work with this version of Perform, select **Configure PATROL for use with Perform**.

- If you do not have an existing version of PATROL or do not require that the products work together, select **Do not configure Patrol for use with Perform**.
- Enter the complete path name where the PATROL Agent is located in the **Patrol Path** field if you have PATROL and Perform versions that will interoperate.

Figure 3-36 Performance Migration Options Page



Step 17 View the **Review Selections and Install** page (Figure 3-37 on page 3-73) to verify that the PATROL for Performance installation process is complete. Note that any options that are left blank or have been deselected appear as blanks on this page. If corrections are needed, use the page’s Back button (do not use the browser back button) to return to previous pages.

When you are satisfied with your selections, click **Start Install**.

Figure 3-37 Review Selections and Install Page (PATROL for Performance)

Confirm the configuration settings below, then click START INSTALL. The products listed will be installed with the settings listed.

Selections	
PATROL Performance Manager	
Product Questions	
Question	Answer
BMC Products Base Directory	/opt/bmc
PATROL Default Account:	perform
Perform Unix Service Daemon Port Number:	10128
PATROL 3.x Product Directory:	Patrol3
Perform Unix Agent Port Number:	6767
Configure Perform Unix Populate:	TRUE
Perform Unix Collect Repository Path:	/opt/bmc/perform/collect
Perform Unix History Data Repository Path:	/opt/bmc/perform/history
Perform Patrol configuration.	None
Link Arm Config	
Create link to ARM library	None
Default Link:	y
Custom File Migration	y
Perform Unix Investigate Port Number:	6768
Oracle Home Directory:	oracle
Patrol Path:	/opt/bmc/Patrol3
Previous installation removal	y
Perform Unix Service Daemon Location:	/etc/bgs/SD
Start PATROL Perform Agent:	y
History Collection:	y
Security option	Basic
Root Login Name:	root
Disk space for Installation	
Disk Space Available	63 MB
Disk Space Required	216 MB

Step 18 At the **Installation Status** page, single-click **Next** after the page displays **100% Complete**. Do not close the browser at this point.

Step 19 At the **View Log** page, click **View Log File** to review the installation log file.

Step 20 Click **Finish** to end the installation and close the browser.

Creating an Installation Image for Another Computer

The installation utility installs only locally. However, the installation utility provides an option that allows you to create a product image that can be transferred to and installed locally on a remote computer.

If you are creating a product image to be distributed to other computers in your environment, you need to be aware that all of the product property questions that you are asked during the installation procedure, such as base directory location, agent port number, and other questions, will be the same for every computer where you install the product image.

If you want to specify different settings for different computers, you will have to create different product images for each computer or group of computers that require different settings. For detailed instructions on how to create, distribute, and install an image, see the PATROL Installation Guide.

Creating Images for Specific Operating Systems

You can create an image on one Unix operating system and install the image on another Unix operating system by launching the installation utility from a command line and using the `-repository_oslist` command line option as follows:

```
./setup.sh -repository_oslist OStag,OStag
```

where *OStag* is the valid operating system tag required by the installation utility to create an image that can be installed on a specific operating system. You must specify a tag for each operating system on which you want the image to install. Some operating systems may require two tags to package and install all components required by the products in the image.

Note: For example, to create an installable image on a computer running AIX 4.3.3 to be installed on AIX 4.3.3 (32-bit) and Solaris 2.7 (32-bit), HP-UX 11.00 (64-bit), and Red Hat Linux 7.1, you would enter the following command:

```
./setup.sh -repository_oslist aix_41,solaris.2732,  
hpux_1164,linux_24,linux_rh_71
```

Note: There are no spaces between the OS tags.

The following table lists the tags that you must enter for each operating system supported by the installation utility.

Table 3-16 OS Tags for Unix Installation Image (Part 1 of 3)

Target Operating System	Supported Versions	Valid <code>-repository_oslist</code> Tags Required
AIX (32-bit)	4.3.3	aix_41
AIX (64-bit)	4.3.3	aix_4364
AIX (32-bit)	5.1	aix_5132

Table 3-16 OS Tags for Unix Installation Image (Part 2 of 3)

Target Operating System	Supported Versions	Valid -repository _oslist Tags Required
AIX (64-bit with 32-bit kernel)	5.1	aix_5164, aix_513264
AIX (64-bit)	5.1	aix_5164
AIX (32-bit)	5.2	aix_5232
AIX (64-bit with 32-bit kernel)	5.2	aix_5264, aix_523264
AIX (64-bit)	5.2	aix_5264
HPUX (32 bit)	11.0	hpux_10.0, hpux_1132
HPUX (64 bit)	11.0	hpux_10.0, hpux_1164
HPUX (32 bit RISC)	11i (B11.11)	hpux_10.0, hpux_11.11_32
HPUX (64 bit RISC)	11i (B11.11)	hpux_10.0, hpux_1164, hpux_11.11_64
Linux Red Hat	7.1 7.2 7.3	linux_24, linux_rh_71
Linux Red Hat	OS/390/z Series 7.2	s390_rh_72
Linux Red Hat	Enterprise Linux AS 2.1 (i32) Enterprise Linux ES 2.1 (i32)	linux_rh_71
Linux Red Hat	Enterprise Linux AS 2.1 (Itanium 2)	linux_rh_21
Linux SuSE	7.1 7.2 7.3 8.0	linux_24, linux_suse_71
Linux SuSE	SLES 8 (i32)	suse_x86_81
Linux SuSE	SLES 8 on Itanium-2	suse_ia65_81
Linux SuSE (31-bit)	SLES 7 (7.2) zSeries	linux390_24, s390_suse_72
Linux SuSE (31-bit)	SLES 8 for zSeries	s390_suse_81
Linux SuSE (64-bit)	SLES 7 (7.2) zSeries	linux390_24, s390x_suse_72
Linux SuSE (64-bit)	SLES 8 for zSeries	s390_suse_81
Solaris (32 bit)	2.7/7	solaris.2732
Solaris (64 bit)	2.7/7	solaris.2764
Solaris (32 bit)	8	solaris.2832
Solaris (64 bit)	8	solaris.2864
Solaris (32 bit)	9	solaris.2932
Solaris (64 bit)	9	solaris.2964

Table 3-16 OS Tags for Unix Installation Image (Part 3 of 3)

Target Operating System	Supported Versions	Valid -repository _oslist Tags Required
Tru64	5.0A	dec_osf1_5.0
Tru64	5.1 5.1A 5.1B	dec_osf1_5.1

Example Procedure

The following example creates an export image for remote Unix or Linux computers.

Step 1 On any Unix node, mount the CD labeled PATROL Performance Assurance Solutions.

Note: If you are using the system console, the node needs an Internet browser Netscape version 4.70 - 4.77 or Microsoft Internet Explorer versions 5.0 and later. If it does not have a browser, use a telnet session to a Unix node with an Internet browser.

Step 2 Log on as user, not root.

Step 3 Change to the directory for the CD.

```
cd /cdrom
```

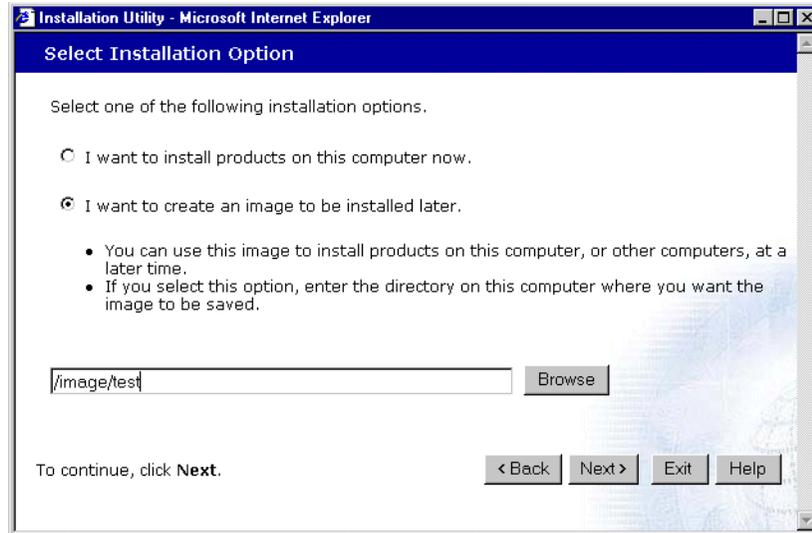
Step 4 Issue one of the following commands:

From	Issue
the system console	<code>./setup.sh -repository_oslist solaris.2764</code>
your PC or workstation	<p><code>./setup.sh -serveronly -repository_oslist solaris.2764</code></p> <p>Note: With the <code>-serveronly</code> command, you can start the Web server on one computer, then connect using a browser on another computer. Use this option if you do not have a browser on the computer where you want to install products. For unsecured networks, install products locally or create an installable image to distribute to remote systems.</p> <p>After a short time you see the following output:</p> <pre>----- To begin installation use browser to connect to http://123.12.12.12:5555/ -----</pre> <p>To start the installation utility, copy the http address and paste it into the Address field of your web browser. In this example, paste http://123.12.12.12:5555/ into the web browser.</p>

Step 5 Run the installation utility as described in “Run the Installation Utility” on page 3-60, with the following caveats:

- On the **Select Installation Option** page (Figure 3-38), choose **I want to create an image to be installed later**.

Figure 3-38 Select Installation Option Page - Create Install Image



- On the **Select Type of Installation** page, choose the **Typical** or **Custom** installation path.
- On the **Specify Installation Directory** page, you are specifying where the software is going to be installed on all your agent computers by default. However, you can change this directory when you install the software on the agent node. See Step 10 on page 3-66 for more information.
- On the **Product Selection** page, expand the **PATROL Solutions for Unix** folder and then the **PATROL for Unix Perform/Predict** folder. Verify that only **PATROL for Unix Perform/Predict**, **PATROL Perform ARM Support**, and the **PATROL Perform Agent for Unix** selections are checked. You may deselect the **ARM Support** option if it does not apply to your installation.
- On the **Provide the System Root Account Properties** page, leave the root password field blank.

- On the **Provide the PATROL Default Account Properties** page, provide the Patrol user name only if it is the same for all the remote computers for which you are creating the image. Provide the Patrol user password only if it is the same for all the computers. This gives ownership of the non-root files and directories to the Patrol user. Otherwise, ownership goes to the user installing the software. When you install the software on the agent node you have another chance to re-specify this information. See Step 10 on page 3-66 for more information.
- On the **Provide the PATROL 3.x Product Directory** page, enter a specific directory for the installation image only. For example: /tmp/export1. The installation software will create this directory if it does not already exist.

1. When finished, navigate to the new export directory.
2. List the files to verify that the following files and directories exists:
 - **install.ctf**
 - **install.sh**
 - Products
 - Install

3. Tar up the contents of this directory and distribute it to the base installation directory of each remote node.

After untarring the files, you may change the contents of the **install.ctf** file, such as the installation directory if you need to customize the installation.

4. Make the **install.ctf** file read-only, with 444 permissions. Otherwise the file will be overwritten during the installation process.
5. If a previous installation of PATROL Performance data collector exists on the node, issue the following command and ensure that all bgs processes are stopped:

```
/usr/adm/best1_default/bgs/scripts/best1agent_stop -B
/usr/adm/best1_default
```

6. Execute the **install.sh** script with no options. This installation is silent and returns nothing if successful:

```
./install.sh
```

7. Modify the **.b1config.sav** file to include a username after the PATROL_LOGIN field. This field cannot be left blank. For example:

```
PATROL_LOGIN patrol
```

8. Run **b1config.sh** as the root user.

Appendix A Adding New Linux Systems To Be Monitored

MAINVIEW for Linux – Servers is able to monitor up to 500 Linux systems per each Product Address Space (PAS) on z/OS and communication server (RTServer). If you need to monitor more than 500 Linux systems, you must create and start one PAS and one communication server for each set of 500 Linux systems.

This appendix discusses the following topics:

Adding Additional Linux Images	A-82
Configuring MAINVIEW for Linux – Servers for Scalability and Performance	A-83
Adding a New Communication Server	A-83
Adding a New PAS	A-85
Creating or Updating the Data Server ini File	A-87

Adding Additional Linux Images

The communication server determines which PAS monitors each Linux system. Each Linux system runs a process called a data server which points to the communication server using the `mmlsrv.ini` file parameters. Each PAS has its own `SYSIN` data set that points to the communication server (host name and port number). The PAS automatically discovers any Linux system data server connected to its communication server.

Note: These instructions describe how to set up one Linux system. You must replicate this information to each new Linux system you want to monitor. BMC Software recommends you use the method that you currently use to replicate applications or files to multiple Linux images (see “Sharing an Installation Across Multiple Linux Systems” on page 3-32).

To add new Linux systems to be monitored, you must do all of the following tasks:

- add a new communication server
- add a new PAS
- create an ini file

Figure A-1 One PAS Monitoring Up to 500 Linux Images

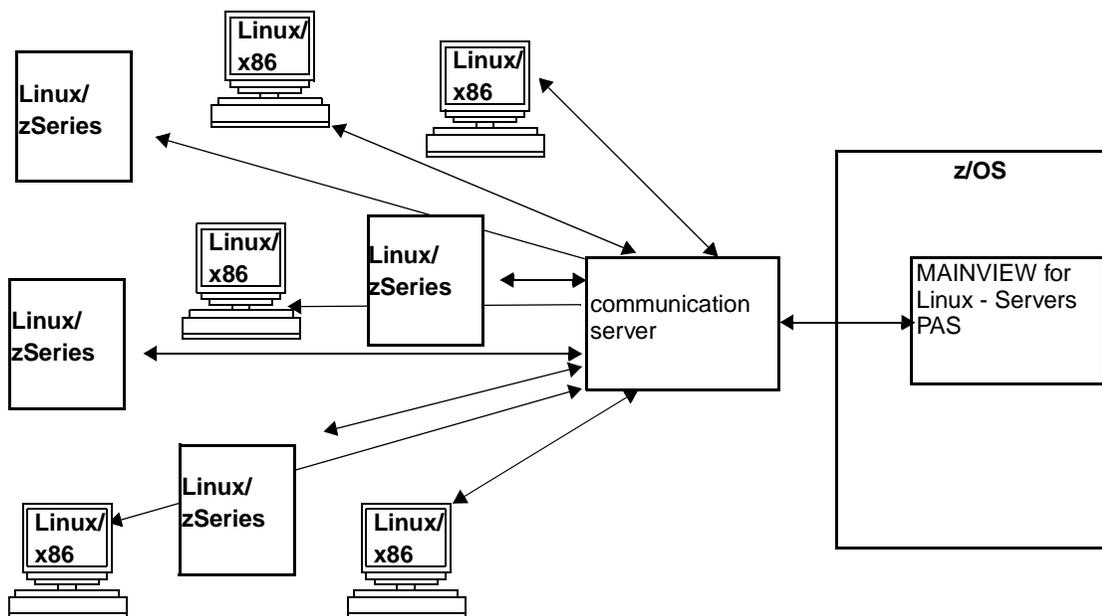
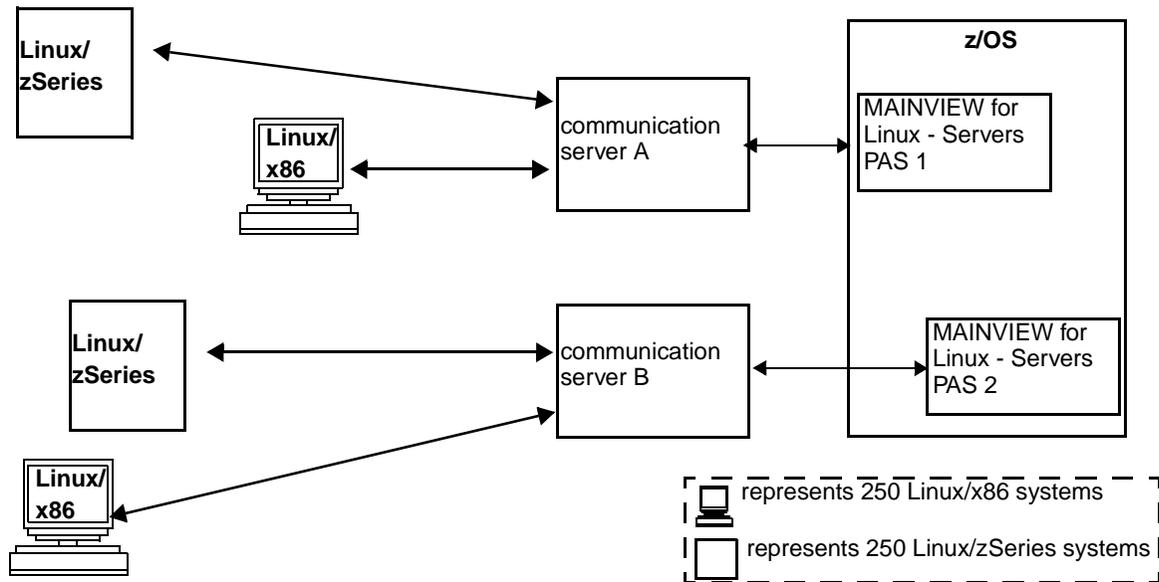


Figure A-2 Multiple PAS Monitoring Over 500 Linux Images



Configuring MAINVIEW for Linux – Servers for Scalability and Performance

If you are running more than twelve Linux images, you may want to add a rule to restrict the amount of history that you collect. BMC Software offers the following recommendations to reduce the historical data collected:

- Only collect history on the specific metric groups that you need to analyze (for example, process and kernel data).
- Only collect history on the specific Linux images on which problems are detected from analyzing the real-time data.

How to add a rule is described in the *MAINVIEW for Linux – Servers User Guide*.

Adding a New Communication Server

Each new communication server must have its own *rthome* data sets.

To add a new communication server, complete the following steps:

Step 1 Select *hilevel.BBSAMP* member *RTSRVJCL*.

A sample of the member is shown in Figure A-3.

Figure A-3 Sample BBSAMP Member RTSRVJCL

```

/*-----
/*
/* Change Log:
/*
/* Created by ?USER on ?DATE at ?TIME
/*
/*-----
/*
/*RTSERVER PROC HLQ='?BBCHILV',
/* PRM=' ',
/* ENV='=RTHOME=?RTHOME'
/*
/* Note: "stderr" in the PARM statement below must be in lower case
/*
/*RTSERVER EXEC PGM=RTSERVER,TIME=1440,REGION=0M,
/* PARM='&PRM &ENV =RTTIMESTAMPOUTPUT=1 =RTDEBUGFILENAME=stderr'
/*
/*STEPLIB DD DISP=SHR,DSN=&HLQ..PGMLIB
/* DD DISP=SHR,DSN=&HLQ..BBLINK
/*RTSLIB DD DISP=SHR,DSN=&HLQ..PGMLIB
/*MSGFILE DD DISP=SHR,DSN=&HLQ..STDTEXT(MESSAGE)
/*
/*SYSTEM DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
/*SYSPRINT DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
/*STDOUT DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
/*STDERR DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
/*SRVOUT DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
/*RTSERVER DD SYSOUT=*,DCB=(RECFM=VBA,LRECL=137)
***** Bottom of Data *****

```

Step 2 Copy the member to *hilevel.UBBSAMP* as *RTSRV2* or another unused member name.

Step 3 Change *?BBCHILV* to the high-level qualifier of the product libraries.

Step 4 Change *?RTHOME* to a high-level qualifier, such as *MVLNX.RTHOME2* (*rthome2*).

Warning! Multiple communication servers cannot share the same *rthome* high-level qualifier.

Note: The *rthome* high-level qualifier can be a maximum of two levels.

Step 5 Allocate two new data sets at the *rthome2* high-level qualifier:

- *rthome2.STANDARD.CM*
- *rthome2.STANDARD.TXT*

Step 6 Copy all members from *hilevel.STDCM* to *rthome2.STANDARD.CM*.

Step 7 Copy all members from *hilevel.STDTEXT* to *rthome2.STANDARD.TXT*.

Step 8 In *rthome2.STANDARD.CM*, rename RTSRVCM member to RTSERVER.

Figure A-4 Example of rthome2.STANDARD.CM RTSERVER Member

```
***** Top of Data *****
setopt default_protocols tcp
setopt conn_names tcp
setopt server_names UNKNOWN
setopt max_client_conns 512
/* */
/* Sample way of specifying different port */
/* setopt conn_names tcp:_node:5101 */
/* */
***** Bottom of Data *****
```

Step 9 In *rthome2.STANDARD.CM* data set RTSERVER member, uncomment the following statement (see Figure A-4:)

```
/* setopt conn_names tcp:_node:5101 */
```

The uncommented statement should look like the following statement:

```
setopt conn_names tcp:_node:5101
```

Note: If you are adding new Linux systems, port 5101 will already be in use. Change the number to an unused port number, for example 5102.

- Step 10** Copy *hilevel.UBBSAMP* member RTSRV2 to your system procedure library as member RTSERVR2 (or choose another procedure name).
- Step 11** Edit the *rthome2.STANDARD.CM* data set TCPNAME member to contain the name of the TCP/IP address space.
- Step 12** Add the new procedure name to your system startup parameter library (for example, SYS1.PARMLIB(COMMNDxx)).

Adding a New PAS

There are several data sets allocated for each PAS. Some data sets can be shared among PASs. The others cannot be shared. Table A-1 describes the data sets that are allocated for each PAS.

Table A-1 Data Sets Allocated for Each PAS

Data set	Shared or Not Shared	Description
BBIPARM	shared	various customized MAINVIEW parameters
BBSECURE	shared	customized MAINVIEW view/action security resource specifications
BMCPSWD	shared	product license authorization password
SYSIN	not shared	startup/initialization parameters. The SYSIN data set cannot be shared. You must allocated a new one for each new PAS.
MMLDATA	shared	monitor rules These rules are updated by the ADLRULER and ADLRULDR views. For more information on these views see the <i>MAINVIEW for Linux – Servers User Guide</i> .
MMLIMAGE	not shared	list of automatically discovered Linux systems
HISTDSxx	not shared	history datasets

Step 1 Copy hilevel.UBBPARM member MMLPRM00 (for example, MMLPRM02).

Step 2 Change or add the following parameters in MMLPRMxx:

- SUBSYSID=*PAS ssid (MML2 or choose another subsystem ID)*
- COMMHOST=*Communication Server host name of the new communication server you created (see “Adding Additional Linux Images” on page A-82)*
- COMMPORT=*Communication Server port number of the new communication server you created (see “Adding Additional Linux Images” on page A-82)*

Figure A-5 Example SYSIN Data Set

```
SUBSYSID=MML2,
COMMHOST=SYSB,
COMMPORT=5101,
END
```

Step 3 Allocate a new image data (see “Task 5—Allocating the MAINVIEW for Linux – Servers Image Data Set” on page 3-28).

Step 4 Allocate new history data sets (see “Task 7—Allocating the MAINVIEW for Linux – Servers History Data Set” on page 3-31).

- Step 5** Using the current PAS (MMLPAS) started task procedure as an example, create another procedure where the SYSIN DD statement points to the new MMLPRMxx member created in Step 1 and the MMLIMAGE DD statement points to the new image data set that you allocated in Step 3, and the HISTDSxx DD statements point to the history datasets allocated in Step 4.
- Step 6** Add the new PAS procedure to your system startup parameter library (for example, SYS1.PARMLIB(COMMNDxx).
- Step 7** Start the MAINVIEW for Linux – Servers PAS (see Appendix B, “Managing the Components”).
- Step 8** Start the communication server (see Appendix B, “Managing the Components”).
- Step 9** Start the data servers (see Appendix B, “Managing the Components”).

Creating or Updating the Data Server ini File

Once you add a new communication server to monitor your new Linux systems, you need to update the data server ini file (mmlsrv.ini) to point to the new communication server (RTServer) host name and port number that you specified in Step 2 of “Adding a New PAS.” For more information on how to update the data server ini file, see “Creating or Updating the Data Server ini File” on page B-95.

Appendix B Managing the Components

MAINVIEW for Linux – Servers uses the following components to collect and display information about the monitored Linux systems:

- MAINVIEW for Linux – Servers Product Address Space (PAS)
- communication server
- Linux data server
- PATROL for Performance Assurance data collector
- VM data server
- one of the following VM monitors or monitor readers
 - BMC Software’s VM Monitor Reader
 - ESAMON and zMON by Velocity Software
 - FCON/ESA by IBM
 - Performance Toolkit by IBM
 - RTM by IBM

Occasionally, you may need to start or stop one or more of these components. This appendix discusses the following topics:

Managing the MAINVIEW for Linux – Servers PAS	B-90
Starting the MAINVIEW for Linux – Servers PAS	B-90
Stopping the MAINVIEW for Linux – Servers PAS	B-91
Managing the Communication Server	B-91
Starting the Communication Server	B-91
Stopping the Communication Server	B-92
Managing the Data Server	B-92
Starting the Data Server	B-92
Stopping the Data Server	B-93
Servicing or Upgrading the Data Server	B-93
Creating or Updating the Data Server ini File	B-95
Managing the Data Collector	B-95
Stopping the Data Collector	B-96
Managing the VM Data Server	B-96

Starting the VM Data Server	B-97
Stopping the VM Data Server.....	B-97
Servicing or Upgrading the VM Data Server	B-98
Updating the VM Data Server ini File	B-100
Updating the VM Data Server PROFILE EXEC	B-103
Managing BMC Software’s VM Monitor Reader.....	B-104
Starting BMC Software’s VM Monitor Reader	B-105
Stopping BMC Software’s VM Monitor Reader	B-105
Updating BMC Software’s VM Monitor Reader	B-106

Managing the MAINVIEW for Linux – Servers PAS

MAINVIEW for Linux – Servers PAS runs as a z/OS subsystem. The PAS requests data from the monitored Linux systems as views are displayed. You must start the MAINVIEW for Linux – Servers PAS to display data in the views.

Starting the MAINVIEW for Linux – Servers PAS

To start the MAINVIEW for Linux – Servers PAS, complete the following steps:

Step 1 Verify that the JCL used to start the MAINVIEW for Linux – Servers PAS has been created (see “Task 8—Creating the MAINVIEW for Linux – Servers Product Address Space (PAS) JCL Startup Procedure” on page 3-34).

Step 2 Verify the procedure name.

Step 3 From the z/OS operator console, enter the START command:

```
START procname
```

Step 4 Look for the following console messages that verify a successful MAINVIEW for Linux – Servers PAS initialization:

```
BMC285010I MAINVIEW for Linux PAS initialization
completed.
BMC285021I MAINVIEW for Linux connection to CAS has been
established.
```

Stopping the MAINVIEW for Linux – Servers PAS

Once the MAINVIEW for Linux – Servers PAS is operational, you may want to stop it for some reason. To stop the MAINVIEW for Linux – Servers PAS, complete the following steps:

Step 1 Verify the procedure name for the MAINVIEW for Linux – Servers PAS you want to stop.

Step 2 From the z/OS operator console, enter the STOP command:

P *procname*

Or, you can enter the PAS SHUTDOWN command from the z/OS operator console:

subsystemname **SHUTDOWN** (for see “Task 4—Creating the MAINVIEW for Linux – Servers Product Address Space (PAS) SYSIN Member” on page 3-24).

Note: BMC Software recommends using the STOP command or the PAS SHUTDOWN command rather than the CANCEL command to stop the MAINVIEW for Linux – Servers PAS.

Managing the Communication Server

The communication server provides the capability of passing messages between MAINVIEW for Linux – Servers PAS and the data servers of the Linux images that it is monitoring. The communication server is also known as the RTServer.

Starting the Communication Server

To start the communication server, complete the following steps:

Step 1 Verify that the JCL used to start the communication server has been created (see “Creating the RTserver JCL Startup Procedure” on page 3-9).

Step 2 Verify the procedure name.

Step 3 From the z/OS operator console, enter the START command:

START *procname*

- Step 4** Look for the following console messages that verify a successful communication server initialization:

```
TAL1091I Creating conns to accept connections on
TAL1092I Creating conn <tcp> to listen for connections
TAL1300I Connecting to other RTserver processes
TAL1301I The option server_names is UNKNOWN: cannot
connect to other RTservers.
TAL1198I RTserver started successfully
```

Stopping the Communication Server

To stop the communication server, complete the following steps:

- Step 1** Verify the procedure name for the communication server that you want to stop.
- Step 2** From the z/OS operator console, enter the STOP command:

P *procname*

Managing the Data Server

A data server resides on each monitored Linux image. The data server sends data that is provided by the data collector to the MAINVIEW for Linux – Servers PAS through the communication server.

Starting the Data Server

To start the data server, complete the following steps:

- Step 1** Login to the Linux system as root.
- Step 2** From the Linux system, enter the following command:

mmldsrv start

Note: The data server writes log messages to a the mmldsrv.log file in the /var/BMCS/mml directory.

Stopping the Data Server

To stop the data server, complete the following steps:

- Step 1** Login to the Linux system as root.
- Step 2** From the Linux system, enter the following command:

```
mmlsrv stop
```

Servicing or Upgrading the Data Server

This section describes how to service or upgrade a data server. The procedures to upgrade or service a data server vary if you have a shared Linux installation or a non-shared Linux installation. For more information on a shared Linux installation, see “Sharing an Installation Across Multiple Linux Systems” on page 3-32.

Servicing or Upgrading a Shared Data Server

To service or upgrade the data server on a shared Linux installation, complete the following steps:

- Step 1** FTP the data server files by running the job that you created in “Task 9—Creating a Job to FTP the Data Server Installation Files to a Linux System” on page 3-27.
- Step 2** Stop the data servers on all primary and secondary Linux systems (see “Stopping the Data Server” on page B-93).
- Step 3** Login as root to the primary Linux system.
- Step 4** Type the following commands:

```
rpm -e package_name
```

where *package_name* indicates the RPM package name. For example, the package name for MAINVIEW for Linux – Servers version 1.3 is bmcmm1-1.3-0.

```
rpm -i /tmp/file_name
```

where *file_name* indicates the correct file name of the Linux distribution that you are running (see Table B-1).

See “Task 9—Creating a Job to FTP the Data Server Installation Files to a Linux System” on page 3-27 for more information.

Table B-1 File Names

File Name	Distribution
MMLDS390	all supported Linux distributions for the z/OS or S/390 platforms
MMLDX86	all supported Linux distributions for the x86 platform

Step 5 Type the following command from the primary and secondary Linux systems as root user:

`/opt/BMCS/mml/mmludins.sh`

Step 6 Restart all of the Linux systems.

Note: It is necessary to restart each Linux system because the updates to the read-only disks cannot be detected by the secondary Linux systems, until each Linux system is restarted.

Servicing or Upgrading a Non-Shared Data Server

To apply maintenance or upgrade the data server on a non-shared Linux installation, complete the following steps:

Step 1 FTP the data server files by running the job that you created in “Task 9—Creating a Job to FTP the Data Server Installation Files to a Linux System” on page 3-27.

Step 2 Log on as root.

Step 3 Stop the data server on Linux system (see “Stopping the Data Server” on page B-93).

Step 4 From the Linux system, type the following commands:

`rpm -e package_name`

where *package_name* indicates the RPM package name. For example, the package name for MAINVIEW for Linux – Servers version 1.3 is bmcmm1-1.3-0.

`rpm -i /tmp/file_name`

where *file_name* indicates the correct file name of the Linux distribution that you are running (see Table B-1).

See also “Task 9—Creating a Job to FTP the Data Server Installation Files to a Linux System” on page 3-27 for more information. Type the following command from the Linux system:

```
/opt/BMCS/mml/mmludins.sh
```

Step 5 Type the following command from the Linux system:

```
mmlsrv start
```

Creating or Updating the Data Server ini File

To create or update the mmlsrv.ini file, enter the following command from the Linux instance that you want to point to the new communication server:

```
mmlsrv edit
```

This command starts a script that prompts you for the communication server host name and port number that you specified in Step 2 of “Adding a New PAS” on page A-85. Once you enter the communication server host name and port number, the ini file is automatically updated with this information.

Managing the Data Collector

A data collector resides on each monitored Linux image. Each data collector gathers data from the monitored Linux image and provides the data to the data server, which sends the data to the MAINVIEW for Linux – Servers PAS through the communication server.

The data collector is automatically started and stopped by the data server (see “Starting the Data Server” on page B-92).

Stopping the Data Collector

The data collector is controlled by the data server. The data collector automatically stops shortly after the data server stops, unless another product is using the data collector. If you must manually stop the data collector, complete the following steps:

Warning! You may have other BMC Software products installed that use the PATROL for Performance data collector. Shutting down the data collector will impact those products that are using the same data collector.

Step 1 Login to the Linux system as root.

Step 2 From the Linux system, enter the following command to obtain the data collector process id:

```
ps -ef | grep bgscollect
```

Step 3 Obtain the process ID for the data collector.

Step 4 Enter the following command:

```
kill -HUP pid
```

where *pid* is the bgscollect process ID.

Managing the VM Data Server

A VM data server resides on each VM system which has Linux virtual machines running on it. Each VM data server obtains data from one of the following monitors or monitor readers and sends the data to the MAINVIEW for Linux – Servers PAS through the communication server.

- BMC Software’s VM Monitor Reader
- ESAMON or zMON by Velocity Software
- FCON/ESA by IBM
- Performance Toolkit by IBM
- RTM by IBM

You can specify an optional parameter to the MMLVSRV command. Table B-2 on page B-97 describes the functions of each of these parameters.

Table B-2 MMLVSRV Parameters

Command and Parameter	Description
mmlvsrv start [userid]	starts the VM data server
mmlvsrv stop [userid]	stops the VM data server
mmlvsrv edit	allows you to edit the VM data server ini file ^a
mmlvsrv status [userid]	allows you to verify that the VM data server user ID is logged on

^a BMC Software recommends that you use the BMC Standard Install for VM to edit the VM data server ini file. See "Updating the VM Data Server ini File" on page B-100 for instructions on how to edit the VM data server ini file using the BMC Standard Install for VM.

Starting the VM Data Server

To start the VM data server, complete one of the following procedures.

- Type the following command from the VM system operator console or from the MMLVSRV (default data server) virtual machine console:

mmlvsrv start *userid*

where *userid* is the userid of the virtual machine that is running the data server. The *userid* parameter is optional.

Note: The MMLVSRV EXEC must be on a disk that is accessible by the system operator.

- If MMLVSRV VM data server userid is not logged on, type the following command from the operator console:

XAUTOLOG *userid*

Stopping the VM Data Server

To stop the VM data server, complete one of the following procedures.

- Type the following command from the VM system operator console:

mmlvsrv stop *userid*

where *userid* is the userid of the virtual machine that is running the data server. The *userid* parameter is optional.

Note: The MMLVSRV EXEC must be on a disk that is accessible by the system operator.

- Type the following command from the data server virtual machine operator console:

mmlstop

- Type the following command from a Single Console Image Facility (SCIF) console:

CP SEND MMLVSRV mmlstop

Servicing or Upgrading the VM Data Server

You must use the BMC Standard Install to apply maintenance or upgrade the VM data server. To upgrade the VM data server, complete the following steps:

Step 1 Run the FTP job to send the updated VMARC file from z/OS to z/VM BMCINSTL -191 minidisk. For more information, see “Task 11—Creating a Job to FTP the VM Installation Files to a VM System” on page 3-41.

Step 2 Stop the VM data server. See “Stopping the VM Data Server” on page B-97.

Step 3 Log on to BMCINSTL.

Step 4 Issue the following command to start the BMC Standard Install for VM:

BMCINSTL

Step 5 Press **Enter**.

This will display the BMC Standard Install for VM menu (shown in Figure B-1 on page B-99).

Figure B-1 BMC Standard Install for VM

```

MM/DD/YY                BMC Standard Install for VM                10:08:37
                        V1.1.01

Following is a list of the VM products/components which have been
installed, uninstalled or may be installed by BMCINSTL.

                                Date                Date
                                Installed             Uninstalled
Cmd Product Description          v.r.mm
_  MAINVIEW for Linux - Servers  1.3.00 MM/DD/YYYY
_  BMC VM Monitor Reader         1.1.00 MM/DD/YYYY

                                Copyright 2003 BMC Software, Inc. All rights reserved.

PF1= Help   PF3= Exit   PF5= Option List

```

Step 6 Type **I** next to the MAINVIEW for Linux – Servers option to re-install the VM data server for MAINVIEW for Linux – Servers.

Step 7 Press **Enter**.

This will display the Product Reinstall Verification screen (shown in Figure B-1).

Figure B-2 Product Reinstall Verification Screen

```

MM/DD/YY          BMC Standard Install for VM          13:58:43
                   V1.1.01

Following is a list of the VM products/components which have been
installe +-----+
          |          Product Reinstall Verify          |
          |-----+-----+
Cmd Prod | Are you sure you want to completely reinstall the |   Date
I  MAIN | following product to MMLVSRV 0120?                | Uninstalled
      | MAIN |                                                    | -
      | BMC | MAINVIEW for Linux - Servers V1.3.00          | -
      | BMC |                                                    | -
          |          N      (Yes or No)                    |
          +-----+-----+
          |                                                    | d.
  
```

Step 8 Type **Y** to install the upgraded VM data server or **N** to cancel the installation.

Step 9 Start the VM data server, see “Starting the VM Data Server” on page B-97.

Updating the VM Data Server ini File

The VM data server ini file is updated using The BMC Standard Install for VM.

Updating the VM data server ini File

To update the VM data server ini file, complete the following steps:

Step 1 Stop the VM data server, see “Stopping the VM Data Server” on page B-97.

Step 2 Log on to the BMC Standard Install for VM (BMCINSTL) virtual machine userid.

Step 3 Issue the following command to start the BMC Standard Install for VM:

BMCINSTL

Step 4 Press **Enter**.

This will display the BMC Standard Install for VM menu (shown in Figure B-1 on page B-99).

Step 5 Type **C** next to the MAINVIEW for Linux – Servers option to update the VM data server.

Step 6 Press **Enter**.

This will display the MAINVIEW for Linux – Servers Configuration menu (shown in Figure B-3).

Figure B-3 MAINVIEW for Linux – Servers Configuration Menu

```
MM/DD/YY          MAINVIEW for Linux - Servers configuration          09:57:54
                   V1.3.00

Place a "S" beside the option you wish to perform

                   _ Modify the servers INI file
                   _ Modify PROFILE EXEC

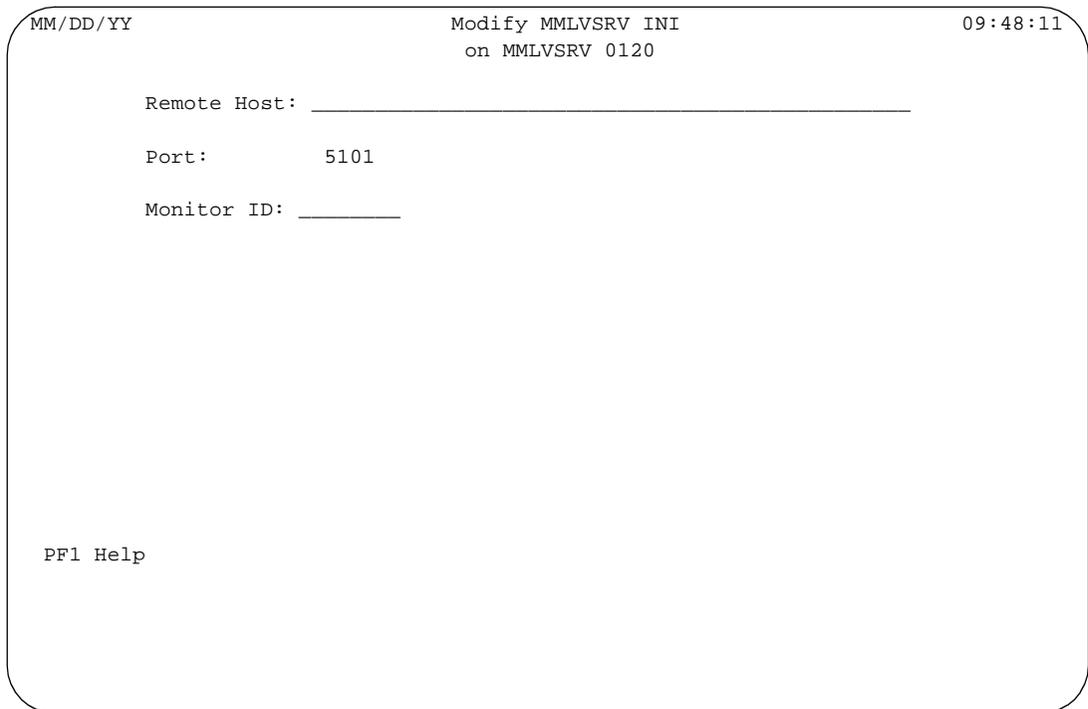
PF1= Help      PF3= Exit
```

Step 7 Type **S** next to the **Modify the servers INI file** option to update the VM data server ini file.

Step 8 Press **Enter**.

This will display the Modify MMLVSRV INI screen (shown in Figure B-4 on page B-102).

Figure B-4 Modify MMLVSRV INI Screen



Step 9 Edit the necessary fields. These fields are described in Table B-3.

Table B-3 VM Data Server ini File Screen Fields

Field	Description
Remote Host	host name of the communication server (alphanumeric)
Port	port number of the communication server (numeric)
Monitor ID	userid of the virtual machine running a VM real-time performance monitor or the BMC Software VM Monitor Reader

Step 10 Press **Enter**.

Step 11 Start the VM data server. For more information, see “Starting the VM Data Server” on page B-97.

Updating the VM Data Server PROFILE EXEC

The VM data server PROFILE EXEC is updated using The BMC Standard Install for VM.

Updating the VM data server PROFILE EXEC

To update the VM data server PROFILE EXEC, complete the following steps:

Step 1 Stop the VM data server, see “Stopping the VM Data Server” on page B-97.

Step 2 Log on to the BMC Standard Install for VM virtual machine userid (BMCINSTL).

Step 3 Issue the following command to start the BMC Standard Install for VM:

BMCINSTL

Step 4 Press **Enter**.

This will display the BMC Standard Install for VM menu (shown in Figure B-1 on page B-99).

Step 5 Type **C** next to the MAINVIEW for Linux – Servers option to update the VM data server PROFILE EXEC.

Step 6 Press **Enter**.

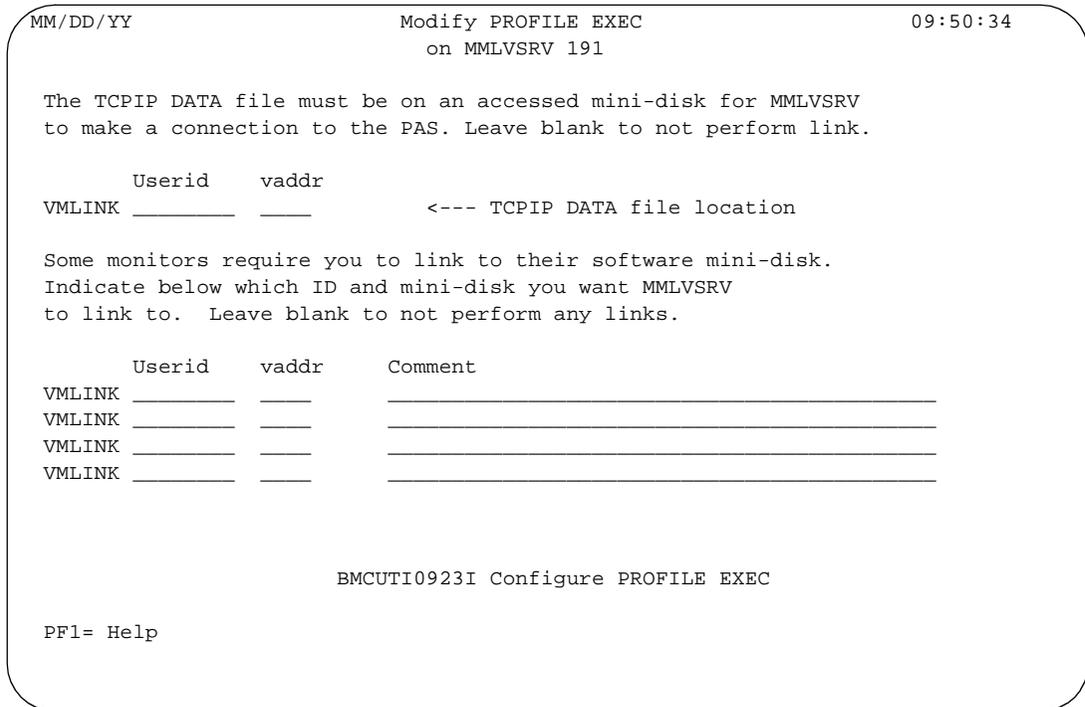
This will display the MAINVIEW for Linux – Servers Configuration menu (shown in Figure B-3 on page B-101).

Step 7 Type **S** next to the **Modify PROFILE EXEC** option to update the VM data server ini file.

Step 8 Press **Enter**.

The Modify PROFILE EXEC screen is displayed (shown in Figure B-5 on page B-104).

Figure B-5 Modify PROFILE EXEC Screen



Step 1 Update the necessary fields.

For example, if you choose to use BMC Software's VM Monitor Reader to obtain VM performance data, enter the following information:

Field	Value
Userid	VMMAVMSR
vaddr	1100

Step 2 Press **Enter**.

Managing BMC Software's VM Monitor Reader

BMC Software's VM Monitor Reader is packaged with this version of MAINVIEW for Linux – Servers. The BMC Software VM Monitor Reader runs in its own virtual machine (VMMAVMSR). This section describes how to start and stop BMC Software's VM Monitor Reader.

Starting BMC Software's VM Monitor Reader

To start BMC Software's VM Monitor Reader, complete the following steps:

Step 1 Log on to the MMLVSRV virtual machine.

Step 2 Issue the following command:

'XAUTOLOG *mon-rdr-vm*'

The variable *mon-rdr-vm* is the name of BMC Software's VM Monitor Reader virtual machine. The default name is VMMAVMSR.

Stopping BMC Software's VM Monitor Reader

To stop BMC Software's VM Monitor Reader, complete one of the following two procedures.

Option One

Step 1 Log on to the MMLVSRV virtual machine.

Step 2 Issue the following command:

'VMMAVMCL SHUTDOWN (SERVER *mon-rdr-vm*'

The variable *mon-rdr-vm* is the name of BMC Software's VM Monitor Reader virtual machine. If *mon-rdr-vm* is the default name, VMMAVMSR, you do not need the SERVER parameter.

Option Two

- Step 1** Log on to the BMC Software VM Monitor Reader virtual machine (default = VMMAVMSR).
- Step 2** Issue the either the **QUIT** command or the **VMMSTOP** command.

Updating BMC Software's VM Monitor Reader

You must use the BMC Standard Install to apply maintenance or upgrade the the BMC Software VM Monitor Reader. To upgrade the BMC Software VM Monitor Reader, complete following steps:

- Step 1** Stop the BMC Software VM Monitor Reader, see “Stopping BMC Software's VM Monitor Reader” on page B-105.
- Step 2** Run the FTP job to send the updated VMARC file from z/OS to z/VM BMCINSTL -191 minidisk (see “Task 11—Creating a Job to FTP the VM Installation Files to a VM System” on page 3-41).
- Step 3** Log on to BMCINSTL.
- Step 4** Issue the following command to start the BMC Standard Install for VM:

BMCINSTL
- Step 5** Press **Enter**.

This will display the BMC Standard Install for VM menu (shown in Figure B-1 on page B-99).
- Step 6** Type **I** next to the MAINVIEW for Linux – Servers option to re-install the VM data server for MAINVIEW for Linux – Servers.
- Step 7** Press **Enter**.

This will display the Product Reinstall Verification screen (shown in Figure B-2 on page B-100).
- Step 8** Type **Y** to install the upgraded BMC Software VM Monitor Reader or **N** to cancel the installation.
- Step 9** Start the BMC Software VM Monitor Reader, see “Starting BMC Software's VM Monitor Reader” on page B-105.

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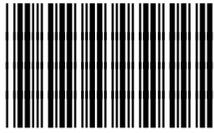
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