

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

Offering targeted for general business clients

Start planning a deployment

Learn about configuring the environment



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International Technical Support Organization

**Maximo 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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# Preface

This book is a guide to assist those interested in implementing Maximo Asset Management Essentials. It provides general information about the offering and overviews 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 Essentials, smaller organizations can take advantage of proven Maximo Asset Management technology, while also enjoying cost savings.

IBM Maximo Asset Management 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.

IBM Maximo Asset Management Essentials is an integrated solution for all assets. It helps eliminate paper- and spreadsheet-based processes and custom applications by standardizing on the Maximo unified platform.

Unlike competing solutions that are unable to grow with your organization, forcing you to throw away your initial expenditure, Essentials allows you to build on your Maximo investment by leveraging Maximo's scalable architecture. Maximo Asset Management Essentials can grow with your company so you can continue to manage all asset classes and work tasks from a single, unified platform.

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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

This chapter introduces the basic concepts of Asset Management and how Maximo Asset Management Essentials as a product can be used as an enabler for those processes. We also talk about the functional layout of Maximo Asset Management Essentials.

## 1.1 Enterprise asset management overview

Enterprise asset management is the process of managing an organization's assets throughout their life cycle - right 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 can be defined as any equipment or facility which plays a key role in the core business of the enterprise. The concept of "Management" is basically applied to improve utilization and performance of an asset and thereby improve return on investment (ROI).

Asset life cycle typically contains the following phases

- a. **Requisition** - At this stage some one or some function in an organization raises a request for an asset. At this stage the asset can be either procured from a vendor or it can be an inter department transfer.
- b. **Procurement** - The complete purchasing process is the second stage in the asset life cycle. This process includes creation of purchase requisition,

creation of request for quotation, generation of purchase order, receiving an asset at a location and creation of an invoice.

- c. **Commissioning** - At this stage of the asset life cycle, it is assigned to a location, user or group of users. The cost of operating the asset is now attributed 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 / or seasonal maintenance
- d. **Retirement** - Some enterprises call this decommissioning too, 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 also in certain cases being able to transfer parts of the asset to another asset. For instance, say few months ago someone just replaced a critical and expensive part of an asset because of a fault and that part can now be re-used since it not very old but is expensive.

The concept of Enterprise Asset Management evolved from Computerized Maintenance Management System (CMMS). An enterprise's assets are very critical and with the global competition it s becoming imperative for companies to maintain and plan various stages of the asset life cycle strategically. Thus, the reason for having Enterprise Asset Management as a dedicated function within an organization which encompasses purchasing, engineering, accounting and maintenance management.

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

- ▶ Cost Reduction
- ▶ Legal Requirements
- ▶ Better Planning
- ▶ Competitive Advantage
- ▶ 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, purchasing capabilities that help corporations maximize productivity and increase the life of assets.



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

However, smaller businesses can benefit from the core functionality of Maximo and do not need an enterprise level solution for asset management. Thus, Maximo Asset Management Essentials has been created, which is a lighter, less complex version of Maximo Asset Management Enterprise 7.1. The differences in functionality will be discussed in subsequent sections of this book.

Maximo allows companies to manage assets by providing information and real time data thereby enabling creation of a strategy for maintenance management by information based decision making capabilities, help in predicting impacts of asset downtime on productivity for all categories of assets.

### 1.2.1 General 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 which support them, to provide you with 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 also include attachments, such as maps, pictures, and URLs to each record or task to further enhance communication and productivity.

IBM Maximo Asset Management Essentials allows 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 for Enterprise. Both the products have the same look and feel, similar navigation and functionality.

The product is composed of Modules, which in turn contain applications or sub-applications. Users access the lowest level, whether it is an application or sub-application for functionality.

The Maximo Asset Management Essentials solution has multiple modules to assist the end 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 (Java EE) 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, your configurations are upgraded with the Upgrade Utility, thus keeping you from being locked in from one application release to another.

Each key module and the business goals for which you can use it are as 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 allows you to put PM schedules in place with the right job steps and resource requirements, facilitating the planning as well as the 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 SLA performance metrics when renegotiating vendor terms.
- ▶ A terms and conditions library allows 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.

## Materials Management

Know the details—what, when, where, how many, how valuable—about asset-related inventory and its usage. Materials management functionality records material movements and adjustments, allowing for real-time inventory tracking, reporting and auditing. This module also allows embedded images of an asset to be displayed in the catalog search. You can also use it 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 help reduce stock-outs, inventory shrinkage and carrying costs, as well as help foster economies of scale through shared resources.

## Procurement Management

Support 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 allowing them to plan work more proactively. Maximo Asset Management Essentials easily integrates with enterprise business systems from vendors such as Oracle® and SAP, and also connects to online marketplaces, supplier systems and exchanges. 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 can improve 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) which measure procurement performance such as order processing times, invoice accuracy and order delivery times.

## Service Management

Allow end users to submit new service requests, as well as to track and update open service requests. Though 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

Have enhanced control over your vendor contracts 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.

### 1.2.3 Integrating with Existing Enterprise Applications

From a functional standpoint, most businesses already have huge IT investments. There is often the question - "Does installing Maximo mean I get rid of existing applications?" The answer is - No. Maximo offers a very robust integration platform to integrate with any existing applications and maintain a *'single version of truth'*.

Some of the integration with leading enterprise systems are already available in the form of adapters where as some have to be custom built, as the need may be. 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) be procured as an add-on from IBM to facilitate these integrations.





# Maximo Asset Management Essentials 7.1

This chapter provides details of Maximo Asset Management Essentials 7.1 and an overview of each of the features available for Asset Management. Maximo Asset Management Essentials is a lighter version of Maximo Enterprise 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. Small organizations, with smaller asset management needs are good candidates to choose Maximo Asset Management Essentials compared to the fully blown enterprise version of the product which is predominantly implemented for larger organizations with multiple companies, sites, and process complexity.

The following are the main areas of focus for Maximo Asset Management Essentials

- ▶ Optimum for the small-to-medium business
- ▶ Has a licensing restriction of a maximum of 25 named users.
- ▶ Limited functions, and therefore reduced implementation planning and deployment effort.

- ▶ Has enterprise wide capability for asset management with simplicity for a small medium business
- ▶ Has straight-forward licensing
- ▶ Leverages the enterprise architecture and allows for upgrade to enterprise solution wherever required.
- ▶ Allows maximum of two languages - Base language +1
- ▶ Allows maximum of two currencies - Base currency + 1

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

Components not available for purchase with Essentials:

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

Customers needing the above functionality must purchase the Maximo Asset Management Enterprise product.

## 2.1 Differences with Maximo Asset Management Enterprise

The following table provides a summary of the various modules, applications and sub-applications, and identifies those that are included in both the Maximo Asset Management enterprise version and those in the Maximo Asset Management Essentials offering.



Table 2-1 Summary of modules by offering

<b>Maximo Asset Management</b>				
Module	Application	Sub-Application	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
	Features		Y	N
	Meters		Y	Y
	Meter Groups		Y	Y
	Condition Monitoring		Y	N

<b>Maximo Asset Management</b>				
	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
	Web Services Library		Y	Y
	End Points		Y	Y
	External Systems		Y	Y

<b>Maximo Asset Management</b>				
	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
Preventive Maintenance	Preventive Maintenance		Y	Y
	Master PM		Y	Y
Purchasing	Purchase Requisitions		Y	Y

<b>Maximo Asset Management</b>				
	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
		Logging	Y	Y
		Domains	Y	Y
		Database Configuration	Y	Y

<b>Maximo Asset Management</b>				
		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
	Quick Reporting		Y	Y
	Activities and Tasks		Y	Y
	Assignment Manager		Y	Y

Maximo Asset Management				
	Service Requests		Y	Y

|



# Project Planning

This chapter describes various parameters that should be considered in planning an implementation right from technical options in terms of database, application server and operating system to required skills. A Maximo Asset Management Essentials implementation is assumed to be simpler and less time consuming than an enterprise wide implementation. The underlying assumption in this chapter is a basic implementation with out of box components for middleware, database and so on. After reading this chapter, the implementation team should be able to create a high level project plan with ballpark effort and time estimates for a typical implementation.

We have not created an implementation plan which fits for each implementation since all of them are different. Each customer is unique and the requirement set of each customer differs. However, for the purpose of this chapter and to maintain simplicity as Essentials is not supposed to be as complex as a Maximo enterprise implementation, the following parameters have been taken into consideration:

- ▶ Infrastructure Selected
  - Operating System - Windows®
  - Database - DB2®
  - Application Server - WebSphere
- ▶ No integration with other third party systems
- ▶ Existing data sets for data migration

- ▶ Customer will follow processes as the tool guides them

Although the tool also support other operating system, database platforms and leading application servers, these combinations can greatly impact the project schedule. These parameters shall be carefully examined during the requirements gathering.

Keeping the project simple, typically there will be the following phases in an implementation:

- ▶ Phase 1: Requirement Gathering and Analysis
- ▶ Phase 2: Solution Design
- ▶ Phase 3: Deployment
- ▶ Phase 4: Testing and Go-Live
- ▶ Phase 5: Support

The subsequent sections will talk about the people, process and technology that are required in each of the above phases.

## 3.1 Required Skills

The project delivery team is most fundamental to success of a project. The exact number of people required will vary with project, organization experience, reusable components and methodology. Nevertheless, the people comprising the team shall be playing the following roles:

### **Project Manager**

The project manager shall perform the following activities:

- ▶ Own the implementation end-to-end.
- ▶ Be the single point of contact for the customer
- ▶ Facilitate customer interactions.
- ▶ Project status reporting.
- ▶ Monitor project progress on regular intervals.
- ▶ Escalate issues to the right people.
- ▶ Change control agent for scope creep.
- ▶ Make available resources, man and material, for the project.

### **Business Analyst**

The business analyst is a functional person who understands the product and also the customer's domain. This person can speak with the customer in his language and have the ability to translate customer's requirements to the technical team. This is a very key role and is vital to success of the project. The following are the attributes of this role:



- ▶ Domain Knowledge.
- ▶ Functional knowledge of Maximo.
- ▶ Working knowledge of UML.
- ▶ Knowledge of industry best practices to suggest to client.

### **Solution Architect**

The solution architect is the person who designs the complete solution. This includes the integration with various third party systems. The various attributes and tasks this role undertakes are:

- ▶ Strong technical skills on Maximo
- ▶ The ability to map business processes to technology
- ▶ Understand functional integration points
- ▶ Understand technical integration points
- ▶ Build the overall solution design
- ▶ Walk the team on how the various aspects of implementation will be achieved
- ▶ Resolve technical issues

### **Maximo Developer**

This group of people will actually install and configure the software to work in accordance with the customer's needs. The major tasks to be performed by the developers are:

- ▶ Maximo installation
- ▶ Configuration of screens, information flow
- ▶ Work on integration
- ▶ Develop custom classes, if required
- ▶ System optimization

### **Testers**

Critical to every project is testing - System Integration, Functional and Performance. Depending on the complexity of the project this role can be played by the developer or there can be a specialized group for this. The major tasks include:

- ▶ Functional Testing: Testing the flows, communication templates, data flow between screens and functions for accuracy.
- ▶ System Integration: Testing the integrations to ensure the data between systems is flowing accurately.
- ▶ Performance Testing: This test ensures response times are accurate and the system is responding in the most optimum way.

### **Database Administrators**

Like any enterprise system, Maximo's database will be accessed by multiple people and multiple times. The uptime of the database is very critical and the

transaction processing capabilities have to be at their best at all times. The DBA shall perform the following activities:

- ▶ Troubleshoot database creation
- ▶ Database installation if other than DB2
- ▶ Database optimization
- ▶ Facilitate Database level integrations with enterprise systems

### **Application Server Specialist**

Depending on choice of application server, WebSphere or WebLogic, part time involvement of application server specialist or administrator may be required. This becomes more important if the implementation is complex with many integrations and in a clustered environment.

### **Integration Specialist**

This is an optional group of people and the size and skill of the integration team may vary from customer to customer. Some special systems such as SAP, Oracle and other niche products may require technical experts. Depending on the project the main task will be to facilitate integration with external systems and ensure bidirectional movement of data

The above list of various roles is not a permanent fixture for each project. There can be more roles that are required and more than one person in a role. As mentioned before each project is different and it is hard to generalize, however, we have tried to cover most scenarios that we have encountered in our implementation experiences.

## **3.2 Solution Description and Assumptions**

This section will talk about a high level solution architecture and the standard assumptions that are taken while project planning.

The following figure represents the Maximo Asset Management Essentials solution architecture.

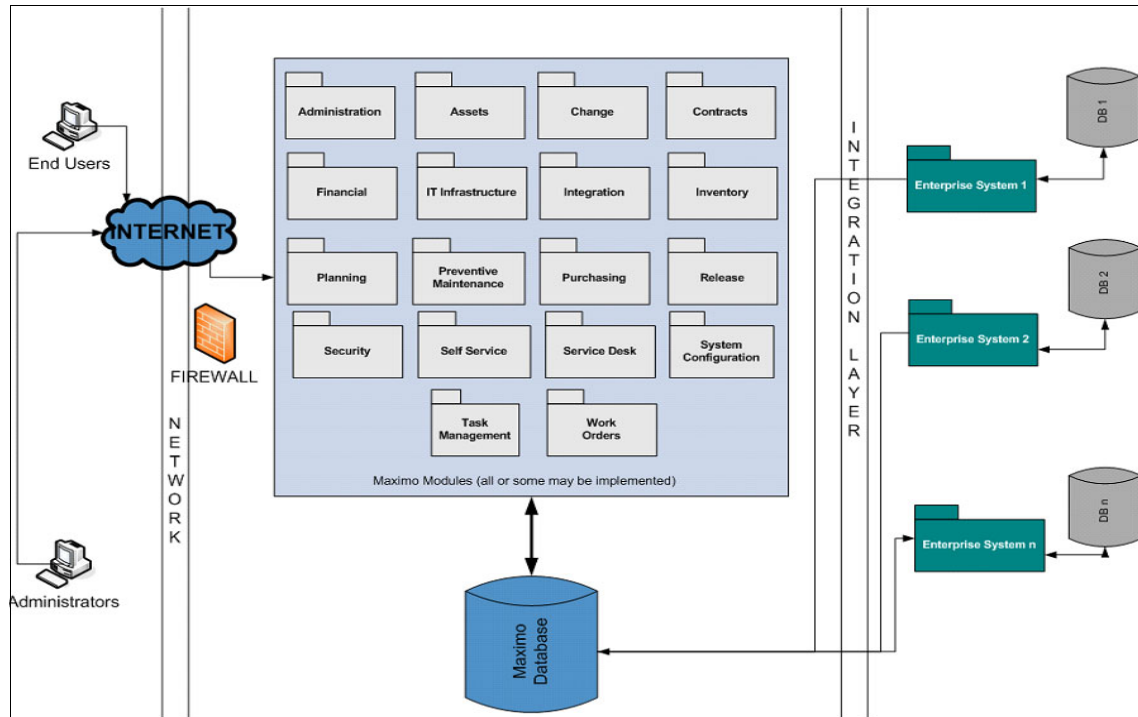


Figure 3-1 Solution architecture

Maximo being a browser based application can be accessed remotely.

The three layers above can be complicated depending on a customer's requirements and network set-up. 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.

Some standard assumptions while project planning are:

- ▶ The software is procured prior to project initiation
- ▶ There are three environments - Development, Testing and Production
- ▶ The application server, database server and reporting engine are all kept in separate physical servers
- ▶ Customer shall own any configurations required in the enterprise systems to facilitate integrations
- ▶ Customer's involvement during the initial project stages is pretty high because a lot of the functional and business process knowledge specific to the customer needs to be transferred to the implementation team

- ▶ There is a management buy-in for this project.
- ▶ A dedicated single point of contact and project manager is appointed from the customer to manage interactions with end users
- ▶ Historic data migration can be done by implementation team but data cleansing and scrubbing needs to be owned by the customer.

### 3.3 Task Break Down

The standard phases of a Maximo Essentials 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 explained in the following sections.

#### **Phase 1: Requirement Gathering and Analysis**

Roles Involved: Project Manager, Business Analyst, Solution Architect

Key Activities:

- ▶ Understand current business processes for
  - Maintenance Management,
  - Procurement,
  - Inventory Management
  - Asset Management
- ▶ Document pain areas with existing business processes
- ▶ Demo the vanilla product
- ▶ Understand and document the end goal and vision of the customer
- ▶ Document 'To-Be' business processes for each of the functions mentioned above
- ▶ Analyze the points of integration
- ▶ Analyze the current data sources
- ▶ Creation of a SRS (Software Requirements Specification) document

#### **Phase 2: Solution Design**

Roles Involved: 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
  - Screen configurations
  - GL Codes
- ▶ Create a detailed implementation plan
- ▶ Identify methodology for integration
- ▶ Identify scripting or manual data migration approach from identified data sources
- ▶ Create a solution architecture diagram

**Phase 3: Deployment**

Roles Involved: Project Manager, Solution Architect, Maximo Developers

Optional Roles: DBA, Application Server Specialist (depending on environment)

**Key Activities:**

This phase consists of the following activities:

- ▶ Software Installation
  - Install the various components if doing a Manual install
  - Run the launchpad for an automated install
  - Test if the installation is successful

The software installation will be different for various deployment topologies - single server, multi-server, clustered environment. It will also depend on what infrastructure is selected.

- ▶ Software Configuration
  - Basic operation configuration which includes, but is not limited to:
    - Creation of organization
    - Creation of locations
    - Creation of GL Codes

- Creation of users, roles and security groups
  - Configure role based start centers
  - Creation of Job plans, work orders
- Configuration of the tool to map to business processes which includes, but is not limited to:
- Addition or deletion (as the case may be) of fields on screen and database
  - Create communication templates
  - Create escalation points and define SLAs in the system
  - Create and test data migration scripts
  - Migrate data from its existing source to Maximo
  - Build integration interfaces - either using custom code or MEA (as the case may be)
  - Creation and deployment of reports

#### **Phase 4: Testing and Go-Live**

Role Involved: Project Manager, Solution Architect, Testers, Maximo Developers

Optional Roles: DBA, Application Server Specialist

Key Activities:

► Testing

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

- Functional Testing
  - Test validations in new fields
  - Test emails being sent on escalations
  - Test accuracy of data flowing between modules in the system
  - Test data accuracy in reports
- System Integration Testing
  - Test accuracy of data coming from external systems
  - Test accuracy of data going into external systems
  - Scenario testing to ensure there is nothing that affects availability of any system
- Performance Testing
  - Page Load time
  - Peak load

- Concurrent users
  - Transaction processing time with database and external data sources
- ▶ Go-Live
- Plan cut-over strategy
  - Migration to production environment
  - Execute each of the above test cases introduction environment to ensure zero-performance glitch in the live environment
  - Training needs to be provided to all or some of the users. Recommended approach is ‘Train-the-Trainer’. Training to 3 types of users:
    - End Users: Functional training to the user community on how to use various functional aspects of the software. This can be done with focussed groups or general groups depending on how the client organization is structured
    - Role Based Training: This training is specific to certain groups. Support Purchase Administrator, Supervisor and so on, on how they can approve or disapprove certain tasks, manage their queue and so on
    - Administrative Training: Once the implementation team walks out, there has to be an internal designated person to manage the system. This person will be responsible for system availability, creation of new reports, enhancements, adding users, roles security groups and so on.

## **Phase 5: Support**

Key Roles: Project Manager, Maximo Developers

Optional Roles: Business Analyst, Solution Architect

Key Activities:

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

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

The above five phase methodology is generic but includes most of the basic activities that need to be considered and planned for in an implementation. However, what the section does not include is how and what is the customer's

involvement at each stage. For each of the above mentioned phases, the expectations from the customer are given in the below table

Table 3-1 Expectations from the customer

Phase	Expectations from the Customer
Requirement Gathering and Analysis	<ul style="list-style-type: none"> <li>▶ Assign a single point of contact from within</li> <li>▶ Explain the project vision, short term and long term objective</li> <li>▶ Facilitate meetings with individual process owners</li> <li>▶ Facilitate meetings with tool owners</li> <li>▶ Procure hardware and software required for the project</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>
Testing and Go-Live	<ul style="list-style-type: none"> <li>▶ Provide test and production environment</li> <li>▶ Provide data for User Acceptance Testing</li> <li>▶ Facilitate in UAT</li> <li>▶ Attend training</li> <li>▶ Provide man 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 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. The different components of the Maximo Asset Management Essentials environment are listed below:

- ▶ **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 only be implemented as a Windows system.

## 4.1 Hardware and Software Requirements

Maximo Asset Management Essentials hardware and software requirements are listed below. Each product version listed reflects the minimum requirement for use with Maximo Asset Management Essentials. Maximo Asset Management Essentials components are designed to run within 32-bit environments only, with the exception of AIX® 5.3 which is a 64-bit environment.

Maximo Asset Management Essentials supported software can be run on any hardware platform supported by the database software listed in the Software column, provided the system is hosting a supported operating system, 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 IPv6 network configuration.

### Browser

Maximo Asset Management Essentials supports Microsoft® Internet Explorer® version 6 and above.

### Database

Software	Operating System
<ul style="list-style-type: none"> <li>▶ DB2 UDB 9.1.3 or v8.2.8</li> <li>▶ Oracle 9.2.0.8, Oracle 10.2.0.3 or Oracle 10.1.0.5, Standard or Enterprise version</li> <li>▶ Microsoft SQL Server® 2005 SP2, Standard or Enterprise version.</li> </ul>	Refer to Vendor Specifications

## Directory server

Software	Operating System
<p>The following products can serve as the Directory server component of a Maximo Asset Management Essentials 7.1 deployment.</p> <ul style="list-style-type: none"> <li>▶ IBM Tivoli Directory Server v6.1 FP1</li> <li>▶ Microsoft Windows Server® 2003 SP2 Active Directory® Microsoft Active Directory Application Mode (ADAM) is 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) 9.0 Enterprise Server System z™ SP4 or later (manual install only)</li> </ul>

## J2EE Application Server

This is where you install WebSphere Application Server and where Maximo Asset Management Essentials runs

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/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 AIX5.3 or 6.1</li> <li>▶ Red Hat Enterprise Linux 4 and 5 (x86 and x64 processor-based systems)</li> <li>▶ SuSE Linux (SLES) 9.0 Enterprise Server System z SP4 or later (manual install only)</li> </ul> <p><b>Note:</b> Although Maximo Asset Management Essentials supports the following operating systems, if you are using IBM DB2 Universal database with Maximo Asset Management Essentials 7.1, you cannot use either of the following operating systems on your application server:</p> <ul style="list-style-type: none"> <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 6.1.0.11 (provided by IBM Corporation)</li> <li>▶ BEA Weblogic 9.2.2 (provided by Customer)</li> </ul>

## Administrative system

Hardware	Software
<ul style="list-style-type: none"> <li>▶ Intel-based Pentium processor</li> <li>▶ 1GB 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 6.0</li> </ul>

## Client system

Hardware	Software
<ul style="list-style-type: none"><li>▶ Intel-based Pentium processor</li><li>▶ 1GB 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 6.0 and above</li></ul>

## 4.2 Typical deployment environments

Maximo Asset Management Essential can be deployed primarily in two different topologies within an enterprise.

### 4.2.1 Single-server

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

The following figure details the Application Server MXServer running Maximo Asset Management Essentials on a single physical machine.

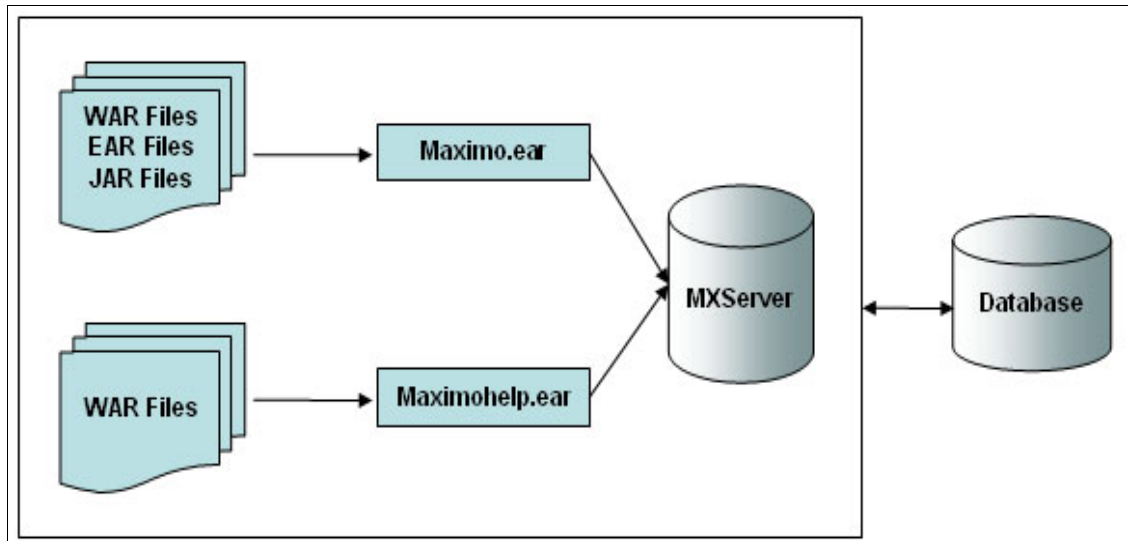


Figure 4-1 Single Server Deployment

## 4.2.2 Multi-server

The multi-server topology consists of splitting Maximo Asset Management Essentials components across several different machines. This is beneficial as it optimizes resource use and decreases each system's workload. This type of deployment would be typical for production use within an enterprise.

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

When contemplating your deployment strategy, you must determine if it will include systems already established in your network. Implementing Maximo Asset Management Essentials by installing all new components using the Maximo Asset Management Essentials middleware and Maximo Asset Management Essentials installation programs will simplify 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 things 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 could be a mixture of Windows and UNIX® machines. Only the Administrative system must be hosted on a Windows system.

Following figure displays the typical multi-server deployment environment.

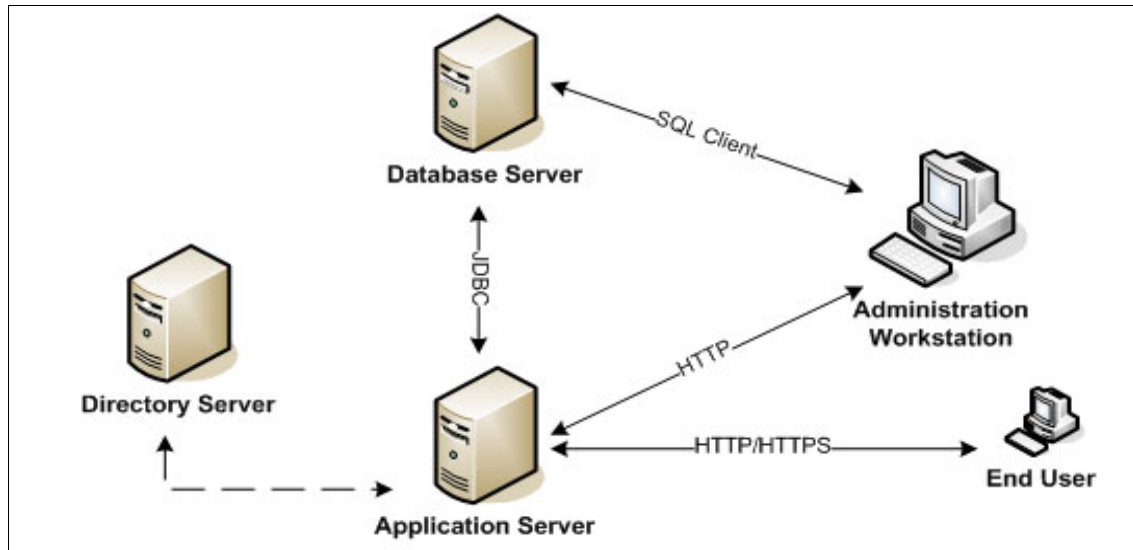


Figure 4-2 Multi-Server Deployment

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

## 4.3 Sizing Considerations

Sizing hardware for an application is a very critical task. One of the major objectives of sizing is to get right performance and the other is being able to support the enterprise's growth in terms of number of users for the application. Capacity Planning and Availability management are two important functions that need to be considered while sizing hardware for an application. Following are the few factors that one should consider for hardware sizing.

- ▶ **Cron Task:** Cron tasks are behind-the-scene jobs set to run automatically and on a fixed schedule. These jobs 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 hardware sizing.

- ▶ **Integrations:** There can be multiple integration points in an implementation like HRMS, Invoicing, and Finance. and these can be both inbound as well as outbound. Only the generic integration adapters are available with Maximo Asset Management Essentials.
- ▶ **Modules:** Not all the implementations comprise of usage of each and every module within Maximo Asset Management. This may depend on the business process of the organization and if there are any existing maintenance management software in place.
- ▶ **Level of Customization:** The customization of different applications may vary from minor field re-labeling to cloning an entire application. Before the implementation begins, the implementation team should calculate the deviation of standard Maximo application from the requirements in place to decide on the necessary hardware to support this.
- ▶ **Reports:** Reporting is an important component of any Maximo implementation. Management takes all the business decisions based on the data that is produced to them in the form of reports which 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:** Depending on the different languages that need to be supported by the system the complexity increases. System needs to ensure that data is stored in supported languages and when it is being displayed on the user interface it is in the language of the logged in user. Maximo Asset Management Essentials supports only the Base Language +1.
- ▶ **Add-ons:** All the Add-ons that the implementation might require should be identified and listed to ensure that hardware sizing is done taking into account these as well.
- ▶ **Link Documents:** If the organization decides to configure link documents and use this feature as a practice, then it should be ensured that the servers have necessary storage space and also attaching the documents is not creating storage and retrieval performance issues.

## 4.4 Maximo Asset Management Essentials Supported Platforms

Refer to the table below to find the supported platforms by IBM Maximo Asset Management Essentials.

	Maximo 6.1	Maximo 6.2.1	Maximo 7.1
Operating Systems			



	Maximo 6.1	Maximo 6.2.1	Maximo 7.1
AIX 5.2 (32 bit)	x	x	
AIX 5.3 (32 bit)	x	x	x
AIX 5.3 (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	
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 6.0	x	x	
IBM WebSphere 6.1			x
BEA WebLogic 8.1	x	x	
BEA WebLogic 9.2			x
<b>Databases</b>			
IBM DB2 UDB 8.2 for Linux, UNIX and Windows		x	x
IBM DB2 UDB 9.2 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 (32bit)	x	x	x

	Maximo 6.1	Maximo 6.2.1	Maximo 7.1
Microsoft SQL Server 2005 (64bit)		x	x
<b>Browsers &amp; Client Operating Systems</b>			
Internet Explorer 6.0.x	x	x	
Internet Explorer 7.0.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 2.1.2			x



# Installation

In this chapter we will discuss installation of the pre-requisite middleware, the Maximo base set of services (sometimes referred to as the Tivoli Process Automation Platform) and the Maximo Asset Management Essentials-specific process solution package.

Our examples will be based on the following software components:

- Windows 2003 Server
- WebSphere 6.1 Application Server
- DB2 Database Platform
- Maximo Asset Manager Essentials 7.1 application

Though our examples will primarily demonstrate a single server environment, we realize most production environments will be (and should be) comprised of multiple servers. The process is much the same, and we will highlight 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 (MAM Essentials71\_install\_was.pdf)*
- ▶ *Installation Guide BEA WebLogic Server (MAM Essentials71\_install\_bea.pdf)*

## 5.1 Pre-Installation checklist

Before we start, we need to re-assess our pre-installation checklist carefully consider the following:

### 5.1.1 Hardware/Software considerations

Before proceeding with installation please ensure that the system configuration adheres to the required specifications as laid out by IBM and mentioned in the previous chapter

### 5.1.2 Verifying the DVD Content

The following DVDs contain files for the Maximo Asset Management Essentials product:

#### **Maximo Asset Management Essentials V7.1**

Contains:

- ▶ 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 Windows 2003.

#### **Middleware for Windows 2003**

Contains prerequisite middleware software for Windows 2003.

#### **Middleware for Red Hat Linux V4 and V5**

Contains prerequisite middleware software for Red Hat Linux version 4.

#### **Middleware for AIX V5.3 and V6.1**

Contains prerequisite middleware software for AIX version 5.3.

#### **Maximo Asset Management Essentials V7.1 Quick Start**

Contains copies of the Quick Start guide in all languages and a copy of the information center.

### 5.1.3 Backup/Snapshot Management

It is recommended to take a backup of your system before installing any Maximo Asset Manager 7.1 component on your system. Notably there is no automated uninstall feature supplied with IBM Tivoli Maximo Asset Manager 7.1. 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/JRE

It is recommended to have IBM Java 5.1 installed on your system. When implementing BEA WebLogic you will be required to have the update SUN JDK™ 1.5.0 version installed.

### 5.1.5 Internet Browser

Maximo Asset Manager Essentials 7.1 currently supports Firefox and Mozilla internet browsers on Linux and Internet Explorer on Windows.

### 5.1.6 Disabling the firewall

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

The firewall must be disabled on the following platforms.

- 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 with the installation of DB2 on a Windows system. Prior to using the Tivoli middleware installer to install DB2, you must remove these variables for the user ID that will perform the installation. These are user environment variables that must be deleted, 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 the required rpm-build package is installed

This procedure describes how to verify that the rpm-build package is installed on Linux. This package must be installed before you run the Tivoli 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 `rpm -qa | grep build`
2. If the command returns a value like "rpm-build-4.3.3.-18\_nonptl", the rpm-build package is installed. If nothing is returned, you must install the rpm-build package which is located on disk 3 (of 5) of the Red Hat Essentials Advanced Server version 4 installation CDs using the rpm tool with the `-i` option

### 5.1.9 Setting the ulimit

This section details 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 Tivoli middleware installer. To set the ulimit, complete the following steps: 1. From a command line, type `ulimit -f unlimited` 2. From a command line, type `ulimit -n 8192` If you set the ulimit in the `.profile` for root, the ulimit setting will apply to all processes. Setting the swap size

Maximo Asset Management Essentials can be a resource-intensive application. It is recommended that you configure and tune your system for maximum performance. This section details 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:

- ▶ 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.

### 5.1.10 Setting shared memory

This section details how to 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 Tivoli middleware installer. To set the minimum shared memory value, complete the following steps:

- ▶ From a command line, type `sysctl -w kernel.shmmax` and determine if the value is less than 268435456 bytes (256Mb).
- ▶ If you need to increase the value, from a command line, type `sysctl -w kernel.shmmax=268435456`.
- ▶ Update the value in `/etc/sysctl.conf`.

### 5.1.11 Enabling remote configuration

If you plan to take advantage of the Maximo Asset Management Essentials installation program feature that automates the configuration of Maximo Asset Management Essentials 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 Windows SMB. Before you start the Maximo Asset Management Essentials installation program, ensure that one of these protocols is running and will accept remote logins using a user name and password configured on the target machine

If the remote system is a Windows machine, you must configure RXA to work over SMB. For 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 will need to 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 43 defines the installation flow required to successfully install IBM Tivoli Asset Management for IT. There is a Launchpad utility that will lead you through the installation of various components of the product. In general, there are three phases of the installation:

1. Installing the required middleware

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

2. Installing the base services

There are a set of common base services that provide the general functions for all Maximo-based applications. These base services comprise a set of modules that reside on an application server. The two supported application servers are:

- BEA WebLogic
- IBM WebSphere

and utilize any the following database platforms:

- DB2
- Oracle
- SQL Server 2005

**Note:** If you used the Launchpad to install the middleware, then the launchpad will 'remember' the configuration that was installed and utilize that to simplify the installation of the base services.

If you installed the middleware separately and/or used other products namely Oracle/SQL Server or BEA Weblogic, then you can still use the Launchpad, but will have to specify the appropriate parameters for the middleware environment you have installed.

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



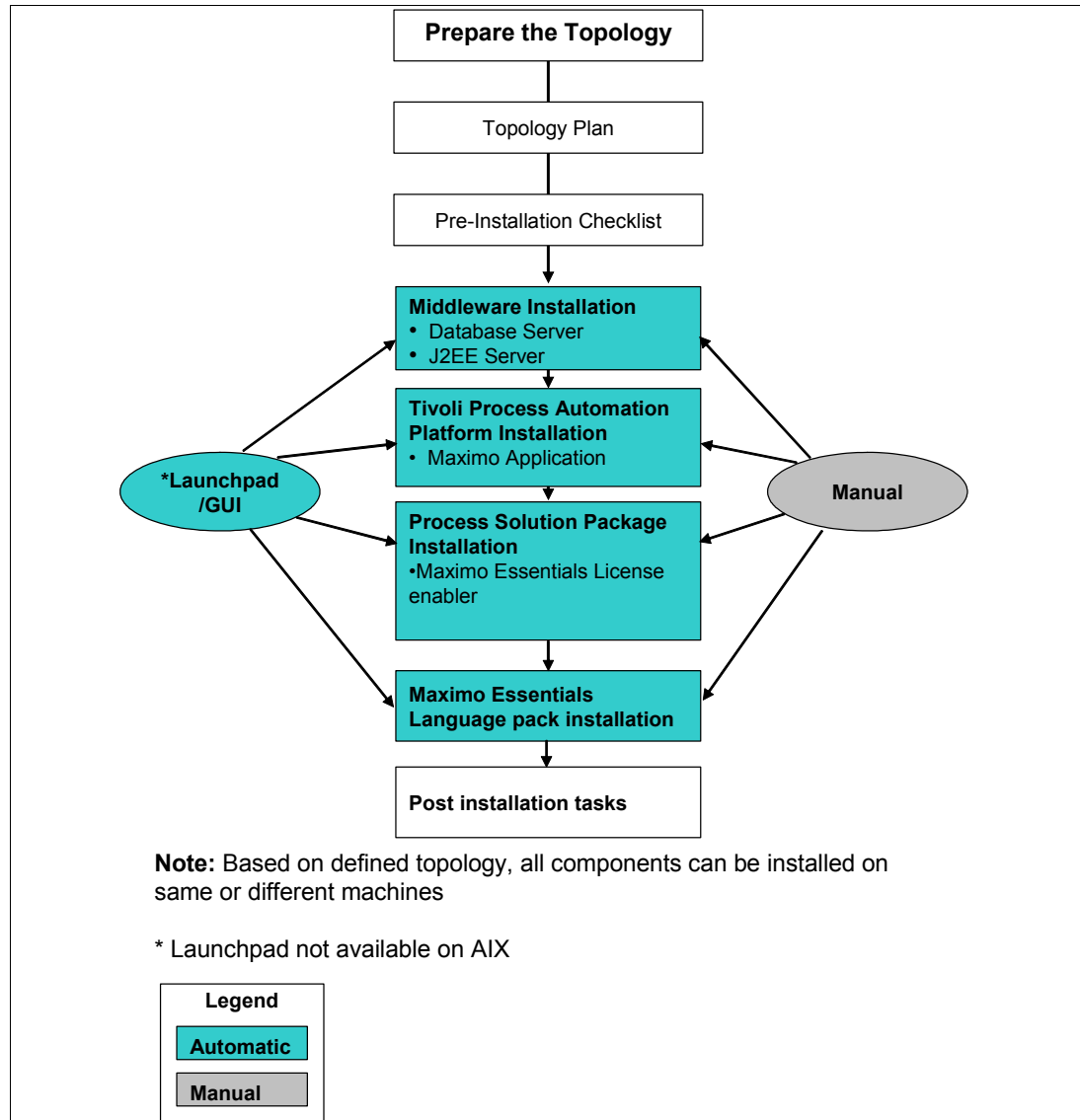


Figure 5-1 Installation Flowchart

In the above diagram, the Maximo Asset Management Essentials installation relates to the installation of base services components of Maximo, now called Tivoli Process Automation Platform (TPAP), that are the common facilities used by this and other Maximo applications. The Process Solution Package, is the piece that enables the application specific (in this case Maximo Asset Management Essentials) functions on top of the base services.

## 5.3 Middleware Installation

The first step in the installation is to ensure all the necessary middleware is installed and properly configured. The following sections describe how to do this.

### 5.3.1 Installing middleware overview

Before you can install IBM Maximo Asset Management Essentials, there are several middleware products that must be deployed.

Specifically, you must install and deploy the following software:

#### 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 9.1, or use a preexisting instance of DB2 UDB 8.2 or DB2 UDB 9.1, or install and configure Oracle 10 or MS 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 have the choice of configuring a preexisting MS 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 installed in your environment.

The Maximo Asset Management Essentials product provides a Middleware Installer, that will provide a standard installation of the middleware listed above with minimal effort. It installs the following versions of middleware:

#### 1. DB2

- DB2-ESE\_9.1.0
- DB2-ESE\_9.1.0\_FP4

#### 2. IBM Agent Controller

- Rational@-AgentController\_7.0.3.1

### 3. Tivoli Directory Server

- TIV-DirectoryServer\_6.1.0
- TIV-DirectoryServer\_6.1.0\_FP0001

### 4. WebSphere V 6.1

- 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 could be used on different systems to install the individual components, thus simplifying the install of a multi-server environment. The following section will describe the use of the middleware installer on a single system.

You don't have to use the middleware installer. You can install the middleware through normal methods. You will need to do this, if you plan on using other vendors products or different versions than listed above. We will not discuss considerations for manual installation of the middleware in this book. Please refer to the appendix to look at the manual configuration of Maximo Asset Management Essentials on the IBM WebSphere platform. For more details or other platforms please refer to the following install guides:

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

Note, you can also refer to the Maximo Asset Management Essentials installation guide for details of using the middleware installer. The following section summarizes the steps you will perform to install the middleware:

### Using the Middleware Installer

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

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

On Windows navigate to the root directory of the product disc or the downloaded installation image, and run the following command: `launchpad.exe`. On Linux or other platforms, the program will be named similarly.

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

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

**Important:** The launchpad can be run on either Windows or Linux. However, only the options to install the middleware will function on both platforms. The options to install the Maximo components will only work 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 only work on a Windows platform. If they are to be installed on a Linux target, then the launchpad (running on Windows) will communicate to the target system and direct the install of the .EAR and other files through the remote connection.

You will be led through a series of screens including language selection, welcome, license agreement and so on.

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 will be prompted for the location of the middleware images. You will also be 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**. Choices include:

**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 only install the J2EE server portion of the middleware, you will be prompted to supply the directory server you will use to secure it. Your choices will be 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.

Note, for a multiple server environment, you could launch this installer on separate systems and choose to install individual middleware components on the individual systems.

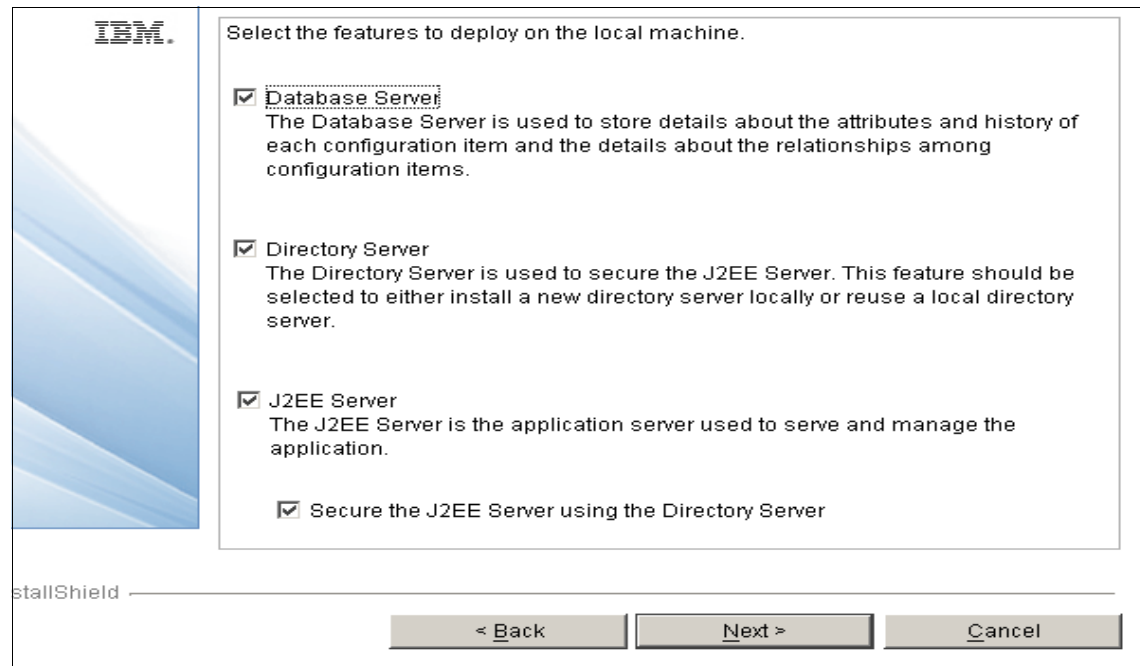


Figure 5-2 Middleware features selection

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

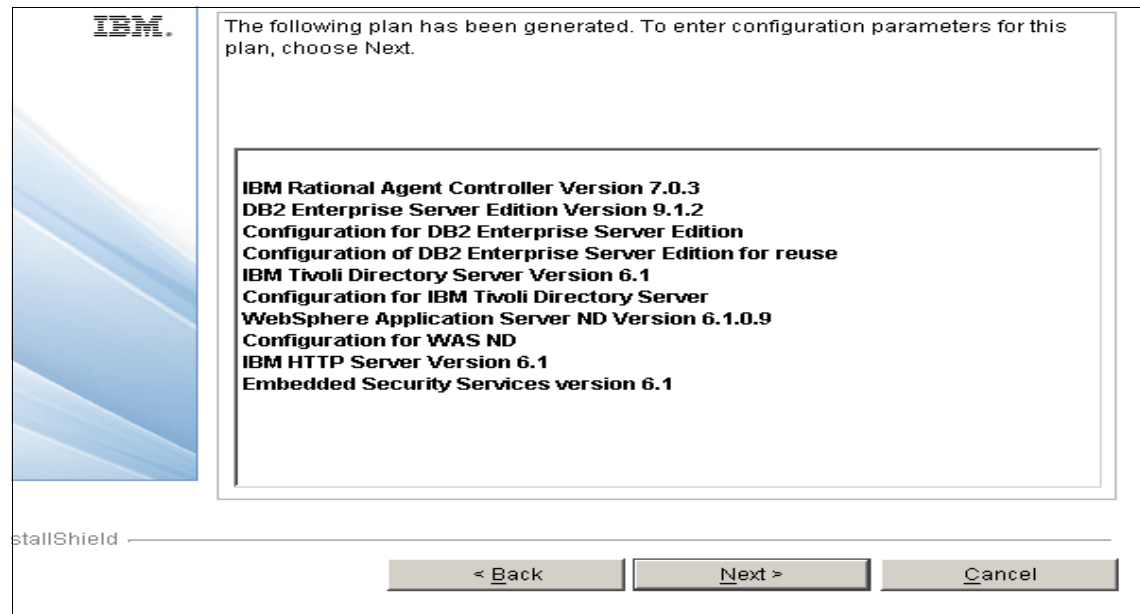


Figure 5-3 Deployment Plan with Directory services selected

6. From the **Credentials** panel, enter the Username and Password you will use to deploy the plan with, 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 Tivoli middleware installer. This provides a common password for all of your middleware components installed through this 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 will be presented with a series of pre-filled in panels with default values for each of the middleware components that you are installing. For simple environments, you can take the defaults and move through these panels quickly. If you have special requirements, such as non-standard port numbers, userids, and so on, then you can make the appropriate changes. The following table, includes a summary of the parameters that you will be presented.

Parameter	Default Value (if any)
Install location Enter the location to install DB2.	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	
Instance username password	
DB2 administrators group	DB2ADMNS

Parameter	Default Value (if any)
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	
Install location	Windows: Default is C:\Program Files\IBM\WebSphere\AppServer Linux: Default is /opt/IBM/WebSphere/AppServer



Parameter	Default Value (if any)
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 Linux: Default is /opt/IBM/WebSphere/UpdateInstaller
HTTP Server	Windows: Default is C:\Program Files\IBM\HTTPServer 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 ctgAppSvr01. this value cannot be changed
IBM Agent Controller Install location	Windows: Default is C:\Program Files\IBM\AgentController 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 install 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 will specify.
  - Specify a directory containing all the required middleware install images. Select this option if you intend to specify a filesystem directory that already contains all of the Maximo Asset Management Essentials middleware installation images.

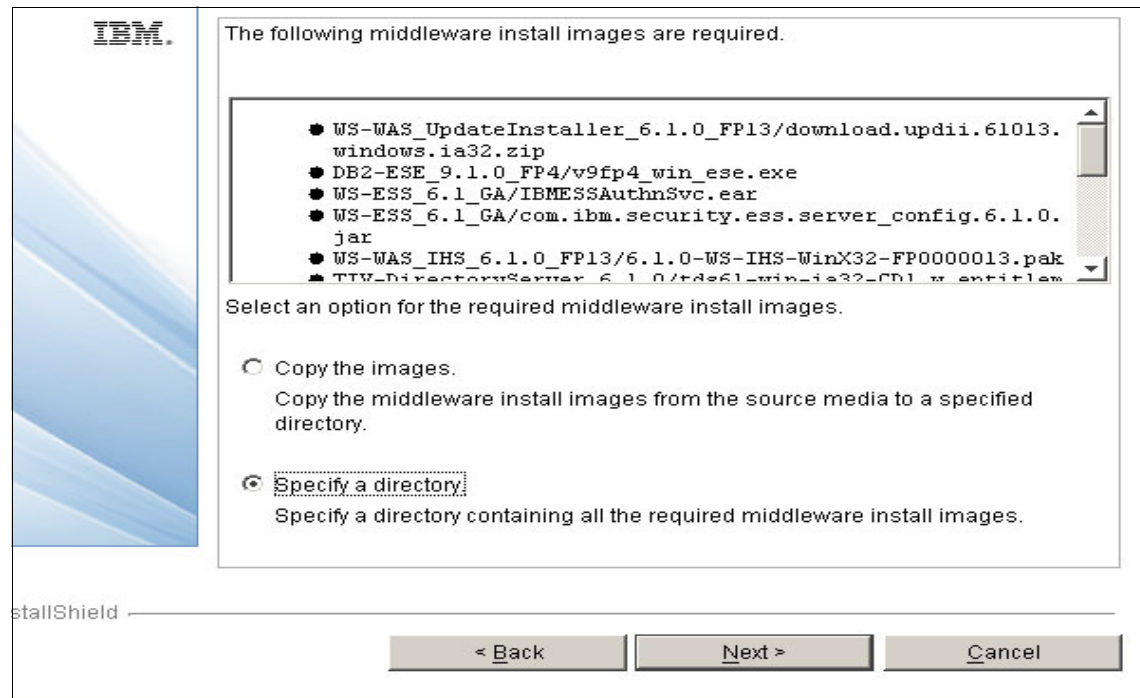


Figure 5-5 Middleware Installer Image

8. For Linux Only, the Middleware installer will create number of temporary files and will extract the middleware images to a temporary directory. Specify a directory or accept the default /tmp.

**Tip:** Make sure /tmp or specified location has enough 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.

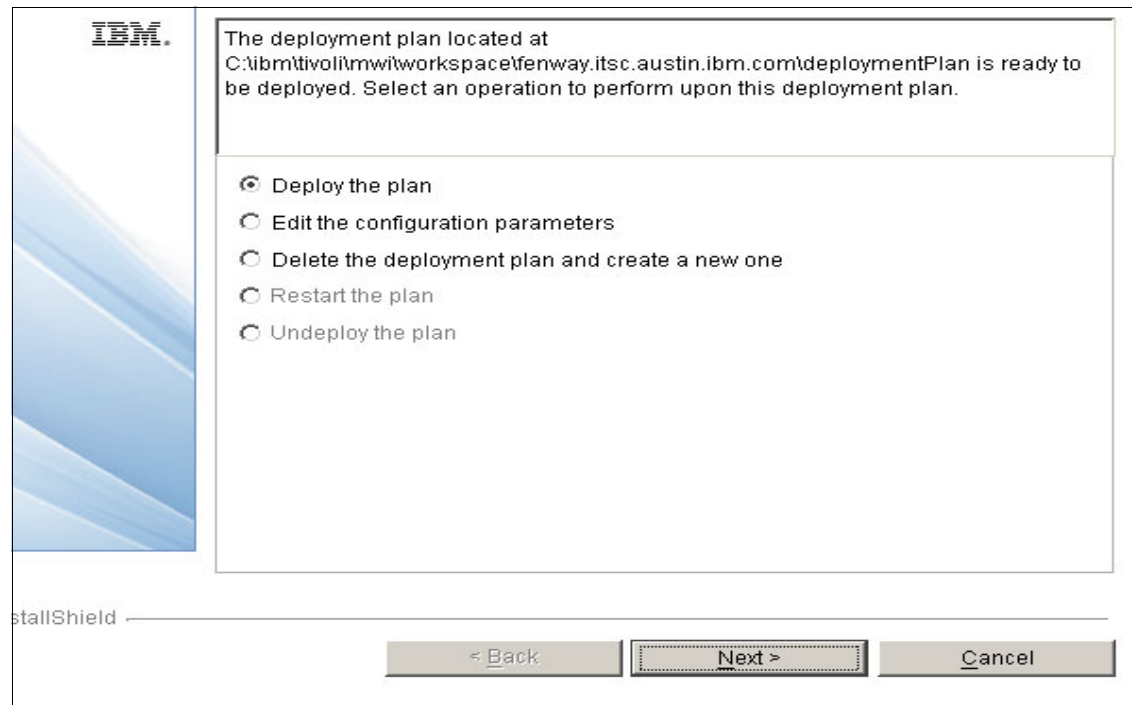


Figure 5-6 Manage Middleware Deployment Plan

10. From the **Deployment Plan and Parameter Configuration summary** panel, review the contents of the summary, and then click Deploy to initiate the installation and configuration of the middleware you selected.

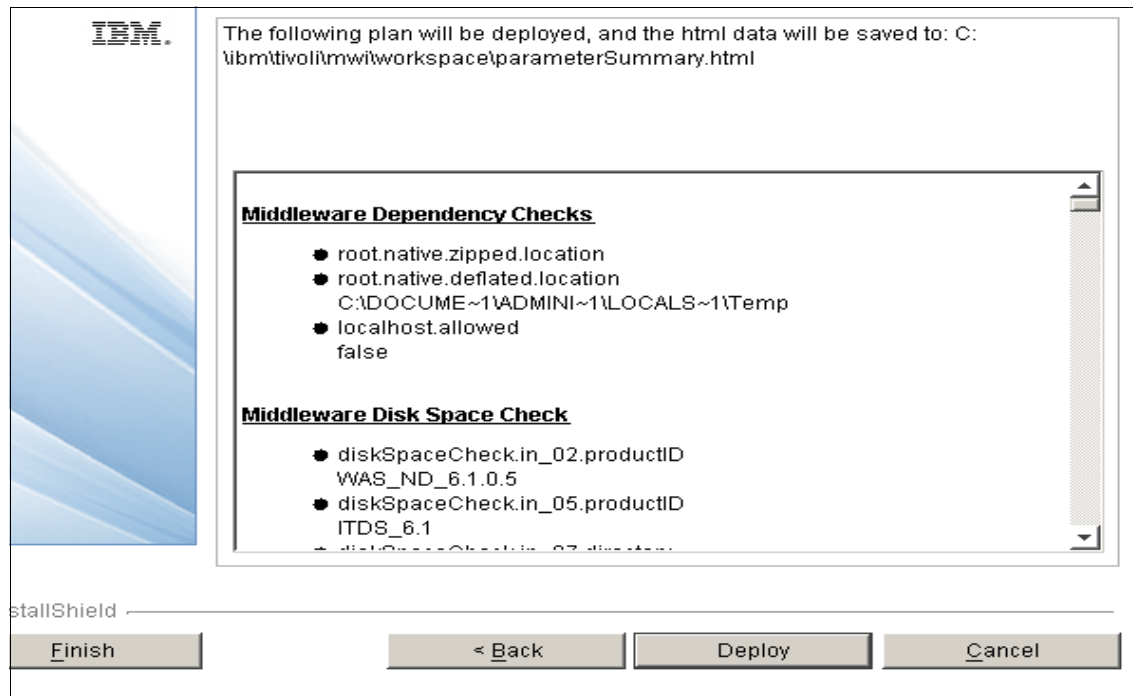


Figure 5-7 Middleware Deployment Plan

11. Once the deployment completes successfully, click **Finish** to exit.

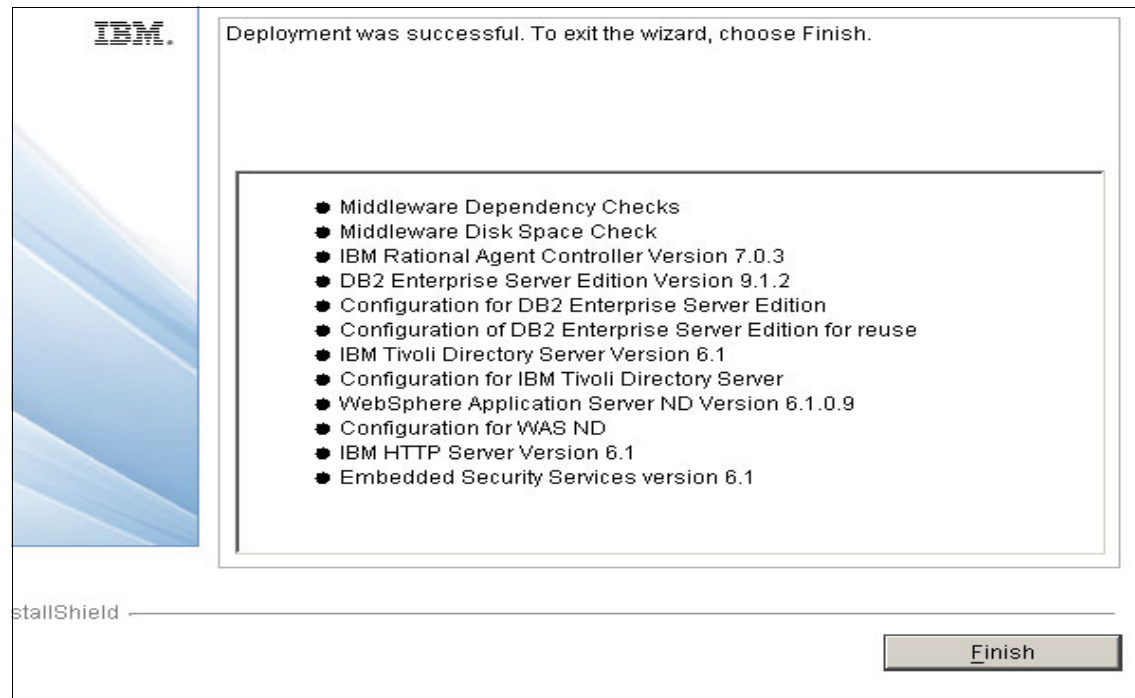


Figure 5-8 Middleware Installation completed

### 5.3.2 Tivoli middleware installer logs

Tivoli middleware installer log files are located in the workspace directory that was defined in the Tivoli middleware installer. The different types of log files are described below.

#### User interface logs

The logs generated by the Tivoli middleware installer user interface are located in the workspace directory. The `mwi.log` file is the high-level log file that was generated by the most recent invocation of the Tivoli 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 Tivoli middleware installer. So, for example, `mwi.log0` is produced after the first invocation of Tivoli middleware installer, `mwi.log1` is produced after the second invocation of Tivoli 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 Tivoli middleware installer also performs several system checks. Examples of system checks run by the user interface runs include: v dependency checking to ensure the operating system meets the deployment requirements v inventorying the software on the system to locate existing instances of middleware products deployed by the Tivoli middleware installer v checking the available disk space to ensure there is enough 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 that is run as part of the deployment plan.

## Deployment plan logs

The deployment plan is located in the directory <Workspace Directory>/hostname/deploymentPlan, where hostname is the hostname 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>/hostname/deploymentPlan/MachinePlan\_hostname. The log files for the machine plan are located in the logs subdirectory. The primary log files for the machine plan are named MachinePlan\_hostname\_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>/hostname/deploymentPlan/MachinePlan\_hostname/stepNum\_stepID where stepNum is the sequence number of this step in install 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 will provide a trace log file named stepID\_processID.log, which contains

many entries, usually including information about the input parameters and the substeps invoked.

### **Logs for substeps**

Each step contains one or more substeps. The substeps perform the actual install, uninstall and checking work for the Tivoli middleware installer.

Each substep is located in the directory <Workspace Directory>/hostname/deploymentPlan/MachinePlan\_hostname/stepNum\_stepID/operation/substepNum\_substepID, where operation is the ANT target in the step ANT script that invokes this substep. substepNum is the sequence number of this substep in the processing order of the step, and substepID identifies the substep. Typical values for operation are install, uninstall, and check.

The log files for the substep are usually located in a subdirectory named processID/logs. Log files generated by the native middleware installation programs will also be kept here.

## **5.4 Installing Maximo core components (TPAP)**

This section describes the process to install the core maximo function, formerly known as Maximo Base Services and now called Tivoli Process Automation Platform through the launchpad.

### **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 Tivoli 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 are for either a single or multiple machine installation using default values and 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 will 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 will appear. You will not be permitted to continue in the Maximo Asset Management Essentials installation task until the errors are resolved. The Maximo Asset Management Essentials installation program can only be run from a Windows-based system.

## 5.4.2 Maximo Asset Management Essentials Installation

Avoid using localhost for host name values in the install 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. Login as a user with administrative authority. Launch the Tivoli middleware installer from the launchpad. In the launchpad navigation pane, click **Install the Product** → **Maximo Asset Management Essentials**.
2. You will now be presented with a series of screens prompting you for parameters related to your middleware environment. If you used the middleware installer, then most of these parameters will be pre-filled. If you installed your middleware manually, you will need to provide the appropriate values for each of the middleware components.
3. A special installation application (called Install Anywhere) will be installed and initiated for installing the rest of the components. Install Anywhere is based on IBM's Autonomic installation technology, which helps drive complex, multi-step installations.
4. You will be prompted information related to your middleware environment. If you had used the Middleware installer, you will be prompted to use the configuration information that was saved by the middleware installer to automatically prefill many of these parameters.

From the **Import Middleware Configuration Information** panel, specify that you want to use the field values you input into the Tivoli Middleware installer as default values for those same fields in the Maximo Asset Management Essentials installation program.

- The middleware default information will not be used if you select the Simple deployment path.
- **Host name:** Enter the host name of the system where the Tivoli middleware installer was run.
- **User ID:** Enter the User ID that was used to run the Tivoli middleware installer.
- **Password:** Enter the password of the **User ID** that was used to run the Tivoli middleware installer.
- **Workspace Location:** Enter the location of the topology file that contains the values entered for the Tivoli middleware installer. This file is found in



the workspace that was defined during the Maximo middleware installation task. For example, C:\ibm\tivoli\mw\workspace. Click **Next**

- 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 only used 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 allow us to specify a different host name for the database server, as if we were installing in a multi server environment

Choose Install Folder	By default, this value is C:\IBM\SMP.	Description
Maximo Database Type	DB2	Select the database vendor/product. Each database will have 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 <b>50005</b> .	
Database Name	The default database name is <b>maxdb71</b> .	The database will be 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 will connect to the database server to validate the information you have entered.
Database User ID		
Database Password		

From the **Automate Database Configuration** panel, select **Automate database configuration** if you would like to have the database automatically created, and then click **Next**. If you choose not to automate the database creation then 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 will check to see if you have not completed these pre-install tasks and you will be reminded to complete them prior to restarting the Maximo Asset Management Essentials installation program.

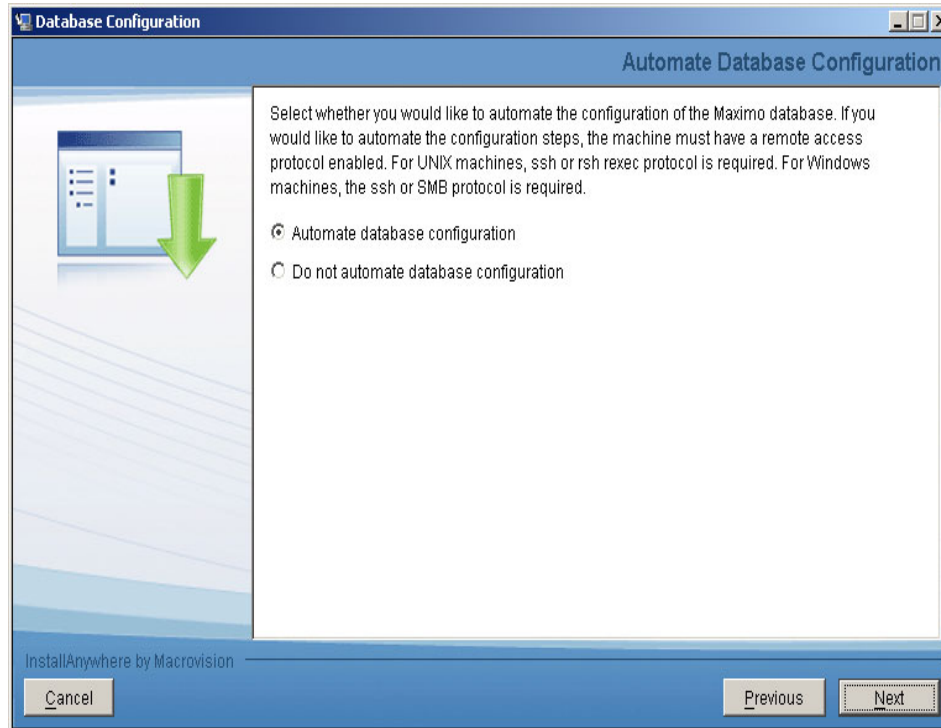


Figure 5-9 Automate Database Configuration

- 6. DB2 Database Information:** Enter the Windows services user ID and passwords only if the DB2 Server is installed on a Windows machine, click **Next**.

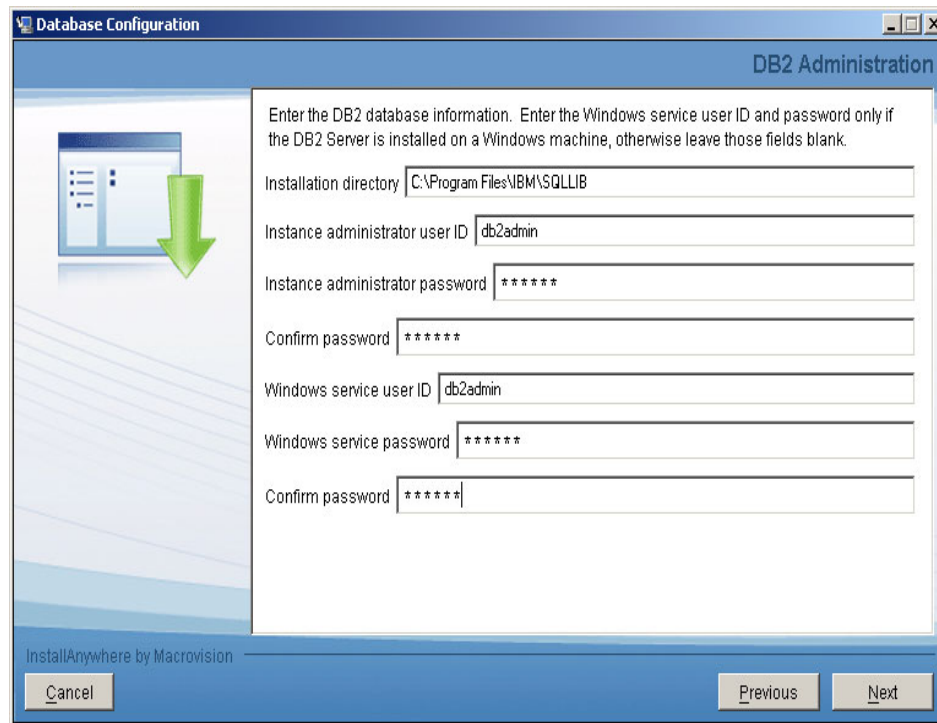


Figure 5-10 DB2 Administration

7. From the **Database Configuration** panel specify the table space configuration properties if the DB2 database will be automatically created

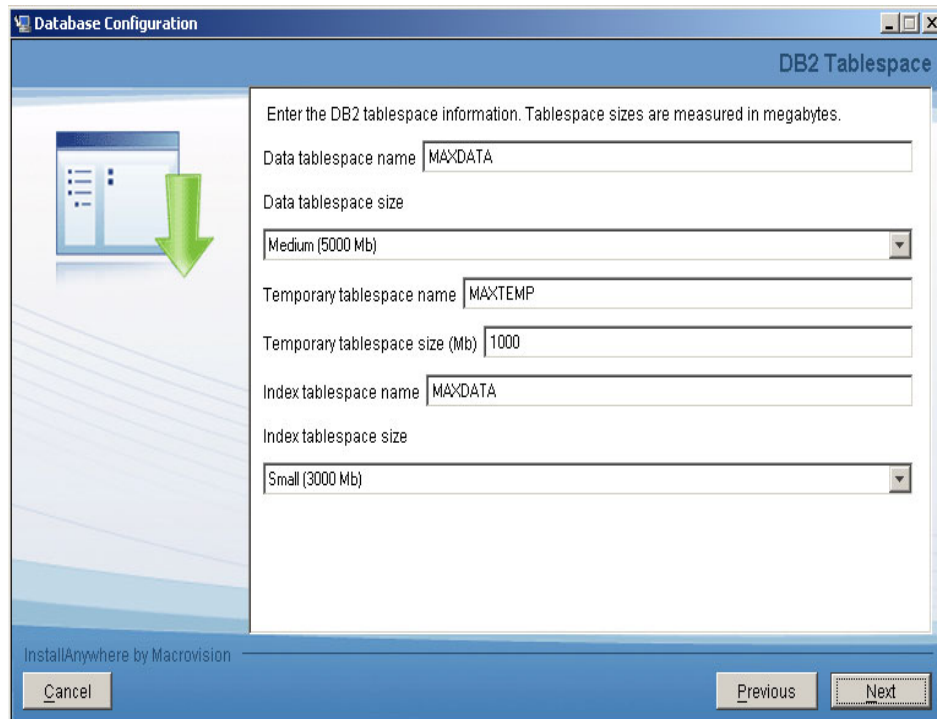


Figure 5-11 DB2 Tablespace

- From the **Maximo Application Server Type** panel select the relevant application server you wish to deploy your Maximo application on, choose **IBM WebSphere Application Server**, click **Next**

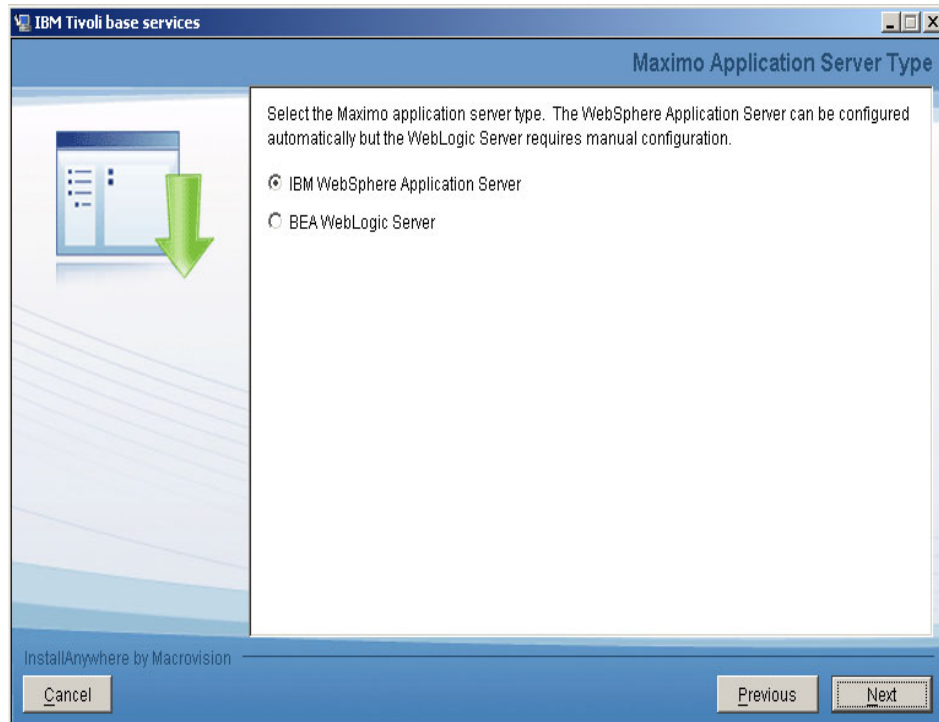


Figure 5-12 Maximo Application Server Type

9. From the **WebSphere Connectivity** panel, enter host information about the WebSphere server, and then click **Next**.
  - **Host name:** Enter the fully-qualified host name of the system hosting WebSphere. Alternatively, you can provide the IP address for the system.
  - **SOAP port:** Enter the SOAP port of the WebSphere system. The default value for this field is 8879

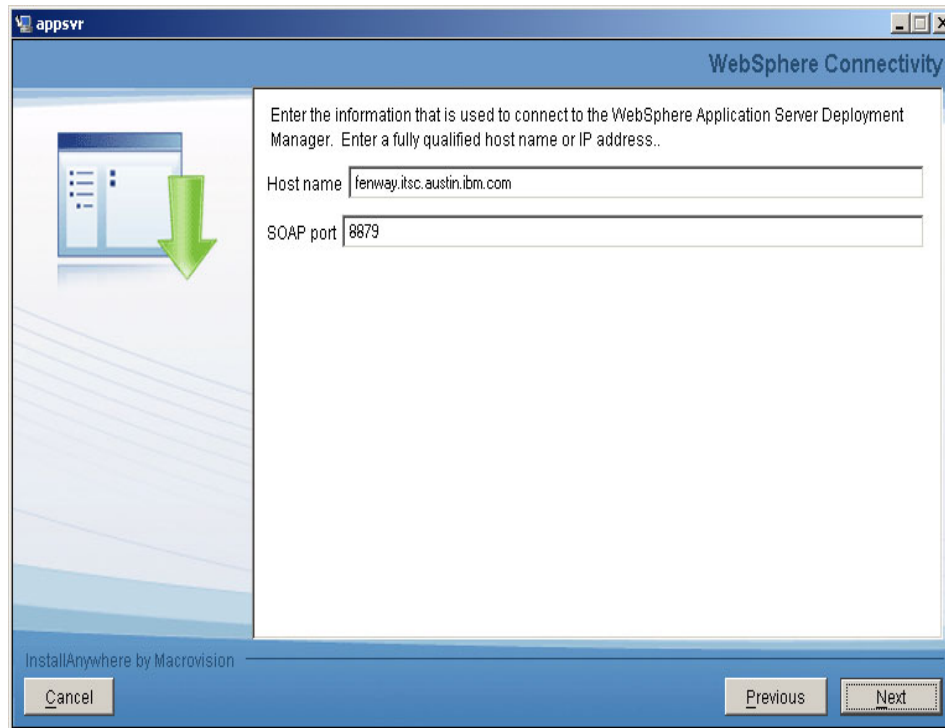


Figure 5-13 WebSphere Connectivity

10. From the **Remote Access Authorization** panel, enter authorization information for WebSphere configuration, and then click **Next**.

**Operating system user ID:** Enter a valid user ID that will allow the Maximo Asset Management Essentials installation program to access the system that is hosting WebSphere. This user ID should have administrative rights on the machine you are accessing.

**Operating system password:** Enter the password for the system user ID.

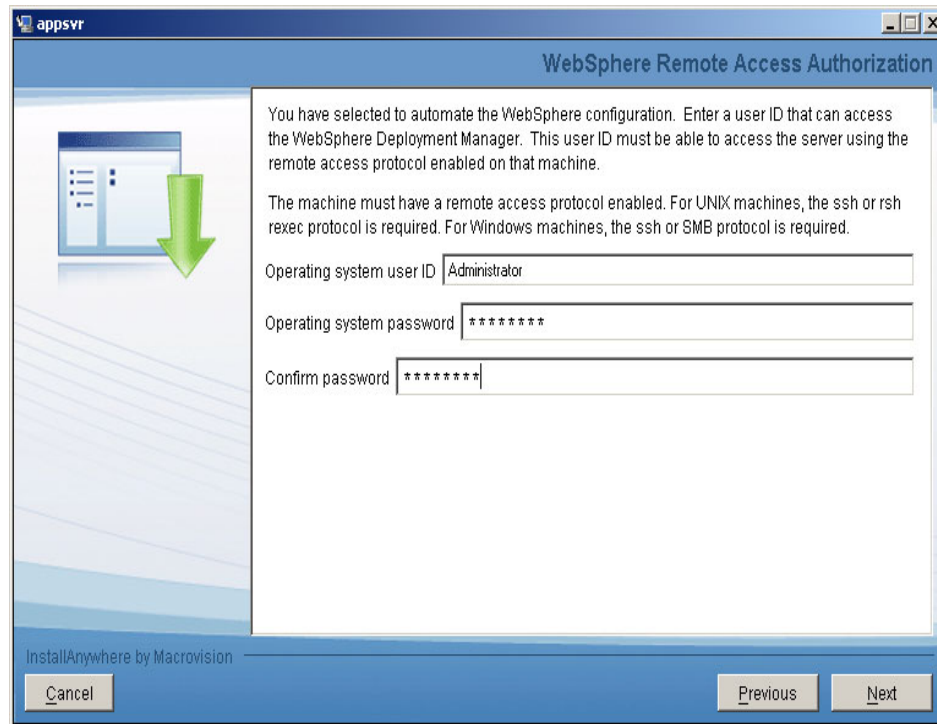


Figure 5-14 WebSphere Remote Access Authorization panel

11. From the Automate WebSphere configuration panel, select Automate WebSphere configuration, and then click **Next**. If you choose not to have the Maximo Asset Management Essentials installation program automatically configure the middleware, you will have had to configure WebSphere manually prior to the installation of Maximo. Configuration tasks include creating a profile, running WebSphere as a Windows service, copying the WebSphere keystore file from the machine where WebSphere is installed to the administrative workstation, setting up JMS queues, and so on.

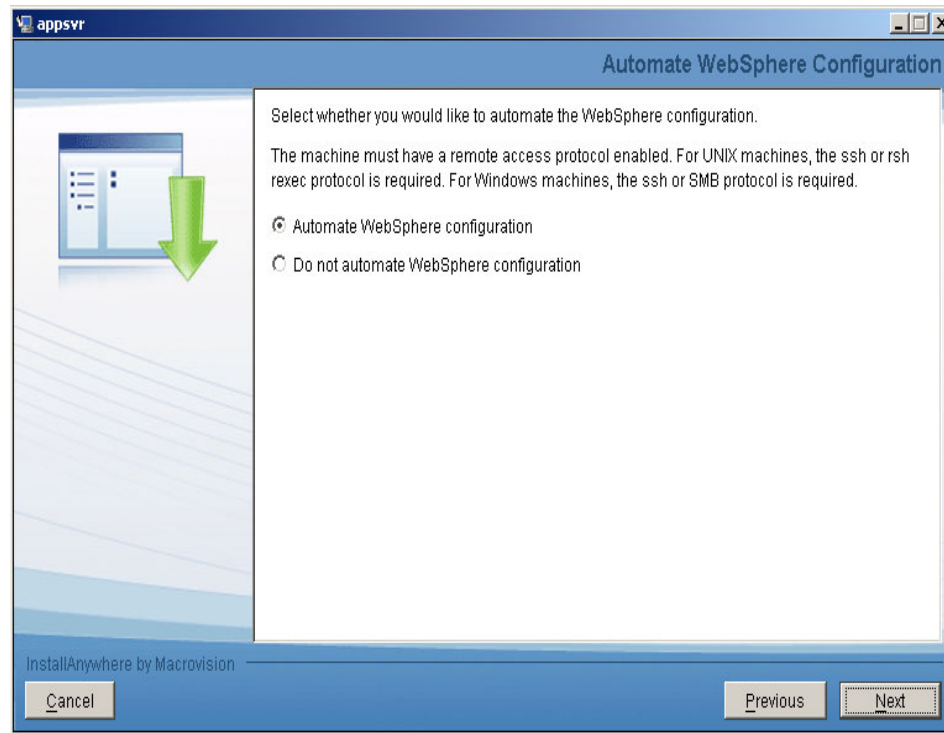


Figure 5-15 Automate WebSphere configuration

12. From the WebSphere Deployment Manager configuration panel, enter values for the following fields, and then click **Next**.

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



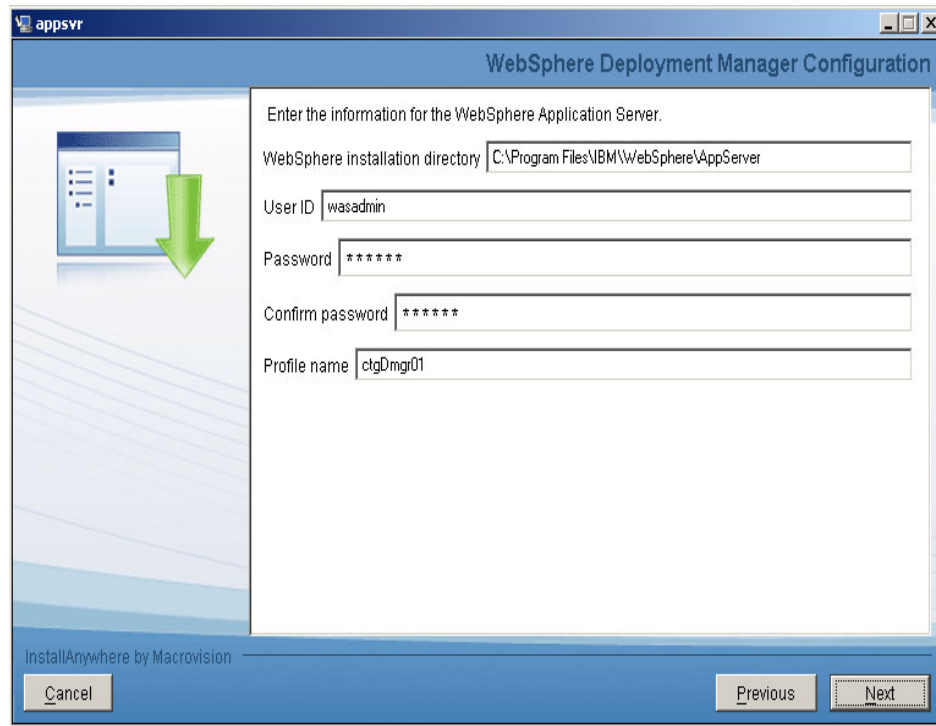


Figure 5-16 WebSphere Deployment Manager configuration

13. From the WebSphere Application Server Configuration panel, enter the following information, and then click **Next**.

- **Web server port:** Enter the Web server port used by WebSphere. Default for all platforms is 80
- **Web server name:** Enter the name of the Web server. Default for all platforms is webserver1
- **Node name:** Enter the name of the WebSphere node containing the application server. Default for all platforms is ctgNode01.:
- **Cluster name:** Enter the name of the WebSphere cluster containing the application server. Default for all platforms is MAXIMOCLUSTER. The cluster name is optional. The cluster and application server will be created if they do not exist.

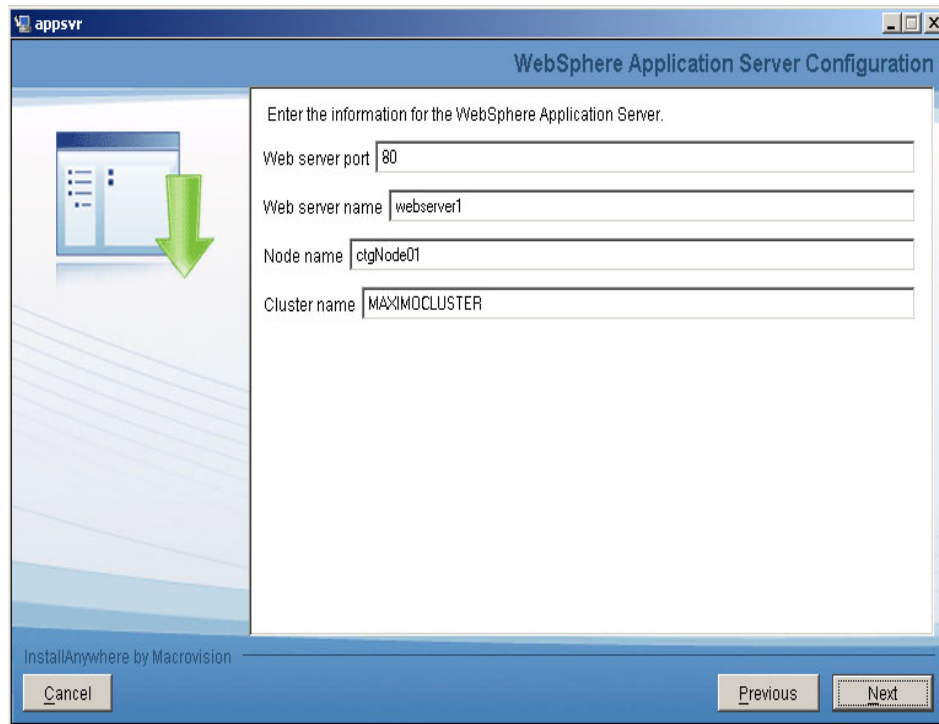


Figure 5-17 WebSphere Application Server Configuration

14. From the Security panel, indicate whether application server security should be enabled automatically, and then click **Next**.

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

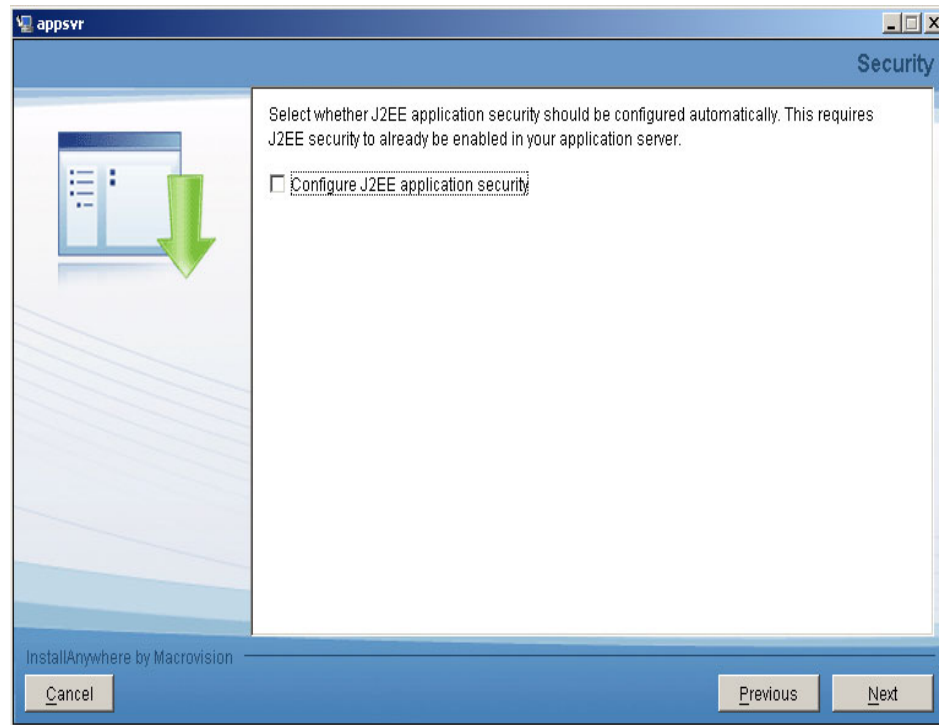


Figure 5-18 Security

15. From the Integration Adapter JMS Configuration panel, 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. Default is intjmsds. Select whether the JMS datastore should be persisted.
- **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. A database will not be used to persist messages. If you later decide that you would like to persist JMS messages, you will have to configure the JMS implementation manually.

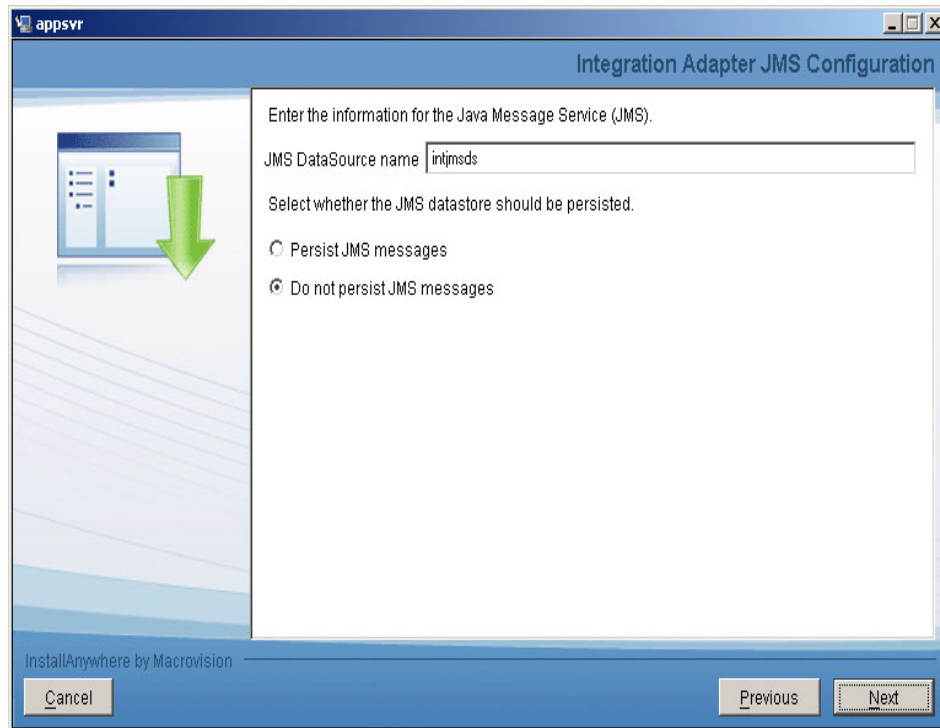


Figure 5-19 Integration Adapter JMS Configuration

16. From the **Input Summary** panel, review the information you have provided to the Maximo Asset Management Essentials installation program, and then click **Next**.

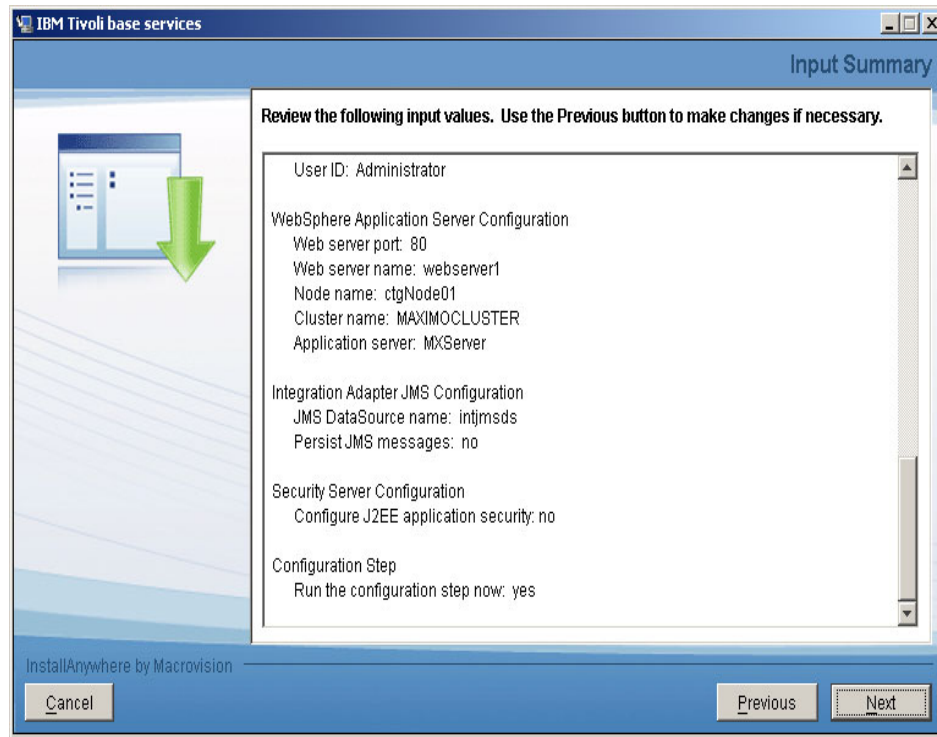


Figure 5-20 Input Summary

17. From the **Pre-Installation Summary** panel, review the installation information presented, and then click **Install**. The installation task will begin. Progress can be monitored by viewing messages displayed above the progress bar. Click **Next**.

The installation will now take place, and may take quite some time. (The duration of the install is mostly dependant on the physical capacity of the server you are installing the base services on.) in our test environment, it took 1-2 hours.

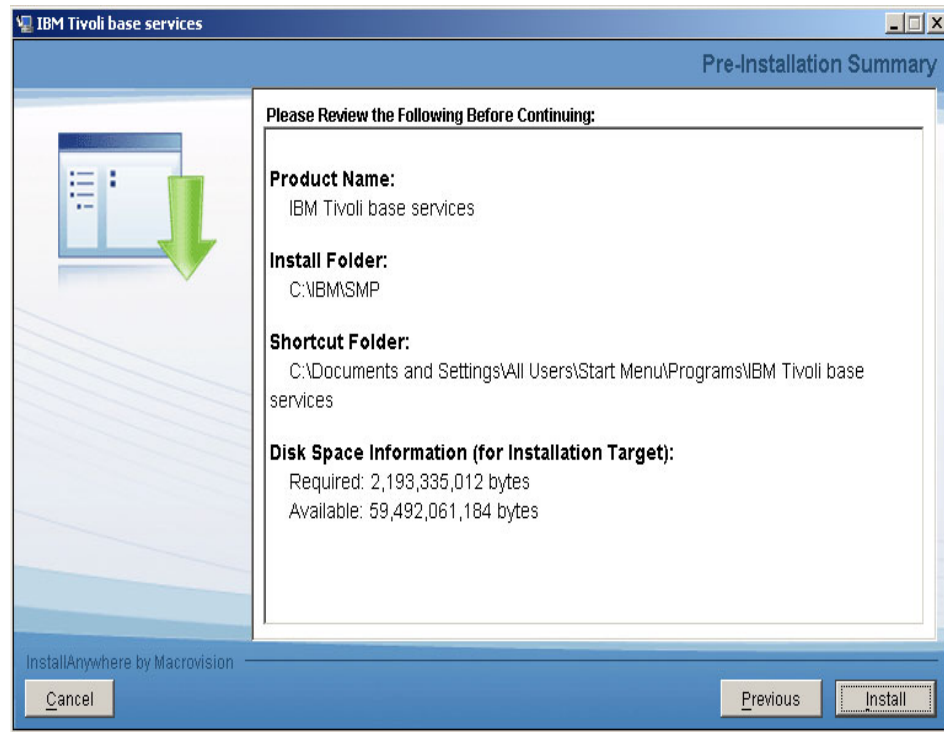


Figure 5-21 Pre-Installation Summary

18. You will be prompted to install additional language packs over and above the base language. Click **No**.

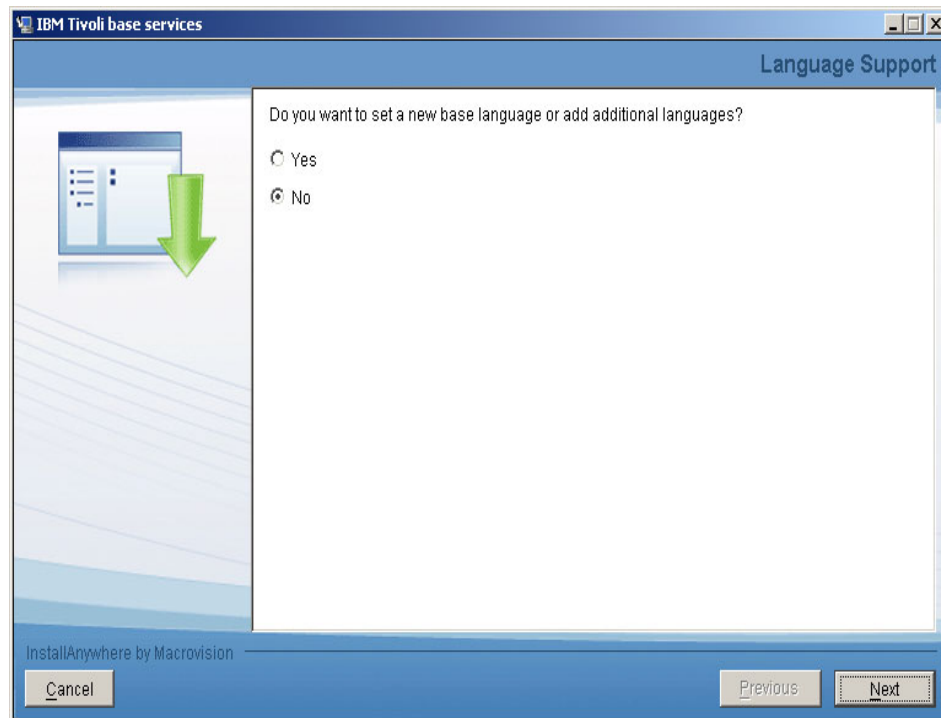


Figure 5-22 Language Support

19. From the **Install Complete** panel, click **Done**. Once the Maximo Asset Management Essentials installation program has completed installation and configuration tasks, it will exit. Logs can be found at **<MAM\_Home>/logs**.

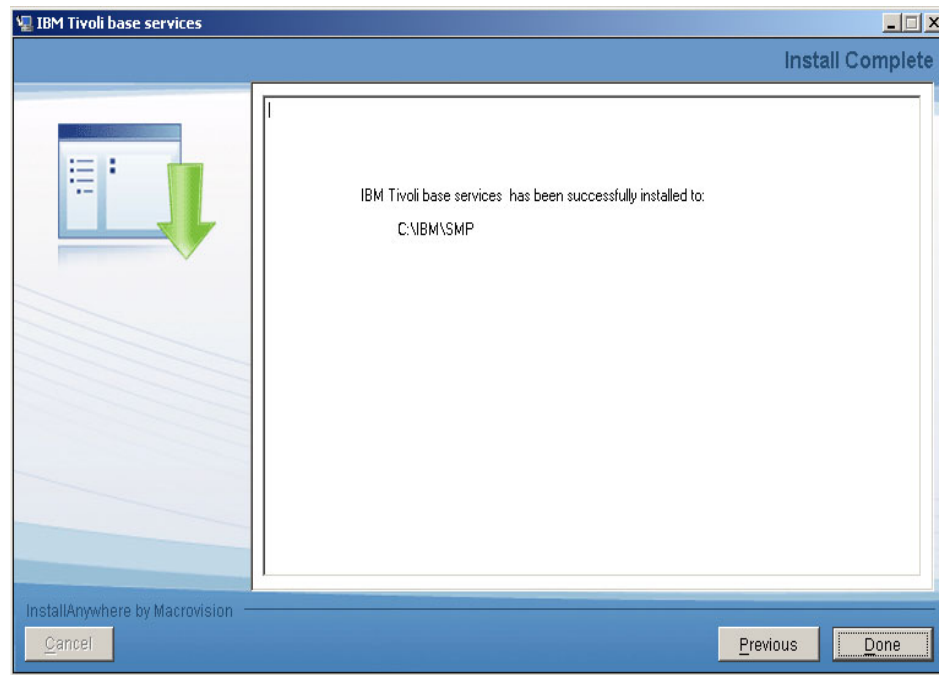


Figure 5-23 Install Complete

### 5.4.3 Post Maximo Asset Management Essentials base services installation

1. Before logging into the newly installed Maximo Asset Management Essentials application, go to your windows services and ensure that the relevant services are started. These services are:
  - DB2 COPY Services
  - DB2 Governor
  - DB2 License Server
  - DB2 Management Service
  - DB2 Remote Command Server
  - DB2 Security Server
  - DB2DAS
  - IBM HTTP Server 6.1
  - IBM HTTP Administration 6.1
  - 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:

- Open a command prompt
- Change directory to <WAS\_HOME>\bin
- 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
```

- Close the Command Prompt.

**Tip:** When having implemented the Tivoli Directory Server take note that if you haven't resumed your Tivoli services you might not be able to access the WebSphere console as the administrator username and password has not been validated. Make sure your service is running.

3. Once all the relevant services are started up login to the URL **http://servername:9080/maximo** and see if you connect to the Maximo Asset Manager

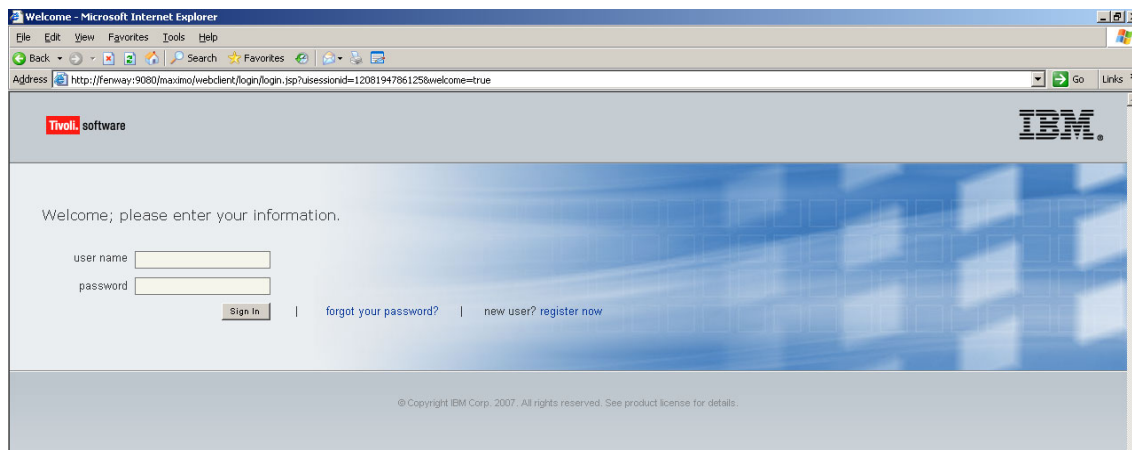


Figure 5-24 Maximo Asset Manager Login page

## 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 that can be deployed using the process solution installation program. Installation artifacts are the files and content that are installed into your Maximo environment to enable the services management functionality of the Process Manager Product or Integration Module. The deployment logic are the actions that are carried out in order 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 into your Maximo environment. Once installed, 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 or 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. The following steps should be reviewed before invoking the process solution installation program.

### Have Middleware Login Information Available

The process solution installation program requires access to middleware servers in order to automate the deployment of the process solution package. You will need to know the administrative user IDs and passwords for the impacted middleware servers. The actual middleware servers whose login information is required will depend on the process solution package being installed. The process solution installation program ensures that any required login information is specified before continuing with the deployment operation.

### Backup 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 any impacted middleware servers before running the process solution installer.

## 5.5.2 Enable Maximo Asset Management Essentials License

**Author Comment:** All of the screen images in this section need to be replaced with those for Maximo Asset Management Essentials. Functionally, they are identical to those shown here, but will have a different title referring to the Essentials product.

Only after installing the Process solution package will you be entitled to use Maximo according to the license you have purchased. Complete the following steps to install a process solution package into Maximo using the process solution installation wizard:

1. From the Launchpad, launch the process solution installation program by clicking the link under 3. **Enable Maximo Asset Management Essentials License for usage.** 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.

In our case, the PSI package selected is a base install of the Maximo Asset Management Essentials 7.1 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. Allow the package to be validated, click **Next**.

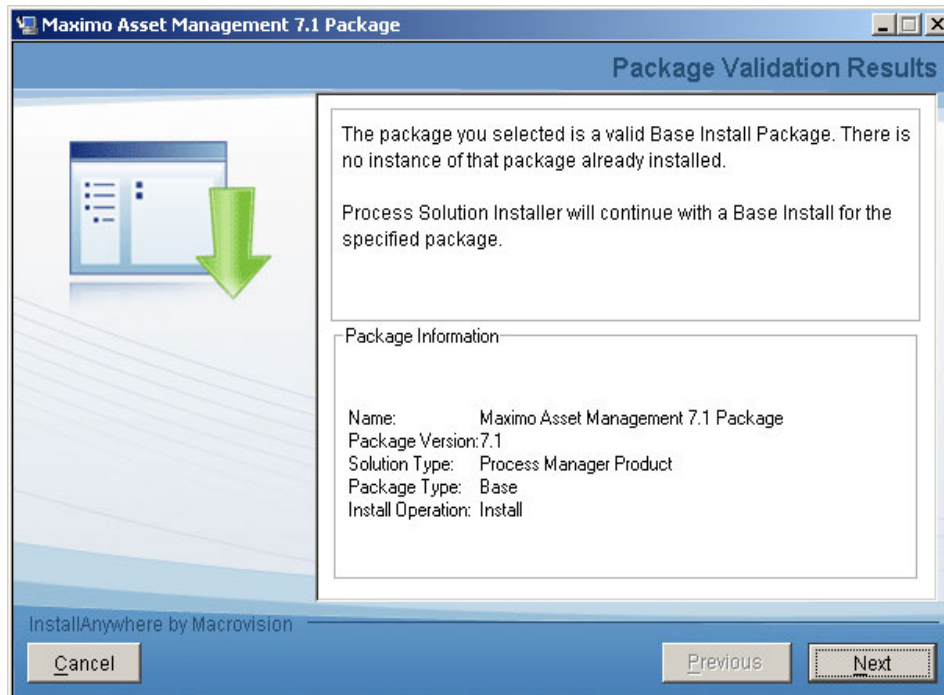


Figure 5-25 Package Validation

3. From the Middleware Login Information panel, enter the credentials for which you are being prompted, and then click **Next**. Once you have entered the requested user IDs and passwords, the process solution installation wizard will validate the credentials by connecting to the middleware servers using the supplied credentials.

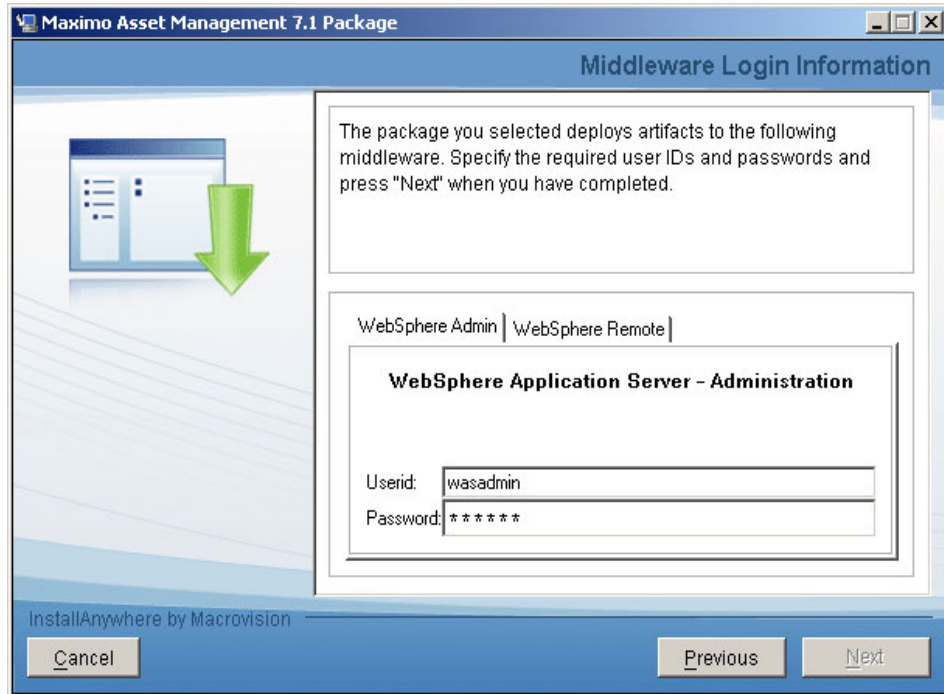


Figure 5-26 Middleware Login information-WebSphere Admin

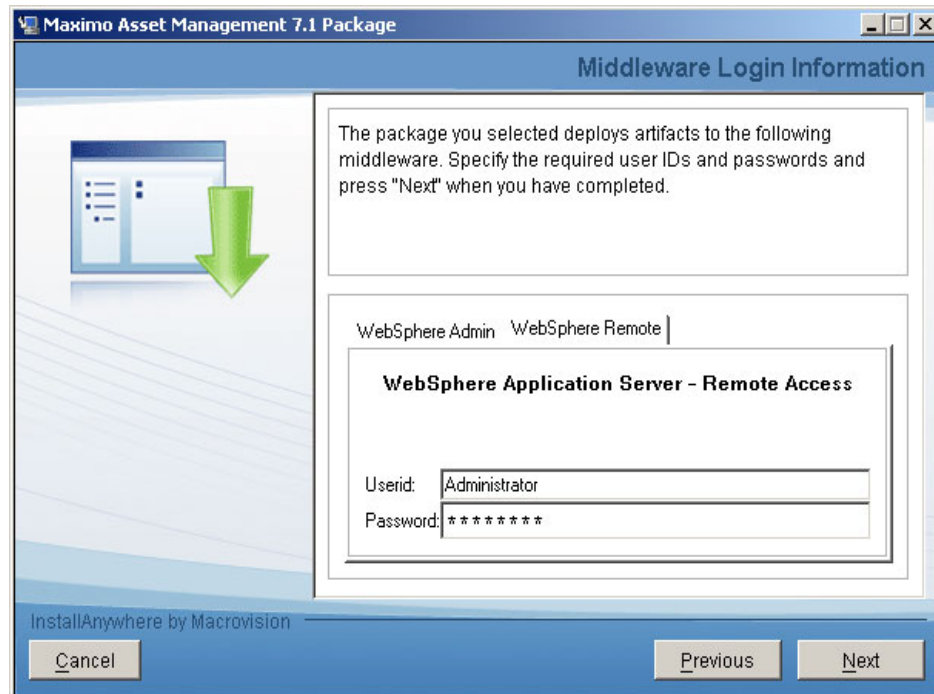


Figure 5-27 Middleware Login information-WebSphere Remote

4. After the credentials have been verified, a **Package Options** panel is displayed that details the deployment options that the package supports. Leave both the **Supported Package Options** boxes unchecked to have the EAR files deployed and Maximo database updated by the process solution installation program and click **Next**.
  - ▶ Supported Package Options Definitions:
    - **Defer Maximo Application Redeployment**  
If you intend to apply more than one package solution select this checkbox by doing so you will only redeploy the ear files 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 checkbox by doing so you will only update the database once after all the package solutions have been installed

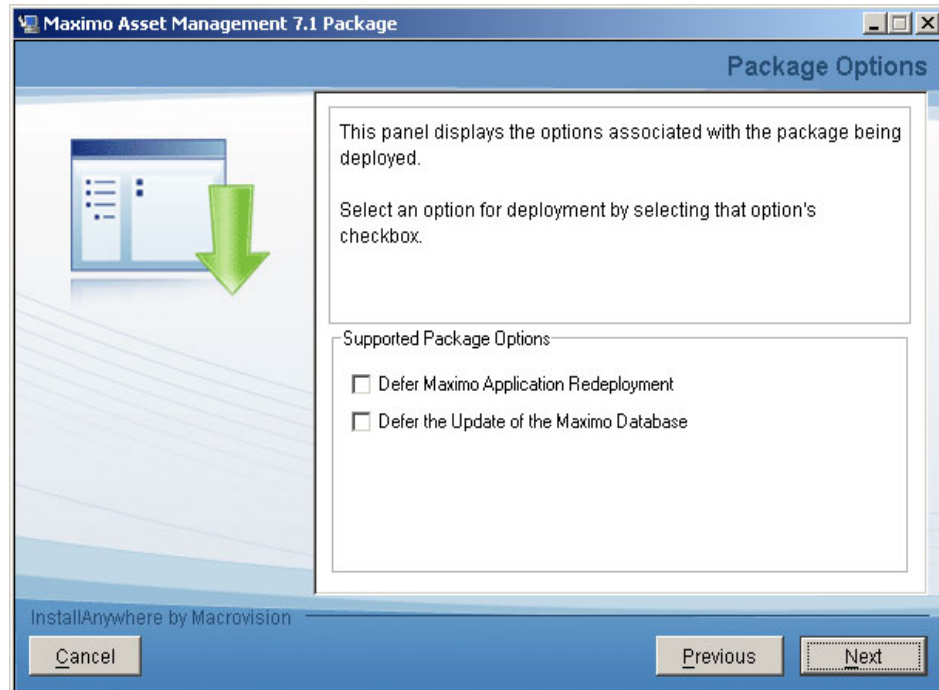


Figure 5-28 Package Options

5. From the **Pre-Install Summary** panel, review and verify the information displayed, and then click **Next**.
6. At this point, the process solution installation program begins the package installation process. The **Deployment progress** panel will inform you of the deployment progress of the installation.

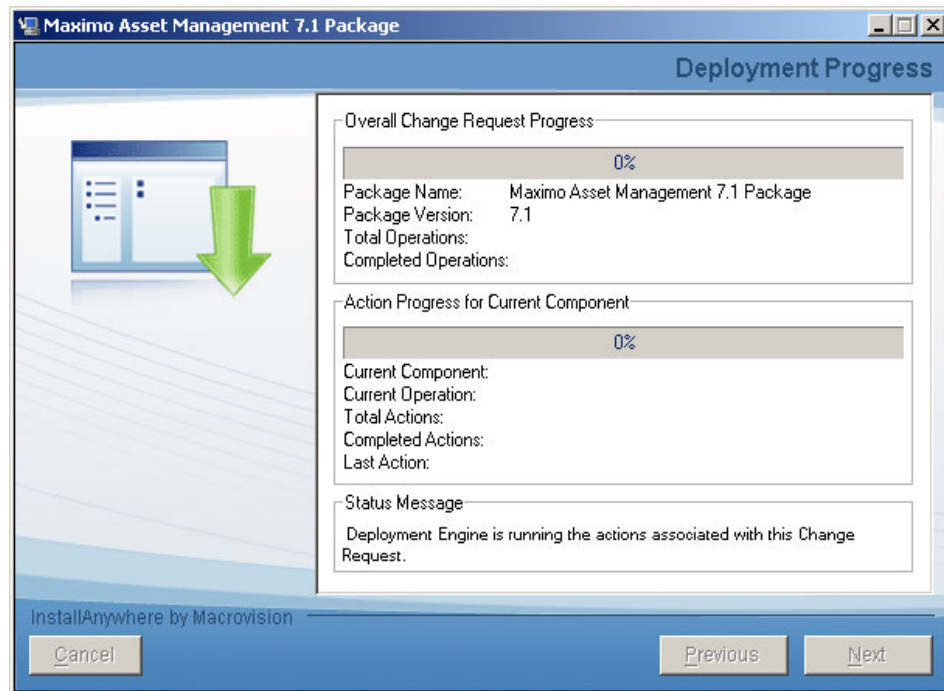


Figure 5-29 Deployment Progress

7. When the installation has completed successfully, from the **Package Successfully Deployed** panel, click **Done** to exit the process solution installation wizard. If there is a package failure, a message will be 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 actually terminating and no installation activities are being performed. The deployment of the Process Solution Package you were installing has already completed and the progress bar can be safely ignored.



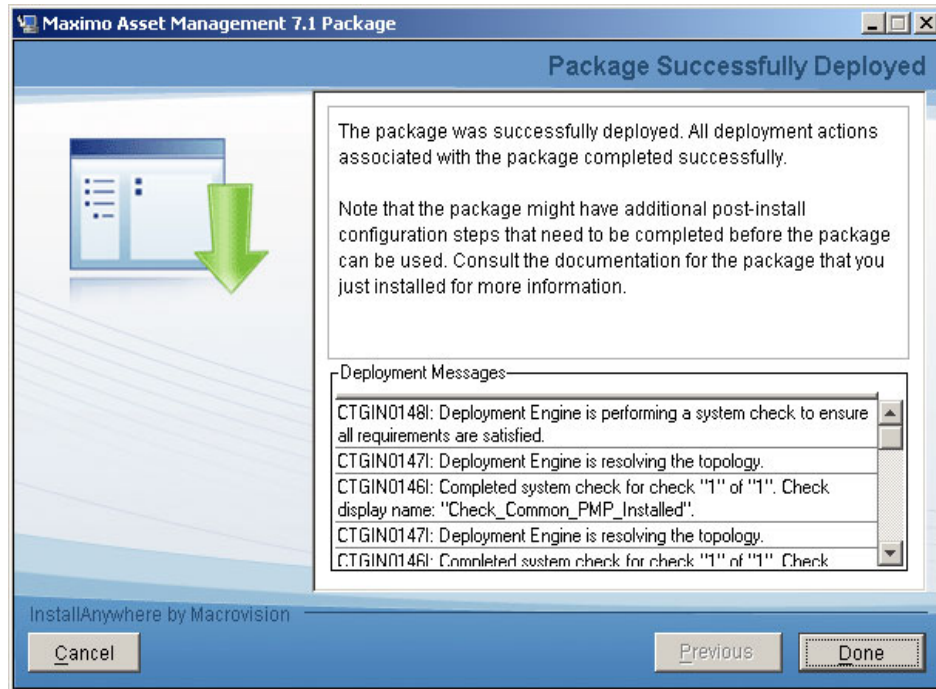


Figure 5-30 Package Successfully Deployed

## 5.6 Post Installation Tasks

Prior to assuming the configuration stage of your Maximo Asset Management Essentials deployment, take the time to ensure that the basic installation is functional, to confirm this read through the following section and verify and adjust where necessary:

**Tip:** It is recommended you document all your findings carefully and meticulously. Once all your tasks have been completed, store all your installation instructions and properties for future reference.

### 5.6.1 Ensure all relevant Maximo services are running

Before you can attempt to access Maximo, ensure that all the relevant services are running:

**Tip:** From Windows Services, set the following services to automatic startup:

- ▶ DB2 COPY Services
- ▶ DB2 Governor
- ▶ DB2 License Server
- ▶ DB2 Management Service
- ▶ DB2 Remote Command Server
- ▶ DB2 Security Server
- ▶ DB2DAS
- ▶ IBM HTTP Server 6.1
- ▶ IBM HTTP Administration 6.1
- ▶ 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

If you're running a demo Maximo Asset Manager installation on limited resources, for example, a laptop or a virtual machine, it is recommended that you do not run the above specified services as automatic but rather keep these services configured to start manually.

## 5.6.2 Ensure connectivity to the Maximo Asset Management Essentials application

Once you have successfully resumed the requested services, ensure connectivity by accessing the login panel and logging into the Maximo Asset Manager.

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

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

**Tip:** It is highly suggested for the system administrator to change their password on a regular interval. Also, if the maxadmin user is administering on a multi-language implementation, take careful to note in which locales he is applying the changes. Aim wherever possible to remain and administer in the base language.

### 5.6.3 Ensure the Language pack installation is functional

To determine if the language pack installation is successful ensure you can login into the various languages listed on your Maximo login page. Carefully assess if all the language packs are installed as planned. If some of your languages are not installed carefully re-assess and implement those languages.

### 5.6.4 Ensure Client Connectivity

As the Maximo Asset Manager has a client-server infrastructure, it is imperative to verify accessibility from the clients who will be accessing Maximo. Ensure the users can access the login page of Maximo. There are a list of client hardware/software considerations that have also to be assumed to confirm this task.

**Tip:** Refer to Chapter 4 for information regarding Hardware and Software requirements.

### 5.6.5 Report Administration

Prior to the configuration phase of the deployment, carry out the following report administration checks.

#### **Generate Request pages**

Request pages are the parameter inputs required for each report. Before the reports can be accessed from with Maximo the request pages have to be generated.

1. Login into Maximo as the System Administrator
2. From the Start Center navigate to the Go To function and select **Administration** → **Reporting Administration**.

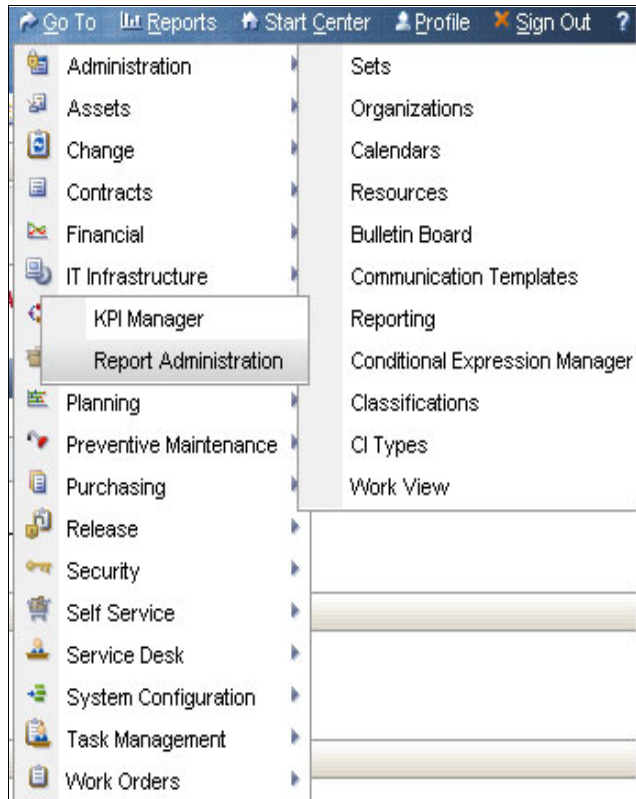


Figure 5-31 Reporting Administration

3. In the center of the page you will see a button called **Generate Request Pages**, click **Generate Request Pages**.

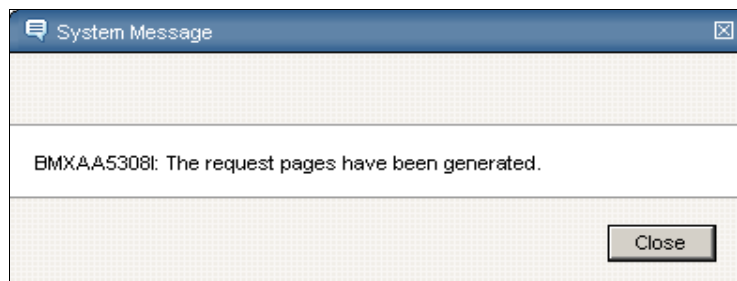


Figure 5-32 Generate Request pages success

At this stage the request pages have been successfully generated.

**Note:** Generating the request pages is a step you will only need to execute when having created a new installation or having uploaded a new report, it is advisable that this step is done when other users have logged out of the system.

## Generating report output

As a best practice, assess to see 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. In the next few steps we will test and run a standard report.

1. Login into Maximo
2. From the Start Center navigate to the Go To function and select **Administration** → **Resources** → **Labor**

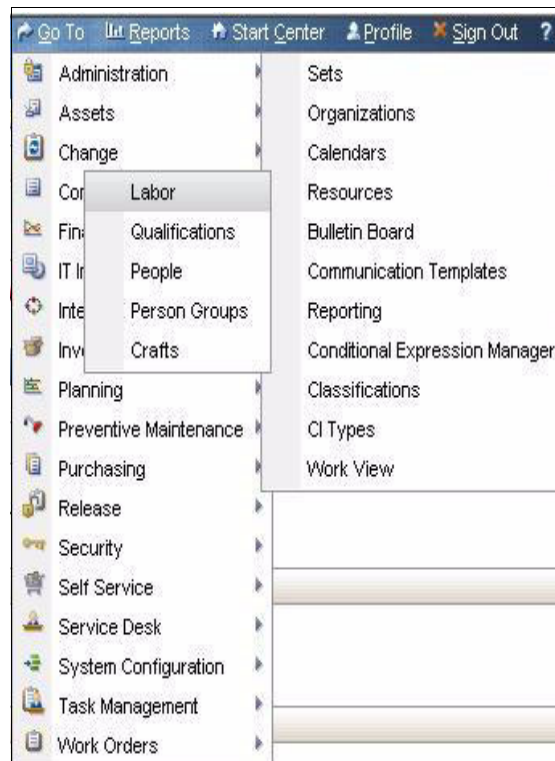


Figure 5-33 Labor

From the **Labor** application, click **Select Actions** → **Run Reports**.

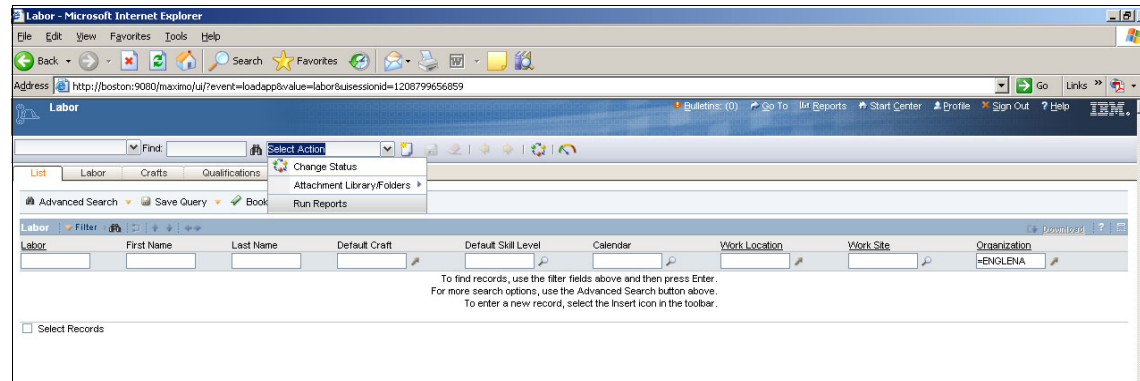


Figure 5-34 Run Reports

- From the **Reports** dialog select the **Labor List** report.

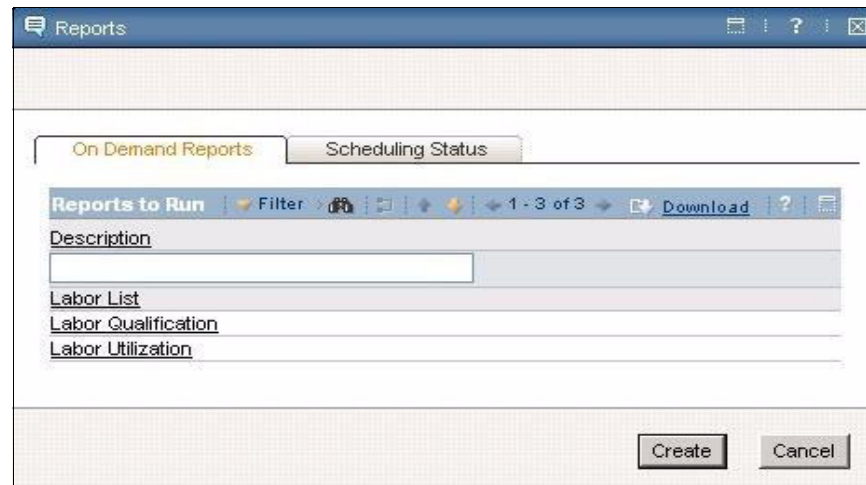


Figure 5-35 Labor List

- From the **Request Page** specify your parameter properties, in our example we will specify the value '**ACTIVE**' as the status parameter value.

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

Figure 5-36 Request Page

5. Click **Submit**

BIRT Report Viewer - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites

Address [http://boston:9080/maximo/report?\\_\\_report=labor.rptdesign&appname=LABOR&\\_\\_requestid=1208801947515](http://boston:9080/maximo/report?__report=labor.rptdesign&appname=LABOR&__requestid=1208801947515) Go Links

Reporting IBM

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 5-37 Report output

6. Upon receiving a report output as specified above you can determine that the report has generated successfully

For more information regarding report administration refer to the following guide:

*Report Developer Guide (mam71\_report\_dev\_guide.pdf)*

## 5.6.6 Attached Documents Configuration

You use the Attached Documents application in Maximo 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 Manage installation process, you manually have to configure some properties within the Maximo System properties application and specific HTTP server properties to enable attachments to be uploaded and viewed from Maximo.

Here are a few steps you will need to consider to ensure Attached Documents are accessible in Maximo when using a Windows WebSphere middleware installation.

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

```
C:\DOCLINKS
```

On your HTTP server search for your httpd.conf file in the following path for example:

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

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

Edit the directory line as follows:



Edit 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**”

Once you have made these changes, save your file and restart the HTTP server, the values you have entered are case sensitive

You will now need to login into Maximo and configure two more DOCLINK properties to point to the folder you have created on your drive and also to point out the path the HTTP server will have to make to access these files.

Go To **System Configuration** → **Platform Configuration** → **System Properties** and specify the required properties as set out below:

Property Name	Description	Example value
mxe.doclink.doctypes.defpath	Default path for doclinks	C:\DOCLINKS
C<PATH>\DOCLINKS = http://yourservername	Path 01 for doclinks	C<PATH>\DOCLINKS = http://yourservernameC<P ATH>\DOCLINKS = http://yourservername

A common problem with attached document setup is that the folders for your attachments are not assigned with a drive letter in their defaults paths upon the Maximo Installation process. To resolve this ommittance go to any of your Maximo Applications and from Select Actions, go to Attachment/Library Folders → Manage Folders and amend the default path as follows:

Old Path	New Path
\DOCLINKS\ATTACHMENTS	C:\DOCLINKS\ATTACHMENTS

Below are illustrations of single and multiserver machine attached documents configurations. Note, the implementation of attached documents is only briefly

discussed in this guide. For instructions on how to install and deploy attached documents please reference the following materials:

- ▶ *System Administrator Guide Server (mam71\_sys\_admin\_guide.pdf)*
- ▶ *Chapter 22-Attached Documents Administration and Configuration*

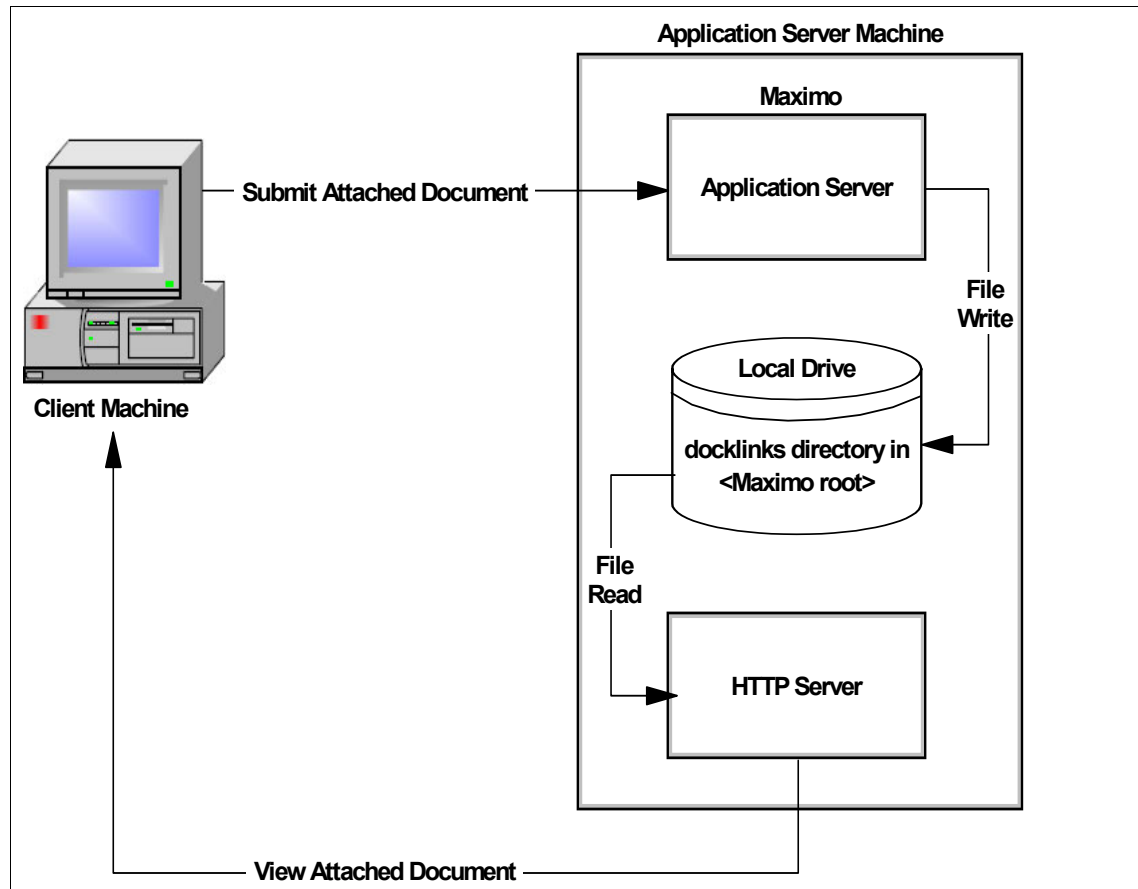


Figure 5-38 Example Single Machine Configuration

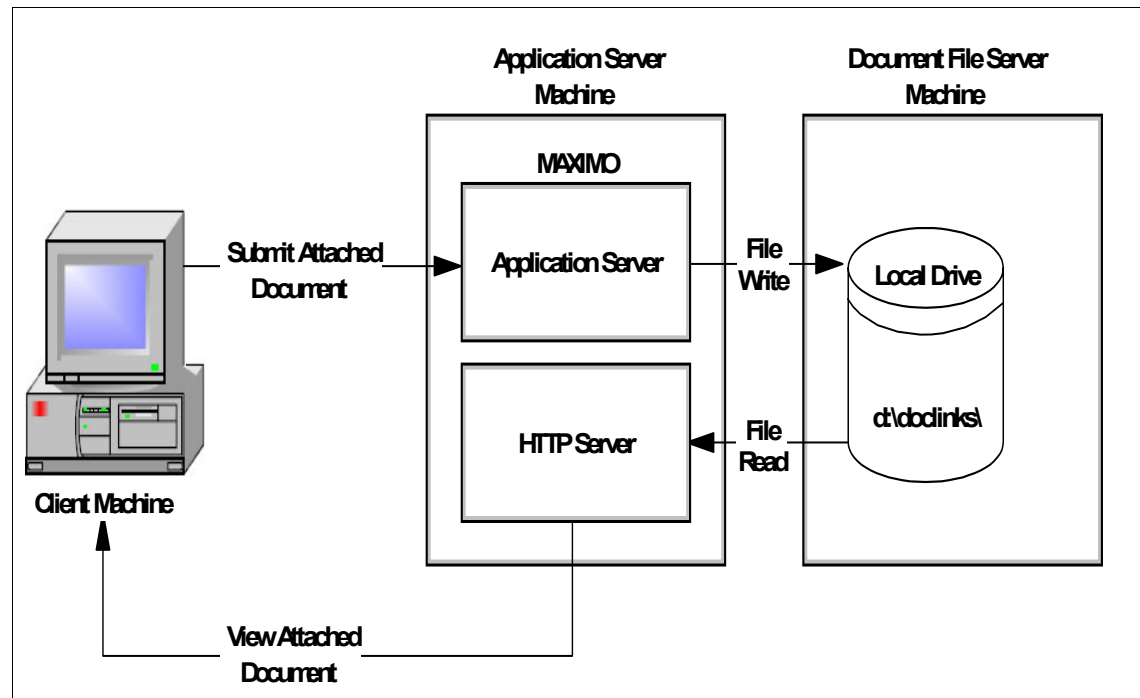


Figure 5-39 Example Multiple Machine Configuration

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

Depending on your business requirements, you might be required to implement cron tasks to perform certain actions or updates on your Maximo Application. Ensure system properties are defined and setup as enabled in your Cron Task Setup module, this can be found under in the **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 will not function. In the event that cron tasks might not run, it is recommended you reload the cron tasks.

**Tip:** The schedule /frequency interval of cron tasks needs to be assessed carefully as cron tasks are 'batch' tasks and a large task is executed to frequently it could have an adverse affect on system performance.

For more detail about implementing cron tasks Please refer to the Maximo Asset Management Essentials System Administration guide:

*System Administrator Guide Server (mam71\_sys\_admin\_guide.pdf)*

## 5.6.8 Create Backup/Image of 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 could back up to:

- ▶ Hard Disk Drive: Lets you restore your system quickly
- ▶ Tape Drive; Slower, but you can keep multiple tapes of backups
- ▶ CDs, DVDs, diskettes : Limited capacity, but is useful for smaller databases, archive files, or specific executables.

## 5.6.9 Automate the Backup Procedure

Schedule and regularly perform system and database backups. It is advisable you perform system restores from the production environment to your development/acceptance environment on regular intervals to test this procedure.

## 5.6.10 Assess the server workload

In having taken the sizing considerations of the previous chapter into account it is advisable to monitor the performance of Maximo on a continuous basis. This step will also form part of the user acceptance testing. However there are many methods you can implement to improve and maintain the application's performance on a continuous basis.

If your implementation increases in size, an increase in workload or system enlargement over time consider load balancing the server environments, server clustering is a recommended solution by which you can distribute user loads over various application servers to maintain consistent server performance.

## 5.6.11 Client Local/Regional Settings Properties

If the users are based in one location, ensure that the regional settings of their workstations are matching to that of their region, a common issue could be date and time format conflicts.

## 5.6.12 Internet and Firewall Security

For security purposes Maximo 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 allow communication over HTTP (typically Port 80) or HTTPS (typically Port 443). The following information is generic and does not reflect any particular firewall brand.

### Secure Socket Layer (SSL) Overview

Secure socket layer provides secure connections over a network connection by doing the following:

- allowing two applications to authenticate each other's identity
- encrypting the data exchanged between the two applications

Authentication allows 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 and BEA WebLogic support SSL, and IBM Corporation has certified the SSL implementation with the Maximo-WebSphere and Maximo-BEA WebLogic integration.

### Configuring Secure Socket Layer To implement SSL

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 the .http with .https encrypts a session between the browser and server.

For example:

**http://MaximoAppServer** will be entered as **https://MaximoApp Server**

The standard port for HTTPS is 443.

If a Proxy server or Firewall controls network traffic, this port and protocol must be opened. SSL comes with some additional overhead for encryption and decryption of data. Encryption and decryption can affect performance.

### Internet Explorer Settings

It is advisable that you enable your browser to automatically check for newer versions of stored pages when you login to Maximo, to ensure this perform the following steps:

From your Internet Browser move to **Tools** → **Internet Options** → **General** → **Settings**

Select the radio button **Automatically** to check for newer versions of stored pages.

**Tip:** Ensure the above feature is applied to all clients. When failing to do so users could experience previous screen representations other than the latest. Alternatively one could also remove and destroy all Cookies and Temporary files from their Internet Browser

### 5.6.13 SMTP mail exchange server setup

Some applications and cron tasks within Maximo require a mail exchange to perform. In order to enable, this 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 Users LDAP Authentication 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 ActiveDirectory, you create and manage users in the LDAP directory server.

The VMMcron task updates the Maximo 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

Once the installation is complete you would be configuring the different system properties and enabling logging for the application. With Maximo Asset Management Essentials 7.1 this task has become far easier, as it comes with 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 7.1 and can be used to configure System-wide properties that are 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 Properties:** A global property exists only at a system-wide level. This means that the property is applicable to all the product server instances (for example: 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. The following table describes these characteristics:

Property Characteristic	Description
File Override	Specifies if 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 system-wide level. It implies the property cannot be overridden at the instance level.

Property Characteristic	Description
Instance Only	Specifies whether this property must be defined at the instance level. If so, you provide an instance-specific value and 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 could 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; by entering a value other than 1 or 0 you will see an error message 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 to a corresponding domain value

## 5.7.2 Logging Application

Logging application is a part of system configuration module of the product and is a dedicated application to manage log settings and configure log files. An administrator 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:

1. **Loggers:** Loggers are components in the product that prepare log statements to be written to 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 there are no ancestors 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

2. A level indicates a type of event that the system logs.
3. 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.
4. 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."

This application can be used to:

- ▶ Create loggers that are components in the product that prepare log statements to be written to console or 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.



## 6



# Configuration

Once the installation is complete there are several tasks that will need to be completed before we can enable the users to start using the system.

Such tasks usually have to be carried out by the system administrator and will be discussed in this chapter.

**Note:** The following steps assume you have created a empty database and have not created the demo database, this chapter is not applicable to a demo install.

## 6.1 Getting started

The following are the main topics covered in this section:

- User Management
- Organization and Site setup
- Initial Configuration and Data import sequence

## 6.1.1 User Management

### Signing in using a default user ID

If security was specified during the installation, User management will be managed through the directory server you have configured to use with Maximo Asset Management Essentials. 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 login URL. For example: `http://hostname:<port>/maximo`.  
The default port is 9080.
3. Enter the username maxadmin (lower case).
4. Enter the password maxadmin (lower case) and click **Enter**. The software displays an empty start center.

### Changing 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 appears.
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 or maxreg user, you also change the password associated with that user in the maximo.properties file.

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 in name
  - mxe.system.reguser for self-registering new users
4. Save changes.

**Note:** Any time you modify the maximo.properties file, rebuild and deploy a new maximo.ear file. By going to the application server, selecting the ear file and clicking on the deploy option (the method may vary if different application server is used, the above reflect WebSphere)

You can change the default user names for the default user IDs by editing the maximo.properties file.

To modify the user ID in the maximo.properties file, complete the following 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 login password
  - mxe.system.regpassword for the self-registering new users
4. Save changes.

**Note:** Any time you modify the maximo.properties file, rebuild and deploy a new maximo.ear file. By going to the application server, selecting the ear file and clicking on the deploy option (the method may vary if different application server is used, the above reflect WebSphere)

## 6.1.2 Organization and Site setup

Before you can assume work on Maximo it is imperative to specify the name of your organization and the site the organization belongs to. To ensure this, reference the following steps in strict sequential order to create the organization and sites and its appropriate dependencies.

**Important:** You must create currency codes, sets, glcomponent configuration and create a clearing account prior to creating the Organization and Site. If any of these steps are incomplete you will have to complete the tasks before continuing.

## Create currency codes

Currency codes is your measure of exchange in monetary terms, currencies are required for your system to determine in which currency you will be measuring your financial transactions against. Assess your base currency that your organization utilizes before assuming the next step.

You must define a currency code for an organization. To define a currency code for an organization, complete the following steps:

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

## Disable validation options

It is advisable to disable or uncheck the validation options in order to begin populating or importing data. Having the validation options enabled during initial configuration, each entry made will be validated against a financial period which at this stage of the deployment is not required. You can always revalidate these options again at a later stage

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

## Create item and company sets

Sets allow you to share Item and Companies records across Organizations, although you can only create 1 Organization and site in Maximo Enterprise Essentials you must still perform this step.

To define sets, complete the following steps:

1. Open the Sets application for Users by selecting Goto → 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:** Keep your set id's generic and simple as they cannot be altered 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 centre for multi 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 Database Configuration, you define the account code format using the GL Account Configuration dialog box. In 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 on the screen. 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. Include a total of up to 254 characters/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 left most 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
- ▶ (Optional) Component 4 = Element

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 Goto →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 (This is the type of data each component will represent). For example, ALN.
7. Click **Save** and log out of Maximo.
8. Once you have completed setting up the GL Account Component, you **MUST** configure the database for your changes to take affect.Foolwo the next steps to create a component.
  - Ensure you have created a backup of your database.
  - Make sure all users a logged off the system.
  - Ensure to document all changes.
  - Open the WebSphere Admin Console and stop the MXServer application server.
  - Run the configdb.bat program from the following path example:  
**C:\ibm\SMP\maximo\tools\maximo\configdb.bat**
  - Wait for your changes to have taken affect, make sure this step has completed successfully and restart the MXServer and log back into Maximo again, you can now create general ledger accounts.

**Note:** In our example we configured the database when shutting down the Maximo application server.To perform a database configuration without shutting down your application server refer to the System Administrators guide.  
(mam71\_sys\_admin\_guide.pdf)

## 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 Goto /Administration /Organizations
2. Click on 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.
5. Enter the item set you defined in the Item Set field. For example, ITEM1.
6. Enter the company set you defined in the Company Set field. For example, COMPSET.

Tip: Keep your organization and site id's generic and simple as they cannot be altered in the future. It is also advisable not to use spaces in between the organization and site id's

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

### **Create a general ledger account**

1. Before assigning the clearing account for your organization you will have to create general ledger account that is to be used as the clearing account. To create a general ledger account, complete the following steps:
2. Open the Chart of Accounts application by selecting Goto/ Financials/ Chart of Accounts
3. Click on the name of your organization to select it. For example, click **MAIN**.
4. Select GL Component Maintenance from the Select Action drop-down menu.
5. Click **New Row**.
6. Add a GL Component value for example, **1234** and then click **OK**
7. Click **New Row** on the **GL Accounts for** tab.
8. Select your General Ledger Account.
9. Click **Save**.
10. Open the Organizations application by selecting Goto /Administration /Organizations
11. Click the organization name you created. For example, **MAIN**.
12. From the Clearing Account field, select the General Ledger Account you just created.
13. Select Active.
14. Click Save.
15. Assign your recently created general ledger account to be the clearing account

## Creating a site

You can create only 1 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 screen 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 have created the organization and site in Maximo Asset Management Essentials, you will be 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 Goto → 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 Admin Console and restart the MXServer application server. Note that 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.

## Signing out and signing 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 in order to see the changes. For example, even though you have granted the MAXADMIN group permission to create start center templates, the actions are not visible until you sign in again.

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

## 6.1.3 Initial Configuration and Data import sequence

At this stage you will have prepared the organization and site, from this point onwards you can start populating the database. Although this guide is not written to explain how to populate data into Maximo we will in the following table briefly

outline a generic configuration and data import sequence recommended to perform your initial data configuration.

<b>MAM 7.1 Module</b>	<b>Sub Application</b>	<b>Nature of work performed in this sub application</b>	<b>Suggested Entry_Mode</b>
System Configuration	Database Configuration	Create new object attributes/relationships	Manual
System Configuration	GL Component Configuration	Configure GL Component	Manual
Financial	The 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
Failurecodes	Failurecodes	Create Failurecodes	Manual
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	Valuelists	Define ALN/NUM/ SYNONYM valuelists	Manual
Organizations	Address Codes	Define addresses	Manual
Assets	Locations	Create Systems and Locations	Import
Purchasing	Company master	Create Companies Master records	Import
Purchasing	Companies	Companies 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

MAM 7.1 Module	Sub Application	Nature of work performed in this sub application	Suggested Entry_Mode
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
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	Jobplans	Create Jobplans	Import
Preventive Maintenance	Preventive Maintenance	Create Preventive Maintenance Schedules	Import

**Important:** The table is a generic example that was designed to guide implementations pertaining to the sequence of loading and populating the Maximo objects. You might not utilize all these modules. It is essential to follow the illustrated chronological sequence during your initial configuration.

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

## 6.2 Reporting

Maximo Asset Management Essentials 7.1 is integrated with the Eclipse Foundation's Business Intelligence Reporting Tool (BIRT). BIRT is an open source reporting system that will integrate with Java/J2EE applications, such as Maximo Asset Management Essentials 7.1, to produce custom reports. BIRT utilizes XML report definitions to generate reports in PDF or HTML Output. BIRT uses the data from Maximo Asset Management Essentials 7.1 and manages and displays it to end users in a way that they can immediately take action if necessary. That action may involve drilling down into reports for a specific problem issue, or an analysis of the data for cost for regulatory purposes.

The following are the main topics covered in this section:

- ▶ BIRT Administration
- ▶ BIRT Configure Reports
- ▶ BIRT Run Reports

### 6.2.1 Report Administration

As the Report Administrator, you can specify the following for end users:

- ▶ The availability of reports and how they open, run, and print
- ▶ The appearance of report titles and headings
- ▶ Report security settings

The following figures provide a short introduction into the Report Administration application. The look and feel is like all other applications launched from the Start Center. There are two ways to open the Report Administration application. The first way is for the initial administration, the second can be used, when reports are already defined:

- ▶ Start the Report Administration application from the Start Center by selecting Go To → Administration → Reporting → Report Administration as shown below in Figure 6-2.

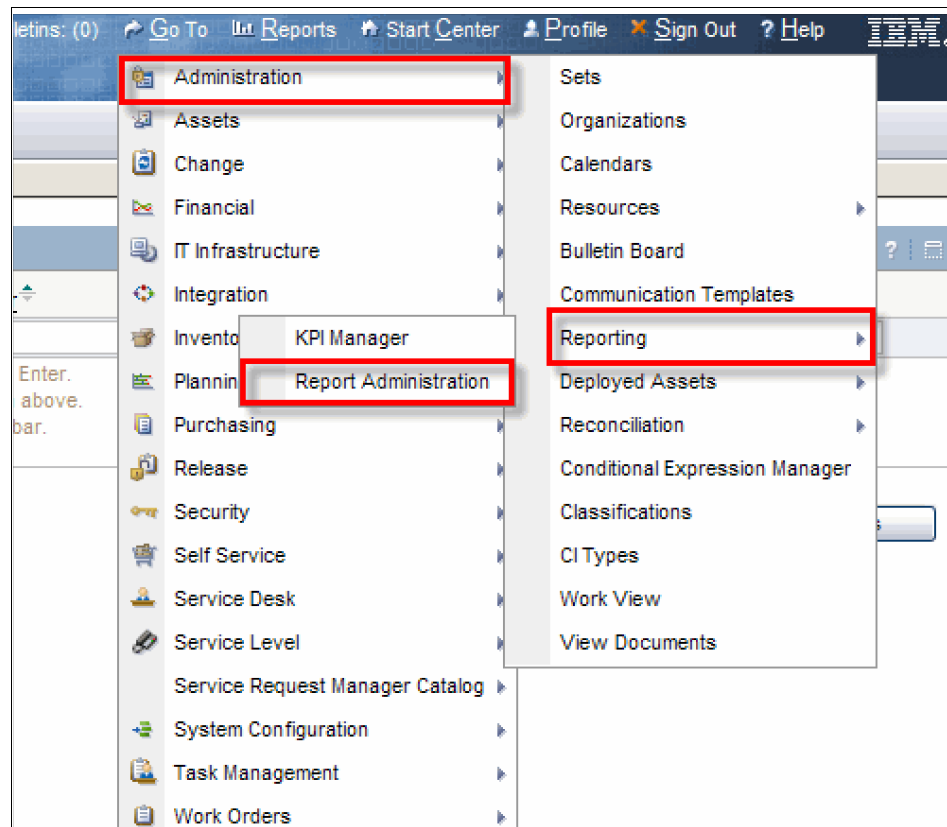


Figure 6-1 Accessing report administration

## 6.2.2 BIRT Configure Reports

In the Report tab there are several options to configure a report. Those with an (\*) asterisk are required parameters.

The screenshot shows the 'Report Administration' web application. At the top, there is a navigation bar with links for 'Queueing (0)', 'Go To', 'All Reports', 'Start Center', 'Profile', 'Sign Out', and 'Help'. Below this is a search bar with a 'Find:' field and a 'Select Action' dropdown. The main content area is divided into several sections:

- Report Information:** Includes fields for 'Report File Name' (totals\_tsd.rptdesign), 'Total Number of Incidents', 'Application' (INCIDENT), 'Report Type' (BIRT), and 'Report Folder' (INCIDENT).
- Settings:** A collection of checkboxes and input fields for configuring report behavior:
  - Limit Records?
  - Max Record Limit:
  - Use Where Clause?
  - No Request Page?
  - Priority:
  - Browser View?
  - Browser View Location: NONE
  - Direct Print?
  - Direct Print Location: NONE
  - Direct Print with Attachments?
  - Direct Print with Attachments Location: NONE
  - Toolbar Sequence:
- Parameters:** A table listing report parameters with columns for 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"/>

Buttons for 'Generate Request Page' and 'Preview' are located at the bottom right of the settings section.

Figure 6-2 Report Configuration

**Report Type:** BIRT, Crystal, 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 an end user can run a report. It prevents end users from executing large queries, which can cause negative performance impacts. Use the Report Administration application to set record restrictions on reports. This feature applies to only reports without parameters. This parameter goes along with the “Max Record Limit”.

**Use Where Clause?:** Enables Current/Selected plus User defined parameters.

**No RequestPage:** Disables Request Page for Database Updates.

**Priority:** Numeric field used in report queuing process.

**Browser View and Browser View Location:** The Browser View feature lets you create a shortcut. With the shortcut, the end user can click an icon once in the application toolbar to open a report directly in the browser. When Browser View is checked then 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:

- 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.
- Click Save Report to apply the changes.

**Direct Print and Direct Print Location:** The Direct Print feature lets you create a shortcut so an end user can click an icon once in the application toolbar to print the report. The configuration is the same as for Browser View Location.

**Direct Print with Attachments and Direct Print with Attachments Location:** The Direct Print with Attached Documents feature lets you create a shortcut so an end user click an application icon once (and select Yes in a Message dialog box) to print the report and any associated attached documents. The configuration is the same as for Browser View Location.

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

**Preview:** You can check for the following items: The correct parameters, if any, appear to the end user on the request page.

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

**Parameters:** From the parameters tab you can define ad hoc user parameters. Note these parameters must also be specified in the actual report design itself

The screenshot displays the 'Report Parameters' configuration interface. At the top, there are tabs for 'List', 'Report', and 'Security'. The main area contains several input fields: 'Report File Name' (actualci\_detail.rptdesign), 'Actual CI Details', 'Application' (ACTUALCI), and 'Report Folder' (ACTUALCI). Below these is a 'Settings' section with various checkboxes and dropdowns: 'Limit Records?' (checked), 'Max Record Limit' (50), 'Use Where Clause?' (unchecked), 'No Request Page?' (unchecked), 'Priority' (empty), 'Browser View?' (unchecked), 'Direct Print?' (checked), 'Direct Print with Attachments?' (unchecked), 'Toolbar Sequence' (1), 'browser View Location' (NONE), 'Direct Print Location' (ALL), and 'Direct Print with Attachments Location' (NONE). At the bottom, there is a 'Parameters' table with columns: 'Parameter Name', 'Attribute Name', 'Sequence', 'Display Name', and 'Required?'. The table currently shows 'No rows to display...'. Buttons for 'Generate Request Page' and 'Preview' are also visible.

Figure 6-3 Report Parameters



## 6.2.3 BIRT Run Reports

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

- ▶ Open the Reports dialog box through one of the following methods:
  - From the Reports Menu in the application toolbar, select an application, for example, Labor.

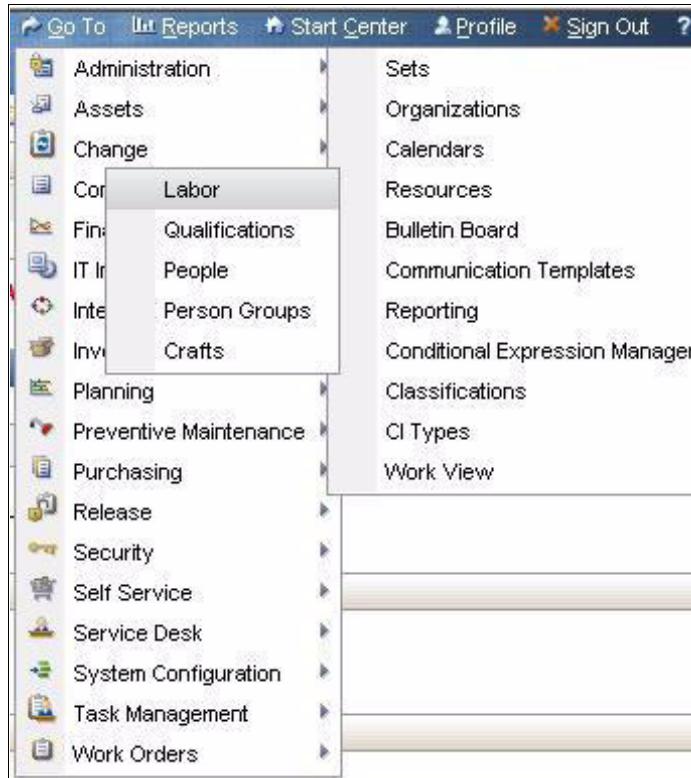


Figure 6-4 Report Menu

- From the Select Action menu, select Run Reports. The Reports tab opens. The Reports to Run table window lists the available reports for the application. Click the report that you want to run.

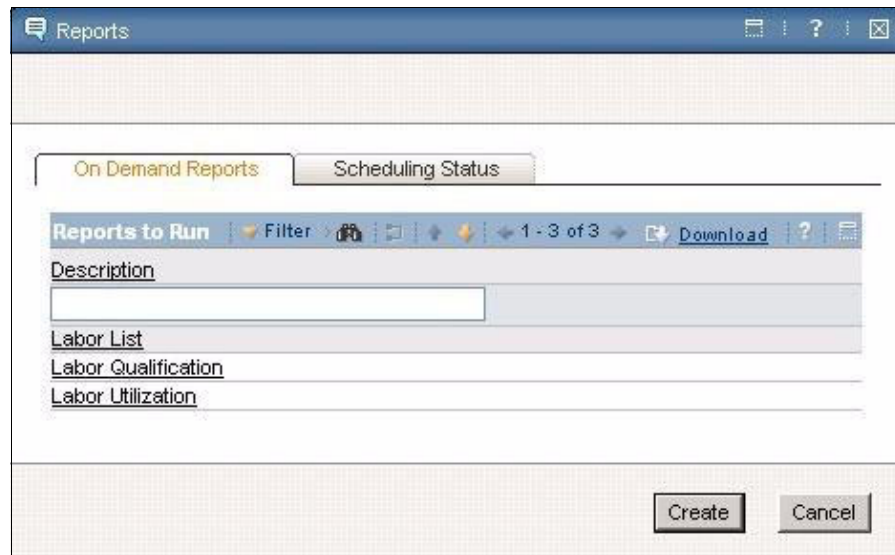


Figure 6-5 Selecting a Report to Run

Select the report you want to see, for example, "Labor List". Enter the required parameters in the Request Page dialog box.

The screenshot shows a web browser window titled "Request Page". At the top, there is a help icon and a text box with instructions: "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 are three sections: "Parameters" with a "Status" dropdown menu set to "ACTIVE"; "Schedule" with radio buttons for "Immediate" (selected), "At this Time" (with a date picker), and "Recurring" (with a time picker); and "Email" with input fields for "To", "Subject", and a text area for "Comments". At the bottom right are "Submit" and "Cancel" buttons.

Figure 6-6 Run Request

Click Submit to run the report. The report opens in your browser shown in Figure 6-6.

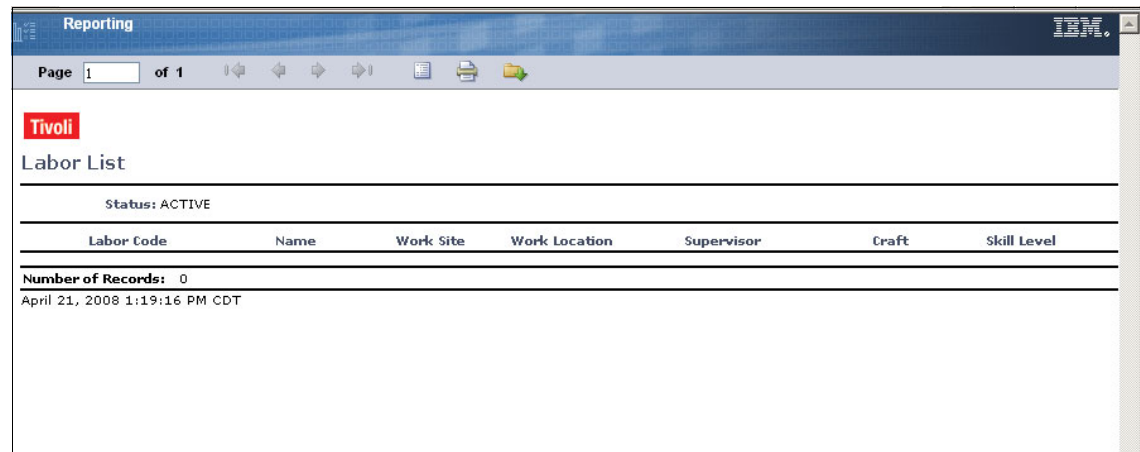


Figure 6-7 Incident Report

- ▶ On the Reporting toolbar as shown in Figure 6-8, “Report Scheduler” 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 then e-mailed when completed. The email can be sent to a single user or a group including subject and comments. The report is emailed in PDF format.

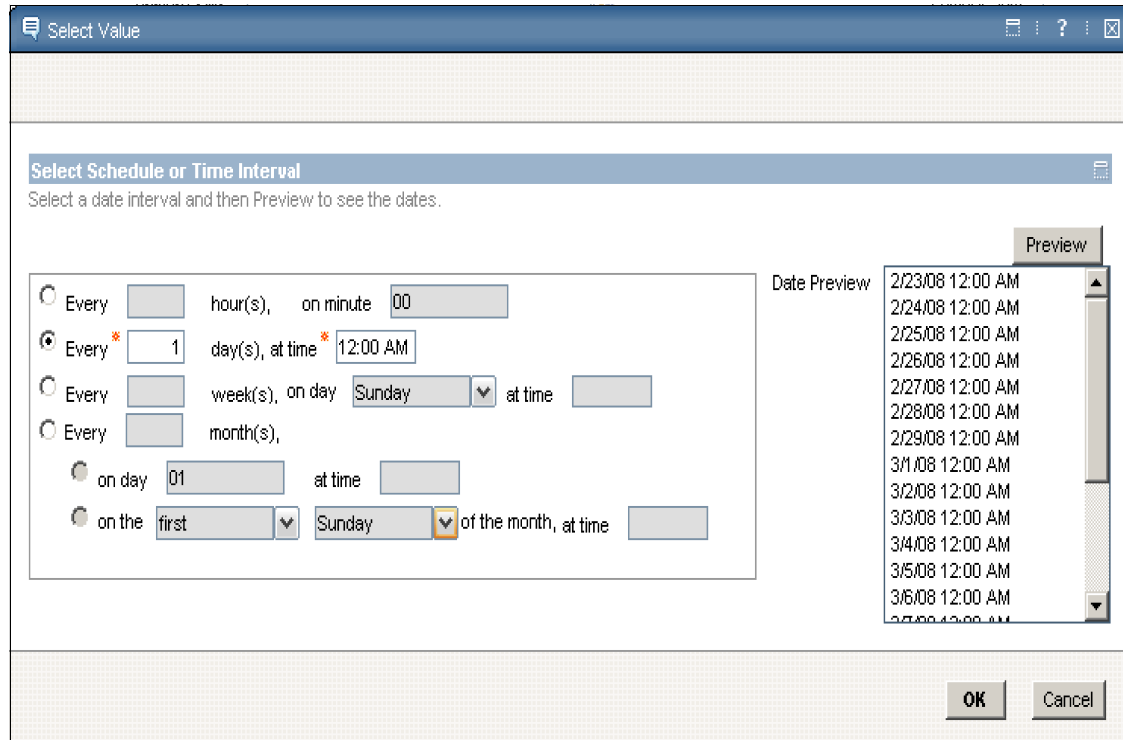


Figure 6-8 Report Scheduler




**A**

# Summary of Maximo Asset Management Essentials modules and applications

The table below summarizes the modules and applications that make up Maximo Asset Management Essentials.

**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.

MODULE/SUB-MODULE	APPLICATION	DESCRIPTION
ADMINISTRATION	Organizations	Used to setup the organizations and sites to be used within Maximo
	Classifications	Used to create classifications and establish and overall classification hierarchies for Items, Assets, Locations, Work Orders, etc.

MODULE/SUB-MODULE	APPLICATION	DESCRIPTION
	Bulletin Board	Used to create, post and view messages as well as to broadcast information to users of the Maximo system
	Communication Templates	Used to create and manage generic communication templates that Maximo users can leverage to standardize frequently used e-mail communications (also known as notifications)
	Calendars	Used to indicate working time for equipment, craft and labor records for an organization and its associated sites
	Sets	Used to create a framework for sharing item and company (vendor) data across multiple organizations
	Work View	Used to make queries available for display in the Result Set portlet of a Maximo user's Start Center
	Conditional Expression Manager	Use the Conditional Expression Manager application to 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	Used to create Key Performance Indicators (KPIs) to track critical performance variables over time
	Report Administration	Used to create reports, generate and preview request pages, add parameters, display reports as toolbar icons, email reports, or specify a schedule for running a reports
RESOURCES	People	Used to maintain records of people
	Person Group	Used to maintain person groups. A person group consists of people, who may or may not be workers
	Crafts	Used to define and maintain craft records
	Labor	Used to define and maintain labor records
	Qualifications	Used to create qualifications and certification requirements for qualifications



MODULE/SUB-MODULE	APPLICATION	DESCRIPTION
ASSETS	Assets	Used to store asset numbers and corresponding information such as parent, location, vendor, up/down status, and maintenance costs for each asset
	Locations	Used to enter and track locations for assets and organize these locations into logical hierarchical systems or network systems
	Meters	Used to add or modify meter definitions. Meter definitions include names for the meters as well as sets of attributes that describe the meters
	Meter Groups	Used to define a logical grouping of meters that will exist in a meter group. Meter groups represent a collection of meters that will be used together multiple times
	Failure Codes	Used to 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	Use the Activities and Tasks application to 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	Used to create, modify, and view contracts with outside vendors
	Lease Rental Contracts	Used to define the overall terms and conditions of the lease or rental agreement between a vendor and a customer regarding one or more assets
	Labor Rate Contracts	Used to define multiple labor rates for specific crafts and skills, and optionally labor records. Within the Labor Rate Contract application you can manage outside labor and the corresponding rates.
	Warranty Contracts	Used to maintain one or more assets for an outside service provider for a fixed fee, or regularly scheduled payment over a time period; or to track warranty information for multiple assets or locations by time or meter

MODULE/SUB-MODULE	APPLICATION	DESCRIPTION
	Master Contracts	Used to 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	Used to 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	Used to define currency codes and to specify which codes can be used in Maximo
	Exchange Rates	Used to set up exchange rates used for converting currencies in Maximo
	Chart of Accounts	Used to establish general ledger (GL) account fields in Maximo with definitions equivalent to those used with the rest of your financial data processing system.
INVENTORY	Item Master	Used to define items that will be 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	Used to define and manage purchased services
	Tools	Used to manage information about the tools used to perform work. Tools are typically non-consumable items for which you charge an hourly rate for their use
	Stocked Tools	Used to manage existing tools in storerooms.
	Inventory	Used to enter, display and update information on each inventory item
	Issues and Transfers	Used to issue or transfer items from storerooms, or to return items to storerooms
	Condition Codes	Used to create and maintain a master list of condition codes for a particular item set.
	Storerooms	Used to add and maintain information about storeroom locations, as well as view the items stocked within a storeroom.

<b>MODULE/SUB-MODULE</b>	<b>APPLICATION</b>	<b>DESCRIPTION</b>
PLANNING	Job Plans	Used to create a detailed description of how a job is to be performed
PREVENTIVE MAINTENANCE	Preventive Maintenance	Used to create, modify and view preventive maintenance plans for work assets. PM records are templates for work orders or for other PMs
	Master PM	Used to create and modify master PMs, which are templates for other PM records
PURCHASING	Purchase Requisitions	Used to ask the purchasing department to order materials or services
	Purchase Orders	Used to purchase materials or services from an internal supplier or an external vendor
	Receiving	Used to receive materials into inventory and record the receipt of services
	Invoices	Used to record invoices and match against purchase orders and receipts for approval
	Request for Quotations	Used to request and manage vendor quotations
	Companies	Used to manage data on manufacturers, vendors, and other companies that do business with you
	Company Master	Used to create company master records that belong to a particular company set
	Terms and Conditions	Used to 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	Allows for 'punch-out' capability from Work Orders, Desktop Requisitions.
RELEASE	Activities and Tasks	Use the Activities and Tasks application to 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	Used to grant access to sites, applications and menu options. A user is assigned to one or more groups to gain access to the system.

MODULE/SUB-MODULE	APPLICATION	DESCRIPTION
	Users	Used to add and manage Maximo users
SELF SERVICE		
Service Requests	Create Service Request	Used by self-service users to create new service requests
	View Service Request	Used by self-service users to view existing service requests.
SERVICE DESK	Activities and Tasks	Use the Activities and Tasks application to 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	Used to create, view, and resolve service requests from customers
	Ticket Templates	Used to 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	Used to manage the administrative functions of creating actions and action groups within Escalations.
	Roles	Used to manage roles within Maximo
	Communication Templates	Used to create and manage generic communication templates that Maximo users can leverage to standardize frequently used e-mail communications (also known as notifications).
	Database Configuration	Used to create or modify the objects and attributes used by Maximo applications
	Application Designer	Used to create new applications (clones and custom applications) or to tailor the pages of an existing Maximo application
	Escalations	Used to 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 SLAs

MODULE/SUB-MODULE	APPLICATION	DESCRIPTION
	Cron Task Setup	Used to manage cron tasks. Cron tasks are behind-the-scene jobs set to run automatically and on a fixed schedule
	Domains	Used to maintain lists of defined values that appear in drop-down lists (sometimes referred to as value lists)
	Logging	Use the Logging application to manage log settings and configure log files. The application is part of the System Configuration module of the product.
	System Properties	Use the System Properties application to manage system properties and their values used by various product components.
	Web Services	Use the Web Services Library application to 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	Use the Object Structures application to 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	Use the Migration Manager application to define, create, distribute, and deploy packages. Packages are used to transfer and deploy the many configuration changes possible with Maximo's configuration tool set from one environment to another (i.e. Dev, to Test, to Production...).
	Migration Groups	Use the Migration Groups application to create groups of configuration objects and link related (dependent) groups to the objects that you create. You group configuration objects ensure that all related configuration data is collected from source environments and distributed to target environments

MODULE/SUB-MODULE	APPLICATION	DESCRIPTION
	Object Structures	Use the Object Structures application to 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	Use the Activities and Tasks application to 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	Used to plan, review, and approve work orders for assets and locations
	Labor Reporting	Used to report the type and total number of hours of work that was performed by external contractors or internal employees
	Quick Reporting	Used to report work on open work orders or small jobs
	Activities and Tasks	Used to plan, review, and manage activities that can initiate the maintenance process and create a historical record of work being performed
	Assignment Manager	Used to dispatch urgent work and schedule Labor to planned work requirements
	Service Requests	Used to create, view, and resolve service requests from customers
START CENTER	Layout and Configuration	Used by an administrator to modify and configure the layout of the portlets displayed on the Start Center
	All Custom Applications	Allows access to all User created custom applications
	Favorite Application Setup	Used by an administrator to define/edit the list of applications displayed in a Favorite Application portlet
	Forgotten Password	Action from Login page used to e-mail a User what their current password is.

MODULE/SUB-MODULE	APPLICATION	DESCRIPTION
	Inbox / Assignments Setup	Used by an administrator to define/edit which columns will be displayed in the Workflow assignments inbox displayed on the Start Center
	KPI Graph Setup	Used by an administrator to define/edit a KPI Graph style portlet to be displayed on the Start Center
	KPI List Setup	Used by an administrator to define/edit a KPI List style portlet to be displayed on the Start Center
	Change Password	Used to change the user's Maximo password
	Quick Insert Setup	Used by an administrator to define/edit the list of applications displayed in a Quick Insert portlet
	Result Set Setup	Used by an administrator to define/edit the query used and columns displayed in a Result Set portlet displayed on the Start Center
	Start Center	Initial page displayed once logged in to Maximo. Dashboard like starting point that can display various portlets including KPIs, Result Sets, Quick Insert, Favorite Applications, & Inbox/Assignments.
	User Self Registration	Used by new users to Register themselves as Maximo 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

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# Maximo Essentials V7.1 - Implementer's Guide



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## Learn about configuring the environment

With Essentials, smaller organizations can take advantage of proven Maximo Asset Management technology, while also enjoying cost savings.

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