

# Maximo Asset Management Essentials V7.1 Implementer's Guide

Address the needs of general business  
clients

Plan a deployment

Configure the  
environment



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International Technical Support Organization

**Maximo Asset Management Essentials V7.1  
Implementer's Guide**

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

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# Contents

|  |      |
|--|------|
| <b>Notices</b> .....   | vii  |
| Trademarks .....   | viii |
| <b>Preface</b> .....   | ix   |
| The team that wrote this book .....  | ix   |
| Become a published author .....  | xii  |
| Comments welcome .....   | xii  |
| <b>Chapter 1. Introduction to Maximo Asset Management Essentials</b> ..... | 1    |
| 1.1 Enterprise asset management overview .....                             | 2    |
| 1.2 Maximo Asset Management Essentials .....                               | 3    |
| 1.2.1 Functional overview .....  | 4    |
| 1.2.2 Modules .....  | 4    |
| 1.2.3 Integrating with existing enterprise applications .....              | 7    |
| <b>Chapter 2. Maximo Asset Management Essentials V7.1</b> .....            | 9    |
| 2.1 Differences with Maximo Asset Management enterprise edition .....      | 11   |
| <b>Chapter 3. Project planning</b> .....                                   | 17   |
| 3.1 Required skills .....  | 18   |
| 3.2 Solution description and assumptions .....                             | 21   |
| 3.3 Task breakdown .....   | 22   |
| <b>Chapter 4. Solution environment</b> .....                               | 29   |
| 4.1 Hardware and software requirements .....                               | 30   |
| 4.2 Typical deployment environments .....                                  | 33   |
| 4.2.1 Single-server .....  | 33   |
| 4.2.2 Multiserver .....  | 34   |
| 4.3 Sizing considerations .....  | 35   |
| 4.4 Maximo Asset Management Essentials supported platforms .....           | 37   |
| <b>Chapter 5. Installation</b> .....                                       | 39   |
| 5.1 Preinstallation checklist .....  | 40   |
| 5.1.1 Hardware and software considerations .....                           | 40   |
| 5.1.2 Verifying the DVD content .....                                      | 40   |
| 5.1.3 Backup and snapshot management .....                                 | 41   |
| 5.1.4 JDK and JRE .....  | 41   |
| 5.1.5 Internet browser .....   | 41   |
| 5.1.6 Disabling the firewall .....   | 41   |

|                   |  |            |
|-------------------|--|------------|
| 5.1.7             | Deleting the TEMP and TMP user environment variables     | 41         |
| 5.1.8             | Verifying required installation of rpm-build package     | 42         |
| 5.1.9             | Setting the ulimit                                       | 42         |
| 5.1.10            | Setting the swap size                                    | 43         |
| 5.1.11            | Setting shared memory                                    | 43         |
| 5.1.12            | Enabling remote configuration                            | 44         |
| 5.2               | Installation flowchart                                   | 44         |
| 5.3               | Middleware installation                                  | 47         |
| 5.3.1             | Middleware installation overview                         | 47         |
| 5.3.2             | Middleware installer logs                                | 58         |
| 5.4               | Installing Maximo core components                        | 60         |
| 5.4.1             | Maximo Asset Management Essentials installation overview | 60         |
| 5.4.2             | Maximo Asset Management Essentials installation          | 61         |
| 5.4.3             | After Maximo Essentials base services installation       | 78         |
| 5.5               | Process solution package installation                    | 80         |
| 5.5.1             | Pre-Process Solution package installation checklist      | 81         |
| 5.5.2             | Enable Maximo Asset Management Essentials license        | 82         |
| 5.6               | Post-installation tasks                                  | 87         |
| 5.6.1             | Ensuring relevant Maximo services are running            | 88         |
| 5.6.2             | Ensuring connectivity to the Maximo application          | 88         |
| 5.6.3             | Ensuring the Language Pack installation is functional    | 89         |
| 5.6.4             | Ensuring client connectivity                             | 89         |
| 5.6.5             | Checking report administration                           | 89         |
| 5.6.6             | Configuring Attached Documents                           | 95         |
| 5.6.7             | Ensuring relevant cron tasks are working and enabled     | 99         |
| 5.6.8             | Backing up the environment                               | 100        |
| 5.6.9             | Automating the backup procedure                          | 100        |
| 5.6.10            | Assessing the server workload                            | 100        |
| 5.6.11            | Client local or regional properties                      | 101        |
| 5.6.12            | Enabling Internet and firewall security                  | 101        |
| 5.6.13            | Setting up SMTP mail exchange server                     | 102        |
| 5.6.14            | Authenticating LDAP through Virtual Member Management    | 102        |
| 5.7               | Setting the system and logging properties                | 103        |
| 5.7.1             | System Properties application                            | 103        |
| 5.7.2             | Logging application                                      | 105        |
| <b>Chapter 6.</b> | <b>Configuration</b>                                     | <b>107</b> |
| 6.1               | Getting started  | 108        |
| 6.1.1             | Managing users   | 108        |
| 6.1.2             | Organization and site setup                              | 109        |
| 6.1.3             | Initial configuration and data import sequence           | 115        |
| 6.2               | BIRT reports   | 117        |
| 6.2.1             | Administering reports                                    | 118        |

|  |            |
|--|------------|
| 6.2.2 Configuring BIRT reports .....                         | 120        |
| 6.2.3 Running BIRT reports .....                             | 123        |
| <b>Appendix A. Summary of modules and applications .....</b> | <b>127</b> |
| <b>Related publications .....</b>                            | <b>137</b> |
| IBM Redbooks .....   | 137        |
| Online resources .....                                       | 137        |
| How to get Redbooks .....                                    | 137        |
| Help from IBM .....  | 137        |
| <b>Index .....</b>   | <b>139</b> |





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# Preface

This IBM® Redbooks® publication is a guide to implementing Maximo® Asset Management Essentials. It provides general product information and covers the planning, installation, and initial configuration processes.

An entry-level member of the IBM Maximo Asset Management product family, Essentials is ideal for smaller organizations that require a subset of the extensive range of features in the IBM Maximo Asset Management product.

With Maximo Asset Management Essentials, smaller organizations can take advantage of proven Maximo Asset Management technology, while enjoying cost savings. Essentials enables smaller organizations and departments to organize, track, and manage their asset and work management processes, and to implement a maintenance regimen based on industry leading technology and best practices.

Unlike competing solutions that are unable to grow with an organization, forcing businesses to lose their initial expenditure, Essentials is an integrated solution that enables organizations to build on their Maximo investment by leveraging the Maximo scalable architecture. It helps eliminate paper-based and spreadsheet-based processes and provides custom applications. Essentials can grow with a company so it can manage all asset classes and work tasks from a single, unified platform.

## The team that wrote this book

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



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# Introduction to Maximo Asset Management Essentials

This chapter introduces the basic concepts of asset management processes and how you can use the Maximo Asset Management Essentials product to enable those processes. We also discuss the functional layout of Maximo Asset Management Essentials.

# 1.1 Enterprise asset management overview

Enterprise asset management (EAM) is the process of managing an organization's assets throughout their life cycle - from requisition to retirement. The word *enterprise* relates to multiple organizations, departments, functions, and in some cases can even mean business units. *Assets* in this context is defined as any equipment or facility that plays a key role in the core business of the enterprise. *Management* refers to improving the utilization and performance of an asset and thereby improving return on investment (ROI).

The asset life cycle typically contains the following phases:

- Requisition

At this stage someone or some function in an organization requests an asset. The asset can be procured from a vendor, or it can be an inter-departmental transfer.

- Procurement

The complete purchasing process is the second stage in the asset life cycle. This process includes creating purchase requisitions, requests for quotation, and invoices; generating purchase orders, receiving assets at locations, and creating an invoice.

- Commissioning

At this stage of the asset life cycle, the asset is assigned to a location, user or group of users. The cost of operating the asset is now attributed to the owner of the asset. Also, asset availability is now the responsibility of the owner. This includes maintaining the asset regularly to ensure the asset is up and running whenever business needs it. The various activities that are typically undertaken at this point are work orders, job plans, safety planning, preventive maintenance, emergency maintenance, and seasonal maintenance.

- Retirement

Some enterprises call this phase *decommissioning*; this is the stage where an enterprise decides to replace or remove the asset. However, the importance of this stage from an enterprise asset management perspective is to be able to calculate the residual cost of the asset and, in certain cases, being able to transfer parts of the asset to another asset. For instance, say few months ago someone replaced a critical and expensive part of an asset because of a fault. The expensive part can be reused because it is not obsolete.

The concept of Enterprise Asset Management evolved from Computerized Maintenance Management System (CMMS). An enterprise's assets are critical, and with global competition, it is imperative for companies to strategically plan



and maintain various stages of the asset life cycle. Enterprise asset management should be a dedicated function within an organization that encompasses purchasing, engineering, accounting, and maintenance management.

Broadly, the benefits of enterprise asset management can be summarized as:

- ▶ Reducing costs
- ▶ Meeting legal requirements
- ▶ Making better plans
- ▶ Providing competitive advantage
- ▶ Enhancing Information availability

## 1.2 Maximo Asset Management Essentials

IBM Maximo Asset Management Essentials is an asset management system that provides asset management, maintenance management, inventory management, and purchasing capabilities that help corporations maximize productivity and increase the life of assets.

This solution is targeted toward small-to-medium businesses that do not have multiple sites and simply need a subset of the core functionality of Maximo Asset Management. The enterprise edition of Maximo Asset Management has been a leader in enterprise asset management for many years. IBM Maximo is the only solution to have been recognized in the EAM Leader's Quadrant 11 times since 1998.

Smaller businesses can benefit from the core functionality of Maximo Asset Management Essentials and do not need an enterprise-level solution for asset management. Thus, Maximo Asset Management Essentials is a lighter, less complex version of Maximo Asset Management V7.1. The differences in functionality are discussed in subsequent sections of this book.

Maximo enables companies to manage assets by providing information and real-time data, thereby enabling the creation of a strategy for maintenance management through information-based decision making capabilities and predicting the impact on productivity of asset downtime for all categories of assets.

## 1.2.1 Functional overview

IBM Maximo Asset Management Essentials is an integrated productivity tool and database that helps you achieve maximum efficiency in asset management by managing all of your asset types on a single software platform. Built on a service-oriented architecture (SOA), Maximo Asset Management Essentials delivers a comprehensive view of all asset types, locations, and the work processes that support them, to provide optimal planning, control, audit, and compliance capability.

The Maximo database provides critical information about asset resources, including key attributes, their configuration, and their physical and logical relationships to other resources. You can include attachments, such as maps, pictures, and URLs to each record or task to further enhance communication and productivity.

IBM Maximo Asset Management Essentials enables you to effectively manage end-to-end asset operations and business processes to deliver efficient and effective services aligned with your business goals. It provides a comprehensive and modular approach to integrated asset control and visibility by providing an enterprise platform for storing standardized data on asset histories to help integrate people, processes, information, and technology. Maximo Asset Management Essentials offerings include tools, best practices, and service offerings for incremental value.

Managing assets through Maximo Asset Management Essentials gives your business a competitive advantage.

## 1.2.2 Modules

Maximo Asset Management Essentials is a subset of Maximo Asset Management. The two products have the same look and feel, similar means of navigation, and they provide similar functionality.

Maximo Asset Management Essentials is composed of modules, which in turn contain applications or subapplications. Users access the lowest level, whether it is an application or subapplication for functionality.

The Maximo Asset Management Essentials solution has multiple modules to assist the user. Six of these key management modules are:

- ▶ Asset
- ▶ Work
- ▶ Service
- ▶ Contract

- ▶ Materials
- ▶ Procurement Management

Together, these modules help you capture and analyze your asset and work data and help you optimize maintenance and service initiatives throughout your organization. These six management modules are packaged in an enhanced service-oriented architecture that helps simplify the creation of Web services and supports additional Web service standards such as WS-Security.

Built on a Java™ platform, Enterprise Edition (J2EE™) component-based Internet architecture, Maximo Asset Management Essentials fits in any modern enterprise technology infrastructure and integrates easily with your business systems. With a significant focus on configuration tooling - such as Application Designer for modifying the user interface and Database Configuration for adding new tables, columns, and rows - Maximo Asset Management Essentials makes it easier to tailor the software to your needs without programming. Furthermore, you can use the Upgrade Utility to upgrade your configurations, and thus avoid being locked in from one application release to another.

The key modules and the business goals for which you can use them are described in the following sections.

## **Asset Management**

Achieve the control you need to more efficiently track and manage asset and location data throughout the asset life cycle.

- ▶ Track asset detail - including location, work, cost and other attributes and their histories - over time to help maximize productivity and extend asset life.
- ▶ Establish location and asset hierarchies to roll up costs across systems, subsystems, departments, and locations, enabling a better understanding of the true cost of assets (initial cost, financial value, cost to maintain, and so on).
- ▶ Monitor asset and location conditions to enable proactive - rather than reactive - maintenance that helps reduce unplanned downtime.
- ▶ Support both conventional and linear assets.

## **Work Management**

Manage both planned and unplanned maintenance activities, from initial work request and work order generation through completion and recording of actuals. Work planners can match job tasks to available resources, estimate and obtain approval of costs, establish priorities, and initiate maintenance activities across

the enterprise. Work management supports your business goals by providing the following benefits:

- ▶ Tracking tools enable more detailed analysis of resources, inventory, and equipment use and costs, helping decrease labor and materials costs.
- ▶ Multiple assets, locations, and configuration items are allowed per work order or ticket. Work management also supports work order tracking, task sequencing, attaching documents at the task level, and generating work orders from asset information.
- ▶ A graphical assignment manager helps optimize maintenance schedules and labor use by assigning the right person with the right skills to the right job.
- ▶ Preventive maintenance (PM) functionality enables you to put PM schedules in place with the right job steps and resource requirements, facilitating planning as well as work, to help reduce unplanned downtime and reactive maintenance.
- ▶ Newly developed work management tools enable job plan hierarchies, automated workflow processes, enhanced status control, and support for linear assets.
- ▶ Contract correlation links SLAs to vendor contracts, helping you identify unreliable vendors as well as low-quality products. It also enables you to reference service-level agreement (SLA) performance metrics when renegotiating vendor terms.
- ▶ A terms and conditions library enables you to more consistently apply standardized policies across the organization.
- ▶ Automatic notifications and alerts help you meet vendor terms, avoid penalties, and get the most value out of every contract.

## **Service Management**

Service request support enable users to submit new service requests, as well as to track and update open service requests. Although service management is provided as part of the enterprise version of Maximo Asset Management, the Maximo Asset Management Essentials product does not provide all of this capability.

## **Contract Management**

Enhanced control over vendor contracts is provided with this integrated contract management system. Provide comprehensive contract management support for purchase, lease, rental, warranty, labor rate, software, master, blanket, and user-defined contracts.

## Materials Management

Know the details - what, when, where, how many, and how valuable - of asset-related inventory and its usage. Materials Management functionality records material movements and adjustments, enabling real-time inventory tracking, reporting, and auditing. In addition, you can display the embedded images of an asset in a catalog search. You can also use this module to:

- ▶ Track inventory transactions to help streamline parts and materials management.
- ▶ Help decrease costs by eliminating excess or obsolete inventory.
- ▶ Help optimize and plan inventory to more accurately meet maintenance demand, making the right parts available at the right location when needed. As a result, you can reduce stock-outs, inventory shrinkage, and carrying costs, as well as help foster economies of scale through shared resources.

## Procurement Management

The Procurement Management module supports the phases of enterprise-wide procurement, including direct purchasing and inventory replenishment. You can provide buyers with more extensive requisition, quotation, vendor, purchase order, and contract capabilities, thereby enabling them to plan work more proactively. This module provides:

- ▶ Vendor management and vendor performance analysis tools that can help reduce costly off-contract buying and help verify the reliability of vendors and the quality of inventory and services.
- ▶ Automated interval-based, meter-based, or event-driven purchasing capabilities to help you order the right parts and services at the right time, which improves purchasing efficiency.
- ▶ Global purchasing support that can enable group purchasing savings and efficiencies, and can help lower sourcing costs.

Analysis tools and key performance indicators (KPIs) that measure procurement performance such as order processing times, invoice accuracy, and order delivery times.

### 1.2.3 Integrating with existing enterprise applications

From a functional standpoint, most businesses already have huge IT investments. Installing Maximo does not mean these businesses have to get rid of existing applications. Maximo offers a robust integration platform to integrate with any existing applications and maintain a “single version of truth.”

Some features that enable integration with leading enterprise systems are already available in the form of adapters, while some have to be custom built. Maximo is a Java-based solution with an open architecture, and therefore custom building integrations is not a daunting task.

Maximo Asset Management Essentials provides support for a set of standard integrations but does not ship with the capability to customize those adapters or build new ones. The Integration Framework, previously known as the Maximo Enterprise Adapter (MEA), can be procured as an add-on from IBM to facilitate these integrations.

# Maximo Asset Management Essentials V7.1

This chapter provides details of Maximo Asset Management Essentials V7.1 and an overview of the features available for asset management. Maximo Asset Management Essentials is a lighter version of Maximo Asset Management.

An entry-level member of the IBM Maximo Asset Management product family, Essentials is ideal for smaller organizations that require a subset of the extensive range of features in the IBM Maximo Asset Management product. With Essentials, smaller organizations can take advantage of proven Maximo Asset Management technology, while also enjoying cost savings. Maximo Asset Management Essentials is an ideal choice for small organizations, with smaller asset management needs. It is more appropriate for small organizations because the fully blown enterprise version of the product is predominantly implemented in larger organizations with multiple companies and sites with more complex asset management needs.

Maximo Asset Management Essentials is optimum for small-to-medium organizations for the following reasons:

- ▶ Licensing is straightforward and restricted to a maximum of 25 named users.
- ▶ Limited functionality reduces implementation planning and deployment efforts.

- ▶ Simplicity of Maximo Asset Management Essentials enables enterprise-wide capability for asset management in small-to-medium businesses.
- ▶ Has straightforward licensing
- ▶ Leverages the enterprise architecture and allows for upgrade to enterprise solution wherever required.
- ▶ Allows maximum of two languages - Base language plus one
- ▶ Allows maximum of two currencies - Base currency plus one

The following are advanced applications not included nor available with Essentials:

- ▶ Workflow
- ▶ Condition Monitoring
- ▶ Desktop Requisitions
- ▶ Financial - Cost Management
- ▶ Routes
- ▶ Hazards
- ▶ Precautions
- ▶ Lock Out/Tag Out
- ▶ Safety Plans

These are components not available for purchase with Essentials:

- ▶ Industry Solutions
- ▶ Spatial
- ▶ Linear
- ▶ Calibration
- ▶ Change and Corrective Action Manager
- ▶ SLA Manager
- ▶ ERP Integration (SAP, Oracle®)

Clients requiring the functionality itemized in the preceding lists must purchase the enterprise edition of the Maximo Asset Management product.



## 2.1 Differences with Maximo Asset Management enterprise edition

Table 2-1 summarizes the various Maximo modules, applications, and subapplications, and identifies those that are included in both Maximo Asset Management enterprise version and the Maximo Asset Management Essentials offering.

*Table 2-1 Summary of modules by offering*

| Module         | Application                     | Subapplication        | Enterprise | Essentials |
|----------------|---------------------------------|-----------------------|------------|------------|
| Administration | Sets                            |                       | Y          | Y          |
|                | Organizations                   |                       | Y          | Y          |
|                | Calendars                       |                       | Y          | Y          |
|                | Resources                       | Labor                 | Y          | Y          |
|                |                                 | Qualifications        | Y          | Y          |
|                |                                 | People                | Y          | Y          |
|                |                                 | Person Groups         | Y          | Y          |
|                |                                 | Crafts                | Y          | Y          |
|                | Bulletin Board                  |                       | Y          | Y          |
|                | Communication Templates         |                       | Y          | Y          |
|                | Reporting                       | KPI Manager           | Y          | Y          |
|                |                                 | Report Administration | Y          | Y          |
|                | Conditional Expression® Manager |                       | Y          | Y          |
|                | Classifications                 |                       | Y          | Y          |
|                | CI Types                        |                       | Y          | N          |
|                | Work View                       |                       | Y          | Y          |
| Assets         | Assets                          |                       | Y          | Y          |
|                | Locations                       |                       | Y          | Y          |

| Module            | Application            | Subapplication | Enterprise | Essentials |
|-------------------|------------------------|----------------|------------|------------|
|                   | Features               |                | Y          | N          |
|                   | Meters                 |                | Y          | Y          |
|                   | Meter Groups           |                | Y          | Y          |
|                   | Condition Monitoring   |                | Y          | N          |
|                   | Failure Codes          |                | Y          | Y          |
| Change            | Activities and Tasks   |                | Y          | Y          |
| Contracts         | Purchase Contracts     |                | Y          | Y          |
|                   | Lease/Rental Contracts |                | Y          | Y          |
|                   | Labor Rate Contracts   |                | Y          | Y          |
|                   | Master Contracts       |                | Y          | Y          |
|                   | Warranty Contracts     |                | Y          | Y          |
| Financial         | Currency Codes         |                | Y          | Y          |
|                   | Exchange Rates         |                | Y          | Y          |
|                   | Chart of Accounts      |                | Y          | Y          |
|                   | Cost Management        |                | Y          | N          |
| IT Infrastructure | Configuration Items    |                | Y          | N          |
|                   | Relationships          |                | Y          | N          |
|                   | Collections            |                | Y          | N          |
| Integration       | Object Structures      |                | Y          | Y          |
|                   | Publish Channels       |                | Y          | Y          |
|                   | Invocation Channels    |                | Y          | Y          |
|                   | Enterprise Services    |                | Y          | Y          |

| Module    | Application                   | Subapplication     | Enterprise | Essentials |
|-----------|-------------------------------|--------------------|------------|------------|
|           | Web Services Library          |                    | Y          | Y          |
|           | End Points                    |                    | Y          | Y          |
|           | External Systems              |                    | Y          | Y          |
|           | Logical Management Operations |                    | Y          | Y          |
|           | Integration Modules           |                    | Y          | Y          |
|           | Launch in Context             |                    | Y          | Y          |
|           | Message Tracking              |                    | Y          | Y          |
|           | Message Reprocessing          |                    | Y          | Y          |
| Inventory | Item Master                   |                    | Y          | Y          |
|           | Service Items                 |                    | Y          | Y          |
|           | Tools                         |                    | Y          | Y          |
|           | Stocked Tools                 |                    | Y          | Y          |
|           | Inventory                     |                    | Y          | Y          |
|           | Issues and Transfers          |                    | Y          | Y          |
|           | Condition Codes               |                    | Y          | Y          |
|           | Storerooms                    |                    | Y          | Y          |
| Planning  | Job Plans                     |                    | Y          | Y          |
|           | Routes                        |                    | Y          | N          |
|           | Safety                        | Hazards            | Y          | N          |
|           |                               | Precautions        | Y          | N          |
|           |                               | Lock Out / Tag Out | Y          | N          |
|           |                               | Safety Plans       | Y          | N          |

| Module                 | Application            | Subapplication          | Enterprise | Essentials |
|------------------------|------------------------|-------------------------|------------|------------|
| Preventive Maintenance | Preventive Maintenance |                         | Y          | Y          |
|                        | Master PM              |                         | Y          | Y          |
| Purchasing             | Purchase Requisitions  |                         | Y          | Y          |
|                        | Purchase Orders        |                         | Y          | Y          |
|                        | Receiving              |                         | Y          | Y          |
|                        | Invoices               |                         | Y          | Y          |
|                        | Request for Quotations |                         | Y          | Y          |
|                        | Companies              |                         | Y          | Y          |
|                        | Company Master         |                         | Y          | Y          |
| Release                | Activities and Tasks   |                         | Y          | Y          |
| Security               | Security Groups        |                         | Y          | Y          |
|                        | Users                  |                         | Y          | Y          |
| Self Service           | Desktop Requisitions   | Create Requisition      | Y          | N          |
|                        |                        | View Requisition        | Y          | N          |
|                        |                        | View Templates          | Y          | N          |
|                        |                        | View Drafts             | Y          | N          |
|                        | Service Requests       | Create Service Requests | Y          | Y          |
|                        |                        | View Service Requests   | Y          | Y          |
| Service Desk           | Activities and Tasks   |                         | Y          | Y          |
|                        | Service Requests       |                         | Y          | Y          |
|                        | Ticket Templates       |                         | Y          | Y          |
| System Configuration   | Platform Configuration | System Properties       | Y          | Y          |

| Module          | Application          | Subapplication          | Enterprise | Essentials |
|-----------------|----------------------|-------------------------|------------|------------|
|                 |                      | Logging                 | Y          | Y          |
|                 |                      | Domains                 | Y          | Y          |
|                 |                      | Database Configuration  | Y          | Y          |
|                 |                      | Application Designer    | Y          | Y          |
|                 |                      | Communication Templates | Y          | Y          |
|                 |                      | Actions                 | Y          | Y          |
|                 |                      | Roles                   | Y          | Y          |
|                 |                      | Escalations             | Y          | Y          |
|                 |                      | Workflow Designer       | Y          | N          |
|                 |                      | Workflow Administration | Y          | N          |
|                 |                      | Cron Task Set-up        | Y          | Y          |
|                 |                      | E-mail Listeners        | Y          | N          |
|                 |                      | Object Structures       | Y          | N          |
|                 |                      | Web Services Library    | Y          | Y          |
|                 |                      | Launch in Context       | Y          | Y          |
|                 | Migration            | Migration Manager       | Y          | Y          |
|                 |                      | Migration Groups        | Y          | Y          |
|                 |                      | Object Structures       | Y          | Y          |
| Task Management | Activities and Tasks |                         | Y          | Y          |
| Work Orders     | Work Order Tracking  |                         | Y          | Y          |
|                 | Labor Reporting      |                         | Y          | Y          |

| Module | Application          | Subapplication | Enterprise | Essentials |
|--------|----------------------|----------------|------------|------------|
|        | Quick Reporting      |                | Y          | Y          |
|        | Activities and Tasks |                | Y          | Y          |
|        | Assignment Manager   |                | Y          | Y          |
|        | Service Requests     |                | Y          | Y          |

## Project planning

This chapter describes various parameters that must be considered when planning a basic Maximo Asset Management Essentials implementation with out-of-the-box components for middleware, database, and more. These parameters range from technical options in terms of database, application server, and operating system to required skills. A Maximo Asset Management Essentials implementation is simpler and less time consuming than an enterprise-wide implementation. After reading this chapter, the implementation team can create a high-level project plan for a typical implementation with estimations of effort and time.

Our implementation plan does not fit every implementation because each is different. Each client is unique, and clients' requirement sets differ. In addition to considering requirements, clients must consider the following parameters while planning an implementation:

- ▶ Infrastructure selection
  - Operating system
  - Database
  - Application server
- ▶ No integration with other third-party systems
- ▶ Existing data sets for data migration
- ▶ Tool guidance through implementation process

Because the tool also supports other operating system, database platforms, and leading application servers, these combinations can greatly impact the project schedule. These combinations shall be carefully examined during the solution design phase.

The following phases typically comprise a simple implementation of Maximo Asset Management Essentials:

- ▶ Phase 1: Requirements gathering and analysis
- ▶ Phase 2: Solution design
- ▶ Phase 3: Deployment
- ▶ Phase 4: Testing and go-live
- ▶ Phase 5: Support

The subsequent sections discuss the people, process, and technology required in each phase.

## 3.1 Required skills

The project delivery team is fundamental to the success of a project. The exact number of people required varies with project, organization experience, reusable components, and methodology. The people who make up the team perform the roles described in the sections that follow.

### Project manager

The project manager performs the following activities:

- ▶ Owns the implementation end-to-end
- ▶ Is the single point of contact for the client
- ▶ Facilitates client interactions
- ▶ Reports project status
- ▶ Monitors project progress at regular intervals
- ▶ Escalates issues
- ▶ Changes control agent for scope creep
- ▶ Makes resources, individuals, and materials available

### Business analyst

The business analyst understands the product and also the client's domain. This person can speak with clients in their language and can translate client requirements to the technical team. This role is vital to success of the project.

The following are the attributes of this role:

- ▶ Domain knowledge
- ▶ Functional knowledge of Maximo Asset Management Essentials



- ▶ Working knowledge of Unified Modeling Language (UML)
- ▶ Knowledge of industry best practices to suggest to client

### **Solution architect**

The solution architect designs the complete solution, including integration with various third-party systems. The attributes and tasks this role undertakes are as follows:

- ▶ Possess strong technical skills in Maximo
- ▶ Maps business processes to technology
- ▶ Understands functional integration points
- ▶ Understands technical integration points
- ▶ Builds the overall solution design
- ▶ Walks the team through various aspects of the implementation
- ▶ Resolves technical issues

### **Maximo developer**

This group of people actually installs and configures the software to work in accord with client needs. The major tasks to be performed by the developers are:

- ▶ Installs Maximo
- ▶ Configures interface appearance and information flow
- ▶ Works on integration
- ▶ Develops custom classes, if required
- ▶ Performs system optimization

### **Testers**

Testing is critical to every project. This phase includes testing system integration, functionality, and performance. Depending on the complexity of the project, this role can be performed by the developer or a specialized group. The major tasks include the following:

- ▶ **System integration:** Testing the integrations to ensure the data between systems is flowing accurately.
- ▶ **Functional testing:** Testing the workflows, communication templates, data flow between dialogs, and functions for accuracy.
- ▶ **Performance testing:** This test ensures response times are accurate and the system is responding optimally.

## **Database administrators**

Like any enterprise system, the Maximo database can be accessed multiple times by multiple people. The uptime of the database is critical, and the transaction-processing capabilities have to be at their best at all times. The DBA performs the following activities:

- ▶ Troubleshoots database creation
- ▶ Installs database if other than DB2®
- ▶ Performs database optimization
- ▶ Facilitates database-level integrations with enterprise systems

## **Application server specialist**

Depending on the choice of application server, WebSphere® Application Server or WebLogic Server, the part-time involvement of an application server specialist or administrator may be required. This becomes more important with complex implementations in a clustered environment with numerous integrations.

## **Integration specialist**

The size and skills of the members of this optional group may vary from client to client. Some special systems such as SAP, Oracle, and other niche products may require technical experts. Depending on the project, the main task is to facilitate integration with external systems and ensure the bidirectional movement of data.

The various roles of individuals in the project delivery team are not a permanent fixture for each project. More roles may be required, and more than one person may perform in a role. As mentioned previously, each project is different, and it is difficult to generalize; however, we have attempted to cover scenarios that we have encountered in our implementation experience.

## 3.2 Solution description and assumptions

This section discusses a high-level solution architecture and the standard assumptions made when planning a project.

Figure 3-1 depicts the Maximo Asset Management Essentials solution architecture.

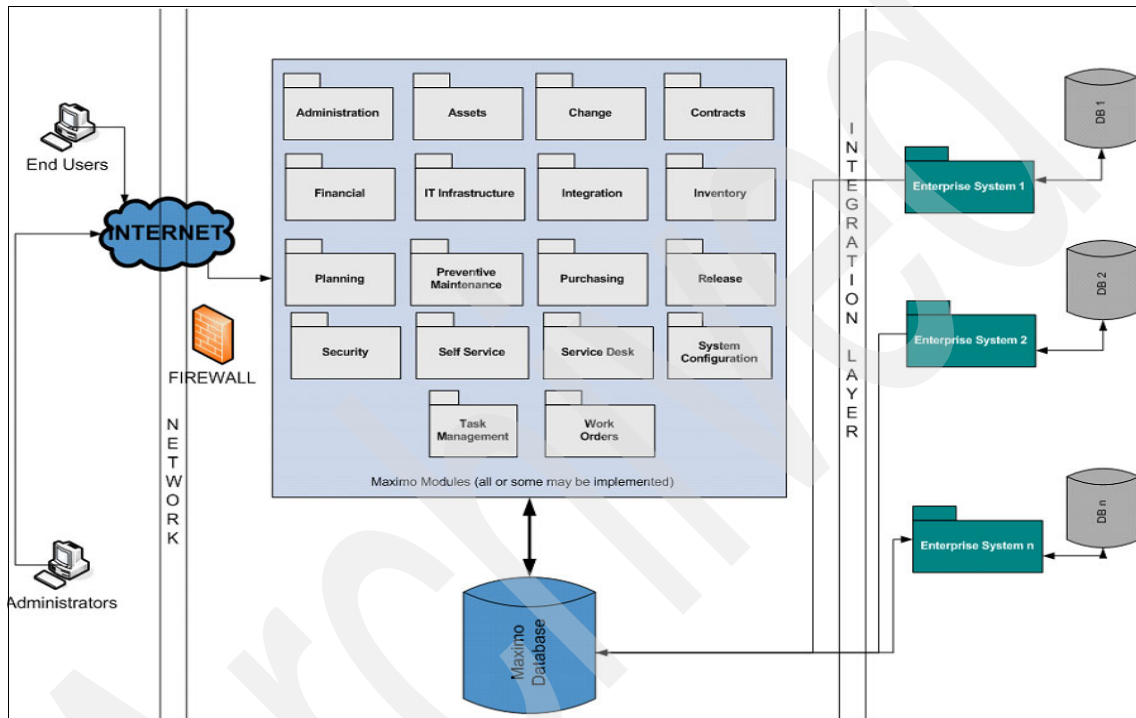


Figure 3-1 Solution architecture

The Maximo user interface is based on a Web browser so the application can be accessed remotely, depending on network connectivity and firewall configurations.

The three layers shown in Figure 3-1 can be complicated, depending on client requirements and network setup. All or some of the modules of Maximo Asset Management Essentials may be implemented. The integration layer separates the enterprise applications from the core Maximo engine.

Standard assumptions made when planning a project are the following:

- The software is procured prior to project initiation.

- ▶ The three environments are development, testing, and production.
- ▶ The application server, database server, and reporting engine are kept in separate physical servers.
- ▶ The client owns any configurations required in the enterprise systems to facilitate integrations.
- ▶ Client involvement during the initial project stages is fairly high because much of the functional and business process knowledge specific to the client has to be transferred to the implementation team.
- ▶ Management has bought into this project.
- ▶ A dedicated single point of contact and project manager is appointed from the client to manage interactions with users.
- ▶ Historic data migration can be performed by the implementation team, but data cleansing and scrubbing must be owned by the client.

### 3.3 Task breakdown

As previously mentioned, the standard phases of a Maximo implementation project are:

- ▶ Phase 1: Requirement gathering and analysis
- ▶ Phase 2: Solution design
- ▶ Phase 3: Deployment
- ▶ Phase 4: Testing and go-live
- ▶ Phase 5: Support

The key activities in each of the phases are described in the following sections.

#### **Phase 1: Requirements gathering and analysis**

This section describes the roles involved in and key activities that occur during the requirement gathering and analysis phase.

Roles:

- ▶ Project manager
- ▶ Business analyst
- ▶ Solution architect

Key activities:

- ▶ Understand current business processes for managing:
  - Maintenance
  - Procurement

- Inventory
  - Assets
- ▶ Document plan areas with existing business processes.
- ▶ Demonstrate the basic product.
- ▶ Understand and document the end goal and vision of the client.
- ▶ Document “to-be” business processes for each of the functions previously mentioned.
- ▶ Analyze the points of integration.
- ▶ Analyze the current data sources.
- ▶ Create a SRS (software requirements specification) document.

## **Phase 2: Solution design**

This section describes the roles involved in and key activities that occur during the solution design phase of the implementation project.

Roles:

- ▶ Project manager
- ▶ Business analyst
- ▶ Solution architect

Key activities:

- ▶ Identify module requirements
- ▶ Identify configuration requirements in terms of:
  - Roles
  - Security groups
  - Escalations
  - Communication templates
  - Work Order templates
  - Job plans
  - SLAs
  - Vendors and contracts
  - Interface configuration
  - GL codes
- ▶ Create a detailed implementation plan.
- ▶ Identify methodology for integration.
- ▶ Identify scripting or manual data import approach from identified data sources.
- ▶ Create a solution architecture diagram.

### Phase 3: Deployment

This phase consists of the following roles and activities:

Roles:

- ▶ Project manager
- ▶ Solution architect
- ▶ Maximo developers

Optional roles:

- ▶ DBA
- ▶ Application server specialist (depending on environment)

Key activities:

- ▶ Software installation

- Install the various components if doing a manual installation.
- Run the launchpad for an automated installation.
- Test to verify the installation is successful.

Software installation is different for various deployment topologies - single server, multiserver, clustered environment. It also depends on the infrastructure selected.

- ▶ Software configuration

- Basic operation configuration, which includes but is not limited to the creation of:
  - Organization
  - Locations
  - GL codes
  - Users, roles, and security groups
  - Job plans and work orders
- Software configuration also includes the configuration of role-based Start Centers.
- Configuration of the tool to map to business processes includes but is not limited to the following:
  - Add or delete (as the case may be) fields on the interface and in the database
  - Create communication templates
  - Create escalation points and define SLAs in the system
  - Create and test data import scripts
  - Import data from its existing source to Maximo Asset Management

- Build integration interfaces - either using custom code or the Integration Framework
- Create and deploy reports

## Phase 4: Testing and go-live

The roles taking part in and the key activities making up the test and go-live phase are described in this section.

Roles:

- ▶ Project manager
- ▶ Solution architect
- ▶ Testers
- ▶ Maximo developers

Optional roles:

- ▶ DBA
- ▶ Application server specialist

The key activity is testing.

The first key task is migration from the development environment to the test environment. Depending on the client's environment and the complexity of the implementation, a client may decide to use automated tools for testing or a manual approach. All or some of the following types of testing must be carried out:

- ▶ Functional testing
  - Validations in new fields
  - E-mails being sent on escalations
  - Accuracy of data flowing between modules in the system
  - Data accuracy in reports
- ▶ System integration testing
  - Accuracy of data coming from external systems
  - Accuracy of data going into external systems
  - Scenario testing to ensure system availability
- ▶ Performance testing
  - Page load time
  - Peak load

- Concurrent users
- Transaction processing time with database and external data sources
- ▶ Go-live
  - Plan cut-over strategy.
  - Migrate to production environment.
  - Execute each of the tests listed in this section in the production environment to ensure no performance glitch exists in the live environment.
  - Training must be provided to all or some of the users. The recommended approach is “train-the-trainer.” Provide training to three types of users:
    - Users: Provide functional training to the user community on how to use various functional aspects of the software. This training can be done with focus groups or generic groups of users, depending on how the organization is structured.
    - Groups of users: Role-based training is specific to certain groups. For example, the training of the purchase administrator, supervisors, and others must result in their ability to approve or disapprove certain tasks, manage their queues, and so on.
    - Administrators: After the implementation team is finished, an internal person must be designated to manage the system. This individual is responsible for system availability, the creation of new reports, enhancements, adding users, assigning roles to security groups, and so on.

## **Phase 5: Support**

This section describes the roles involved in and the activities that take place during the support phase of the implementation.

### **Roles**

- ▶ Project manager
- ▶ Maximo developers

### **Optional roles:**

- ▶ Business analyst
- ▶ Solution architect



Key activities:

Some organizations do not have a strong IT presence and opt for the implementation team to provide continued system support. The basic tasks the support team must perform are, but are not limited to, the following:

- ▶ Manage system availability
- ▶ Make enhancements to accommodate evolving business processes
- ▶ Create and deploy new reports
- ▶ Build new integrations
- ▶ Plan capacity for additional users and or organizations

This five-phase methodology is fairly generic but includes most of the basic activities that must be considered and planned for in an implementation.

At this point, we address the client's involvement in each stage. For each of the previously mentioned phases, expectations of client involvement are listed in Table 3-1.

*Table 3-1 Expectations from the client*

| Phase                               | Expectations from the client  |
|-------------------------------------|---|
| Requirements gathering and analysis | <ul style="list-style-type: none"><li>▶ Assign a single point of contact from within</li><li>▶ Explain the project vision and the short-term and long-term objectives</li><li>▶ Facilitate meetings with individual process owners</li><li>▶ Facilitate meetings with tool owners</li><li>▶ Procure required hardware and software</li><li>▶ Review documentation</li></ul> |
| Solution design                     | <ul style="list-style-type: none"><li>▶ Review solution architecture</li><li>▶ Review documentation and project plan</li></ul>  |
| Deployment                          | <ul style="list-style-type: none"><li>▶ Provide hardware and software</li><li>▶ Provide administrative access to systems wherever required</li><li>▶ Monitor project progress</li><li>▶ Participate in reviews</li></ul>  |

| Phase               | Expectations from the client   |
|---------------------|--|
| Testing and go-live | <ul style="list-style-type: none"> <li>▶ Provide test and production environment</li> <li>▶ Provide data for user acceptance testing (UAT)</li> <li>▶ Facilitate UAT</li> <li>▶ Attend training</li> <li>▶ Provide human and material resources required for training</li> </ul> |
| Support             | <ul style="list-style-type: none"> <li>▶ Define support scope of work boundaries</li> <li>▶ Review support plan and service-level agreements (SLAs)</li> </ul>   |

## Solution environment

Maximo Asset Management Essentials requires multiple software servers that can be installed on separate, dedicated server machines (for best performance), or the same physical server (not recommended for production environments). The different components of the Maximo solution environment are as follows:

- ▶ **Database:** The Maximo database serves as the repository for all CI information.
- ▶ **Application server:** Maximo Asset Management Essentials is built using Java 2 Enterprise Edition (J2EE) technology, which requires a commercial application server, such as IBM WebSphere Application Server. The application server consists of Maximo Asset Management Essentials applications using JavaServer™ Pages (JSP™), XML, and Maximo Asset Management Essentials application-specific business components.
- ▶ **HTTP server:** A separate, dedicated HTTP server can be configured to work with the J2EE application server.
- ▶ **Directory server:** A directory server can be configured to work with Maximo Asset Management Essentials to maintain lists of users and groups for security purposes.
- ▶ **Administrative system:** The administrative system is used to deploy Maximo Asset Management Essentials. After the initial deployment, the administrative system is used to make updates or changes to the deployment. Changes to the Maximo Asset Management Essentials deployment typically require that Maximo Asset Management Essentials Enterprise Archive (EAR) files be rebuilt, which can only be done from the administrative system.

The administrative system can be implemented only on a Windows® system.

## 4.1 Hardware and software requirements

Maximo Asset Management Essentials hardware and software requirements are listed in the sections that follow. Each product version listed reflects the minimum requirement for use with Maximo Asset Management Essentials. Essentials components are designed to run within 32-bit environments only, with the exception of AIX® V5.3, which is a 64-bit environment.

Software supported by Maximo Asset Management Essentials can be run on any hardware platform supported by the database software listed in the “Software” column (in Table 4-1), provided the system is hosting one of the supported operating systems listed in the “Operating system” column. If available, the Maximo Asset Management Essentials administrative workstation and systems hosting Maximo Asset Management Essentials middleware can support an IPv6 network configuration.

### Browser

Maximo Asset Management Essentials supports Microsoft® Internet Explorer® Version 6 and later

### Database

Required database software is listed in Table 4-1.

*Table 4-1 Required database software*

| Software   | Operating system               |
|--|--------------------------------|
| <ul style="list-style-type: none"><li>▶ DB2 UDB V9.1.3 or V8.2.8</li><li>▶ Oracle V9.2.0.8, Oracle V10.2.0.3, or Oracle V10.1.0.5, Standard or Enterprise version</li><li>▶ Microsoft SQL Server® 2005 SP2, Standard or Enterprise version</li></ul> | Refer to vendor specifications |

## Directory server

The products listed in Table 4-2 can serve as the directory server component of a Maximo Asset Management Essentials deployment.

Table 4-2 Directory server requirements

| Software   | Operating system   |
|--|--|
| <ul style="list-style-type: none"><li>▶ IBM Tivoli Directory Server V6.1 FP1</li><li>▶ Microsoft Windows Server® 2003 SP2 Active Directory®<br/>Microsoft Active Directory Application Mode (ADAM) not supported</li></ul> | <ul style="list-style-type: none"><li>▶ Windows Server 2003 SP2 (Standard, Enterprise, or DataCenter - 32-bit, 64-bit)</li><li>▶ Windows Vista® (Business, Enterprise, Ultimate - 32-bit, 64-bit)</li><li>▶ Windows XP Professional SP2 (32-bit, 64-bit)</li><li>▶ Red Hat Enterprise Linux V4 (Enterprise or Advanced; update 4, 5, or later; Intel® 32-bit)</li><li>▶ IBM AIX 5L™ V5.3 ML level 5300-06</li><li>▶ SuSE Linux (SLES) V9.0 Enterprise Server System z™ SP4 or later (manual installation only)</li></ul> |

## J2EE application server

You install WebSphere Application Server on the J2EE application server. In addition, Maximo Asset Management Essentials runs on the J2EE application server (see Table 4-3).

Table 4-3 J2EE application server requirements

| Hardware   | Software   |
|--|--|
| <ul style="list-style-type: none"><li>▶ 2-4 dedicated Intel-based Pentium® processors</li><li>▶ 2 GB RAM per processor</li><li>▶ 1.5 GB or greater of disk space for Maximo and Java and Web server components</li></ul> | <ul style="list-style-type: none"><li>▶ Windows Server 2003 (Standard, Enterprise, or DataCenter - 32-bit, 64-bit)</li><li>▶ IBM AIX V5.3 or V6.1</li><li>▶ Red Hat Enterprise Linux 4 and 5 (x86 and x64 processor-based systems)</li><li>▶ SuSE Linux (SLES) V9.0 Enterprise Server System z SP4 or later (manual install only)</li><li>▶ HP-UX 11i v2 (PA-RISC processor-based systems)</li><li>▶ Sun™ Solaris™ Version 9 or 10 (SPARC processor-based systems)</li><li>▶ IBM WebSphere Network Deployment V6.1.0.11 (provided by IBM Corporation)</li><li>▶ BEA Weblogic V9.2.2 (provided by client)</li></ul> |

## Administrative system

Administrative system requirements are provided in Table 4-4.

Table 4-4 Administrative system requirements

| Hardware  | Software   |
|---|--|
| <ul style="list-style-type: none"><li>▶ Intel-based Pentium processor</li><li>▶ 1 GB RAM</li><li>▶ SVGA 1024 x 768 resolution; if used for Application Designer, 1280 x 1024 resolution</li></ul> | <ul style="list-style-type: none"><li>▶ Windows Vista (Business, Enterprise, Ultimate - 32-bit, 64-bit)</li><li>▶ Windows XP Professional SP2 (32-bit, 64-bit)</li><li>▶ Adobe® Acrobat® Reader V6.0</li></ul> |

## Client system

Software and hardware requirements for the client system are listed in Table 4-5.

Table 4-5 Client system requirements

| Hardware  | Software   |
|---|--|
| <ul style="list-style-type: none"><li>▶ Intel-based Pentium processor</li><li>▶ 1 GB RAM</li><li>▶ SVGA 1024 x 768 resolution</li></ul> | <ul style="list-style-type: none"><li>▶ Windows Vista (Business, Enterprise, Ultimate - 32-bit, 64-bit)</li><li>▶ Windows XP Professional SP2 (32-bit, 64-bit)</li><li>▶ Adobe Acrobat Reader V6.0 and later</li></ul> |

## 4.2 Typical deployment environments

Maximo Asset Management Essentials solution can be deployed primarily in two different topologies within an organization.

### 4.2.1 Single-server

The single-server topology consists of loading all Maximo Asset Management Essentials components onto one machine. This is typically done for proof-of-concept purposes, as a demonstration, or in a learning environment. For managing enterprise assets and processes, you typically implement a multiserver topology.

Figure 4-1 depicts the application server MXServer running Maximo Asset Management Essentials on a single physical machine.

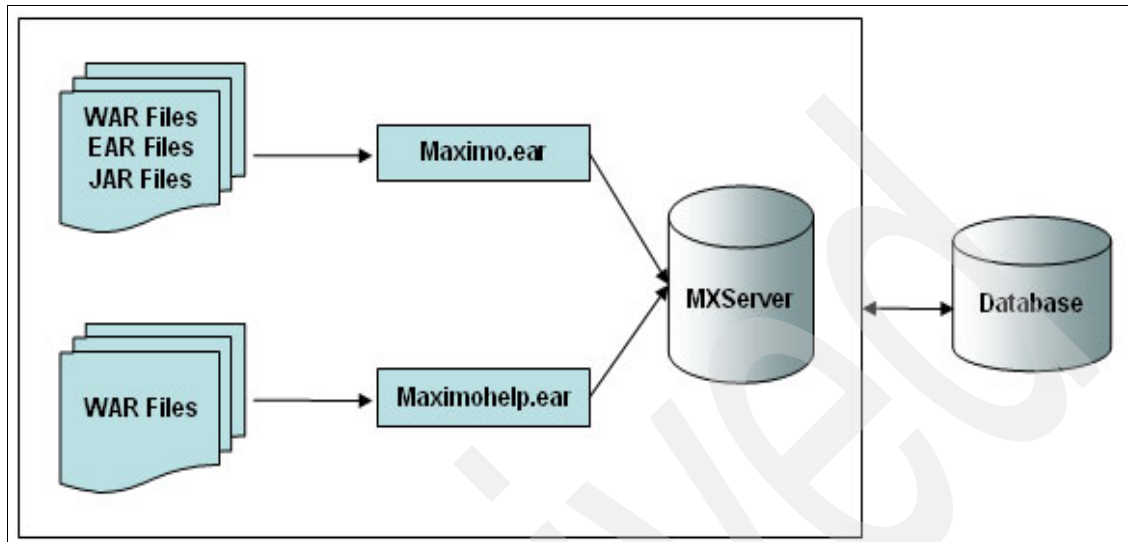


Figure 4-1 Single-server deployment

## 4.2.2 Multiserver

The multiserver topology consists of splitting Maximo Asset Management Essentials components across several different machines. This is beneficial because it optimizes resource use and decreases each system's workload. This type of deployment is typical for production use.

Maximo Asset Management Essentials should be deployed on multiple machines to provide load balancing, availability, reuse, and redundancy. The multiserver topology is the recommended deployment topology for a production environment.

When contemplating your deployment strategy, you must determine whether it will include systems already established in your network. Implementing Maximo Asset Management Essentials by installing all new components using the Maximo middleware and Maximo Asset Management Essentials installation programs simplifies the deployment. If you plan to reuse or migrate resources that already exist in your network, make adjustments to your rollout plan to allow time for steps such as bringing the existing resources to version levels that are compatible with Maximo Asset Management Essentials.



In a disparate environment, the collection of machines in this deployment can be a mixture of Microsoft Windows and UNIX machines. Only the administrative system must be hosted on a Microsoft Windows system.

Figure 4-2 displays a multiserver deployment environment.

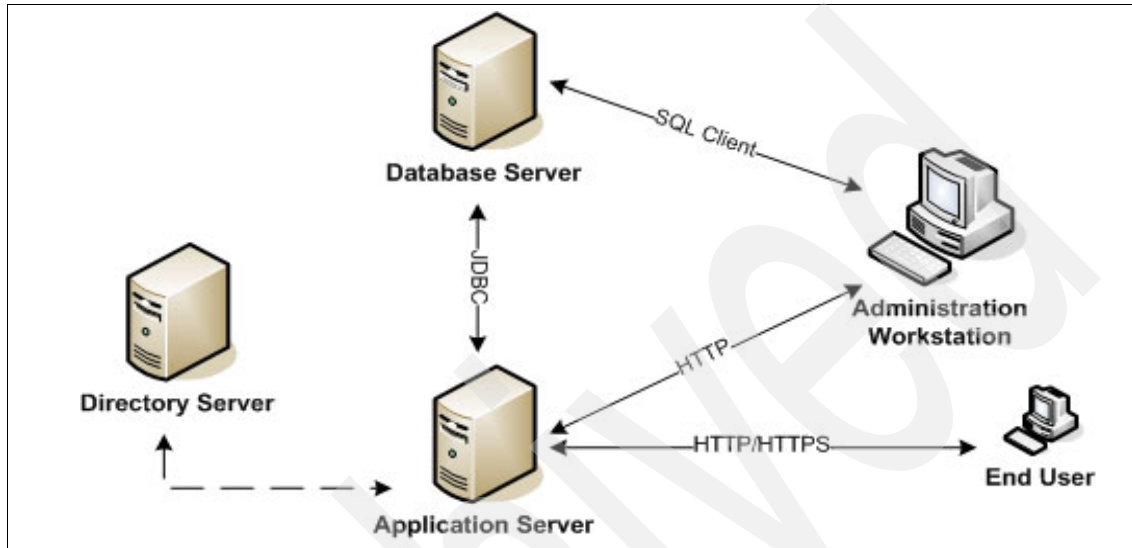


Figure 4-2 Multiserver deployment

A typical deployment life cycle might begin with a single-server topology that moves through the phases of demonstration, functional proof-of-concept, and testing integration within the existing environment. Then the life cycle gradually moves toward a pilot multiserver environment before finally implementing a production deployment within the enterprise.

## 4.3 Sizing considerations

Sizing hardware for an application is a critical task. One objective is to achieve optimal performance; another is to support the growth of the enterprise in terms of number of users. Capacity planning and availability management are two important functions that must be considered while sizing hardware for an application. You must consider the following factors to achieve proper hardware sizing.

### ► Cron task

Cron tasks are behind-the-scene jobs set to run automatically and on a fixed schedule. These tasks might process a number of records depending on the

nature of the job. As the complexity and number of these jobs increases, they consume a lot of resources and therefore become an important point for sizing considerations.

► **Integrations**

Multiple integration points are possible in an implementation such as PeopleSoft® Human Resources Management Solution (HRMS), invoicing, and finance, and these points can be both inbound as well as outbound. Only the generic integration adapters are available with Maximo Asset Management Essentials.

► **Modules**

Not all implementations include each and every module in Maximo Asset Management Essentials. Module usage depends on the business process of the organization and whether any existing maintenance management solutions are in place.

► **Level of customization**

The customization of different applications may vary from minor field re-labeling to cloning an entire application. Before the project begins, the implementation team should calculate the deviation of a standard Maximo application from the requirements in place to decide on the necessary hardware to support the level of customization.

► **Reports**

Reporting is an important component of any Maximo Asset Management Essentials implementation. Management takes all the business decisions based on the data that is produced in the form of reports - data that is extracted using highly complex methods and scripts from the database. The number of such reports makes a huge impact on the performance of the system.

► **Language**

An increase in complexity depends on the different languages that must be supported by the system. System administrators must ensure that data is stored in the supported languages, and that when text is displayed on the user interface, it is in the language of the logged on user. Maximo Asset Management Essentials supports only a base language plus one other.

► **Add-ons**

All the add-ons that the implementation might require must be identified and listed to ensure that hardware sizing takes add-ons into account.

► **Linked documents**

If the organization decides to configure linked documents and use this feature as a practice, the servers must have necessary storage space. In addition,

the system administrator must ensure that attaching documents does not create storage and retrieval performance issues.

## 4.4 Maximo Asset Management Essentials supported platforms

Table 4-6 lists the platforms supported by IBM Maximo Asset Management Essentials.

Table 4-6 Supported platforms

|  | Maximo V6.1 | Maximo V6.2.1 | Maximo V7.1 |
|--|-------------|---------------|-------------|
| <b>Operating systems</b>                   |             |               |             |
| AIX V5.2 (32 bit)                          | x           | x             |             |
| AIX V5.3 (32 bit)                          | x           | x             | x           |
| AIX V5.3 (64 bit)                          | x           | x             | x           |
| Solaris 9 (Sparc)                          | x           | x             | x           |
| Solaris 10 (Sparc)                         | x           | x             | x           |
| HP-UX 11i v1 (PA-RISC)                     |             | x             |             |
| HP-UX 11i v2 (PA-RISC)                     |             | x             |             |
| Microsoft Windows Server 2000              | x           | x             |             |
| Windows Server 2003 Enterprise Edition     |             | x             | x           |
| Windows Server 2003 Enterprise x64 Edition |             | x             | x           |
| Red Hat Enterprise Linux 3 (x86, 32 bit)   | x           | x             |             |
| Red Hat Enterprise Linux 4 (x86, 32 bit)   |             |               | x           |
| Red Hat Enterprise Linux 4 (zLinux)        |             |               | x           |
| Red Hat Enterprise Linux 5 (x86, 32 bit)   |             |               | x           |
| <b>Application server</b>                  |             |               |             |
| IBM WebSphere Application Server V6.0      | x           | x             |             |
| IBM WebSphere Application Server V6.1      |             |               | x           |
| BEA WebLogic V8.1                          | x           | x             |             |

|   | Maximo V6.1 | Maximo V6.2.1 | Maximo V7.1 |
|---|-------------|---------------|-------------|
| BEA WebLogic V9.2                             |             |               | x           |
| <b>Database</b>                               |             |               |             |
| IBM DB2 UDB V8.2 for Linux, UNIX, and Windows |             | x             | x           |
| IBM DB2 UDB V9.2 for Linux, UNIX, and Windows |             |               | x           |
| Oracle 9i V2                                  | x           | x             | x           |
| Oracle 10 Rel1                                | x           | x             | x           |
| Oracle 10 Rel2                                | x           | x             | x           |
| Microsoft SQL Server 2000                     | x           | x             |             |
| Microsoft SQL Server 2005 (32 bit)            | x           | x             | x           |
| Microsoft SQL Server 2005 (64 bit)            |             | x             | x           |
| <b>Browsers and client operating systems</b>  |             |               |             |
| Internet Explorer V6.0.x                      | x           | x             |             |
| Internet Explorer V7.0.x                      |             | x             | x           |
| Windows Vista                                 |             |               | x           |
| Windows XP Pro (client)                       | x           | x             | x           |
| <b>Report writers</b>                         |             |               |             |
| Actuate iServer 8                             | x           | x             |             |
| Actuate iServer 9 (for existing users only)   |             |               | x           |
| BIRT V2.1.2                                   |             |               | x           |

# Installation

In this chapter we discuss installation of the prerequisite middleware, the Maximo Asset Management Essentials base set of services (sometimes referred to as the Tivoli's process automation engine), and the Maximo Asset Management Essentials-specific process solution package.

Our examples are based on the following software components:

- ▶ Microsoft Windows 2003 Server
- ▶ WebSphere Application Server V6.1
- ▶ DB2 database platform
- ▶ Maximo Asset Manager Essentials V7.1 application

Although our examples primarily reflect a single-server environment, we realize most production environments are comprised of multiple servers. The process is much the same for both environments, but we take note of those areas where a variation in the process might exist.

For more information, refer to the following installation guides:

- ▶ *Installation Guide: IBM WebSphere Application Server* (mamEssentials71\_install\_was.pdf)
- ▶ *Installation Guide: BEA WebLogic Server* (mam Essentials71\_install\_bea.pdf)

You can access these guides at:

[http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc\\_7.1/mam\\_welcome.htm](http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc_7.1/mam_welcome.htm)

## 5.1 Preinstallation checklist

Before we start, we need to assess our preinstallation checklist. Carefully consider the checklist items in the following sections.

### 5.1.1 Hardware and software considerations

Make sure that the system configuration adheres to the required IBM specifications and to those listed in Chapter 4, “Solution environment” on page 29.

### 5.1.2 Verifying the DVD content

The DVDs listed in this section contain files for the Maximo Asset Management Essentials product.

- ▶ Maximo Asset Management Essentials V7.1 contains the following:
  - Launchpad
  - Maximo Asset Management Essentials middleware installer
  - Maximo Asset Management Essentials installer, IBM Agent Controller installer
  - Maximo Asset Management Essentials Language Pack installation program for Microsoft Windows 2003.
- ▶ Middleware for Windows 2003  
Contains prerequisite middleware software for Windows 2003.
- ▶ Middleware for Red Hat Enterprise Linux V4 and V5  
Contains prerequisite middleware software for Red Hat Enterprise Linux version 4.
- ▶ Middleware for AIX V5.3 and V6.1  
Contains prerequisite middleware software for AIX version 5.3.
- ▶ Maximo Asset Management Essentials Quick Start DVD  
Contains copies of the *Quick Start Guide* in all languages and a copy of the information center. You can also access the *Quick Start Guide* at:  
[http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc\\_7.1/mam\\_welcome.htm](http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc_7.1/mam_welcome.htm)

### 5.1.3 Backup and snapshot management

You should back up your system before installing any Maximo Asset Management Essentials component on your system. Notably no automated uninstall feature is supplied with Maximo Asset Management Essentials. If the installation fails at any point, you need to restore your system from the backup or reinstall the respective OS on your machine.

### 5.1.4 JDK and JRE

We recommended you install IBM Java V5.1 on your system. When implementing BEA WebLogic, you are required to have the update SUN JDK™ V1.5.0 installed.

### 5.1.5 Internet browser

Maximo Asset Manager Essentials V7.1 currently supports Mozilla Firefox Internet browser on Linux and Internet Explorer on Microsoft Windows.

### 5.1.6 Disabling the firewall

This section describes how to disable the firewall if one is present on the system. You must disable the firewall for the system on which you are installing Maximo Asset Management Essentials middleware. You must disable the firewall prior to using the middleware installer.

The firewall must be disabled on the following platforms.

- Microsoft Windows
- Linux

### 5.1.7 Deleting the TEMP and TMP user environment variables

The existence of the TEMP and TMP user variables can cause errors during the installation of DB2 on a Microsoft Windows system. Prior to using the middleware installer to install DB2, you must remove these variables for the user ID that performs the installation. It is important to note that TEMP and TMP are user

environment variables, not system variables. To remove the TEMP and TMP user variables on a Windows system, complete the following steps:

1. Access the System Properties dialog by right-clicking the **My Computer** icon on your desktop and selecting **Properties**.
2. From the System Properties dialog, first select the **Advanced** tab, and then click **Environment Variables**.
3. In the User variables section, select **TEMP**, and then click **Delete**. Repeat the process for the TMP variable.
4. Click **OK**.
5. Exit the System Properties dialog by clicking **OK**.

### 5.1.8 Verifying required installation of rpm-build package

This procedure describes how to verify that the rpm-build package is installed on Linux. This package must be installed before you run the middleware installer. This applies only if you are installing on Linux. To verify that the rpm-build package is installed, perform the following steps:

1. Run the following:

```
rpm -qa | grep build
```

The rpm-build package is installed if the command returns a value such as the following:

```
rpm-build-4.3.3.-18_nonpt1
```

2. If nothing is returned, you must install the rpm-build package, which is located on disk 3 (of 5) of the Red Hat Enterprise Advanced Server version 4 installation CDs, using the rpm tool with the -i option.

### 5.1.9 Setting the ulimit

This section describes how to set the ulimit in Linux, which is used to define user system and process resource limits. For Linux systems, you must set the ulimit for the system prior to using the middleware installer. To set the ulimit, complete the following steps:

1. From the command line, type the following:

```
ulimit -f unlimited
```

2. Again from the command line, type the following:

```
ulimit -n 8192
```



If you set the ulimit in the .profile for root, the ulimit setting applies to all processes.

### 5.1.10 Setting the swap size

Maximo Asset Management Essentials can be a resource-intensive application. We recommend you configure and tune your system for maximum performance.

This section describes how to set the size of the swap space used in Linux systems. Typically, the swap size set for Linux systems should be equivalent to twice the amount of physical RAM in the machine. Additional swap space can be made available to the system by doing the following:

- ▶ Increasing the size of the existing swap partition
- ▶ Creating a new, additional swap partition
- ▶ Creating a swap file

Refer to the product documentation for your Linux distribution for more information.

### 5.1.11 Setting shared memory

This section describes how you can set a minimum shared memory value in Linux. For Linux systems, you must set a minimum shared memory value for the system prior to using the middleware installer. To set the minimum shared memory value, complete the following steps:

1. From a command line, type the following:

```
sysctl -w kernel.shmmax
```

Determine if the value is less than 268435456 bytes (256 MB).

2. If you need to increase the value, type the following from a command line:

```
sysctl -w kernel.shmmax=268435456
```

3. Update the value in /etc/sysctl.conf.

### 5.1.12 Enabling remote configuration

If you plan to take advantage of the Maximo Asset Management Essentials installation program feature that automates the configuration of Maximo middleware, you must enable a Remote Execution and Access (RXA) service for each system on which you intend to install Maximo Asset Management Essentials middleware. RXA requires that the target system enable at least one of the protocols supported by RXA, which include rsh, rexec, SSH, and Microsoft Windows Server Message Block (SMB). Before you start the Maximo installation program, ensure that one of these protocols is running and will accept remote logons using a user name and password configured on the target machine.

If the remote system is a Microsoft Windows machine, you must configure RXA to work over SMB. For Microsoft Windows machines, you cannot use Cygwin ssh. If Cygwin is present on the Windows machine, the installation will fail. Default installations of AIX systems might not include a suitable protocol and must have RXA-compatible protocols enabled. RXA does not support accessing network drives on the local or remote system.

## 5.2 Installation flowchart

The flowchart shown in Figure 5-1 on page 46 defines the installation flow required to successfully install Asset Management Essentials. A launchpad utility leads you through the installation of various components of the product. In general, the installation has three phases:

1. Install the required middleware:

Through the launchpad, you can install an appropriate configuration of WebSphere Application Server, DB2, and Tivoli Directory Server. You can change the default parameters, but if you accept the default options, the installation of these middleware components through the launchpad is simple and straightforward.

2. Install the base services.

A set of common base services (Tivoli's process automation engine) provide the general functions for all Maximo-based applications. These base services comprise a set of modules that reside on an application server:

- BEA WebLogic Server
- IBM WebSphere Application Server

The base services utilize one of the following database platforms:

- DB2
- Oracle
- Microsoft SQL Server 2005

**Note:** If you used the launchpad to install the middleware, the launchpad “remembers” the configuration you installed. The launchpad utilizes the configuration to simplify the installation of the base services. If you installed the middleware separately or used other products (namely Oracle, SQL Server, or BEA WebLogic), you can still use the launchpad, but you have to specify the appropriate parameters for the middleware environment you have installed.

3. In the third phase of the installation, you enable or add the Maximo Asset Management Essentials-specific package solutions to the base services installed in step 2 on page 44. Again, the launchpad guides you through this process, helping ensure that all appropriate parameters are specified for your target environment.

Figure 5-1 on page 46 shows how the Maximo Asset Management Essentials installation relates to the installation of Maximo base services (Tivoli's process automation engine), which are the common facilities used by this and other Maximo applications. The Process Solution Package enables the application-specific (in this case, Maximo Asset Management Essentials) functions on top of the base services.

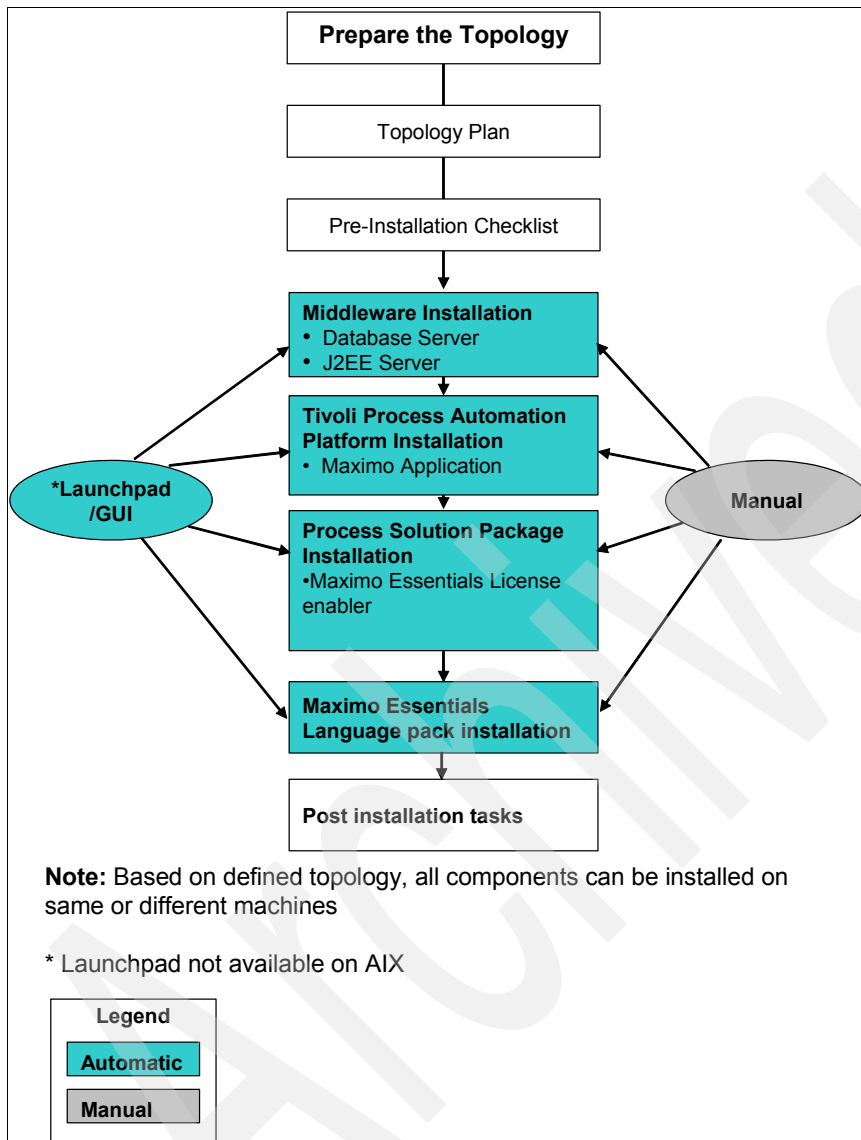


Figure 5-1 Installation flowchart

## 5.3 Middleware installation

The first step in the installation of Maximo Asset Management Essentials is to ensure all the necessary middleware is installed and properly configured. The following sections describe how to do so.

### 5.3.1 Middleware installation overview

Before you can install IBM Maximo Asset Management Essentials, several middleware products must be deployed. Specifically, you must install and deploy the software described in the sections that follow.

#### Database server

Maximo Asset Management Essentials uses the Maximo database to store details about the attributes and history of each configuration item and the details about the relationships between configuration items.

You can manually install a new instance of DB2 UDB V9.1, or you can use a preexisting instance of DB2 UDB V8.2 or DB2 UDB V9.1. Another alternative is to install and configure Oracle 10 or Microsoft SQL Server 2005 for your Maximo Asset Management Essentials deployment.

#### Directory server

The directory server is used to secure the Maximo Asset Management Essentials J2EE application. You can choose to configure a preexisting Microsoft Active Directory server.

**Note:** This installation step is applicable only if you are enabling J2EE security.

#### J2EE server

The J2EE server is the application server used to serve and manage the Maximo Asset Management Essentials application. You must have an instance of BEA WebLogic Server or IBM WebSphere Application Server installed in your environment.

The Maximo Asset Management Essentials product includes a middleware Installer that provides a standard installation of the middleware previously listed. With minimal effort, it installs the following versions of middleware:

- ▶ DB2
  - DB2-ESE\_9.1.0
  - DB2-ESE\_9.1.0\_FP4
- ▶ IBM Agent Controller
  - Rational®-AgentController\_7.0.3.1
- ▶ Tivoli Directory Server
  - TIV-DirectoryServer\_6.1.0
  - TIV-DirectoryServer\_6.1.0\_FP0001
- ▶ WebSphere Application Server V6.1
  - WS-ESS\_6.1\_GA
  - WS-WAS\_IHS\_6.1.0\_FP13
  - WS-WAS\_ND\_6.1.0.13\_Custom\_ISCAE71
  - WS-WAS\_ND\_6.1.0\_Supplemental
  - WS-WAS\_Plugins\_6.1.0\_FP13WS-WAS\_UpdateInstaller\_6.1.0\_FP13

This middleware installer can be used on different systems to install individual components, thus simplifying the installation in a multiserver environment. The next section “Middleware installer” describes the use of the middleware installer on a single system.

You do not have to use the middleware installer. You can install the middleware through normal installation methods. You have to do so if you plan on using other vendors’ products or different versions than those in the preceding list. We do not discuss manual installation of the middleware in this book.

**Note:** You can refer to the Maximo Asset Management Essentials installation guide for details of using the middleware installer.

For more details on other platforms refer to the following installation guides:

- ▶ *Installation Guide: IBM WebSphere Application Server* (mam71\_install\_was.pdf)
- ▶ *Installation Guide: BEA WebLogic Server* (mam71\_install\_bea.pdf)

You can access these guides at:

[http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc\\_7.1/mam\\_welcome.htm](http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc_7.1/mam_welcome.htm)

The section that follows summarizes the steps you perform to install the middleware.

## Middleware installer

To install the prerequisite middleware products for Maximo Asset Management, follow these steps:

1. Log on as a user with administrative authority.
2. Launch the middleware installer from the launchpad (included on the distribution media).

On Microsoft Windows, navigate to the root directory of the product disc or the downloaded installation image, and run the following command:

```
launchpad.exe
```

On Linux and other platforms, the program is named similarly.

On Linux navigate to the root directory of the downloaded installation image and run following commands:

```
chmod -R +755 *  
./launchpad.sh
```

**Important:** The launchpad can be run on either Microsoft Windows or Linux. However, only the options to install the middleware function on both platforms. The options to install the Maximo components work only from the launchpad when running on Windows.

Basically, the deployment of the Maximo components requires the dynamic building of EAR and other support files. These processes currently work only on a Microsoft Windows platform. If they are to be installed on a Linux target, the launchpad (running on Windows) communicates to the target system and directs the installation of EAR and other files through a remote connection.

After completing the previously listed steps, a series of windows is displayed - for example, a language-selection window, welcome window, and license agreement window.

Be aware that the installation images for the middleware must be available and may be located on another DVD within your product media. During this installation process, you are prompted for the location of the middleware images. You also are prompted for information such as the workspace to be used by the middleware installer.

3. From the Deployment Choices panel, as shown in Figure 5-2, select the features to deploy on this machine and then click **Next**. Your choices include the following:
  - **Database server:** The Maximo Asset Management Essentials database is used to store information about assets.
  - **J2EE server:** The J2EE server is used to host and manage the Maximo Asset Management Essentials application. If you choose to install only the J2EE server portion of the middleware, you are prompted to supply the directory server you plan to use to secure it. Your choices are to secure with an existing instance of IBM Tivoli Directory Server or an existing instance of Microsoft Active Directory.
  - **Directory server:** Data maintained by the directory server is used to secure Maximo Asset Management Essentials.

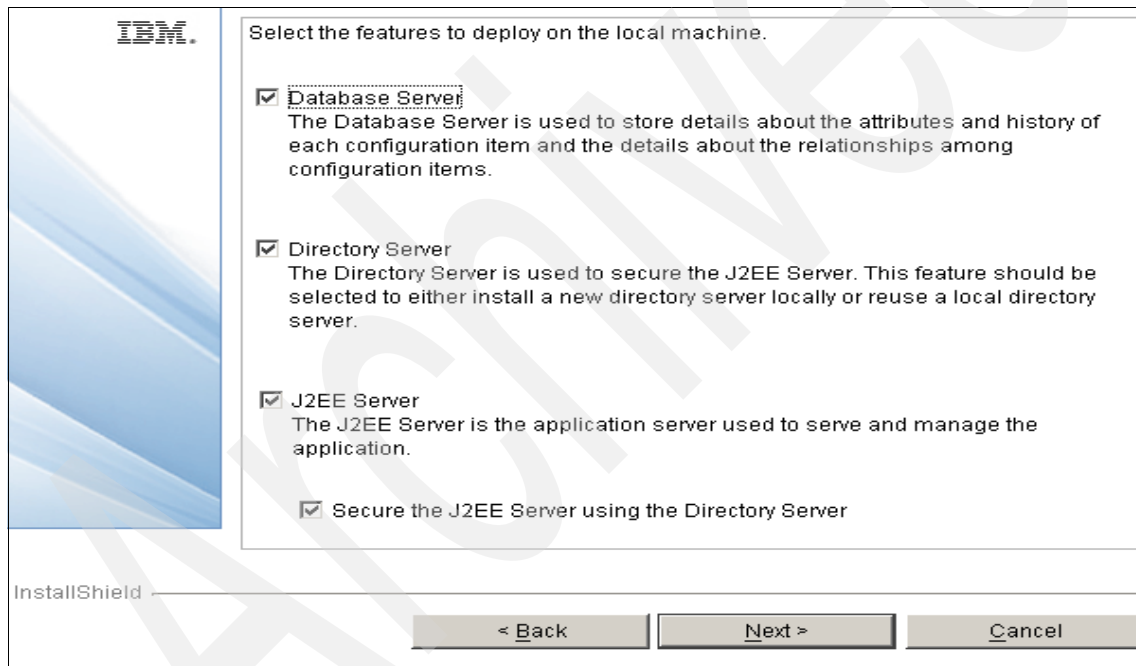


Figure 5-2 Middleware features selection

**Note:** For a multiple server environment, you can launch this installer on separate systems and choose to install individual middleware components on the individual systems.



4. If you are not using IBM Tivoli Directory Server not implementing directory services, deselect the **Directory Server** check box.
5. From the Deployment Plan Summary window (see Figure 5-3), click **Next** to configure the displayed parameters. The deployment plan is generated, and you are provided details about the plan.

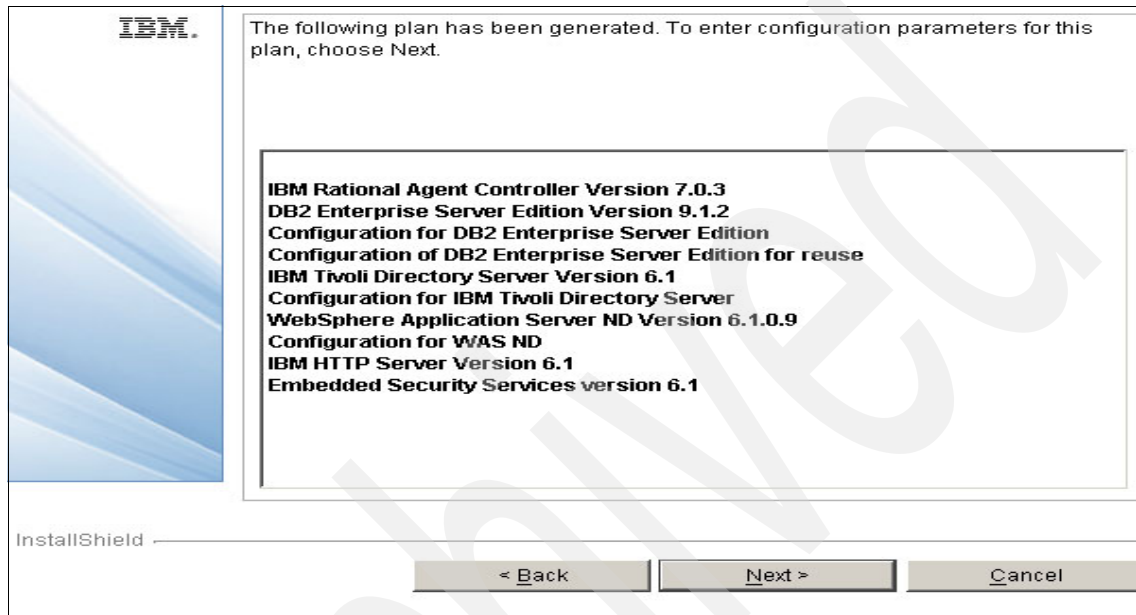


Figure 5-3 Deployment plan with directory services listed

6. From the Credentials panel, enter the user name and password you intend to use to deploy the plan, and then click **Next**.

You can choose to enable the option of using the same password as the default user password value in all panels of the middleware installer. This provides a common password for all middleware components installed through this process.

Figure 5-4 shows the password selection process.

IBM.

☒ Use this password as the value for all subsequent passwords.  
This will override any previously configured values and disable all password fields during this installation as a convenience to get started. You may change the passwords later.

Password:  
\*\*\*\*\*

Confirm password:  
\*\*\*\*\*

InstallShield

< Back    Next >    Cancel

Figure 5-4 Middleware password selection

At this point, you are presented with a series of filled-in panels with default values for each of the middleware components you are installing. For simple environments, you can accept the defaults and move through these panels quickly. If you have special requirements, such as nonstandard port numbers or user IDs, you can make the appropriate changes. Table 5-1 includes a summary of the parameters.

Table 5-1 Summary of middleware component parameters

| Parameter   | Default value (if any)      |
|---|-----------------------------|
| Install location  | C:\Program Files\IBM\SQLLIB |
| DB2 Administration Server username                        | db2admin                    |
| DB2 Administration Server password                        |                             |
| Fenced user (Linux only)                                  |                             |
| Maximo Asset Management Essentials database instance name | ctginst1                    |
| Database port   | 50005                       |
| Database instance username                                |                             |

| Parameter  | Default value (if any)                                       |
|--|--|
| Instance username password                           |  |
| DB2 administrators group                             | DB2ADMNS   |
| DB2 users group (Windows only)                       | DB2USERS   |
| Location to install IBM Tivoli Directory Server.     | C:\Program Files\IBM\LDAP\V6.1 Default is /opt/IBM/ldap/V6.1 |
| Administrator distinguished name                     | Default for all platforms is cn=root.                        |
| Administrator password                               |  |
| Organizational unit                                  | Default for all platforms is ou=SWG.                         |
| Organization and country suffix                      | Default for all platforms is o=IBM,c=US.                     |
| Directory server port                                | Default for all platforms is 389.                            |
| Directory server secure port                         | Default for all platforms is 636.                            |
| Administration port                                  | Default for all platforms is 3538.                           |
| Administration secure port                           | Default for all platforms is 3539.                           |
| TDS Database name                                    | Default for all platforms is security.                       |
| Instance name  | Default for all platforms is idscmdb.                        |
| Port   | Default for all platforms is 50006.                          |
| Instance user password                               |  |
| LDAP Host Name                                       |  |
| Directory server port                                | Default is 389.  |
| LDAP base entity                                     | Default is ou=SWG,o=IBM,c=US                                 |
| User suffix  | Default is ou=users,ou=SWG,o=IBM,c=US                        |
| Group suffix   | Default is ou=groups,ou=SWG,o=IBM,c=US                       |
| Organization   | Default is ou=SWG,o=IBM,c=US                                 |
| WebSphere Application Server Bind distinguished name | Default is cn=root   |
| Bind password  |  |

| Parameter                             | Default value (if any)   |
|---------------------------------------|--|
| Install location                      | Windows: Default is C:\Program Files\IBM\WebSphere\AppServer<br>Linux: Default is /opt/IBM/WebSphere/AppServer               |
| WebSphere Administration username     | Default for all platforms is wasadmin.   |
| WebSphere Administration password     |  |
| Deployment Manager profile name       | Default for all platforms is ctgDmgr01.  |
| Application server profile name       | Default for all platforms is ctgAppSrv01.  |
| Cell name                             | Default for all platforms is ctgCell01.  |
| Deployment Manager node name          | Default for all platforms is ctgCellManager01.   |
| Application server node name          | Default for all platforms is ctgNode01.  |
| Update Installer install location     | Windows: Default is C:\Program Files\IBM\WebSphere\UpdateInstaller.<br>Linux: Default is /opt/IBM/WebSphere/UpdateInstaller. |
| HTTP Server                           | Windows: Default is C:\Program Files\IBM\HTTPServer.<br>Linux: Default is /opt/IBM/HTTPServer.                               |
| HTTP port                             | Default for all platforms is 80.   |
| Admin Server port                     | Default for all platforms is 8008.   |
| HTP server Profile name               | Default for all platforms is ctgAppSrv01.<br>Value cannot be changed.  |
| IBM Agent Controller Install location | Windows: Default is C:\Program Files\IBM\AgentController.<br>Linux: Default is /opt/IBM/AgentController.                     |

7. Specify the location of the Maximo Asset Management Essentials middleware images, and then click **Next**.

- Copy the middleware installation images from the source media to a specified directory. Select this option to copy the Maximo Asset Management Essentials middleware images from the product media to a directory that you specify.
- Specify a directory containing all the required middleware install images (see Figure 5-5 on page 55). Select this option if you intend to specify a

file system directory that already contains all of the Maximo Asset Management Essentials middleware installation images.

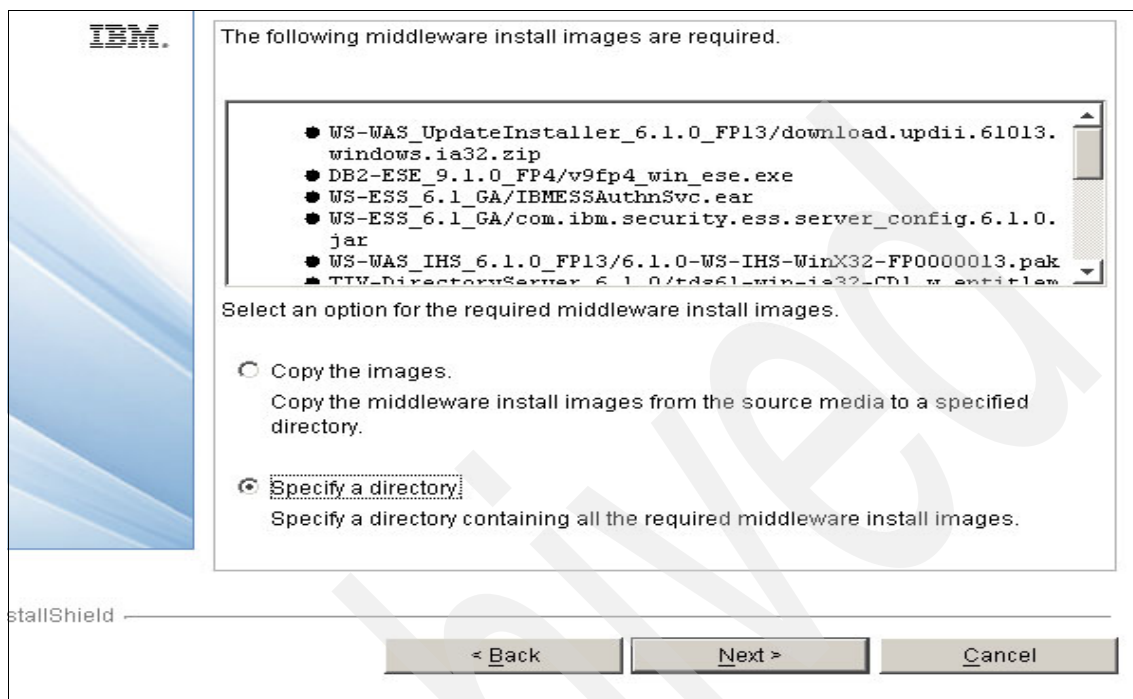


Figure 5-5 Middleware installer image

8. For Linux only, the middleware installer creates a number of temporary files and extracts the middleware images to a temporary directory. Specify a directory or accept the default /tmp.

**Tip:** Make sure /tmp or another specified location has sufficient disk space.

9. From the Deployment Plan Operation panel, select **Deploy the plan**, and then click **Next**. You can also elect to make changes to the deployment plan or parameters you have previously configured from this panel (see Figure 5-6).

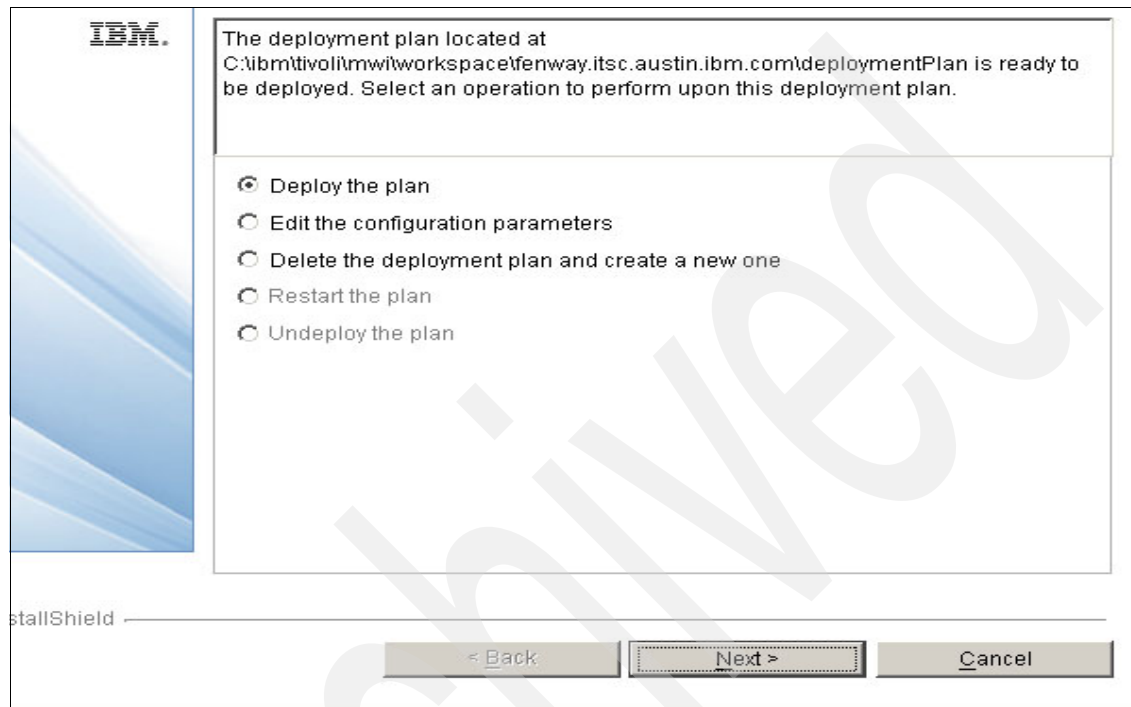


Figure 5-6 Manage Middleware Deployment Plan

10. From the Deployment Plan and Parameter Configuration summary panel (see Figure 5-7), review the contents of the summary, and then click **Deploy** to initiate the installation and configuration of the middleware you selected.

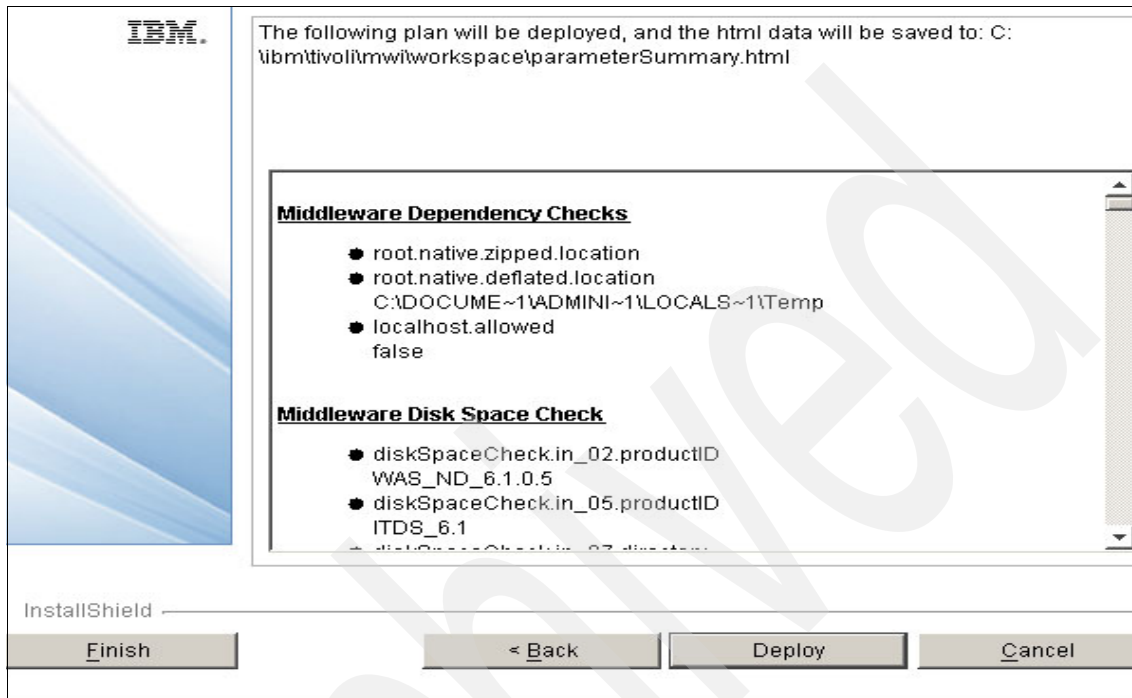


Figure 5-7 Middleware deployment plan

11. After the deployment completes successfully, click **Finish** to exit (see Figure 5-8).

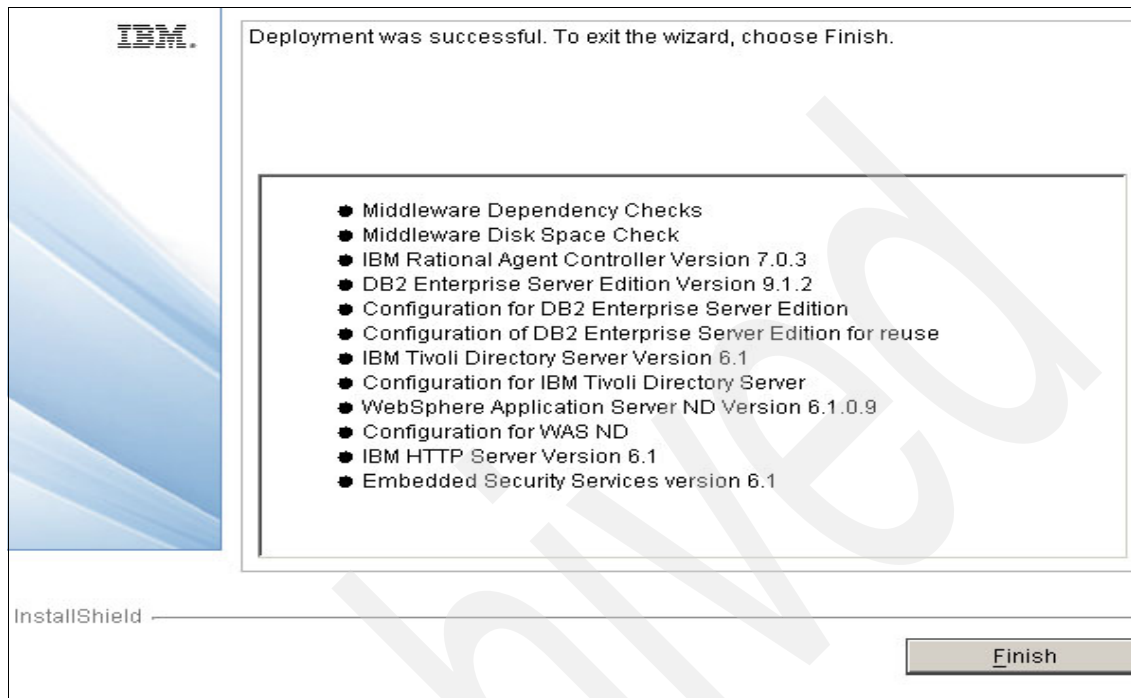


Figure 5-8 Middleware installation completed

### 5.3.2 Middleware installer logs

Middleware installer log files are located in the workspace directory that was defined in the middleware installer. The different types of log files are described in the sections that follow.

#### User interface logs

The logs generated by the middleware installer user interface are located in the workspace directory. The mwi.log file is a high-level log file that was generated by the most recent invocation of the middleware installer. If an error occurs, examine this log file first. An entry in this log file may direct you to a lower-level log file. Log files named mwi.logX, where X is a number, are copies of the mwi.log file from earlier invocations of the middleware installer. So, for example, mwi.log0 is produced after the first invocation of middleware installer, mwi.log1 is produced after the second invocation of middleware installer, and so on.



## Logs for steps run by the user interface

In addition to collecting input from the user, the user interface of the middleware installer also performs several system checks. Examples of system checks run by the user interface include the following:

- ▶ Dependency checking to ensure the operating system meets deployment requirements
- ▶ Inventorying the software on the system to locate existing instances of middleware products deployed by the middleware installer
- ▶ Checking the available disk space to ensure it is sufficient for the deployment

Each of these checks is produced in the form of a step so that it can also be run as part of the deployment plan. When the user interface runs a step, it copies the step into a subdirectory of the workspace directory. The log files generated by a step are located in the same subdirectory and follow the same pattern as a step run as part of the deployment plan.

## Deployment plan logs

The deployment plan is located in the directory `<workspace directory>/<host name>/deploymentPlan`, where `host name` is the host name of the current system. Each time the deployment plan is used to install or uninstall middleware products, a process ID is assigned and log files are generated.

The log files for the deployment plan are located in the subdirectory `logs/processID`. The primary log file for the deployment plan is `DeploymentPlan.log`, a high-level log file that lists the steps invoked as part of the deployment plan.

## Machine plan logs

The machine plan is located in the directory `<workspace directory>/<host name>/deploymentPlan/MachinePlan_<host name>`. The log files for the machine plan are located in the `logs` subdirectory. The primary log files for the machine plan are named `MachinePlan_<host name>_processID`. These log files contain the output generated by ANT when running the machine plan ANT script.

## Deployment plan logs

Each step in the deployment plan is located in a directory named `<workspace directory>/<host name>/deploymentPlan/MachinePlan_<host name>/stepNum_stepID` where `stepNum` is the sequence number of this step in the installation processing order of the deployment plan and `stepID` identifies the step. The log files for the step are located in the `logs` subdirectory.

Some steps may provide a message log file named `stepID_processID.message`, which contains a few entries that summarize the result of invoking the step. All steps provide a trace log file named `stepID_processID.log`, which contains many entries, usually including information about the input parameters and the sub-steps invoked.

### **Logs for sub-steps**

Each step contains one or more sub-steps. The sub-steps perform the actual installation and uninstallation, and then the sub-steps check work for the middleware installer.

Each sub-step is located in the directory `<workspace directory>/<host name>/deploymentPlan/MachinePlan_hostname/stepNum_stepID/operation/substepNum_substepID`, where `operation` is the ANT target in the step ANT script that invokes this sub-step. `substepNum` is the sequence number of this sub-step in the processing order of the step, and `substepID` identifies the sub-step. Typical values for `operation` are `install`, `uninstall`, and `check`.

The log files for the sub-step are usually located in the `processID/logs` subdirectory. Log files generated by the native middleware installation programs are also kept here.

## **5.4 Installing Maximo core components**

This section describes the process of installing the core Maximo function through the launchpad. The core Maximo function was formerly known as Maximo Base Services and now is called Tivoli's process automation engine .

### **5.4.1 Maximo Asset Management Essentials installation overview**

This procedure explains how to use the Maximo Asset Management Essentials installation program to install Maximo. In addition to configuring new instances of Maximo middleware products installed by the middleware installer, the Maximo Asset Management Essentials installation program can configure existing instances of prerequisite products, including those from other vendors, that you wish to use with Maximo.

The instructions provided here are for either a single or multiple machine installation using default values. The instructions assume that you choose to have the Maximo Asset Management Essentials installation program automatically configure middleware across multiple machines to work with Maximo.

If you do not allow the Maximo Asset Management Essentials installation program to automatically configure middleware, it still perform programmatic checks to verify that the documented manual steps were performed properly.

If any errors are encountered, a dialog box detailing the error is displayed. You are not permitted to continue in the Maximo Asset Management Essentials installation task until you resolve the errors. The Maximo Asset Management Essentials installation program can be run only from a Microsoft Windows-based system.

## 5.4.2 Maximo Asset Management Essentials installation

Avoid using localhost for host name values in the installation program. Specify the actual fully qualified host name of the system for all host name values. To install Maximo Asset Management Essentials base services, follow these steps:

1. Log on as a user with administrative authority. Launch the middleware installer from the launchpad. In the launchpad navigation pane, click **Install the Product** → **Maximo Asset Management Essentials**.
2. You are presented with a series of windows prompting you for parameters related to your middleware environment. If you used the middleware installer, most of these parameters are pre-filled. If you manually installed the middleware, you must provide the appropriate values for each of the middleware components.

A special installation application (Install Anywhere) is installed and initiated for installing the rest of the components. Install Anywhere is based on IBM Autonomic installation technology, which helps drive complex, multistep installations.

3. You are prompted for information related to your middleware environment. If you used the middleware installer, you are prompted to use the configuration information that was saved by the middleware installer to automatically pre-fill many of these parameters.

From the Import Middleware Configuration Information panel, specify that you want to use the field values you input into the middleware installer as default values for those same fields in the Maximo Asset Management Essentials installation program. The middleware default information is not used if you select the Simple deployment path. The field values are as follows:

- **Host name:** Enter the host name of the system where the middleware installer was run.
- **User ID:** Enter the user ID that was used to run the middleware installer.
- **Password:** Enter the password of the user ID that was used to run the middleware installer.

- **Workspace Location:** Enter the location of the topology file that contains the values entered for the middleware installer. This file is found in the workspace that was defined during the Maximo middleware installation task - for example, C:\ibm\tivoli\mwi\workspace. Click **Next**.
4. From the Choose Deployment panel, select the **Custom deployment** topology, and then click **Next**.

Select **Simple** if you want to deploy all Maximo Asset Management Essentials components on a single system. This deployment option is typically used only for demonstration, proof-of-concept, or training purposes.

Select **Custom** if you wish to deploy Maximo Asset Management Essentials components across several systems. This deployment option is typically used in a production environment. In our example, we chose Custom to enable us to specify a different host name for the database server, as though we were installing in a multiserver environment (see Table 5-2).

Table 5-2 .Maximo installation components

| Parameter                  | By default, this value is . . .       | Description   |
|----------------------------|---------------------------------------|---|
| Choose installation folder | C:\IBM\SMP                            | Installation location.  |
| Maximo database type       | DB2                                   | Select the database vendor or product. Each database has its own unique set of configurable parameters and values.  |
| DB2 host name              |                                       | Enter the host name of the machine hosting DB2. The host name must be fully qualified.  |
| Port                       | The default is 50005.                 |   |
| Database name              | The default database name is maxdb71. | The database is created if it does not already exist.   |
| Instance                   |                                       | Enter the name of the database instance to be used with Maximo. After you have entered configuration information for the database that was selected, the Maximo Asset Management Essentials installation program connects to the database server to validate the information you entered. |
| Database user ID           |                                       |   |
| Database password          |                                       |   |

From the Automate Database Configuration panel, select **Automate database configuration** if you want the database automatically created, and then click **Next** (see Figure 5-9).

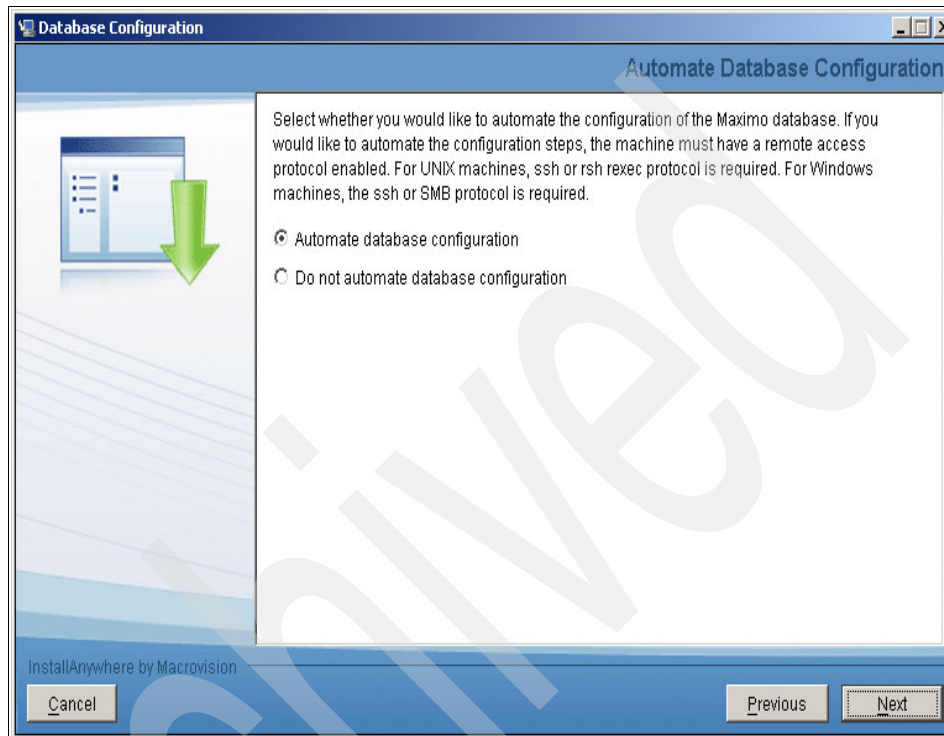
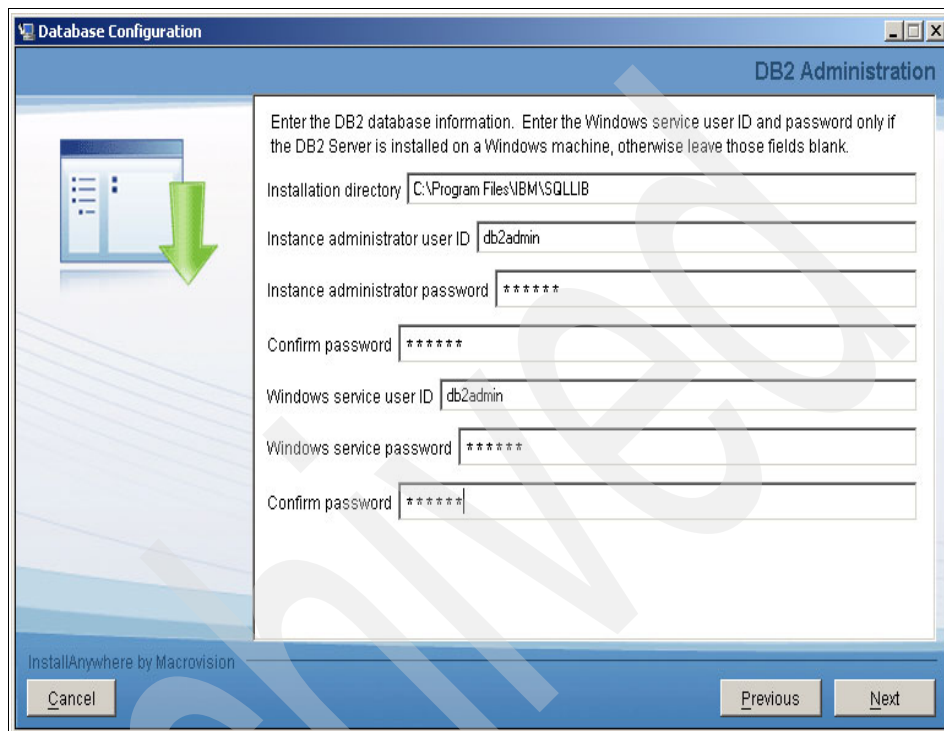


Figure 5-9 Automate Database Configuration

If you choose not to automate database creation, this step assumes you have already created a database instance, a database, tablespaces, a user, and schema for use with Maximo Asset Management Essentials. If you have not manually configured the database prior to selecting **Do not automate database configuration** from within the Maximo Asset Management Essentials installation program, the installation checks to determine whether you have completed these pre-install tasks, and you are reminded to complete them prior to restarting the Maximo Asset Management Essentials installation program.

5. Enter the DB2 database information (see Figure 5-10). Enter the Windows services user ID and passwords only if the DB2 server is installed on a Windows machine, and click **Next**.



**Database Configuration**

**DB2 Administration**

Enter the DB2 database information. Enter the Windows service user ID and password only if the DB2 Server is installed on a Windows machine, otherwise leave those fields blank.

Installation directory

Instance administrator user ID

Instance administrator password

Confirm password

Windows service user ID

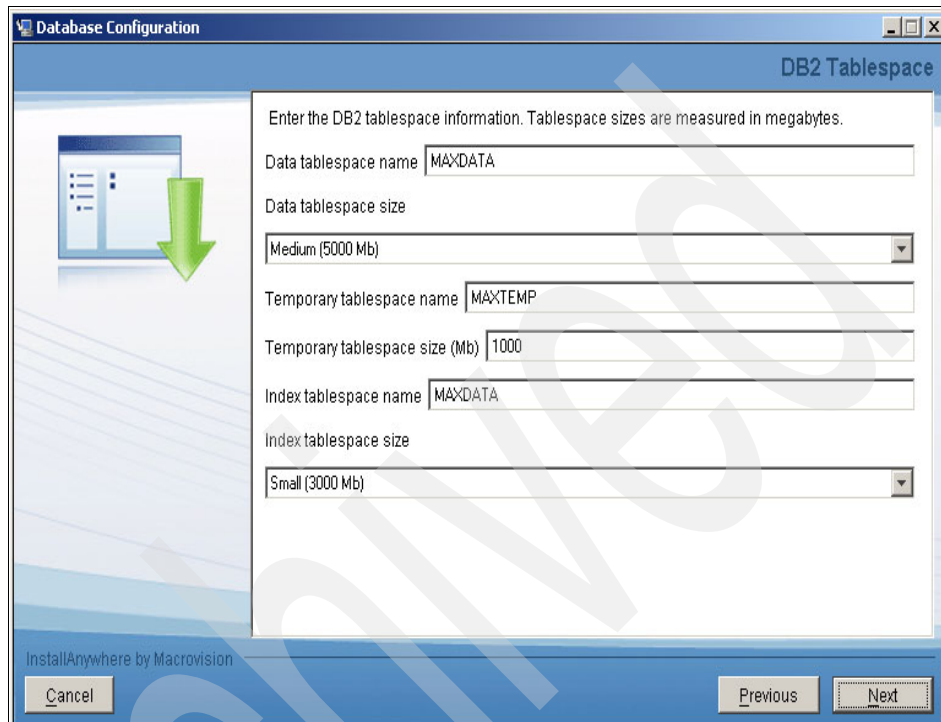
Windows service password

Confirm password

InstallAnywhere by Macrovision

Figure 5-10 DB2 Administration

6. From the DB2 Tablespace panel (see Figure 5-11), specify the table space configuration properties if you choose not to have the DB2 database automatically configured.



Database Configuration

DB2 Tablespace

Enter the DB2 tablespace information. Tablespace sizes are measured in megabytes.

Data tablespace name

Data tablespace size

Temporary tablespace name

Temporary tablespace size (Mb)

Index tablespace name

Index tablespace size

InstallAnywhere by Macrovision

Figure 5-11 DB2 Tablespace

7. From the Maximo Application Server Type panel (see Figure 5-12), select the application server where you wish to deploy your Maximo application; choose **IBM WebSphere Application Server**, click **Next**.

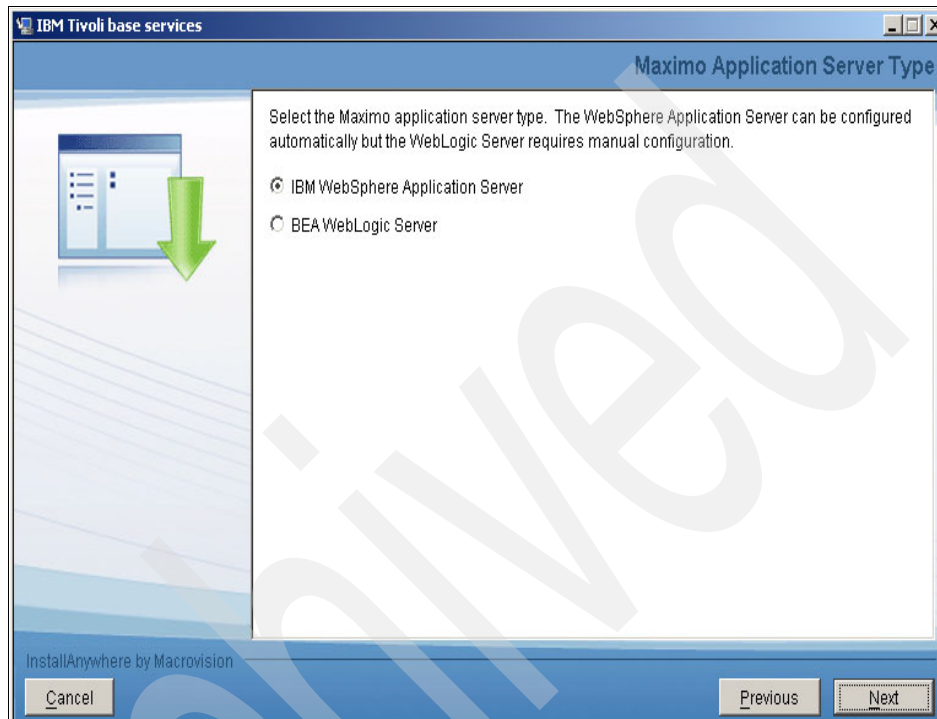


Figure 5-12 Maximo Application Server Type



8. From the WebSphere Connectivity panel (see Figure 5-13), enter host information about the WebSphere Application Server, and then click **Next**.
  - **Host name:** Enter the fully qualified host name of the system hosting WebSphere Application Server. Alternatively, you can provide the IP address for the system.
  - **SOAP port:** Enter the SOAP port of the WebSphere Application Server system. The default value for this field is 8879.

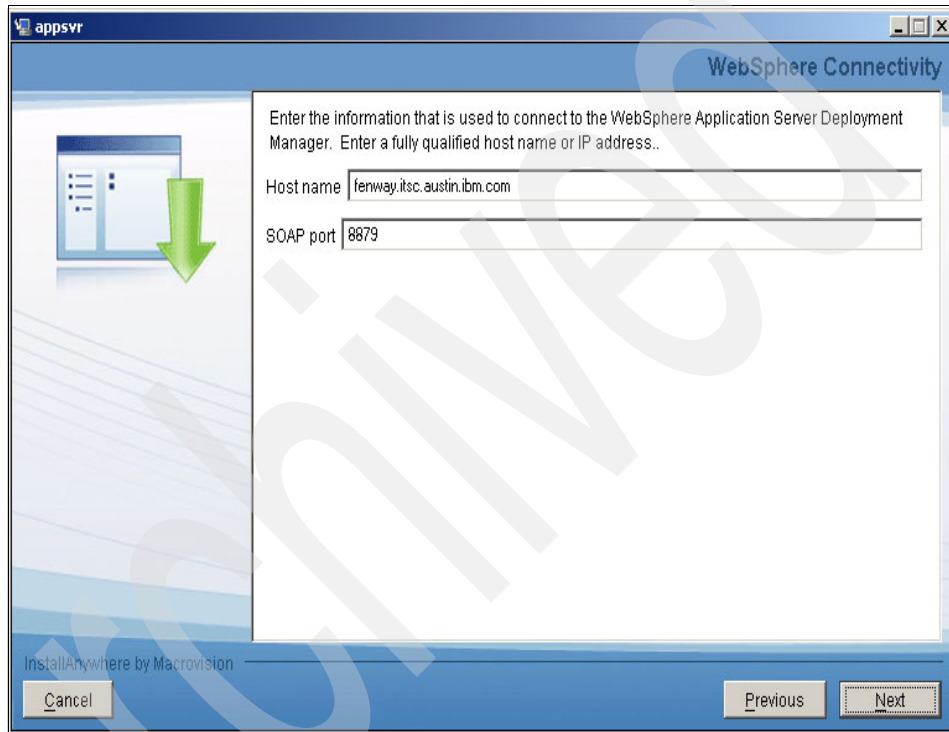
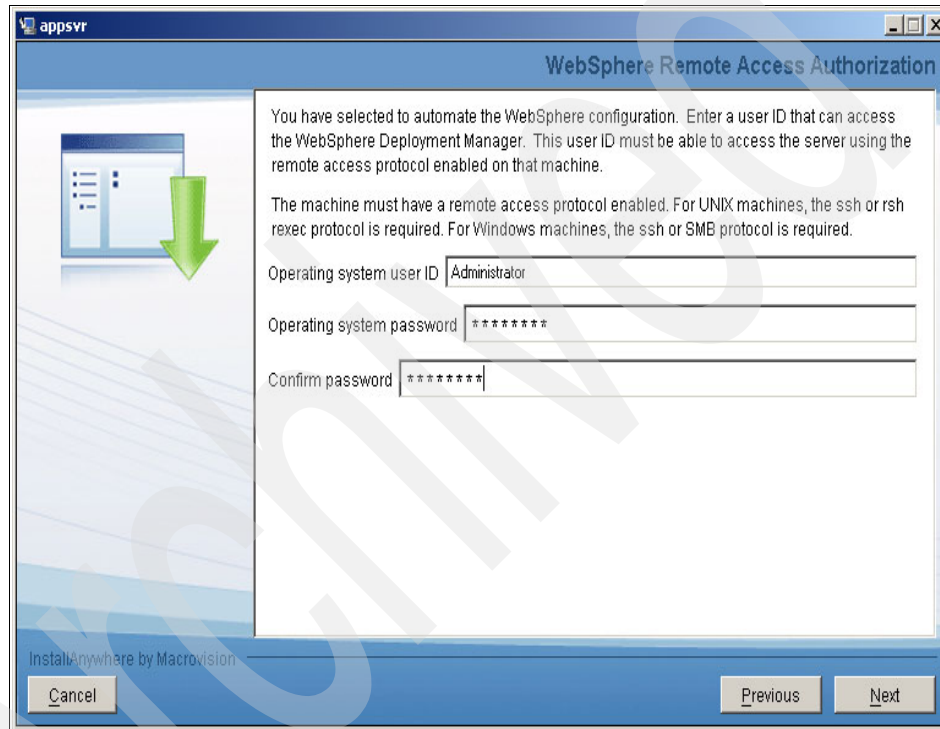


Figure 5-13 WebSphere Connectivity

9. From the WebSphere Remote Access Authorization panel (see Figure 5-14), enter authorization information for the WebSphere Application Server configuration, and then click **Next**.
  - **Operating system user ID:** Enter a valid user ID that can enable the Maximo Asset Management Essentials installation program to access the system that is hosting WebSphere Application Server. This user ID should have administrative rights on the machine you are accessing.
  - **Operating system password:** Enter the password for the system user ID.

The image shows a Windows-style dialog box titled "WebSphere Remote Access Authorization". The window has a blue header bar with the title and standard window controls. On the left side, there is a graphic of a computer monitor with a green arrow pointing down towards the input fields. The main area of the dialog contains instructional text: "You have selected to automate the WebSphere configuration. Enter a user ID that can access the WebSphere Deployment Manager. This user ID must be able to access the server using the remote access protocol enabled on that machine." followed by "The machine must have a remote access protocol enabled. For UNIX machines, the ssh or rsh rexec protocol is required. For Windows machines, the ssh or SMB protocol is required." Below this text are three input fields: "Operating system user ID" with the text "Administrator" entered, "Operating system password" with "\*\*\*\*\*" entered, and "Confirm password" with "\*\*\*\*\*" entered. At the bottom of the dialog, there is a blue bar containing the text "InstallAnywhere by Macrovision" on the left and three buttons: "Cancel", "Previous", and "Next".

WebSphere Remote Access Authorization

You have selected to automate the WebSphere configuration. Enter a user ID that can access the WebSphere Deployment Manager. This user ID must be able to access the server using the remote access protocol enabled on that machine.

The machine must have a remote access protocol enabled. For UNIX machines, the ssh or rsh rexec protocol is required. For Windows machines, the ssh or SMB protocol is required.

Operating system user ID

Operating system password

Confirm password

InstallAnywhere by Macrovision

Figure 5-14 WebSphere Remote Access Authorization panel

10. From the Automate WebSphere Configuration panel (see Figure 5-15), select **Automate WebSphere configuration**, and then click **Next**.

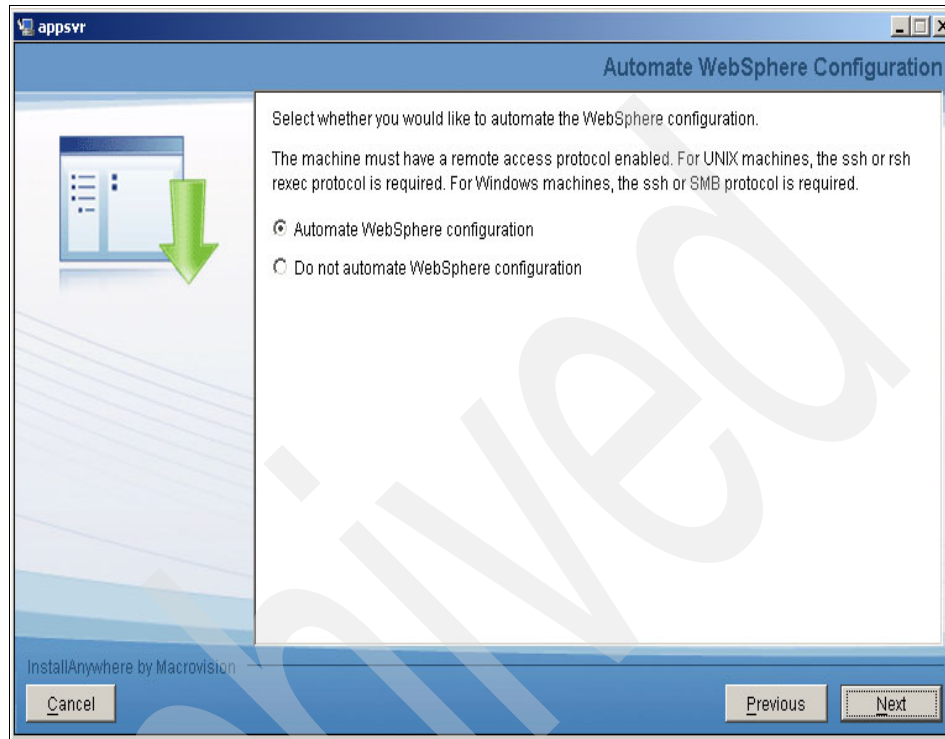


Figure 5-15 Automate WebSphere configuration

If you choose not to have the Maximo Asset Management Essentials installation program automatically configure the middleware, you must have configured the WebSphere Application Server manually prior to the installation of Maximo. Configuration tasks include the following:]

- Creating a profile
- Running WebSphere Application Server as a Microsoft Windows service
- Copying the WebSphere Application Server keystore file from the machine where WebSphere Application Server is installed to the administrative workstation
- Setting up JMS queues

11. From the WebSphere Deployment Manager Configuration panel (see Figure 5-16 on page 71), enter values for the following fields, and then click **Next**:

- **WebSphere installation directory**: Enter the directory where WebSphere Application Server is installed on the host system.
  - On Microsoft Windows, this value might be the following:  
C:\Program Files\IBM\WebSphere\AppServer Linux
  - On Linux, this value might be:  
/opt/IBM/WebSphere/AppServer
  - On AIX, this value might be:  
/usr/AppServer
  - On HP-UX, this value might be:  
/AppServer
  - On Sun Solaris, this value might be:  
AppServer.
- **User**: Enter the administrative user ID. The default for all platforms is wasadmin.
- **Password**: Enter the password for the administrative WebSphere Application Server.
- **Profile name**: Enter the name of the WebSphere Application Server profile. The default for all platforms is ctgDmgr01.

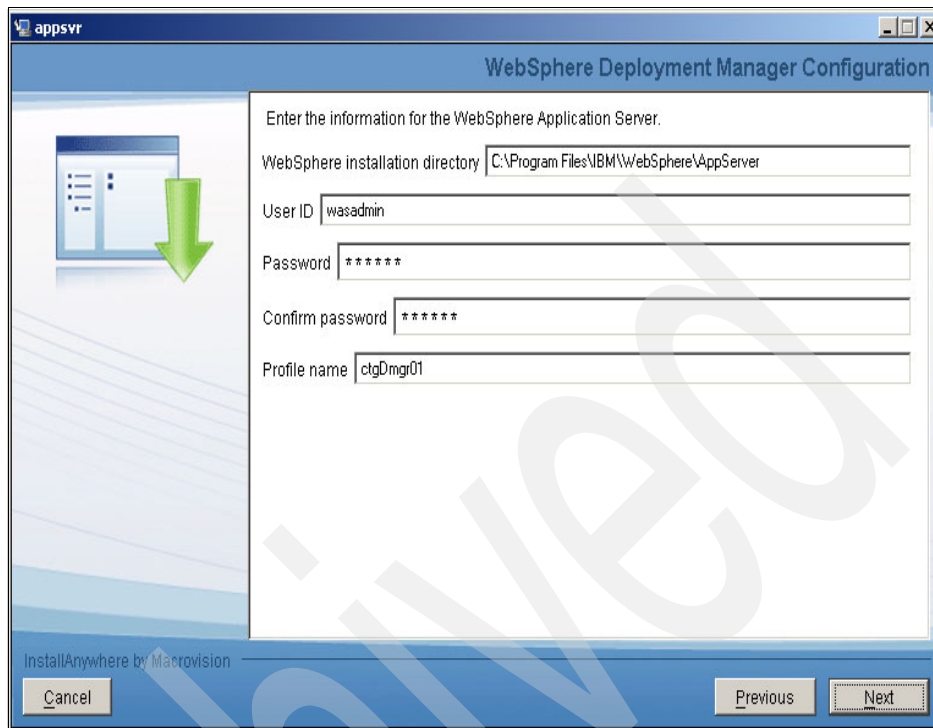


Figure 5-16 WebSphere Deployment Manager Configuration

12. From the WebSphere Application Server Configuration panel (see Figure 5-17), enter the following information, and then click **Next**.

- **Web server port:** Enter the Web server port used by WebSphere Application Server. The default for all platforms is 80.
- **Web server name:** Enter the name of the Web Application Server. The default for all platforms is webserver1.
- **Node name:** Enter the name of the WebSphere Application Server node containing the application server. The default for all platforms is ctgNode01.
- **Cluster name:** Enter the name of the WebSphere Application Server cluster containing the application server. The default for all platforms is MAXIMOCLUSTER. The cluster name is optional.

The cluster and application server are created if they do not exist.

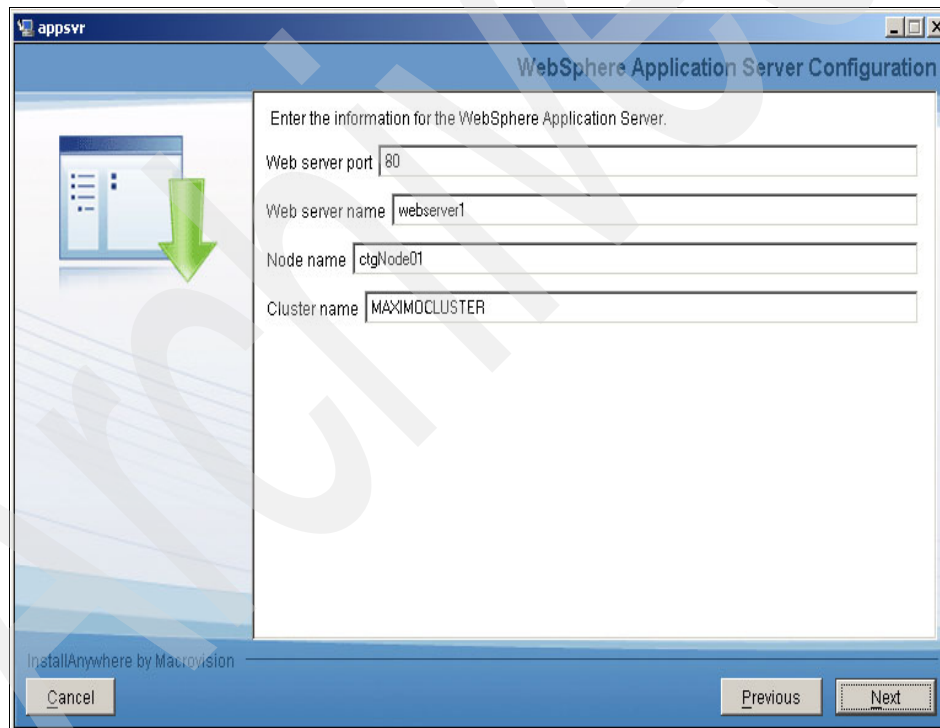
The image shows a Windows-style dialog box titled "WebSphere Application Server Configuration". The window has a blue header bar with the title and standard window controls. On the left side, there is a graphic of a computer monitor with a green arrow pointing down towards the input fields. The main area of the dialog contains the text "Enter the information for the WebSphere Application Server." followed by four text input fields. The first field is labeled "Web server port" and contains the value "80". The second field is labeled "Web server name" and contains the value "webserver1". The third field is labeled "Node name" and contains the value "ctgNode01". The fourth field is labeled "Cluster name" and contains the value "MAXIMOCLUSTER". At the bottom of the dialog, there is a blue bar containing three buttons: "Cancel", "Previous", and "Next". The "Next" button is highlighted with a dashed border. In the bottom left corner of the window, there is a small text label "InstallAnywhere by Macrovision".

Figure 5-17 WebSphere Application Server Configuration

13. From the Security panel (see Figure 5-18), indicate whether application server security should be enabled automatically, and then click **Next**.

**Note:** This step is applicable only if you are implementing the Tivoli Directory Server or Microsoft Active Directory Server for security.

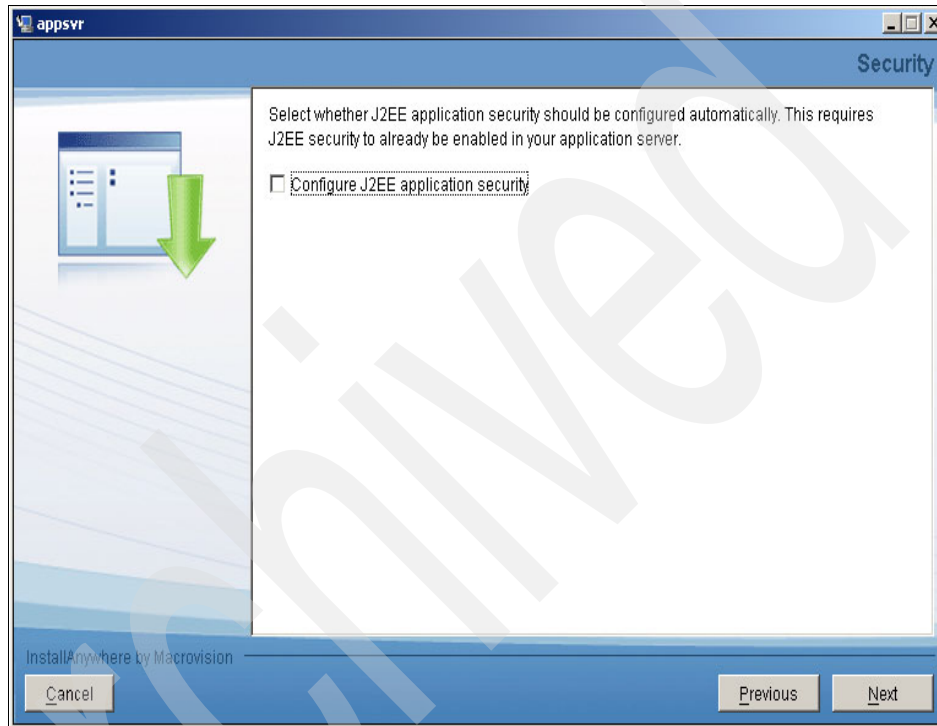


Figure 5-18 Security

14. From the Integration Adapter JMS Configuration panel (see Figure 5-19), enter the following information, and then click **Next**.
- **JMS DataSource name:** A JMS server requires a DB2 data repository to be configured to maintain messages. Enter the name of the database to be used by JMS; the default is intjmsds.
  - **Persist JMS messages:** Select this option if you want the Maximo Asset Management Essentials installation program to set the JMS implementation to persist messages.
  - **Do not persist JMS messages:** Select this option if you do not want the Maximo Asset Management Essentials installation program to set the JMS implementation to persist messages automatically. When you select this option, a database is not used to persist messages. If you later decide that you want to persist JMS messages, you have to configure the JMS implementation manually.

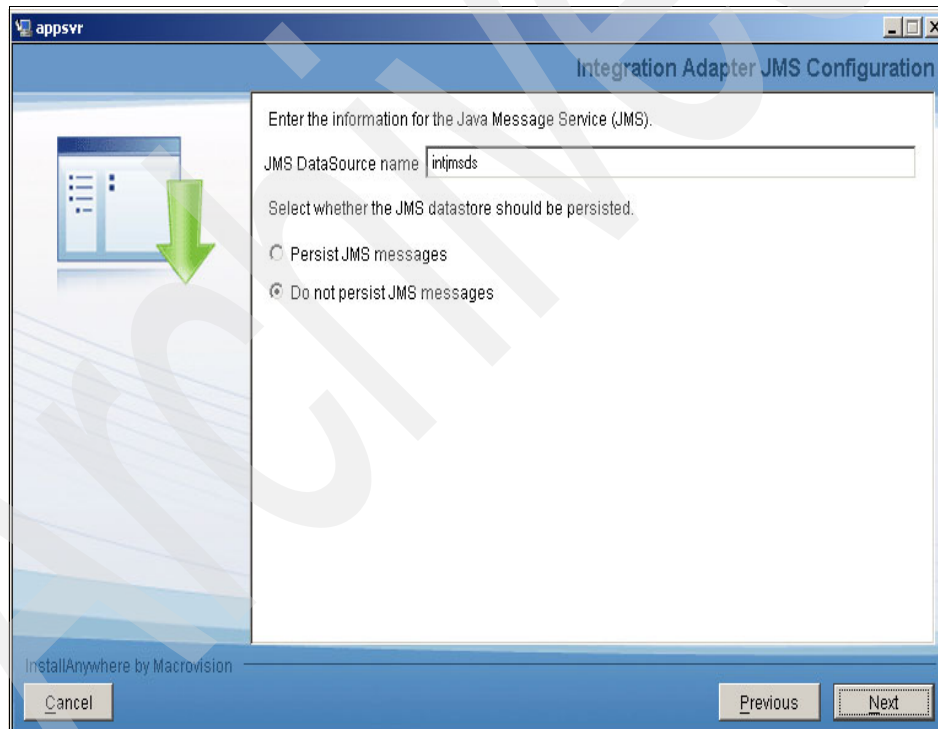


Figure 5-19 Integration Adapter JMS Configuration



15. From the Input Summary panel (see Figure 5-20), review the information you have provided the Maximo Asset Management Essentials installation program, and then click **Next**.

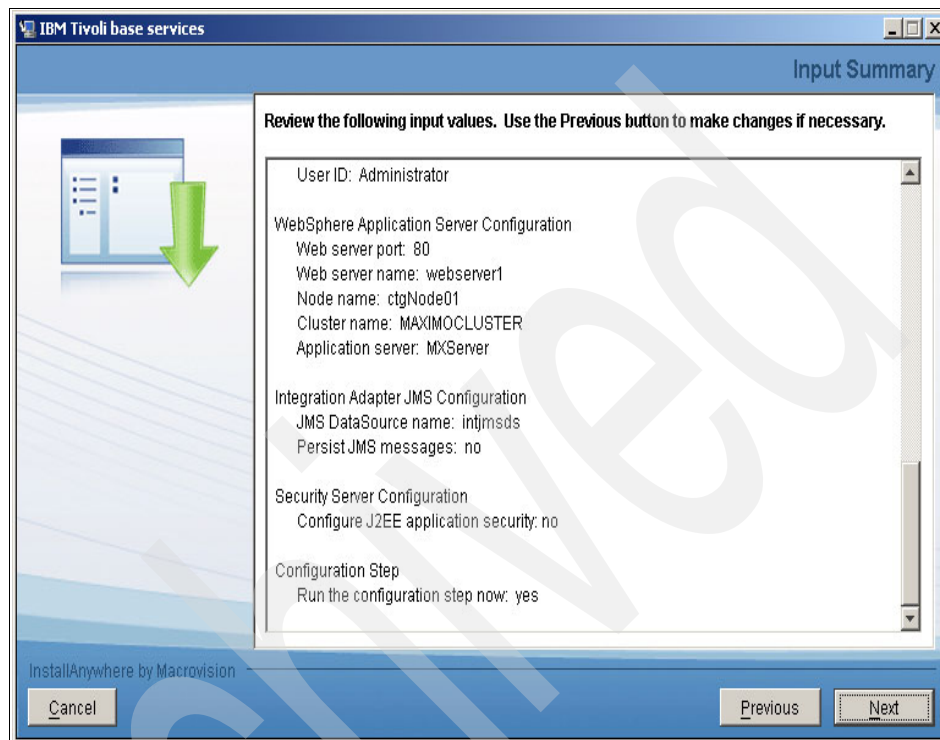


Figure 5-20 Input Summary

16. From the preinstallation Summary panel (see Figure 5-21), review the installation information, and then click **Install**.

The installation task begins. You can monitor progress by viewing messages displayed above the progress bar. Click **Next**.

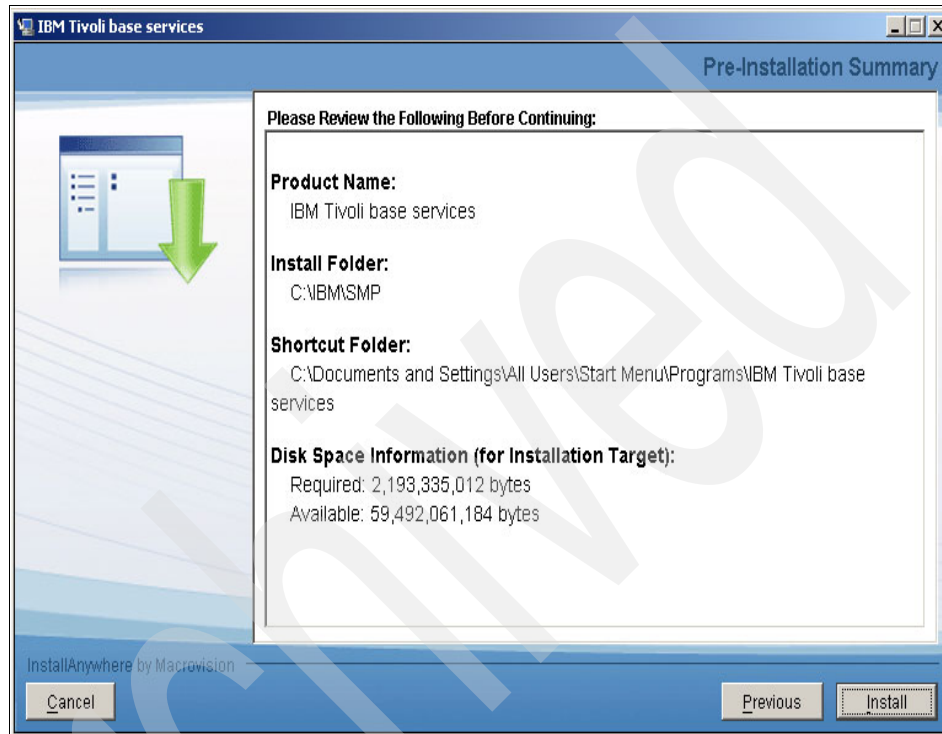


Figure 5-21 Preinstallation Summary

The installation may take quite some time. (The duration of the installation is dependent mostly on the physical capacity of the server where you are installing the base services.) In our test environment, installation took one to two hours.

17. The Language Support panel (see Figure 5-22) prompts you to install additional language packs over and above the base language. Click **No**, then **Next**.

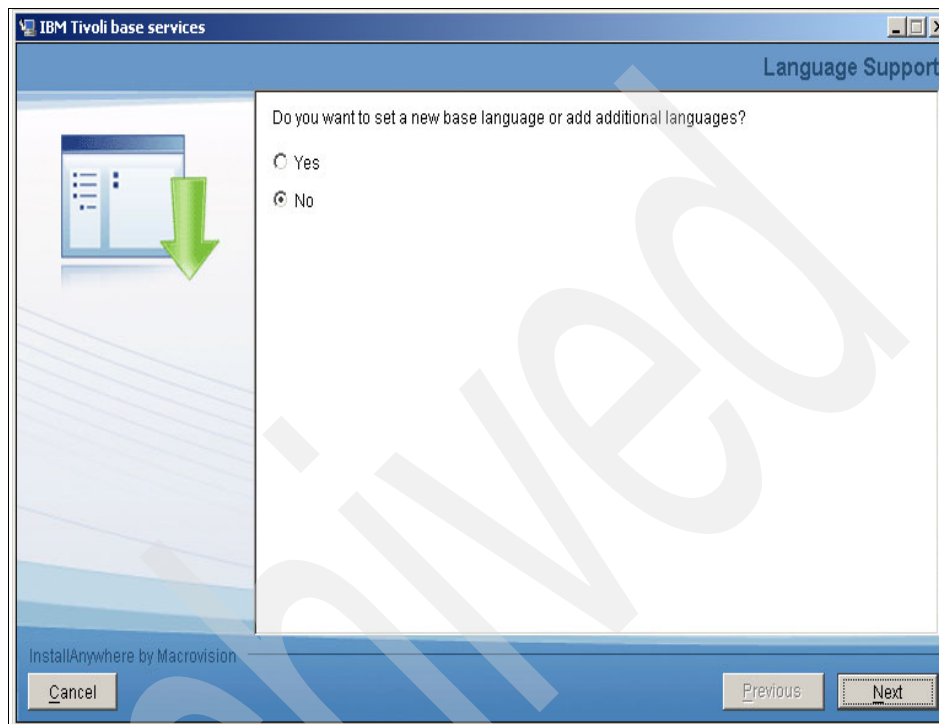


Figure 5-22 Language Support

18. From the Install Complete panel (see Figure 5-23), click **Done**.

When the Maximo Asset Management Essentials installation program has completed installation and configuration tasks, it exits. You can find logs at <MAM\_Home>/logs.

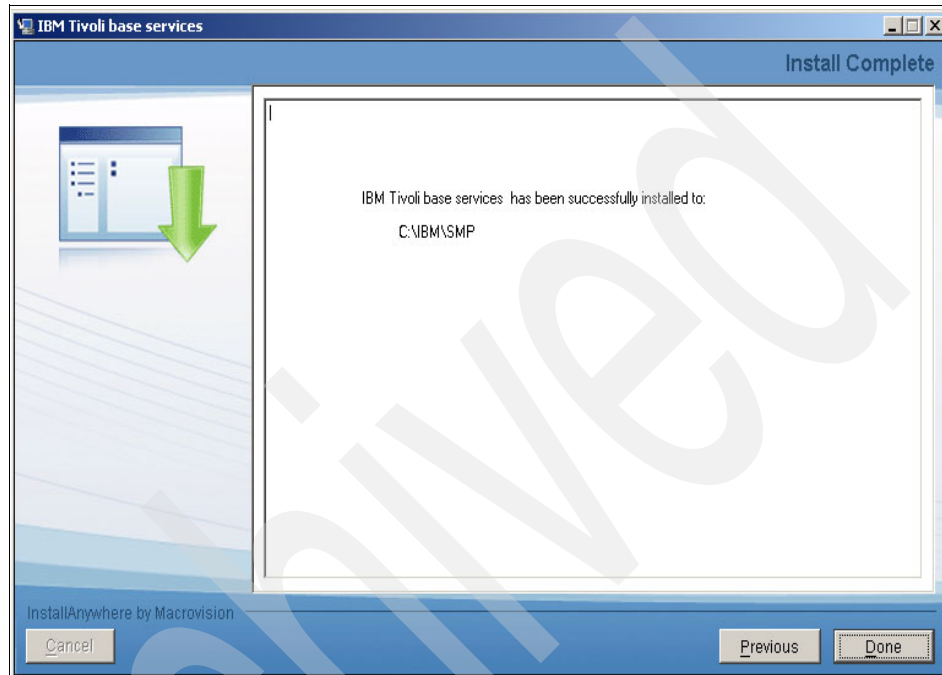


Figure 5-23 Install Complete

### 5.4.3 After Maximo Essentials base services installation

After you have installed Maximo Asset Management Essentials base services, you must complete the following steps:

1. Before logging on to the newly installed Maximo Asset Management Essentials application, access the Microsoft Windows Services and ensure that the relevant services are started. These services are the following:
  - DB2 COPY Services
  - DB2 Governor
  - DB2 License Server
  - DB2 Management Service
  - DB2 Remote Command Server
  - DB2 Security Server
  - DB2DAS

- IBM HTTP Server V6.1
  - IBM HTTP Administration V6.1
  - IBM WebSphere Application Server V6.1
  - IBM WebSphere Application Server V6.1 Node Agent
  - IBM Rational Agent Controller
  - IBM Tivoli Directory Admin Daemon V6.1
  - IBM Tivoli Directory Server Instance V6.1
2. Although not required, you can optionally start the node agent as a Windows service.

To create a node agent as a Windows service, perform the following on the WebSphere Application Server:

- a. Open a command prompt.
- b. Change the directory to <WAS\_HOME>\bin.
- c. Run the following command (as a single line):

```
WASService add NodeAgent serverName nodeagent profilePath  
C:\Program Files\IBM\WebSphere\AppServer\profiles\ctgAppSrv01  
wasHome <C:>\IBM\WebSphere\AppServer logRoot  
<C:>\IBM\WebSphere\AppServer\logs\nodeagent logFile  
<C:>\IBM\WebSphere\AppServer\logs\nodeagent\ startServer.log  
restart true
```

- d. Close the command prompt.

**Tip:** When implementing the Tivoli Directory Server, if you have not resumed your Tivoli services, you might not be able to access the WebSphere Application Server console because the administrator user name and password have not been validated. Make sure your service is running.

3. When the services are started, log on to this URL: `http://servername:9080/maximo`. Check whether you connect to Maximo Asset Management Essentials (see Figure 5-24).

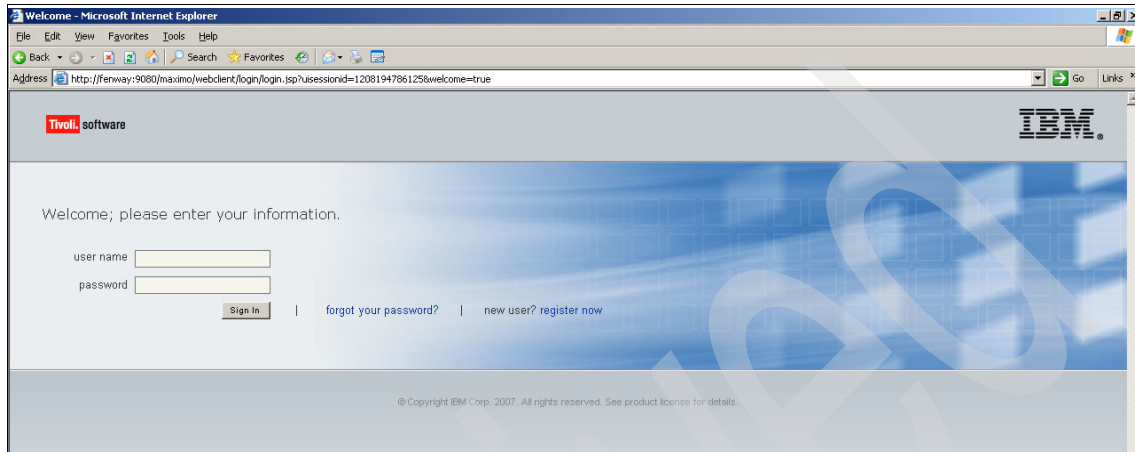


Figure 5-24 Maximo Asset Management Essentials logon page

## 5.5 Process solution package installation

Process solutions are versioned software components. The Process Solution installation programs support a variety of software life cycle operations that may be applied against process solutions.

A Process Solution package is a self-contained ZIP file of installation artifacts and deployment logic. You can deploy it using the Process Solution installation program. Installation artifacts are the files and content installed on your Maximo Asset Management Essentials environment to enable the services management functionality of the Process Manager product or Integration module. The deployment logic consists of actions carried out to deploy the process solution into the Maximo environment.

Typically, these actions include building and deploying J2EE applications, running database scripts that load the Process Solution content into the Maximo database, and adding users and groups for security. Additionally, optional sample data can be installed.

The base Install operation installs and deploys a new process solution on your Maximo Asset Management Essentials environment. After installation, a Process Solution may be updated in several ways.

The Process Solution installation programs are able to process the following package types:

- ▶ Base install package - Required to install a new process solution using the base install operation.
- ▶ Incremental Update package - Required when performing an upgrade operation.
- ▶ Fix package - Required when applying an interim fix to a process solution.
- ▶ Full update package - Used to perform a base install operation if no instance of the Process Solution is currently installed. In addition, it may be used to perform an upgrade operation on a currently installed Process Solution. The Process Solution installation programs ensure that the appropriate package type is processed for any given operation.

### 5.5.1 Pre-Process Solution package installation checklist

When you perform a deployment operation using the Process Solution installation program, you are running actions that modify the configuration and content of your J2EE, database and directory middleware servers. You should review the steps in the following sections before invoking the Process Solution installation program.

- ▶ Have middleware logon Information available.

The Process Solution installation program requires access to middleware servers to automate the deployment of the Process Solution package. You must know the administrative user IDs and passwords for the impacted middleware servers. The actual middleware servers whose logon information is required depends on the Process Solution package being installed. The Process Solution installation program ensures that required logon information is specified before continuing with the deployment operation.

- ▶ Back up middleware servers and administrative workstation.

You should create backups for impacted J2EE, database, and directory servers before you deploy a Process Solution package using the Process Solution installation program.

- ▶ Ensure middleware servers are started.

Start the impacted middleware servers before running the Process Solution installer.

## 5.5.2 Enable Maximo Asset Management Essentials license

Only after you install the Process Solution package are you entitled to use Maximo Asset Management Essentials according to the license you have purchased. Complete the following steps to install a Process Solution package in Maximo using the Process Solution installation wizard:

1. From the launchpad, launch the Process Solution installation program by clicking the **3. Enable Maximo Asset Management License for usage** link (see Figure 5-25). The Process Solution Installation Install Anywhere Installer executes on the Maximo administrative workstation. The launch script is deployed and configured by the Maximo Asset Management Essentials installation program.

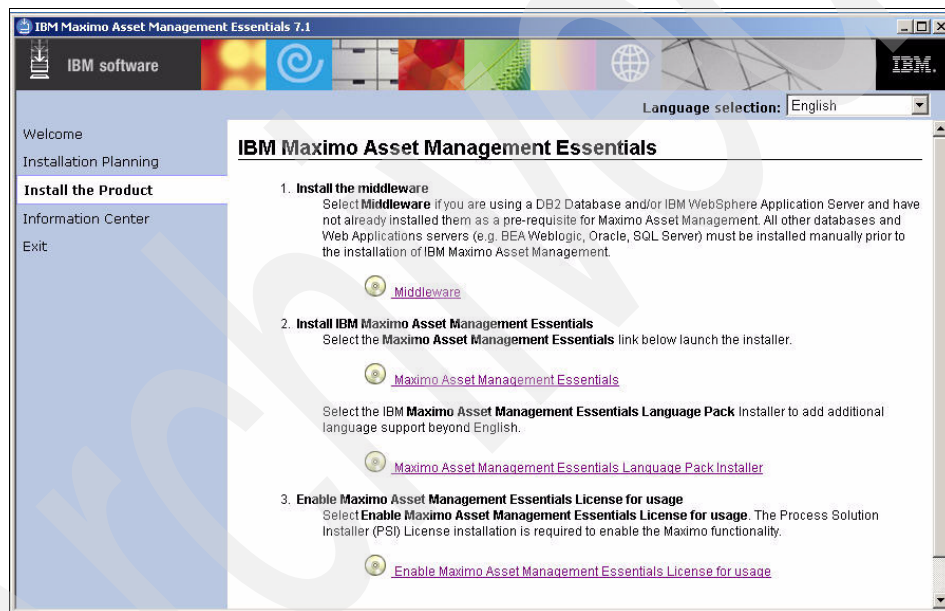


Figure 5-25 Enable Maximo Asset Management Essentials license

In our case, the PSI package selected is a base install of the Maximo Asset Management Essentials V7.1 package. The Process Solution installation program performs a series of validation checks to verify that the package you selected is valid. The system is checked to ensure that the package has not already been deployed.



2. Enable the package to be validated, click **Next** (see Figure 5-26).

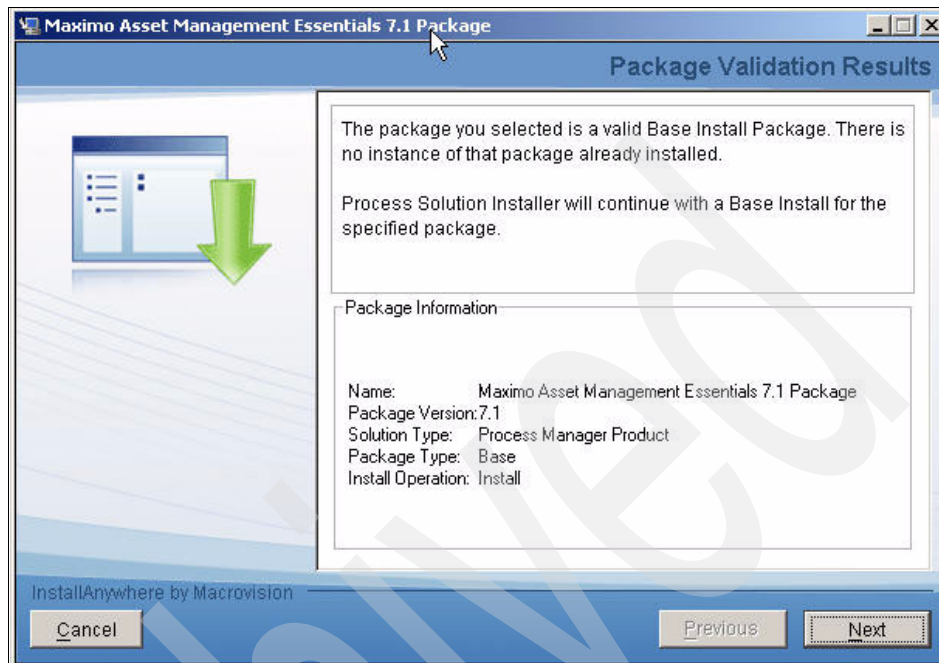


Figure 5-26 Package Validation Results

3. From the Middleware Login Information panel (see Figure 5-27), enter the credentials for which you are being prompted, and then click **Next**. After you have entered the requested user IDs and passwords, the Process Solution installation wizard validates the credentials by connecting to the middleware servers using the supplied credentials.

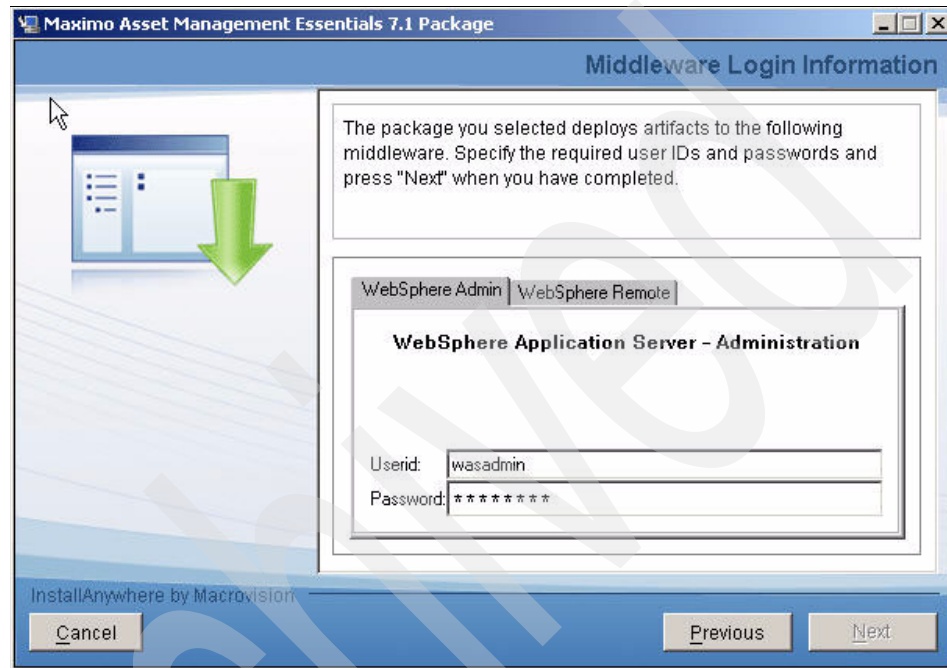


Figure 5-27 Middleware Login Information

4. After the credentials have been verified, a Package Options panel (see Figure 5-28) is displayed that details the deployment options that the package supports. Leave both the **Supported Package Options** boxes unchecked to deploy the EAR files and Maximo database updated by the Process Solution installation program, and click **Next**.
  - The supported package options definitions are the following:
    - **Defer Maximo Application Redeployment**

If you intend to apply more than one package solution, select this check box; by doing so, you redeploy the EAR files only once after all the package solutions have been installed.
    - **Defer the update of the Maximo Database**

If you intend to apply more than one package solution, select this check box; by doing so, you update the database only once after all the package solutions have been installed.

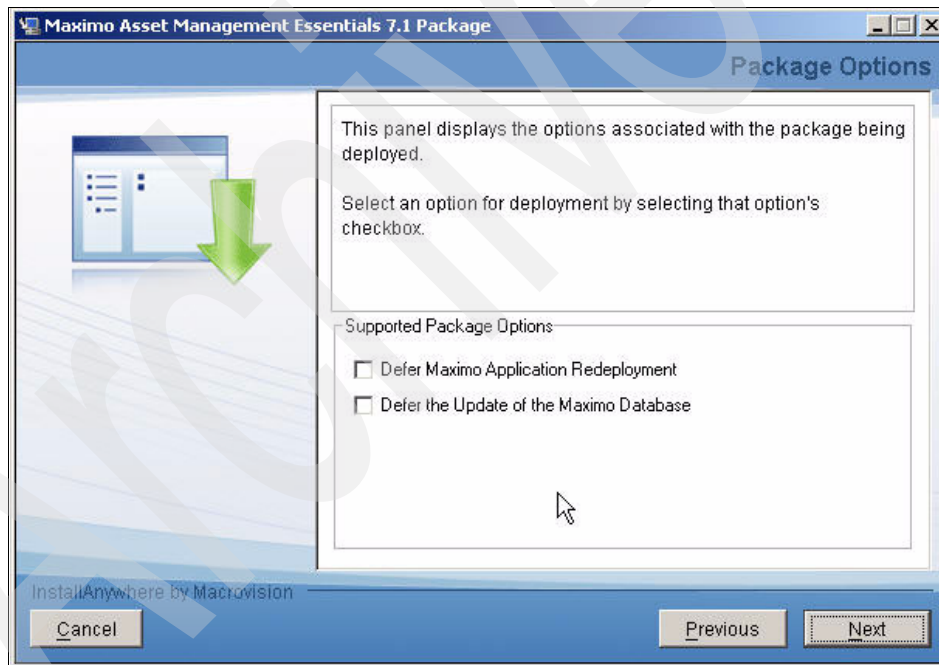


Figure 5-28 Package Options

5. From the Pre-Install Summary panel, review and verify the information displayed, and then click **Next**.

- At this point, the Process Solution installation program begins the package installation process. The Deployment Progress panel informs you of the deployment progress of the installation.

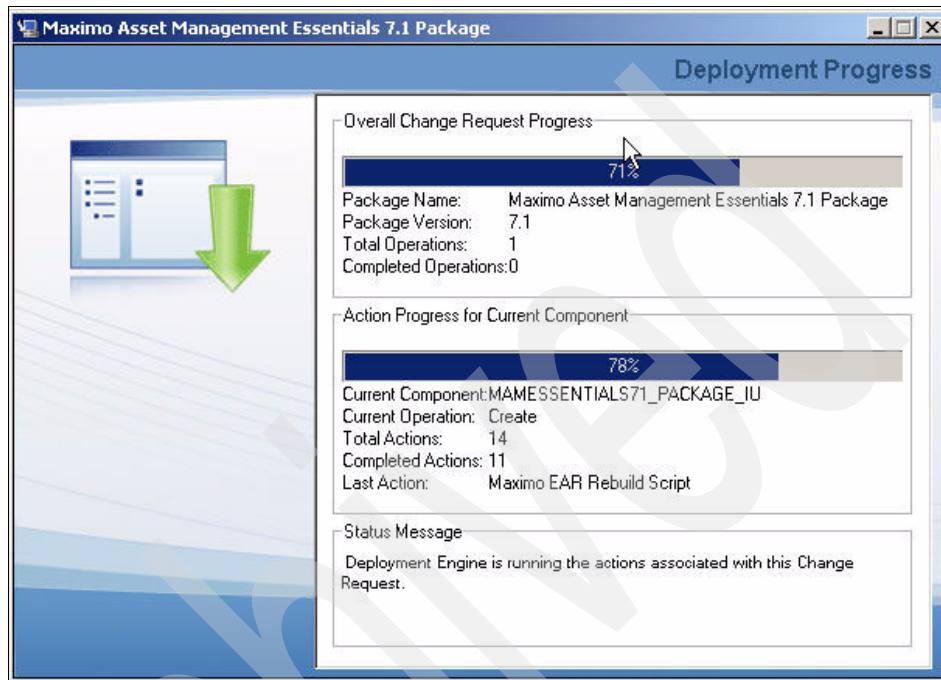


Figure 5-29 Deployment Progress

7. When the installation has completed successfully, from the Package Successfully Deployed panel (see Figure 5-30), click **Done** to exit the Process Solution installation wizard.

If a package failure occurs, a message is displayed for the step that failed. You might see an installation progress bar displayed briefly after you click **Done**. The Process Solution installation wizard is terminating, and no installation activities are being performed. The deployment of the Process Solution package you were installing has already completed, and you can safely ignore the progress bar.

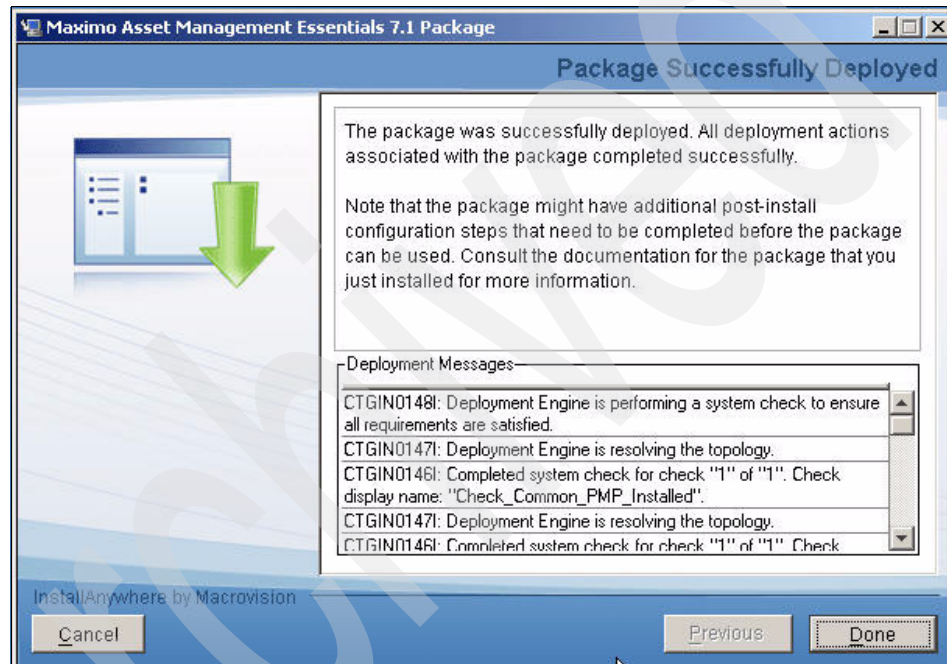


Figure 5-30 Package Successfully Deployed

## 5.6 Post-installation tasks

Before configuring your Maximo Asset Management Essentials deployment, take the time to ensure that the basic installation is functional. To confirm this, read the following sections, and verify and adjust where necessary.

## 5.6.1 Ensuring relevant Maximo services are running

Before you can attempt to access Maximo Asset Management Essentials, ensure that all the relevant services are running. From Windows Services, set the following services to automatically start up:

- ▶ DB2 COPY Services
- ▶ DB2 Governor
- ▶ DB2 License Server
- ▶ DB2 Management Service
- ▶ DB2 Remote Command Server
- ▶ DB2 Security Server
- ▶ DB2DAS
- ▶ IBM HTTP Server V6.1
- ▶ IBM HTTP Administration V6.1
- ▶ IBM WebSphere Application Server V6.1
- ▶ IBM WebSphere Application Server V6.1 Node Agent
- ▶ IBM Rational Agent Controller
- ▶ IBM Tivoli Directory Admin Daemon V6.1
- ▶ IBM Tivoli Directory Server Instance V6.1

**Tip:** If you are running a demo Maximo Asset Management Essentials installation on limited resources - for example, a mobile computer or a virtual machine - we recommend you do not run the specified services as automatic, but rather keep these services configured to start manually.

## 5.6.2 Ensuring connectivity to the Maximo application

After you successfully resume the requested services, ensure connectivity by accessing the logon panel and logging on to the Maximo Asset Management Essentials.

The default Maximo system administrator user ID and passwords are as follows

- ▶ User ID: **maxadmin**
- ▶ Password: **maxadmin**

**Tip:** We strongly recommend that, as system administrator, you change your password at regular intervals. Also, if the maxadmin user is administering on a two-language implementation, take care to note in which locals this user is applying the changes. Aim wherever possible to administer in the base language.

### 5.6.3 Ensuring the Language Pack installation is functional

To determine whether the Language Pack installation is successful, ensure you can log on into the various languages listed on your Maximo Asset Management Essentials logon page. Carefully assess whether both the Language Packs are installed as planned. If your languages are not installed carefully, reassess and implement those languages.

### 5.6.4 Ensuring client connectivity

Because Maximo Asset Management Essentials has a Web-based infrastructure, it is imperative to verify accessibility from the clients who will be accessing Maximo. Ensure the users can access the logon page. A number of client hardware and software requirements (refer to 4.1, “Hardware and software requirements” on page 30) must be met to confirm this task.

**Tip:** Refer to 4.1, “Hardware and software requirements” on page 30 for information regarding hardware and software requirements.

### 5.6.5 Checking report administration

Before configuring your deployment, perform the report administration checks described in the following sections.

#### **Generate request pages**

Request pages are the parameter inputs required for each report. Before the reports can be accessed from with Maximo Asset Management Essentials, the request pages must be generated; follow these steps:

1. Log on into Maximo as the system administrator.

2. From the Start Center, navigate to the Go To menu and select **Administration** → **Reporting Administration** (see Figure 5-31).

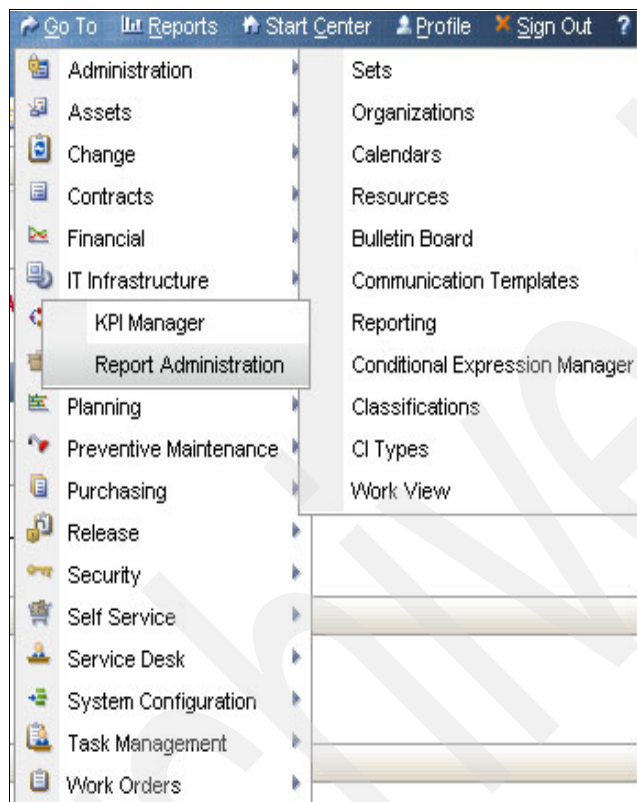


Figure 5-31 Report Administration



3. In the center of the page is the Generate Request Pages button, click **Generate Request Pages**.
4. At this stage, the request pages have been successfully generated, as shown in Figure 5-32.

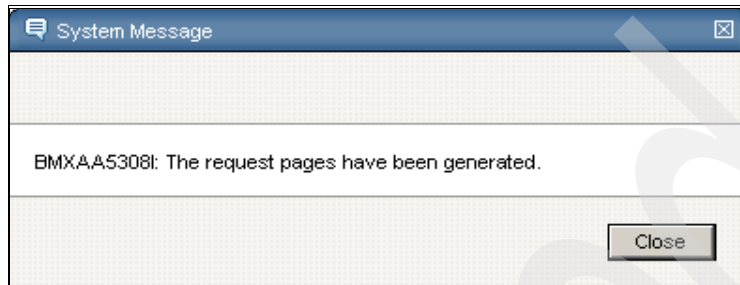


Figure 5-32 Generate Request pages success

**Note:** Generating the request pages is a step you execute only when you have created a new installation or uploaded a new report. We recommend that you complete this step when other users have logged out of the system.

### Generate report output

As a best practice, we suggest you verify whether the reports generated successfully. During the Maximo Asset Management Essentials installation process, the default report tool BIRT is automatically configured to run reports from within Maximo Asset Management Essentials. In the next few steps, we test and run a standard report.

1. Log on to Maximo Asset Management.

2. From the Start Center, navigate to the Go To function and select **Administration** → **Resources** → **Labor** (see Figure 5-33).

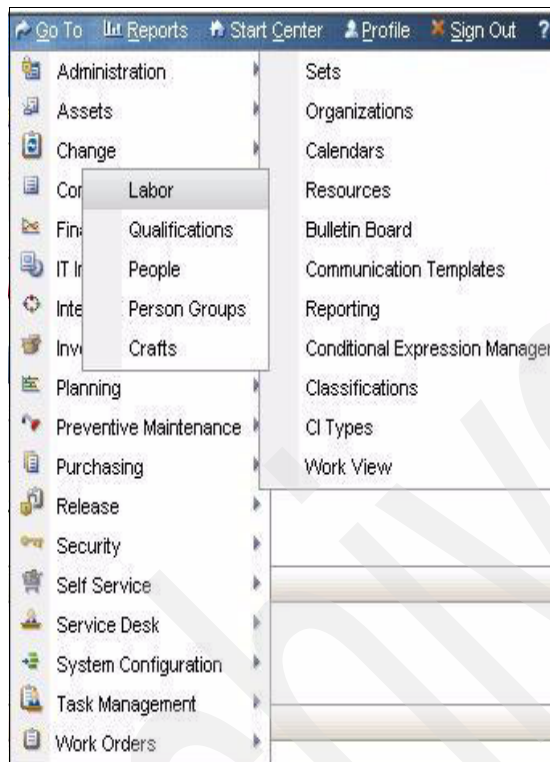


Figure 5-33 Labor

- From the **Labor** application, click **Select Actions** → **Run Reports** (see Figure 5-34).

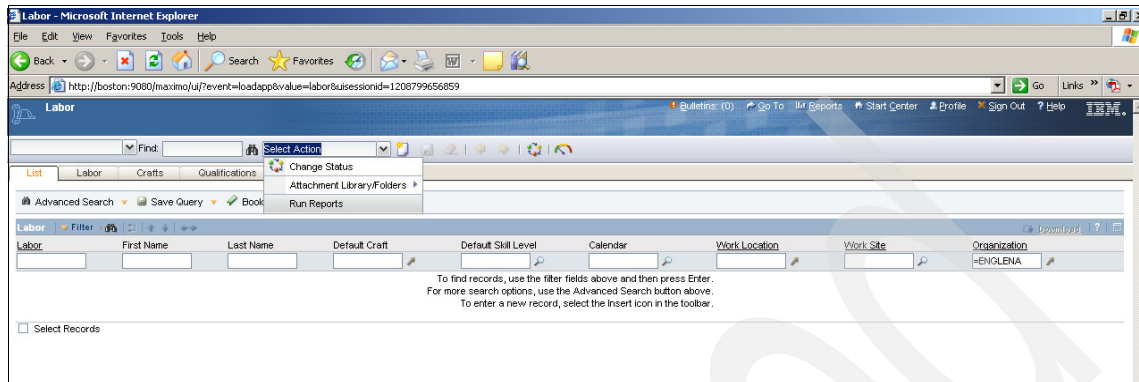


Figure 5-34 Run Reports

- From the Reports dialog, select the **Labor List** report (see Figure 5-35).

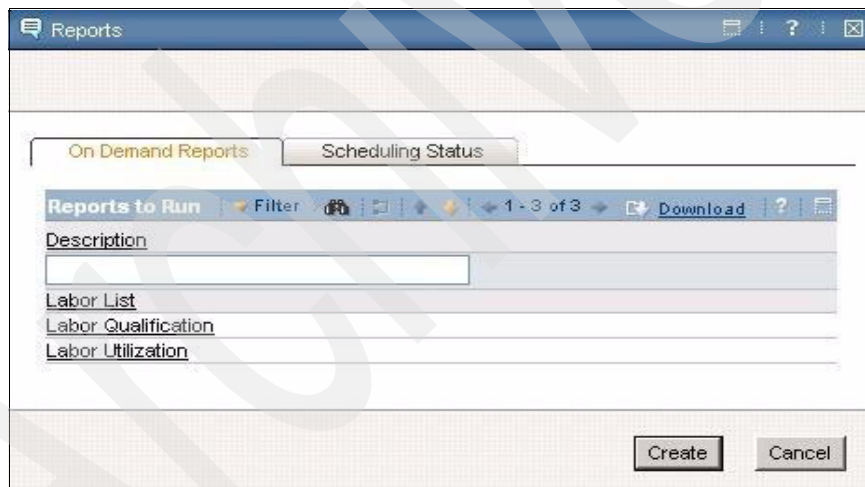


Figure 5-35 Labor List

5. From the Request page, specify your parameter properties. In our example we specify **ACTIVE** as the Status parameter value and click **Submit** (see Figure 5-36).

The screenshot shows a web form titled "Request page". At the top, there is a yellow information box with a question mark icon and the following text: "Fill in the fields in the Parameters section below and click Submit to run the report. If no parameters are displayed, the report will execute against the current/selected record set. Optionally, fill out the Schedule and Email Sections to schedule report run times and receive the scheduled report via email." Below this, the form is divided into three main sections: "Parameters", "Schedule", and "Email". The "Parameters" section has a label "Status\*" followed by a dropdown menu showing "ACTIVE". The "Schedule" section has three radio button options: "Immediate" (which is selected), "At this Time" (with an empty text box), and "Recurring" (with an empty text box). The "Email" section has three text input fields labeled "To", "Subject", and "Comments". At the bottom right of the form are two buttons: "Submit" and "Cancel".

Figure 5-36 Request page

6. Click **Submit**.

7. When you receive the report output, as shown in Figure 5-37, you have verified that the report was generated successfully.

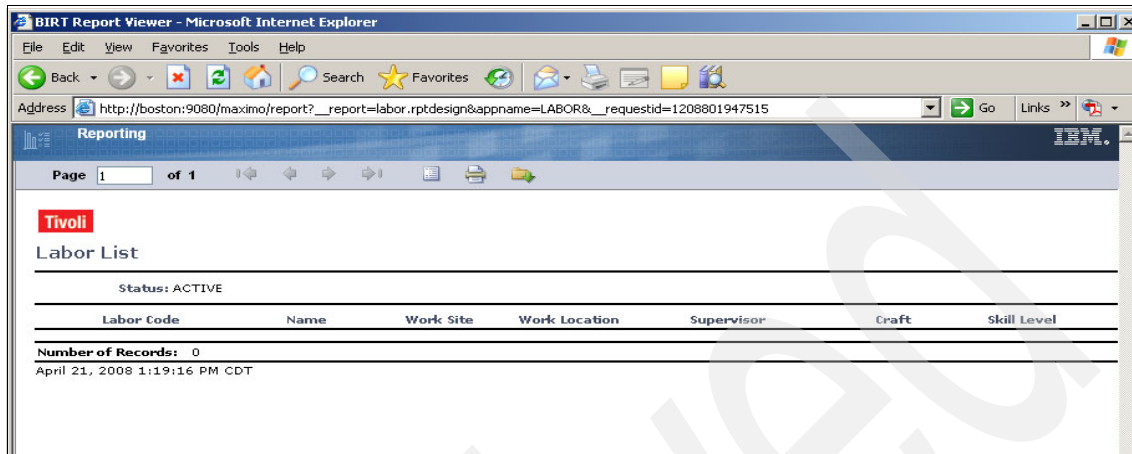


Figure 5-37 Report output

For more information regarding report administration, refer to *Report Developer Guide* (mam71\_report\_dev\_guide.pdf) available at:

[http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc\\_7.1/mam\\_welcome.htm](http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc_7.1/mam_welcome.htm).

## 5.6.6 Configuring Attached Documents

You use the Attached Documents application in Maximo Asset Management Essentials to attach various documents to individual Maximo records. The following formats are supported:

- ▶ PDF
- ▶ XLS
- ▶ CSV
- ▶ TXT
- ▶ DOC
- ▶ GIF
- ▶ DOC
- ▶ JPG
- ▶ PPT

By default Attached Documents are not configured during the Maximo Asset Management Essentials installation process. You have to manually configure the System Properties in Maximo and specific HTTP server properties to enable

attachments to be uploaded and viewed from Maximo Asset Management Essentials.

Follow these steps to ensure Attached Documents are accessible in Maximo when using a Microsoft Windows WebSphere Application Server middleware installation.

1. Create a shared doclinks directory on the machine storing the document files with your predefined subdirectories if you wish to group your attachment types:

C:\DOCLINKS

2. On your HTTP server, search for your httpd.conf file in the appropriate path. For example, on Microsoft Windows, search this path:

C:\IBM HTTP Server\conf\httpd.conf

**Tip:** Make a backup of this file before you begin

3. Edit the directory line as follows (you are editing this directory line to specify the doclinks directory you created):

<Directory "C:\DOCLINKS">

**Tip:** Search on the words "this should".

and the DocumentRoot line as follows

DocumentRoot "C:\DOCLINKS"

**Tip:** Search on the word "DocumentRoot".

After you have made these changes (the values you enter are case sensitive), save your file and restart the HTTP server.

At this point, you log on to Maximo and configure two more DOCLINK properties to point to the folder you have created on your drive and to point to the path the HTTP server must use to access these files.

4. Go to **System Configuration** → **Platform Configuration** → **System Properties** and specify the properties as listed in Table 5-3.

Table 5-3 Required system properties

| Property name                | Description               | Example value |
|------------------------------|---------------------------|---------------|
| mxe.doclink.doctypes.defpath | Default path for doclinks | C:\DOCLINKS   |

| Property name                               | Description             | Example value  |
|---|-------------------------|--|
| C<PATH>\DOCLINKS =<br>http://yourservername | Path 01 for<br>doclinks | C<PATH>\DOCLINKS =<br>http://yourservernameC<P<br>ATH>\DOCLINKS =<br>http://yourservername |

A common problem with Attached Documents setup is that the folders for your attachments are not assigned with a drive letter in their default paths during Maximo Asset Management Essentials installation. To resolve this problem, open any of your Maximo applications and from Select Actions, choose **Attachment/Library Folders** → **Manage Folders** and amend the default path as shown in Table 5-4.

Table 5-4 Attached Documents default path

| Old path              | New path                |
|-----------------------|-------------------------|
| \DOCLINKS\ATTACHMENTS | C:\DOCLINKS\ATTACHMENTS |

Figure 5-38 and Figure 5-39 on page 99 illustrate single-server and multiserver Attached Documents configurations.

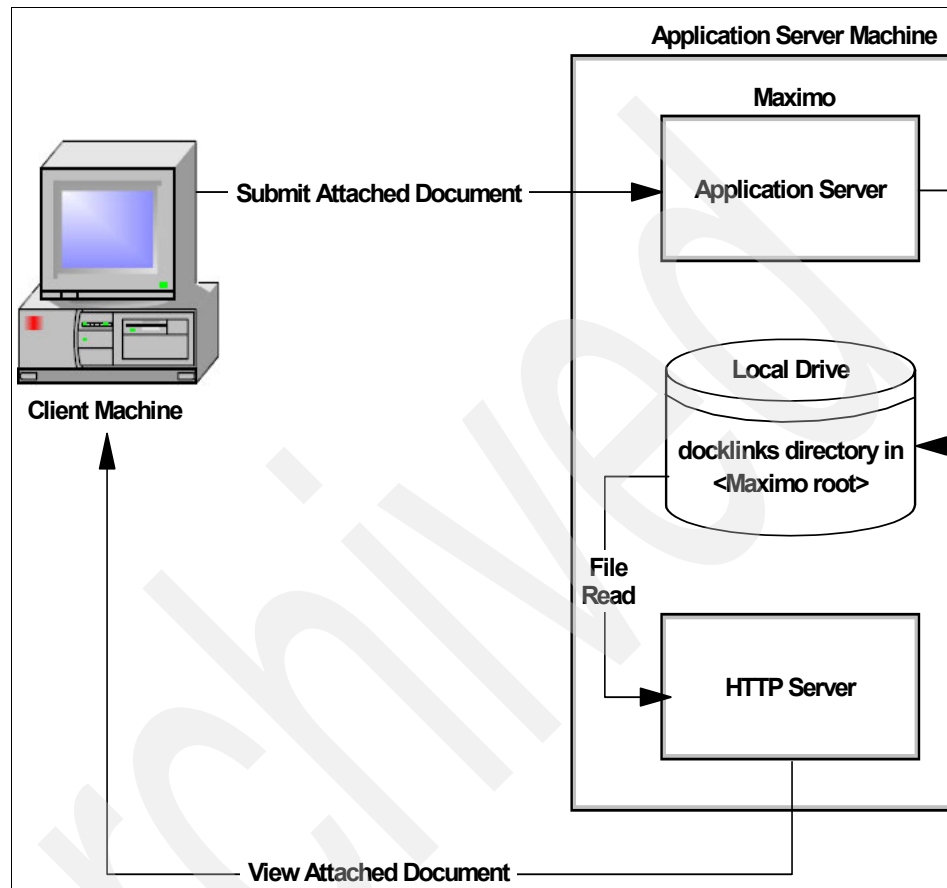


Figure 5-38 Single machine configuration



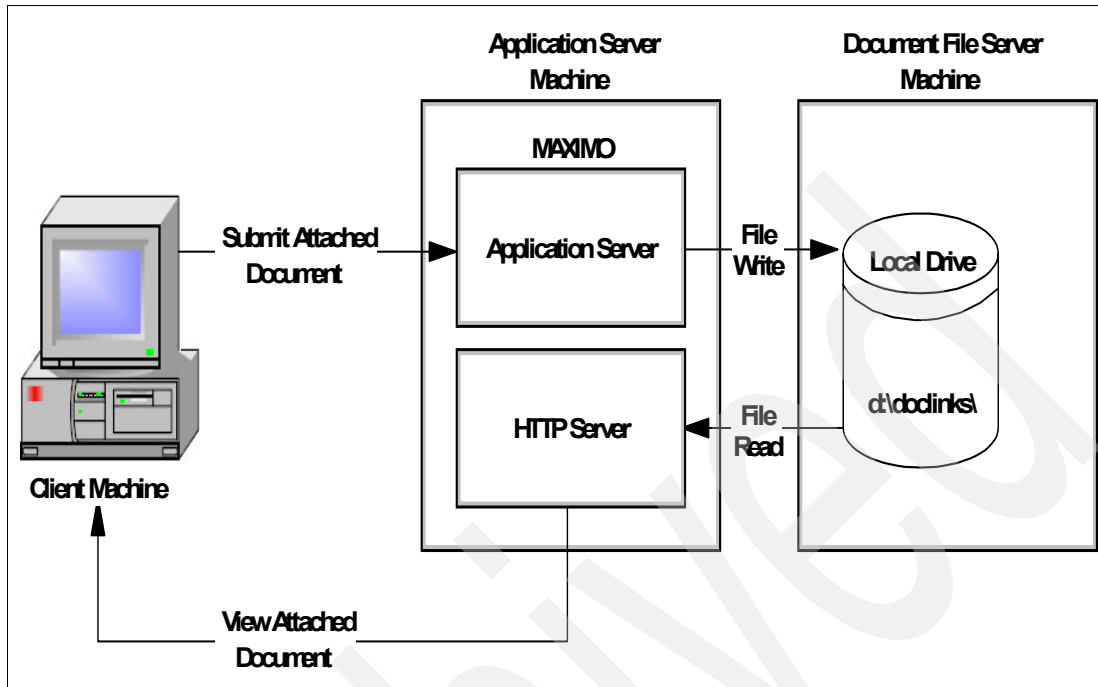


Figure 5-39 Multiple machine configuration

**Note:** The implementation of Attached Documents is briefly discussed in this chapter. For complete instructions on how to install and deploy Attached Documents, refer to Chapter 11, “Attached Document Administration and Configuration” in the *System Administrator Guide*, available at:

[http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc\\_7.1/mam\\_welcome.htm](http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc_7.1/mam_welcome.htm)

### 5.6.7 Ensuring relevant cron tasks are working and enabled

Depending on your business requirements, you may be required to implement cron tasks to perform certain actions or updates on your Maximo Asset Management Essentials application. Ensure system properties are defined and set up as enabled in your Cron Task Setup module, which can be found by selecting **System Configuration** → **Platform Configuration**.

If you are running JMS queue configurations for your Integration Framework, it is essential for the relevant cron task instances to be enabled; otherwise, the

queues cannot function. In the event that cron tasks do not run, we recommend you reload the cron tasks.

**Tip:** The scheduling of cron tasks must be assessed carefully because cron tasks are “batch” tasks, and when a large task is executed frequently, it can have an adverse affect on system performance.

For more detail about implementing cron tasks, refer to the *System Administrator Guide* (mam71\_sys\_admin\_guide.pdf), which you can access here:

[http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc\\_7.1/mam\\_welcome.htm](http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc_7.1/mam_welcome.htm)

### 5.6.8 Backing up the environment

After the installation is complete, it is advisable to create an image of your environment. Backup procedures depend on the size of your database and the type of operation you are running. For instance, you can back up to:

- ▶ Hard disk drive: Restores your system quickly.
- ▶ Tape drive: Slower, but you can keep multiple tapes of backups.
- ▶ CDs, DVDs, diskettes: Limited capacity, but this alternative is useful for smaller databases, archive files, or specific executables.

### 5.6.9 Automating the backup procedure

Schedule and regularly perform system and database backups. We recommend you perform system restores from the production environment to your development or acceptance environment at regular intervals to test this procedure.

### 5.6.10 Assessing the server workload

Taking the sizing considerations described in 4.3, “Sizing considerations” on page 35 into account, we recommend you monitor the performance of Maximo Asset Management Essentials on a continuous basis. This step also forms part of user acceptance testing. However, you can implement many methods to improve and maintain application performance on a continuous basis.

If your implementation increases in size - that is, the workload increases or system itself grows over time - consider load-balancing the server environments. We recommend server clustering as a solution that enables you to distribute user

loads over various application servers to maintain consistent server performance.

### 5.6.11 Client local or regional properties

If your users are based in one location, ensure that the regional settings of their workstations correspond to their regions. A common issue concerns date and time format conflicts.

### 5.6.12 Enabling Internet and firewall security

For security purposes, Maximo Asset Management Essentials can also be configured to take advantage of the more secure protocol, Hypertext Transfer Protocol Secure (HTTPS). If Maximo clients exist outside the corporate network, you can add a firewall or other security measure.

Firewalls are configured to enable communication over HTTP (typically port 80) or HTTPS (typically port 443). The information in the following sections is generic and does not reflect any particular firewall brand.

#### Secure Socket Layer (SSL) overview

Secure Sockets Layer provides secure connections over a network connection by doing the following:

- Enabling two applications to authenticate each other's identity
- Encrypting data exchanged between the two applications

Authentication enables a server and optionally a client to verify the identity of the application on the other end of a network connection. Encryption makes data transmitted over the network intelligible only to the intended recipient. IBM WebSphere Application Server and BEA WebLogic Server support SSL, and IBM Corporation has certified the SSL implementation with Maximo-WebSphere Application Server and Maximo-BEA WebLogic Server integration.

#### Configure Secure Socket Layer

A Web server must have an associated certificate for each external interface (IP address) that accepts secure connections. After you install the certificate on the Web server, replacing .http with .https encrypts a session between the browser and server.

For example, `http://MaximoAppServer` is entered as `https://MaximoApp Server`.

**Note:** The standard port for HTTPS is 443.

If a proxy server or firewall controls network traffic, this port and protocol must be opened. SSL carries additional overhead for encryption and decryption of data - that is, encryption and decryption can affect performance.

### Set up Internet Explorer stored pages

We recommend you enable your browser to automatically check for newer versions of stored pages when you log on to Maximo Asset Management Essentials. To do so, perform the following steps:

1. From your Internet browser, navigate to **Tools** → **Internet Options** → **General** → **Settings**.
2. Select the radio button **Automatically** to check for newer versions of stored pages.

**Tip:** Ensure the automatic stored pages feature is applied to all clients. If you fail to do so, users view previous page representations, rather than the latest. As an alternative means of ensuring your users are viewing the latest pages, you can remove and destroy all cookies and temporary files in their Internet browsers.

## 5.6.13 Setting up SMTP mail exchange server

Some applications and cron tasks within Maximo Asset Management Essentials require you perform a mail exchange. To enable mail exchange, assign a valid SMTP server name to the global value of the following property in the System Properties application:

`mail.smtp.host`

## 5.6.14 Authenticating LDAP through Virtual Member Management

You can authenticate users against LDAP using Windows Server Active Directory. If your organization has Virtual Member Management in place, consider using it to perform your authentication. When you configure the application server to authenticate against an Active Directory, you create and manage users in the LDAP directory server.

The VMM cron task updates the Maximo Asset Management Essentials database when users, groups, and group membership are changed in the directory server. When users and groups are deleted from the Active Directory, they are not deleted from the Maximo database because these records might be needed for auditing purposes. You can also configure the system to populate person, user, and group information from the external directory. The system

currently supports synchronization of information from Microsoft Active Directory. Synchronization with other directories is possible but is not supported as a standard feature and might require programming to configure. Both BEA WebLogic Server and IBM WebSphere Application Server support authentication against Windows Server Active Directory.

## 5.7 Setting the system and logging properties

When the installation is complete, you can configure the different system properties and enable logging for the application. With Maximo Asset Management Essentials V7.1, these tasks have become far easier because the product includes dedicated applications to perform these activities.

### 5.7.1 System Properties application

System Properties is a new application that is a part of Maximo Asset Management Essentials V7.1 and can be used to configure systemwide properties at a global level or instance level. These properties consist of keys and values that determine the configuration of the product and the behavior of many of its components.

Global and instance properties are defined as follows:

- ▶ **Global properties**

A global property exists only at a systemwide level. This means that the property is applicable to all the product server instances (for example, the application server), working with a common database. For example, the system property `mxe.logging.rootfolder` is a global property whose value is a directory on the hard disk of the server machine where the product's log files reside.

- ▶ **Instance properties**

An instance property is defined and associated with a specific product server instance. For example, you can configure the system property `mxe.crontask.donotrun` to be an instance-specific property. You do this by associating the `mxe.crontask.donotrun` system property with a specific server (for example, `MXServer1`) and a value applicable only to that server (for example, a value of `BBCron`). As a result of this configuration, the Bulletin

Board cron task (BBCron) is not executed on MXServer1; yet it can execute in another product instance, such as MXServer2.

Each property defined in the System Properties application has a number of characteristics that you can manage. Table 5-5 describes these characteristics.

*Table 5-5 System Properties application characteristics*

| Property characteristic | Description   |
|-------------------------|---|
| File Override           | Specifies whether the property and its value are loaded from a file rather than from the database.  |
| Global Only             | Specifies whether this property must exist only at a systemwide level. It implies the property cannot be overridden at the instance level.  |
| Instance Only           | Specifies whether this property must be defined at the instance level. If so, you provide an instance-specific value (the property is not a global value).  |
| Online Changes Allowed  | Specifies whether the System Properties application is used to change the property's value. For example, the global property mxe.db.driver does not allow online changes.   |
| Live Refresh            | Specifies whether the property value can take effect immediately after saving the value.  |
| Encrypted               | Specifies whether the property is stored in an encrypted manner in the underlying product database. The value is encrypted using the product's standard encryption functionality. For example, the global property mxe.int.uddipassword is encrypted.   |
| Security Level          | Specifies the level of access to this property by various product components. Access level may be PUBLIC, SECURE, or PRIVATE.   |
| User Defined            | Specifies whether the property is created by a user or is provided with the product.  |
| Nulls Allowed           | Specifies whether the property can have null values. You can change this characteristic only for user-defined properties.   |
| Data Type               | Specifies the type of value that can be provided for the property. The value can be an integer, alphanumeric, or a Yes or No value (YORN). For example, the global property mxe.allowLocalObjects is associated with a data type of YORN; if you enter a value other than 1 or 0, an error message is displayed indicating invalid value. |
| Domain                  | Specifies a domain that provides a list of values that the property can be set to. For example, the global property mxe.db.transaction_isolation is associated with the TRANSISO domain. Thus the property's values must match a corresponding domain value.  |

## 5.7.2 Logging application

The Logging application is a part of the product's System Configuration module and is a dedicated application for managing log settings and configuring log files. You can configure various logging components, set log levels, associate logging with log files, and specify a folder where log files are to be written.

Logging has three main components:

- Loggers

Loggers are components that prepare log statements to be written to a console or log file. Loggers are named entities or keys, for example: `log4j.logger.maximo.sql`.

Loggers form a hierarchy. A logger is defined as an ancestor of another logger if its name, followed by a dot, is a prefix of the descendant logger name. A logger becomes the parent of a child logger if no ancestors are between itself and the descendant logger. For example, `log4j.logger.maximo.sql` is the parent of `log4j.logger.maximo.sql.WORKORDER`. You can assign the following levels to loggers:

- DEBUG
- INFO
- WARN
- ERROR
- FATAL

A level indicates a type of event that the system logs.

- Appenders

You can send logging requests to multiple destinations. An output destination is called an *appender*. Appenders can exist for consoles or files. You can associate one or more loggers with a given appender. Alternatively, you can associate a single logger with multiple appenders.

- Layouts

A layout determines the output format of a log statement. A layout is always associated with an appender. For example, a conversion pattern such as `%d{dd MMM yyyy HH:mm:ss:SSS} [%-2p] %m%n` results in the following log statement: `2007-05-07 14:07:41,508 [main] INFO MyApp - Entering application.`

The Logging application supports two types of loggers: root and child. One or more child loggers always inherit from one root logger. In the Logging application, a root logger is termed *root logger*, while a child logger is termed *logger*.

The Logging application can be used to:

- ▶ Create loggers that are product components that prepare log statements to be written to the console or a log file.
- ▶ Associate the appropriate log level with each logger.
- ▶ De-activate loggers except root loggers.
- ▶ Configure appenders that represent a console or log files to which log statements are written.
  - Specify an appropriate file name for an appender.
  - Specify a log file size for an appender.
  - Associate a logger with multiple appenders.
  - Associate an appender with multiple loggers.





# Configuration

When installation is finished, you must complete several tasks before you can enable users to start using the system. As system administrator, you usually are the individual who carries out such tasks, which are discussed in this chapter.

**Note:** The steps in this chapter assume you have created a empty database and have not created the demo database. This chapter does not apply to a demonstration installation.

## 6.1 Getting started

The following topics are covered in this section:

- ▶ User management
- ▶ Organization and site setup
- ▶ Initial configuration and data import sequence

### 6.1.1 Managing users

#### Sign in using a default user ID

If you enabled security during the installation, user management takes place through the directory server you have configured to use with Maximo Asset Management. When first installed, Maximo Asset Management Essentials contains the following default user IDs:

- ▶ maxadmin
- ▶ maxreg
- ▶ mxintadm

The default password for each user ID is the same as the user name (for example, maxadmin is both the user name and default password).

**Note:** User names and passwords are case sensitive. The default user names and passwords are lowercase.

To sign in, complete the following steps:

1. Open a browser window.
2. Navigate to the Maximo Asset Management Essentials logon URL - for example, `http://hostname:<port>/maximo`.

The default port is 9080.

3. Enter the user name maxadmin (lowercase).
4. Enter the password maxadmin (lowercase) and click **Enter**. The software displays an empty Start Center.

#### Change the user password

As a best practice, change the passwords for the default user IDs. To change the default passwords, complete the following steps:

1. Open the Users application.
2. From the List tab, select the user whose password you want to change.

3. From the Select Action menu, select **Change Passwords**. The Change Passwords dialog box is displayed.
4. Enter the new password in the **New Password** field.
5. Re-enter the password in the **Confirm New Password** field.
6. Click **OK**.

When you change the password of either the maxadmin user or the maxreg user, you also must change the password associated with that user in the maximo.properties file. You can do so by following these steps:

1. Navigate to MAXIMO\applications\maximo\properties.
2. Open the maximo.properties file using a text editor.
3. Search for the appropriate property and modify it as needed:
  - mxe.db.user for the database log on name
  - mxe.system.reguser for self-registering new users
4. Save your changes.

You can change the default user names for the default user IDs by editing the maximo.properties file. Complete these steps:

1. Navigate to MAXIMO\applications\maximo\properties.
2. Open the maximo.properties file using a text editor.
3. Search for the appropriate property and modify it as needed:
  - mxe.db.password for the database logon password
  - mxe.system.regpassword for self-registering new users
4. Save your changes.

**Note:** Any time you modify the maximo.properties file, you must rebuild and deploy a new maximo.ear file. You do so by accessing the application server, selecting the EAR file, and clicking the deploy option. (The method may vary if you use a different application server; the steps in this Note apply to using WebSphere Application Server.)

## 6.1.2 Organization and site setup

Before you can start working in Maximo Asset Management, it is imperative that you specify the name of your organization and the site for the organization. To ensure you do so, complete the steps in the sections that follow in strict

sequential order to create the organization, sites, and their appropriate dependencies.

**Important:** You must create currency codes, and sets, configure the general ledger component, and create a clearing account prior to creating the organization and site. You must complete each step in the order presented in the following sections.

## Create currency codes

A currency code is the measure of exchange in monetary terms. Specifying a currency code is required for your system to determine the currency you are measuring your financial transactions against. Determine the base currency that your organization utilizes before beginning the steps in this section.

You must define a currency code for an organization; complete these steps:

1. Open the Currency Code application by selecting **Go To → Financial → Currency Code**.
2. Click **New Row**.
3. Enter a currency code - for example, USD (United States dollar).
4. Click **Save**.

## Disable validation options

We recommend you disable or uncheck the validation options to begin populating or importing data. If you have enabled validation options during the initial configuration, each entry you make is validated against a financial period, which is not required at this stage of the deployment. You can always revalidate these options at a later stage.

Follow these steps to disable the validation options:

1. Open the Financial application by selecting **Go To → Financial → Chart of Accounts**.
2. Access **Select Actions**.
3. Choose **Validation Options**.
4. Uncheck both **Validate GL Component Combinations** and **Validate Financial Periods**.
5. Click **OK**.

## Create item and company sets

Defining item and company sets, you can share item and company records across organizations. To define these sets, complete the following steps:

1. Open the Sets application by selecting **Go To → Administration → Sets**.
2. Click **New Row**.
3. Enter a company set name - for example, COMPSET.
4. Enter COMPSET in the Type field.
5. Click **New Row**.
6. Enter an item set name, for example, ITEM1.
7. Enter ITEM1 in the Type field.
8. Click **Save**.

**Tip:** Use simple, generic set IDs because you cannot alter them in the future.

## Create a general ledger account component

Although Maximo Enterprise Essentials is restricted to only one organization and one site, you must still define a clearing account for your organization. A clearing account is an account that determines the cost center for organization transactions. Before you assign your clearing account for your organization, you must create and define the general ledger account component. A general ledger account component is a structure that must be determined by your accounting staff.

Each general ledger account code consists of a number of distinct components (also called *segments*). In the Database Configuration application, you define the account code format using the GL Account Configuration dialog box. In the Chart of Accounts, you specify which components are valid for use in the system.

For easy identification, you can use delimiters to separate components when they are displayed. For example, you might use hyphens to separate components: 6100-400-SAF. The system writes account strings to the database in a concatenated format, with delimiters.

For any account code, you can: Define up to 20 components and include a total of up to 254 characters and/or digits, not including delimiters (unless you choose to include the delimiters as part of the account code). Component Sequence Account components are displayed in a sequential format, with the leftmost

component in the string representing the highest level. For example, four component levels are defined; the fourth is optional:

- ▶ Component 1 = Cost Center
- ▶ Component 2 = Activity
- ▶ Component 3 = Resource
- ▶ Component 4 = Element (optional)

Account components are concatenated, with the highest level component at the left.

To create a general ledger account component, complete the following steps:

1. Open the Database Configuration application by selecting **Go To → System Configuration → Platform Configuration → Database Configuration**.
2. Select **GL Account Configuration** from the Select Action drop-down menu.
3. Click **New Row**.
4. Enter a component name in the **Component** field - for example, Cost Center
5. Enter a numerical length for the component - for example, 5.
6. Enter a data type for the component - for example, ALN. (This is the type of data each component represents.)
7. Click **Save** and log out of Maximo Asset Management.

When you have completed setting up the GL account component, you *must* configure the database for your changes to take effect. Follow these steps to configure the database:

1. Ensure you have created a backup of your database.
2. Make sure all users have logged off the system.
3. Document all changes.
4. Open the WebSphere administrative console and stop the MXServer application server.
5. Run the configdb.bat program from the following path:  
`C:\ibm\SMP\maximo\tools\maximo\configdb.bat`
6. Wait for your changes to take effect. Make sure this step has completed successfully, and then restart the MXServer. Log back on to Maximo, and you can now create general ledger accounts (see “Create a general ledger account” on page 113).

**Note:** In our example, we configured the database after shutting down the Maximo application server. To perform a database configuration without shutting down your application server, refer to the *System Administrator Guide* (mam71\_sys\_admin\_guide.pdf), available at:

[http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc\\_7.1/mam\\_welcome.htm](http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc_7.1/mam_welcome.htm)

## Create an organization

You can define only one organization for Maximo Asset Management Essentials. To define the organization, complete the following steps:

1. Open the Organizations application by selecting **Go To → Administration → Organizations**.
2. Click the **New Organization** icon in the toolbar.
3. Enter an organization name in the Organization field - for example, MAIN.
4. Enter the base currency you defined in the Base Currency 1 field - for example, USD (see “Create currency codes” on page 110).
5. Enter the item set you defined earlier in the Item Set field (see “Create item and company sets” on page 111) - for example, ITEM1.
6. Enter the company set you defined in the Company Set field - for example, COMPSET.

**Tip:** Use simple, generic organization and set IDs because you cannot alter them in the future. We recommend you not use spaces in between the organization and site IDs.

7. Enter the default item status of PENDING in the Default Item Status field.
8. Save your work.

## Create a general ledger account

Before assigning the clearing account to your organization you have to create general ledger account to use as the clearing account. To create a general ledger account, complete the following steps:

1. Open the Chart of Accounts application by selecting **Go To → Financials → Chart of Accounts**.
2. Click on the name of your organization to select it. For example, click **MAIN**.
3. Select **GL Component Maintenance** from the Select Action drop-down menu.

4. Click **New Row**.
5. Add a GL Component value - for example, 1234 - and then click **OK**.
6. Click **New Row** on the GL Accounts for tab.
7. Select your general ledger account.
8. Click **Save**.
9. Open the Organizations application by selecting **Go To → Administration → Organizations**.
10. Click the organization name you created - for example, MAIN.
11. From the Clearing Account field, select the general ledger account you just created.
12. Select **Active**.
13. Click **Save**.
14. Assign your recently created general ledger account as the clearing account.

### Creating a site

You can create only one site in Maximo Asset Management Essentials. To create your site, complete the following steps:

1. From the Start Center, go to **Administration → Organizations**.
2. From the list panel, select the Organization you want to assign your site to.
3. Click on the **Sites** tab, to add a new Site click **New Row**.
4. Specify the relevant site details. When complete, save your work.

### Create default insert site

After you create the organization and site in Maximo Asset Management Essentials, you are required to assign a default insert site to enter new records. To create a default insert site, complete the following steps:

1. Open the Users application by selecting **Go To → Security → Users**.
2. Search for maxadmin, and then select it to open the record for maxadmin.
3. Enter a the site you created earlier in the Default Insert Site field. For example, B901.
4. Enter a the site you created earlier in the Storeroom Site for Self-Service Requisitions field. For example, B901.
5. Click **Save**.
6. Open the WebSphere administrative console and restart the MXServer application server.



**Note:** If you encounter an error message that indicates that the record is being updated by another user, log out as maxadmin and then log back in.

### Sign out and sign in

When you make changes to a security group that your user ID is a member of, you must sign out and sign in again to view the changes. For example, although you granted the MAXADMIN group permission to create Start Center templates, the actions are not visible until you sign in again. To view your changes, follow these steps:

1. Sign out as maxadmin.
2. Sign in as maxadmin.

## 6.1.3 Initial configuration and data import sequence

At this stage you have prepared the organization and site; from this point on, you can start populating the database. Although we did not write this guide to describe how to populate data into Maximo Asset Management Essentials, in Table 6-1 we briefly outline a recommended generic configuration and data import sequence for performing your initial data configuration.

Table 6-1 Generic configuration and data importation sequence

| V7.1 module          | Subapplication             | Nature of work performed in this subapplication | Suggested entry_mode |
|----------------------|----------------------------|---|----------------------|
| System Configuration | Database Configuration     | Create new object attributes/relationships      | Manual               |
| System Configuration | GL Component Configuration | Configure GL component                          | Manual               |
| Financial            | GL Components              | Create GL components                            | Manual               |
| Financial            | Chart of Accounts          | Create GL codes                                 | Manual               |
| Financial            | Currency Codes             | Create currency codes                           | Manual               |
| Administration       | Item and Company Sets      | Create item and company sets                    | Manual               |
| Administration       | Organizations              | Create organization                             | Manual               |
| Administration       | Sites                      | Create sites                                    | Manual               |
| Administration       | Calendars                  | Create calendars                                | Manual               |
| Failure codes        | Failure codes              | Create failure codes                            | Manual               |

| <b>V7.1 module</b> | <b>Subapplication</b>                 | <b>Nature of work performed in this subapplication</b>    | <b>Suggested entry_mode</b> |
|--------------------|---------------------------------------|---|-----------------------------|
| Organizations      | Tax Options                           | Assign tax types  | Manual                      |
| Inventory          | Measurement units                     | Define measurement units                                  | Manual                      |
| Inventory          | Conversion factors for measure units. | Define conversion factors                                 | Manual                      |
| Domains            | Violists                              | Define ALN, NUM, SYNONYM value lists                      | Manual                      |
| Organizations      | Address Codes                         | Define addresses  | Manual                      |
| Assets             | Locations                             | Create systems and locations                              | Import                      |
| Purchasing         | Company master                        | Create companies master records                           | Import                      |
| Purchasing         | Companies                             | Create company records                                    | Import                      |
| Administration     | Classifications                       | Define classifications for assets, Locations, items, etc. | Import                      |
| Inventory          | Item Master setup                     | Create Item Master records                                | Import                      |
| Inventory          | Storerooms                            | Create Storeroom locations                                | Import                      |
| Inventory          | Inventory                             | Assign items to inventory                                 | Import                      |
| Inventory          | Tools                                 | Create tools  | Import                      |
| Inventory          | Stocked Tools                         | Assign tools to inventory                                 | Import                      |
| Assets             | Meters/Meter Groups                   | Create meters and meter groups                            | Manual                      |
| Assets             | Assets                                | Create assets   | Import                      |
| Assets             | Condition Monitoring                  | Define condition monitoring points                        | Import                      |
| Administration     | Person groups                         | Define person groups                                      | Manual                      |
| Administration     | People                                | Define persons  | Manual                      |
| SCConfig           | Start Centers                         | Create new Start Center templates (non-module)            | Manual                      |
| Security           | Security Groups                       | Create roles  | Manual                      |
| Security           | Users                                 | Create and assign users to security groups                | Manual                      |
| Administration     | Crafts                                | Create crafts   | Manual                      |

| V7.1 module            | Subapplication         | Nature of work performed in this subapplication    | Suggested entry_mode |
|------------------------|------------------------|--|----------------------|
| Administration         | Qualifications         | Create qualifications for labor and crafts         | Manual               |
| Administration         | Labor                  | Create labor records                               | Manual               |
| Planning               | Safety Plans           | Create safety plans                                | Import               |
| Planning               | Precautions            | Create safety plan precautions                     | Manual               |
| Planning               | Lock out/Tag Out       | Create safety plan lock out and tag out procedures | Manual               |
| Planning               | Safety Hazards         | Create safety plan hazards                         | Manual               |
| Planning               | Job Plans              | Create job plans                                   | Import               |
| Preventive Maintenance | Preventive Maintenance | Create preventive maintenance schedules            | Import               |

**Important:** Table 6-1 is a generic example designed to guide the sequence of loading and populating the Maximo objects. You might not utilize all these modules. It is essential to follow the chronological sequence during your initial configuration.

For more information about how to populate the Maximo database, refer to the product documentation.

## 6.2 BIRT reports

Maximo Asset Management Essentials V7.1 is integrated with the Eclipse Foundation Business Intelligence Reporting Tool (BIRT). BIRT is an open source reporting system that integrates with Java or J2EE applications, such as Maximo Asset Management Essentials V7.1, to produce custom reports. BIRT utilizes XML report definitions to generate reports in PDF or HTML output.

BIRT manages and displays the data from Maximo Asset Management Essentials V7.1 so users can immediately take action if necessary. User action may involve drilling down into reports to find a specific problem issue or analyzing the data for a specific problem issue or an analysis of the data for regulatory purposes.

The following topics are covered in the following sections:

- ▶ Administering reports
- ▶ Configuring reports
- ▶ Running reports

## **6.2.1 Administering reports**

As the report administrator, you can specify the following:

- ▶ Availability of reports and how they open, run, and print
- ▶ Appearance of report titles and headings
- ▶ Security settings

The figures in this section provide a short introduction into the Report Administration application. The look and feel of this application is similar to the look and feel of other applications launched from the Start Center.

You can open the Report Administration application in two ways: when initially administering the report and after reports are defined.

Start the Report Administration application from the Start Center by selecting **Go To → Administration → Reporting → Report Administration** as shown in Figure 6-1.

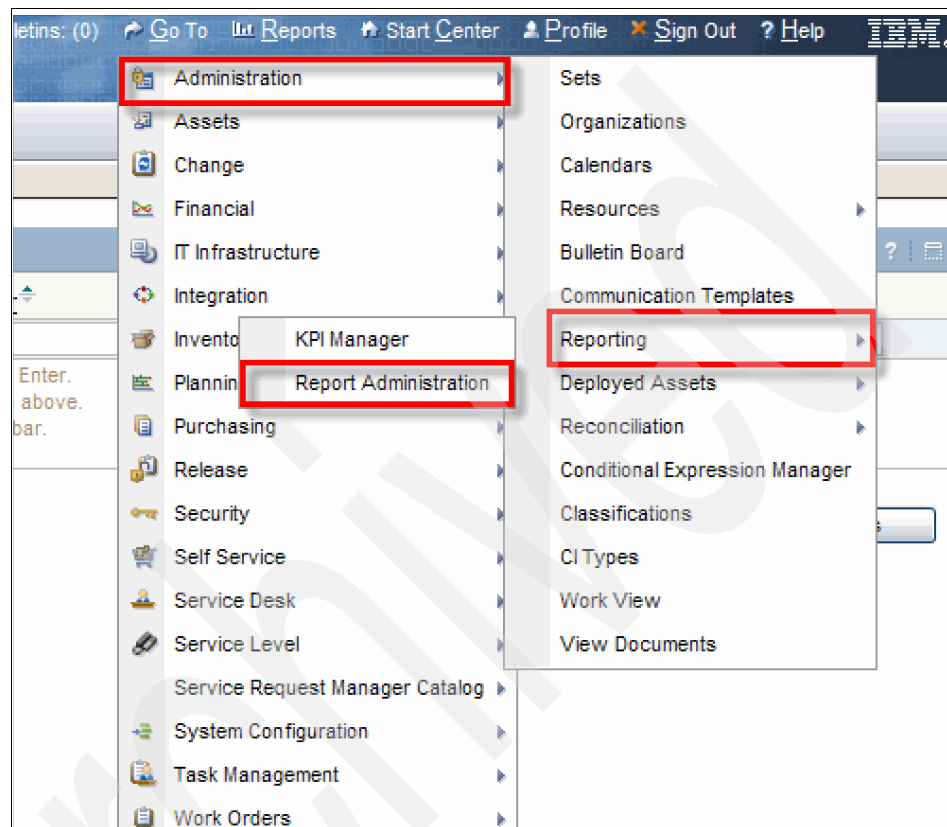


Figure 6-1 Accessing report administration

## 6.2.2 Configuring BIRT reports

Several options on the Report tab enable you to configure a report (see Figure 6-2). Any options shown in with an (\*) asterisk are required parameters.

The screenshot shows the 'Report Administration' application interface. The 'Report' tab is selected. The 'Report File Name' is 'totals\_tsd.rptdesign'. The 'Report Type' is 'BIRT'. The 'Application' is 'INCIDENT' and the 'Report Folder' is 'INCIDENT'. The 'Settings' section includes checkboxes for 'Limit Records?', 'Browser View?', 'Direct Print?', 'Direct Print with Attachments?', and 'No Request Page?'. There is a 'Max Record Limit' field and a 'Priority' field. The 'Parameters' section shows a table with columns: Parameter Name, Attribute Name, Sequence, Display Name, and Required?.

| Parameter Name | Attribute Name | Sequence | Display Name | Required?                |
|----------------|----------------|----------|--------------|--------------------------|
| startdate      |                | 1        | Start Date:  | <input type="checkbox"/> |
| enddate        |                | 2        | End Date:    | <input type="checkbox"/> |

Figure 6-2 Report Configuration

The options for configuring BIRT reports are as follows:

- **Report Type**

Your choices are BIRT, Crystal, and Custom. By determining the report type and settings you register that report in the Maximo database.

- **Limit Records?**

The action limits the number of records against which a user can run a report. It prevents users from executing large queries, which can negatively impact performance. Use the Report Administration application to set record restrictions on reports. This feature applies to only reports without parameters. When you enable this option, you specify a number in the Max Record Limit option.

- **Use Where Clause?**

Enables current, selected, and user-defined parameters.

- **No Request Page?**

Disables Request Page for database updates.

- **Priority**

Numeric field used in report-queuing process.

► **Browser View? and Browser View Location**

The Browser View option enables you to create a shortcut. With the shortcut enabled, the user can click an icon on the application tool bar to open a report directly in the browser. When you select Browser View?, enter a value other than None in the Browser View Location field. This field determines the application tabs that have an active Browser View icon.

The following options are available for configuring the Browser View? and Browser View Location options:

- All - The Browser View icon is available on all tabs for the selected application.
- List - The Browser View icon is only available on the List tab for the selected application.
- Main - The Browser View icon is available on all tabs, except the List tab.
- None - The Browser View icon does not appear in the selected application. None is the default.

► **Direct Print? and Direct Print Location**

The Direct Print feature enables you to create a shortcut so a user can click an icon on the application tool bar to print the report. If you enable the Direct Print? option, you specify a printer in Direct Print Location.

► **Direct Print with Attachments? and Direct Print with Attachments Location**

The Direct Print with Attachments? feature enables you to create a shortcut so a user can click an application icon once (and select Yes in the Message dialog box) to print the report and any associated attached documents. When you enable the Direct Print with Attachments? option, you specify the location of the attachments.

► **Generate Request Page**





Click the **Generate Request Page** button if you have not previously configured the report for Browser view. This option is available for all reports or at individual report level.

► **Preview**

After clicking the **Preview** button, you can check for the following items (the correct parameters, if any, appear to the user on the Request Page):

- The generated report opens with the correct data and format.
- The Request Page dialog box opens. The parameters displayed depend on the report that you select.
- Enter values in any required fields. Required fields have an orange asterisk (\*) next to them.

From the parameters section (see Figure 6-3), you can define ad hoc user parameters. Note these parameters must also be specified in the report design itself.

Find:  Select Action    

Report File Name:  Actual CI Details  Application:  Report Folder:






Report Type:

**Settings**

Limit Records? ☒ Max Record Limit:  Use Where Clause? ☐ No Request Page? ☐ Priority:

Browser View? ☐ Direct Print? ☒ Direct Print with Attachments? ☐ Toolbar Sequence:

Browser View Location:  Direct Print Location:  Direct Print with Attachments Location:

**Parameters** Filter     

| Parameter Name        | Attribute Name | Sequence | Display Name | Required? |
|-----------------------|----------------|----------|--------------|-----------|
| No rows to display... |                |          |              |           |

Figure 6-3 Report parameters



### 6.2.3 Running BIRT reports

Follow these instructions to run a report. After you run a report, you can print the report, export data, and toggle the table of contents.

1. Open the Reports dialog box through one of the following methods:
  - From the Reports menu in the application tool bar, select an application - for example, **Labor** (see Figure 6-4).

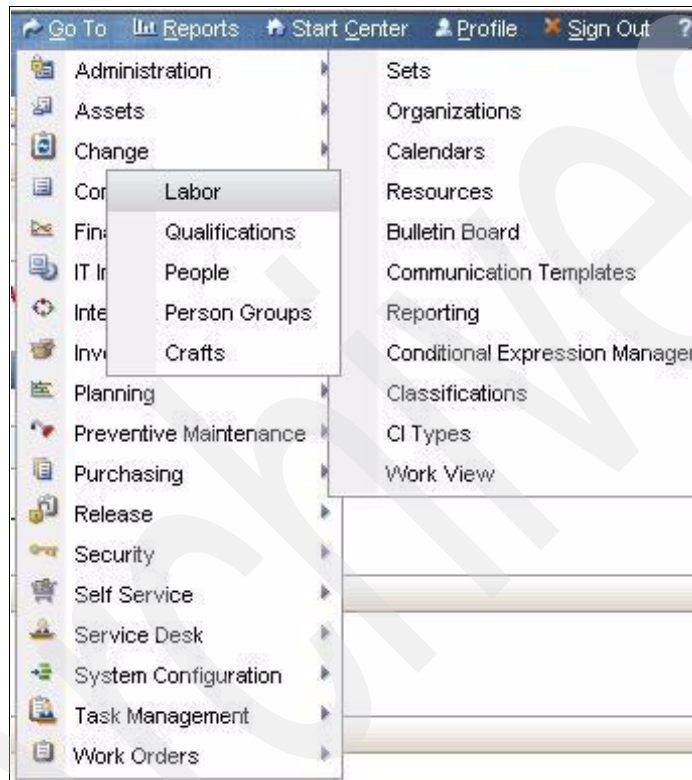


Figure 6-4 Report menu

- From the Select Action menu, select **Run Reports**. The On Demand Reports tab opens (see Figure 6-5). The Reports to Run panel lists the available reports for the application. Click the report that you want to run.

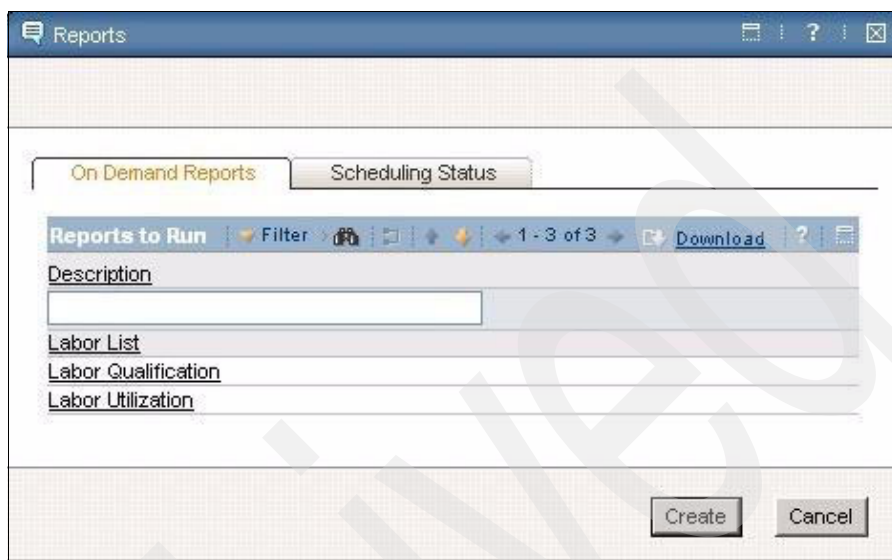


Figure 6-5 Selecting a report to run

2. Select the report you want to see - for example, Labor List. Enter the required parameters in the Request Page dialog box (see Figure 6-6).

Request Page

Fill in the fields in the Parameters section below and click Submit to run the report. If no parameters are displayed, the report will execute against the current/selected record set. Optionally, fill out the Schedule and Email Sections to schedule report run times and receive the scheduled report via email.

**Parameters**

Status

**Schedule**

☒ Immediate

☐ At this Time

☐ Recurring

**Email**

To

Subject

Comments

Submit Cancel

Figure 6-6 Run request

3. Click **Submit** to run the report. The report opens in your browser, as shown in Figure 6-7.

Reporting

Page 1 of 1

Tivoli

Labor List

Status: ACTIVE

| Labor Code                    | Name | Work Site | Work Location | Supervisor | Craft | Skill Level |
|-------------------------------|------|-----------|---------------|------------|-------|-------------|
| Number of Records: 0          |      |           |               |            |       |             |
| April 21, 2008 1:19:16 PM CDT |      |           |               |            |       |             |

Figure 6-7 Incident report

- ▶ On the Reporting tool bar, perform any of the following actions:
  - Click the **Print Report as PDF icon** to print the report.
  - Click the **Export Data** icon to export the data in CSV format.
  - Click the **Toggle table of contents** icon to see the table of contents for your report. The report you select determines the table of contents.

To improve performance and to reduce load on the database server during working hours, it is possible to schedule report runs. Scheduled reports are e-mailed when completed. The e-mail, in PDF format, can be sent to a single user or a group including subject and comments.

## Summary of modules and applications

This appendix provides a summary of Maximo Asset Management Essentials modules and applications.

**Important:** This book was written before Maximo Asset Management Essentials V7.1 had been finalized. Therefore, the official product documentation should be used to validate the list of modules and applications.

Table A-1 summarizes the modules and applications that make up Maximo Asset Management Essentials.

*Table A-1 Maximo Asset Management Essentials modules and applications*

| Module and sub-module | Application                    | Description   |
|-----------------------|--------------------------------|---|
| ADMINISTRATION        | Organizations                  | Set up the organizations and sites to be used within Maximo.  |
|                       | Classifications                | Create classifications and establish classification hierarchies for Items, Assets, Locations, Work Orders, etc.   |
|                       | Bulletin Board                 | Create, post, and view messages as well as broadcast information to users of the Maximo system.   |
|                       | Communication Templates        | Create and manage generic communication templates that Maximo users can leverage to standardize frequently used e-mail communications (also known as notifications).                        |
|                       | Calendars                      | Indicate working time for equipment, craft, and labor records for an organization and its associated sites.   |
|                       | Sets                           | Create a framework for sharing item and company (vendor) data across multiple organizations.  |
|                       | Work View                      | Make queries available for display in the Result Set portlet of a user's Start Center.  |
|                       | Conditional Expression Manager | Create and maintain a library of conditions. In other applications, such as Application Designer and Security Groups, you select from predefined conditions to set up conditional behavior. |
| REPORTING             | KPI Manager                    | Create key performance indicators (KPIs) to track critical performance variables over time.   |
|                       | Report Administration          | Create reports, generate and preview request pages, add parameters, display reports as toolbar icons, e-mail reports, or specify a schedule for running a reports.                          |
| RESOURCES             | People                         | Maintain records of people.   |
|                       | Person Group                   | Maintain person groups. A person group consists of people who may or may not be workers.  |
|                       | Crafts                         | Define and maintain craft records.  |

| Module and sub-module | Application            | Description  |
|-----------------------|------------------------|--|
|                       | Labor                  | Define and maintain labor records.   |
|                       | Qualifications         | Create qualifications and certification requirements for qualifications.   |
| ASSETS                | Assets                 | Store asset numbers and corresponding information such as parent, location, vendor, up and down status, and maintenance costs for each asset.  |
|                       | Locations              | Enter and track locations for assets, and organize these locations into logical hierarchical systems or network systems.   |
|                       | Meters                 | Add or modify meter definitions. Meter definitions include names for the meters as well as sets of attributes that describe the meters.  |
|                       | Meter Groups           | Define a logical grouping of meters to exist in a meter group. Meter groups represent a collection of meters that are used together multiple times.  |
|                       | Failure Codes          | Build and display failure hierarchies, which help you construct accurate histories of the failures that affect your assets and operating locations.  |
| CHANGE                | Activities and Tasks   | Plan, review, and manage activities and tasks. When you create an activity, you initiate the work process and create a historical record of work being performed.  |
| CONTRACTS             | Purchase Contracts     | Create, modify, and view contracts with outside vendors.   |
|                       | Lease Rental Contracts | Define the overall terms and conditions of the lease or rental agreement between a vendor and a client regarding one or more assets.   |
|                       | Labor Rate Contracts   | Define multiple labor rates for specific crafts, skills, and optionally, labor records. Within the Labor Rate Contracts application, you can manage outside labor and the corresponding rates.                   |
|                       | Warranty Contracts     | Maintain one or more assets for an outside service provider for a fixed fee or for regularly scheduled payment over a time period. Track warranty information for multiple assets or locations by time or meter. |

| Module and sub-module | Application          | Description  |
|-----------------------|----------------------|--|
|                       | Master Contracts     | Associate many contract types for a particular vendor. A Master Contract defines the relationship with a vendor and contains terms and conditions that apply to the contracts created and listed under it.                       |
|                       | Terms and Conditions | Maintain a library of terms and conditions that can be added to a purchasing document or contract. These terms can contain information such as liability concerns, shipping and handling details, or delivery time expectations. |
| FINANCIAL             | Currency Codes       | Define currency codes and specify which codes can be used in Maximo Asset Management.  |
|                       | Exchange Rates       | Set up exchange rates for converting currencies.   |
|                       | Chart of Accounts    | Establish general ledger account fields with definitions equivalent to those used with the rest of your financial data processing system.  |
| INVENTORY             | Item Master          | Define items that are stocked in your Storerooms. You group these items in an item set, which can then be shared by the organizations using that item set.   |
|                       | Service Items        | Define and manage purchased services.  |
|                       | Tools                | Manage information about the tools used to perform work. Tools are typically non-consumable items for which you charge an hourly rate.   |
|                       | Stocked Tools        | Manage existing tools in Storerooms.   |
|                       | Inventory            | Enter, display, and update information about each inventory item.  |
|                       | Issues and Transfers | Issue or transfer items from Storerooms, or return items to Storerooms.  |
|                       | Condition Codes      | Create and maintain a master list of condition codes for a particular item set.  |
|                       | Storerooms           | Add and maintain information about Storeroom locations, as well as view the items stocked within a Storeroom.  |
| PLANNING              | Job Plans            | Create a detailed description of how a job is to be performed.   |



| Module and sub-module  | Application            | Description  |
|------------------------|------------------------|--|
| PREVENTIVE MAINTENANCE | Preventive Maintenance | Create, modify, and view preventive maintenance plans for work assets. PM records are templates for work orders or for other PMs.  |
|                        | Master PM              | Create and modify master PMs, which are templates for other PM records.  |
| PURCHASING             | Purchase Requisitions  | Ask the purchasing department to order materials or services.  |
|                        | Purchase Orders        | Purchase materials or services from an internal supplier or an external vendor.  |
|                        | Receiving              | Receive materials into inventory and record the receipt of services.   |
|                        | Invoices               | Record invoices and match them against purchase orders and receipts for approval.  |
|                        | Request for Quotations | Request and manage vendor quotations.  |
|                        | Companies              | Manage data about manufacturers, vendors, and other companies that do business with you.   |
|                        | Company Master         | Create company master records that belong to a particular company set.   |
|                        | Terms and Conditions   | Maintain a library of terms and conditions that can be added to a purchasing document or contract. These terms can contain information such as liability concerns, shipping and handling details, or delivery time expectations. |
|                        | Search Catalogs        | Enables “punch-out” capability from Work Orders and Desktop Requisitions.  |
| RELEASE                | Activities and Tasks   | Plan, review, and manage activities and tasks. When you create an activity, you initiate the work process and create a historical record of work being performed.  |
| SECURITY               | Security Groups        | Grant access to sites, applications, and menu options. A user is assigned to one or more groups to gain access to the system.  |
|                        | Users                  | Add and manage Maximo users.   |

| Module and sub-module  | Application             | Description  |
|------------------------|-------------------------|--|
| SELF SERVICE           |                         |  |
| Service Requests       | Create Service Request  | Self-service users use this application to create new service requests.  |
|                        | View Service Request    | Self-service users can view existing service requests.   |
| SERVICE DESK           | Activities and Tasks    | Plan, review, and manage activities and tasks. When you create an activity, you initiate the work process and create a historical record of work being performed.  |
|                        | Service Requests        | Create, view, and resolve service requests from clients.   |
|                        | Ticket Templates        | Create and manage generic ticket templates that Service Desk environments can leverage to standardize common or high-volume service requests, incidents, or problems.  |
| SYSTEM CONFIGURATION   |                         |  |
| Platform Configuration | Actions                 | Manage the administrative functions of creating actions and action groups within Escalations.  |
|                        | Roles                   | Manage roles within Maximo Asset Management.   |
|                        | Communication Templates | Create and manage generic communication templates that users can leverage to standardize frequently used e-mail communications (also known as notifications).  |
|                        | Database Configuration  | Create or modify the objects and attributes used by Maximo Asset Management Essentials applications.   |
|                        | Application Designer    | Create new applications (clones and custom applications) or tailor the pages of existing applications.   |
|                        | Escalations             | Automatically monitor critical processes across your enterprise. The primary goal of Escalation Management is to ensure that critical tasks are completed on time, such as those defined in service-level agreements (SLAs). |

| Module and sub-module | Application       | Description  |
|-----------------------|-------------------|--|
|                       | Cron Task Setup   | Manage cron tasks. Cron tasks are behind-the-scene jobs set to run automatically and on a fixed schedule.  |
|                       | Domains           | Maintain lists of defined values that appear in drop-down lists (sometimes referred to as value lists).  |
|                       | Logging           | Manage log settings and configure log files.   |
|                       | System Properties | Manage system properties and their values used by various product components.  |
|                       | Web Services      | Create, modify, and delete Web services. You also can generate schema and Web Service Description Language (WSDL) files for any Web service that you deploy. External applications can use Web services to query or to send transactions to the Integration Framework.   |
|                       | Object Structures | Create, view, modify, and manage the processing logic of an object structure. An object structure is the common data layer that the Integration Framework uses for all outbound and inbound application data processing. An object structure consists of one or more sub-records that develops their XML content from a particular object. |
| Migration             | Migration Manager | Define, create, distribute, and deploy packages. Packages are used to transfer and deploy the many configuration changes possible with the Maximo Asset Management Essentials configuration tool set from one environment to another (that is, from a development environment, to test environment, to production environment).            |
|                       | Migration Groups  | Create groups of configuration objects and link related (dependent) groups to the objects that you create. You group configuration objects to ensure that all related configuration data is collected from source environments and distributed to target environments.   |

| Module and sub-module | Application                | Description  |
|-----------------------|----------------------------|--|
|                       | Object Structures          | Create, view, modify, and manage the processing logic of an object structure. An object structure is the common data layer that the Integration Framework uses for all outbound and inbound application data processing. An object structure consists of one or more sub-records that develops their XML content from a particular object. |
| TASK MANAGEMENT       | Activities and Tasks       | Plan, review, and manage activities and tasks. When you create an activity, you initiate the work process and create a historical record of work being performed.  |
| WORK ORDERS           | Work Order Tracking        | Plan, review, and approve work orders for assets and locations.  |
|                       | Labor Reporting            | Report the type and total number of hours of work that was performed by external contractors or internal employees.  |
|                       | Quick Reporting            | Report work on open work orders or small jobs.   |
|                       | Activities and Tasks       | Plan, review, and manage activities that can initiate the maintenance process and create a historical record of work being performed.  |
|                       | Assignment Manager         | Dispatch urgent work and schedule labor to planned work requirements.  |
|                       | Service Requests           | Create, view, and resolve service requests from clients.   |
| START CENTER          | Layout and Configuration   | Administrator users can modify and configure the layout of the portlets displayed on the Start Center.   |
|                       | All Custom Applications    | Enables access to all user-created custom applications.  |
|                       | Favorite Application Setup | Administrators can define and edit the list of applications displayed in a Favorite Application portlet.   |
|                       | Forgotten Password         | E-mail users their current passwords from the Login application.   |
|                       | Inbox/Assignments Setup    | Administrators can define and edit which columns are displayed in the Workflow assignments inbox on the Start Center.  |

| Module and sub-module | Application            | Description  |
|-----------------------|------------------------|--|
|                       | KPI Graph Setup        | Administrators can define and edit a KPI graph-style portlet to display on the Start Center.   |
|                       | KPI List Setup         | Administrators can define and edit a KPI list-style portlet to display on the Start Center.  |
|                       | Change Password        | Change a user's password.  |
|                       | Quick Insert Setup     | Administrators can define and edit the list of applications displayed in a Quick Insert portlet.   |
|                       | Result Set Setup       | Administrators can define and edit the query used and columns displayed in a Result Set portlet displayed on the Start Center.   |
|                       | Start Center           | The Start Center is an initial page displayed once users log on to Maximo Asset Management. It provides a dashboard-like starting point that can display various portlets including KPIs, Result Sets, Quick Insert, Favorite Applications, and Inbox/Assignments. |
|                       | User Self Registration | New users can register themselves as Maximo Asset Management Essentials users with a temporary password.   |



# Related publications

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

## IBM Redbooks

For information about ordering these publications, see “How to get Redbooks” on page 137. Note that some of the documents referenced here may be available in softcopy only.

- ▶ *Deployment Guide Series: Maximo Asset Management V7.1*, SG24-7640
- ▶ *WebSphere Application Server V6 System Management & Configuration Handbook*, SG24-6451

## Online resources

This Web site is relevant as a further information source:

- ▶ Maximo Asset Management online product documentation  
[http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc\\_7.1/mam\\_welcome.htm](http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.mam.doc_7.1/mam_welcome.htm)

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# Index

## A

Active Directory 47  
Actuate iServer 38  
Adapter 8, 74  
Add-ons 36  
Administrative system 32  
Agent Controller 40, 48, 54  
Application Designer 5, 15, 132  
Application Redeployment 85  
Application Server Specialist 20  
Application Servers 17, 29, 39, 44, 53  
Asset Life Cycle Phases 2  
Asset Management ix, 1, 3, 5, 9–10, 17, 21, 29–30, 39–40, 113–114  
Assets 2, 11, 116, 129  
Attached Documents Configuration 95  
Automatic Notifications 6

## B

Backup Procedure 100  
Base Language 36  
Base Services 44  
BEA WebLogic 37, 39, 44  
Better Planning 3  
BIRT Reports 38, 117, 120  
Browser 30, 41, 121  
Bulletin Board 11, 128  
Business Analyst 18  
Business Intelligence Reporting Tool 117

## C

Capacity Planning 35  
Client Connectivity 89  
Client Local/Regional Settings 101  
Client System 33  
CMMS 2  
Commissioning 2  
Communication Templates 11, 15, 23, 128, 132  
Company Sets 115  
Competitive Advantage 3  
Conditional Expression Manager 128  
Configuration 5, 12, 14, 23–24, 132, 134

Connectivity 67, 89  
Contract Correlation 6  
Contract Management 6  
Cost Reduction 3  
Credentials 51  
Cron Tasks 15, 35, 133  
Currency Codes 12, 115, 130  
Custom Deployment 62  
Customization 36

## D

Database 5, 15, 17, 30, 39, 45, 52–53, 115, 132  
Database Administrators 20  
Database Configuration 63, 65  
Database Servers 47, 50  
DB2 48, 64  
Default Insert Site 114  
Deployment 18, 24, 32, 34–35, 50–51, 54, 56  
Deployment Environments 33  
Deployment Plan 51, 59  
Deployment Plan Logs 59  
Deployment Plan panels 56–57  
Directory Server 31, 47–48, 50  
DOCLINK properties 96

## E

E-mail 128  
End Points 13  
Enterprise Asset Management 2  
Enterprise Services 12  
Enterprise Systems 8  
Escalations 15, 23  
External Systems 13

## F

Firewall 101  
Functional Testing 19, 25

## G

General Ledger Account 23  
Generate Request Page 121  
Generating Report Output 91

GL Codes 115  
Global Properties 103

## H

Hardware Requirements 30  
HTTP 54, 79, 88  
HTTP Server 96

## I

IBM Agent Controller 48  
Industry Solutions 10  
Information Availability 3  
Initial Configuration 115  
Input Summary 75  
Installation 61  
Installation Overview 60  
Installing Middleware 47  
Instance Properties 103  
Integrating with Existing Enterprise Applications 7  
Integration 8, 10, 12–13, 36, 74  
Integration Specialist 20  
Internet Explorer Settings 102  
Internet Security 101  
Invocation Channels 12

## J

J2EE 29, 47  
J2EE Server 32, 47, 50  
Java V5.1 41  
JMS 69, 74  
JMS DataSource name 74  
JMS messages 74

## K

Key Performance Indicators (KPIs) 7

## L

Launchpad 40  
LDAP 53, 102  
LDAP Host Name 53  
Legal Requirements 3  
License 78, 82, 88  
Linear Assets 5  
Link Documents 36  
Logging 15, 103, 105, 133  
Logging Properties 103  
Logical Management Operations 13

Logs 58–60, 78

## M

Machine Plan 59  
Materials Management 7  
Maximo Asset Management 9  
Maximo Asset Management Essentials 3  
Maximo Asset Management Essentials Installation 61  
Maximo Asset Management Essentials License 82  
Maximo Asset Management Essentials Supported Platforms 37  
Maximo Asset Management Essentials, enterprise edition compared to 11  
Maximo Developer 19  
Maximo Enterprise Adapter (MEA) 8  
Message Reprocessing 13  
Message Tracking 13  
Microsoft Active Directory 47, 73, 103  
Middleware 44, 47–48, 52  
Middleware Images 54  
Middleware Installation 47, 49, 55, 58  
Middleware Installer Logs 58  
Migration Manager 15, 133  
Modules 4, 13, 21, 36  
Multiserver 34

## N

Notifications 6, 128

## O

Object Structures 12, 15, 133–134  
Oracle 10, 20, 38  
Organization xii, 53, 109

## P

Package Options 85  
Password 52, 108, 134–135  
Performance Testing 19, 25  
Persist 74  
Portlet 135  
Post-Installation Tasks 87  
Post-MAM (base services) Installation 78  
Preinstallation Summary 76  
Preventive Maintenance 6, 14, 117, 131  
Process Solutions 45  
Procurement 5

Procurement Management 2, 7  
Project Manager 18  
Project Planning 17  
Publish Channels 12  
Purchasing 7, 14, 116

## **Q**

Quick Insert 135

## **R**

Redbooks Web site 137  
    Contact us xii  
Redeployment 85  
Remote Access Authorization 68  
Report Administration 11, 89, 118, 128  
Reporting 11, 15, 90, 134  
Reports 36, 91, 93, 118, 120, 123  
Request Page 94, 121  
Required Skills 18  
Requisition 2, 14  
Retirement 2  
Roles 15, 23, 116, 132  
rpm-build Package 42

## **S**

SAP x, 10, 20  
Secure Socket Layer 101  
Security 5, 14, 23, 73, 78, 114, 116, 131  
Self Service 14  
Servers 33  
Service Desk 14  
Service Management 6  
Service Requests 14, 16, 132, 134  
Service-Level Agreements 23  
Services 12, 15, 78, 88, 133  
Single-server 33  
Sites 109, 114–115  
Sizing Considerations 35  
SMTP mail exchange server 102  
SOAP 67  
Software Installation 24  
Software Requirements 23, 30  
Solution 21  
Solution Architecture 19, 23  
Solution Environment 29  
SSH 44  
Storerooms 130

Support xii, 18, 26, 77  
Supported Platforms 37  
System Integration 19, 25  
System Properties 14, 96, 103, 133  
System Properties Application 103

## **T**

Task Break Down 22  
TEMP 41  
Testers 19  
Testing and Go-Live 18, 25  
Tivoli Directory Server 48, 51, 53, 73  
Tivoli's process automation engine 39, 44, 60  
Tracking Tools 6

## **U**

Upgrade Utility 5  
User Interface 21  
User Interface Logs 58  
User Management 108  
Users 4, 14, 114, 131  
Users LDAP Authentication 102

## **V**

Vendor Management 7  
Vendors and Contracts 23  
Virtual Member Management 102

## **W**

Web Services Library 13  
WebSphere Application Server Configuration panel 72  
WebSphere Application Server V6.1 48  
WebSphere Deployment Manager 70–71  
WebSphere installation directory 70  
WebSphere Remote Access Authorization panel 68  
Work Management 5  
Work Order Templates 23  
Workflow 10, 15, 23  
Workspace Location 62



## Maximo Asset Management Essentials V7.1 Implementer's Guide

(0.2" spine)  
0.17" <-> 0.473"  
90 <-> 249 pages







# Maximo Asset Management Essentials V7.1 Implementer's Guide

## Address the needs of general business clients

This IBM Redbooks publication is a guide to implementing Maximo Asset Management Essentials. It provides general product information and covers the planning, installation, and initial configuration processes.

## Plan a deployment

An entry-level member of the IBM Maximo Asset Management product family, Essentials is ideal for smaller organizations that require a subset of the extensive range of features in the IBM Maximo Asset Management product.

## Configure the environment

With Maximo Asset Management Essentials, smaller organizations can take advantage of proven Maximo Asset Management technology, while enjoying cost savings. Essentials enables smaller organizations and departments to organize, track, and manage their asset and work management processes, and to implement a maintenance regimen based on industry leading technology and best practices.

Unlike competing solutions that are unable to grow with an organization, forcing businesses to lose their initial expenditure, Essentials is an integrated solution that enables organizations to build on their Maximo investment by leveraging the Maximo scalable architecture. It helps eliminate paper-based and spreadsheet-based processes and provides custom applications. Essentials can grow with a company so it can manage all asset classes and work tasks from a single, unified platform.

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