



System Center Configuration Manager 2007

Why Upgrade?

Microsoft Corporation

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Executive Summary

Microsoft System Center Configuration Manager 2007 provides knowledge-driven management for today's dynamic IT infrastructures. Its powerful capabilities enable you to assess, deploy, and update your clients, servers, and mobile devices across IT systems in physical, virtual, distributed, and mobile environments. Built on key Microsoft technologies, such as Microsoft Windows Server Update Services (WSUS), Windows Server Active Directory, and the Windows architecture, System Center Configuration Manager 2007 enhances your insight into and control over your IT infrastructure. With Configuration Manager 2007 organizations can ensure that IT systems comply with desired configuration states to improve systems' availability, security, and performance network-wide. This whitepaper will detail the significant enhancements over existing SMS 2003 functionality as well as the new capabilities introduced with this release of System Center Configuration Manager 2007.

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Introduction

Today's dynamic IT infrastructures are increasingly more complex and difficult to manage. With the constant flux of mobile devices, new operating systems, upgrades compliance requirements and the need for asset visibility, comes the need for comprehensive configuration management. However, configuration management is only part of the challenge; IT administrators must constantly balance configuration management with security requirements. Ensuring that systems remain in compliance with security standards is a time consuming and costly process.

To manage change effectively while ensuring that all systems are up-to-date and secure, IT organizations must automate processes so that change management can occur automatically, with little or no IT staff intervention. This requires centralized, scalable tools that drive down existing costs while adding new value to network services. With System Center Configuration Manager 2007 (formerly Systems Management Server) Microsoft addresses these needs by helping IT organizations effectively manage change in today's dynamic infrastructures. Through streamlined, policy-based automation, administrators can centrally manage the full systems lifecycle—from planning and inventory discovery, through Operating System deployments, to application and software update distribution of servers, clients and mobile devices across physical, virtual and distributed systems.

This whitepaper provides an overview of the new capabilities in System Center Configuration Manager 2007 and shows how Microsoft's fourth generation of configuration management software delivers solutions to the challenges of the modern organization. Configuration Manager combines proven features with new functionality to increase IT efficiency and allow enterprises to maximize their technology investments while controlling management costs. The paper also examines how Configuration Manager 2007 benefits from extensive third-party support, extending many features of the product such as inventory, software update and Operating System deployment.

What's New in Configuration Manager 2007

Configuration Manager 2007 provides all the functionality found in Systems Management Server 2003, Service Pack 3 and significantly extends manageability in several key areas.

The table below provides an overview of the new management functionality in Configuration Manager 2007.

Management Area	Benefit
Windows Server 2008 Integration	Configuration Manager helps plan and manage upgrades and deployments of Windows Server 2008, reducing the labor for planning and deployment while adding manageability to the datacenter.*
Vista Planning, Upgrade and Deployment	Manage the entire cycle of operating system deployment including planning, deployment and user migration. IT administrators can perform bare metal, side-by-side and in-place deployments of Windows Vista.
Enhanced Asset Intelligence	Delivers detailed tracking of deployed software by using the Asset Intelligence database to discover and report installed applications. Improved Asset Intelligence also discovers and reports on computer owners and which applications were last run (software metering). In addition, Asset Intelligence

	offers support for online synchronizations* and support for MVLS reports integration.*
Desired Configuration Management	Using configuration models, called baselines (available from Microsoft, third-parties or internally-developed) administrators can define and track which systems have drifted from their desired states. These baseline definitions can be used in both corporate and regulatory standards efforts.
Integrated Device Management	Integrated and enhanced mobile management supports the proliferation of mobile and embedded devices within the enterprise.
Enhanced Operating System Deployment	Improvements to Operating System deployment supports bare-metal, network based (PXE) deployments and in-place deployments. Utilizing proven Microsoft deployment technologies, Configuration Manager 2007 provides an integrated view and management of deployment within a common framework. Both client and server now share a common toolset, deployment framework, and administrative experience providing powerful options for any deployment scenario. Additionally, Configuration Manager task sequences (workflows of base operating systems, driver catalogs, applications and updates) bring an innovative and flexible approach to operating system deployments or upgrades without requiring large, separate images for each system type.
Software Update Management	Configuration Manager 2007 Software Update Management simplifies the complex task of delivering and managing updates to IT systems across the enterprise. IT administrators can deliver updates of Microsoft products, third-party applications, and custom in-house line-of-business applications, hardware drivers, and system BIOS to a variety of devices-including desktops, laptops, servers, and mobile devices.
Network Access Protection	Network Access Protection (NAP) in Windows Server 2008 is a component that provide a platform for system health validation. The NAP platform provides an integrated way of detecting the health state of a network client that is attempting to connect to a network and restricting access of the network client until system health has been successfully validated. Configuration Manager extends this powerful capability to provide validation for the presence of Software Updates, one of the leading security issues today.

*Service Pack 1 required

Upgrading to Configuration Manager 2007

Configuration Manager 2007 offers IT organizations significant benefit over SMS and Microsoft has invested a great amount of effort to ensure a smooth migration from SMS. In addition to procedural guidance for migrations, Configuration Manager provides

enhanced client migration from SMS clients and extensive prerequisite verification of system requirements to provide a seamless upgrade.

If an IT organization deploying Configuration Manager 2007 does not have an existing configuration management system, several improvements in the installation process simplify deployment. The Configuration Manager 2007 installation process verifies that the base requirements for Configuration Manager (such as SQL Server, Software Updates and required Service Packs) are in place before deployment to help ensure that the deployment is successful.

Before the installation of Configuration Manager 2007 begins, a prerequisite checker performs thorough status checks of the existing system to ensure that key technologies and updates are in place before the upgrade process starts. These prerequisite checks include:

- Is Active Directory extended to support Native Mode (not required for mixed mode)?
- Does the existing system have the current set of required updates?
- Is there a database available for use by Configuration Manager?

Although the prerequisite checker may be bypassed during installation, performing all of its recommended pre-installations requirements prevents failed or incomplete installations.

Deploying the Configuration Manager 2007 client

IT organizations deploy the Configuration Manager 2007 client using several different methods. These methods include:

- Push the Configuration Manager client update using Windows Server Updates Services (WSUS)
- Using workstation discovery, manually or automatically push the Configuration Manager client to devices using the Configuration Manager 2007 console
- Use existing software distribution functionality to push the Configuration Manager client to devices
- Publish the Configuration Manager client setup on a server share; users manually click on the setup to upgrade/install the client
- Include the Configuration Manager client in an operating system deployment process

Once the Configuration Manager client is deployed, IT administrators control activation of the services through the Configuration Manager 2007 console.

Improved Asset Intelligence

Tracking hardware and software assets constitutes an ongoing effort by IT organizations to ensure that they track all new, in-service and expired assets as accurately as possible. Inaccurate inventory can have repercussions of financial, regulatory or license compliance focus, defining the need to be aware of current state more than ever.

Asset Intelligence in Configuration Manager 2007 extends the already extensive hardware and software inventory discovery and reporting provided in SMS. By discovering, cataloging and reporting on over 300,000 software titles (and versions), administrators gain a clearer view of software use in the network. This rich information provides meaningful business terminology to technical inventory, allowing the

organization to gain deeper insight into software titles, their installation source, and their applied license method.

Configuration Manager 2007 adds an expanded set of reports that provide visibility into a large array of applications stratified by category. Granular reports allow IT administrators to view specific details such as the executables last run on a desktop or browser additions.

Managing the Data Center

As the need to drive efficiency in the data center remains a high priority for IT organizations, traditional configuration management is insufficient. Configuration Manager 2007 offers several data center features to organizations, including:

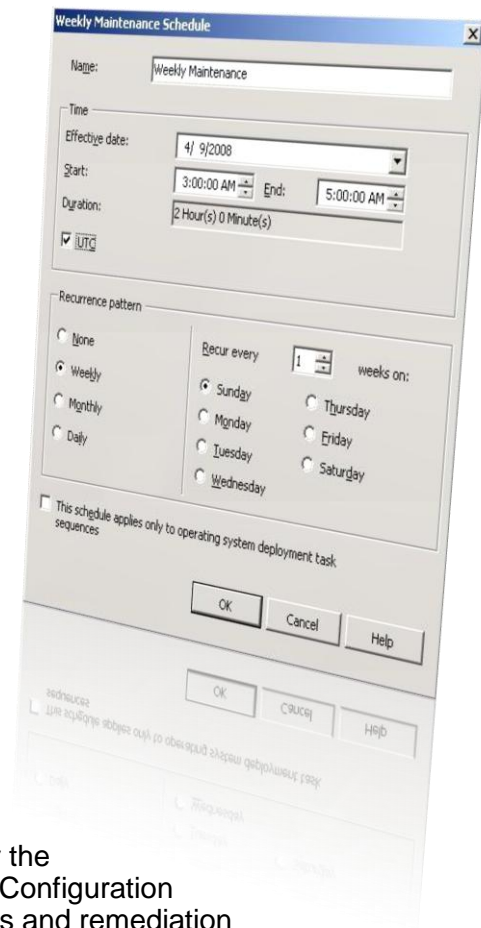
- Robust hardware, software and license inventory knowledge to better assist in accurate planning of resources.
- Operating System deployment support for a range of scenarios, with extended support for role provisioning and post deployment customization.
- Comprehensive software updating that allows a central point of management for Microsoft and third-party updates.
- Deployment of system changes to servers or clients at predetermined times and dates using maintenance windows.
- Systems compliance monitoring through Desired Configuration Management.

In addition, Configuration Manager 2007 provides a comprehensive, single point from which administrators can manage multiple server and client types, including Windows Server 2008.

With Windows Server 2008, new capabilities such as Network Access Protection (NAP) allow administrators to gain more control over network operations and provide system health validation by determining minimum system configuration requirements and enforcing these when devices enter the network. Configuring Network Access Protection with Configuration Manager allows a simplified way of defining perimeters and remediation plans using a combination of Windows Server 2008, Windows Vista and Windows XP. Access to the datacenter has never been more thoroughly protected.

Comprehensive Operating System Deployment

Deploying operating systems enterprise wide is a complex and expensive process. Supporting a standardized deployment process that ensures security policies are met can challenge the most experienced IT staff. Unknown states of systems, user data, application compatibility, and business demands create an environment that can become increasingly complex. What's more, managing the multitude of operating system images—potentially one for every set of hardware and required applications—creates additional management challenges that increase deployment costs exponentially.



Configuration Manager 2007 includes integrated operating system deployment tools that provide a centralized, scalable and customizable way for IT administrators to deploy operating systems across their organization quickly and cost-effectively. Configuration Manager 2007 builds on the Windows platform of deployment tools (found in Windows Vista and Windows Server 2008) to reduce administrative overhead and lower the cost of deploying operating systems with two main new features—the Task Sequencer and the Driver Catalog.

The Task Sequencer is a process manager that handles the different phases of operating system installation. Whether that is a bare metal installation (PXE, DVD, etc.) or a scheduled and targeted activity to a collection of systems, the Task Sequencer provides the ability to manage the steps needed in one easy to use interface.

The Driver Catalog allows an administrator to import and manage groups of device drivers that can be applied to an operating system image. Through the Task Sequencer engine, device drivers can be integrated with the base operating system image at deployment time allowing a wide variety of operating system deployments to many different types of computer targets from 1 common base image.

Configuration Manager 2007 provides two operating system deployment options:

- **Network-connected deployments.** IT administrators can perform fully automated operating system deployments on computers requiring upgrading or on computers without an existing operating system (via PXE boot). This is useful when the target computer is network-connected and qualified as a target.
- **Offline deployments.** In this case, all the software necessary to boot and install an image may be burned to a CD/DVD/USB device (where supported) for remote, or low bandwidth scenarios.

These options allow IT administrators accomplish enterprise deployments with less effort by enabling them to support both local sites and remote branches using common tools, images and methodologies.

Simplify Windows Vista Upgrades

While upgrading to Windows Vista offers significant benefit, IT organizations must have a carefully executed plan to migrate existing user data, applications and settings to Windows Vista with minimal user downtime and near-perfect functionality. Built into Configuration Manager is the Vista Upgrade Advisor reporting, which allows an administrator to view a number of reports of their inventory specific to Vista upgrade requirements. In addition, Microsoft offers two invaluable tools that simplify upgrades to Windows Vista—the User State Migration Tool (USMT) and the Application Compatibility Toolkit (ACT).

The USMT handles pre-scanning of an existing users environment , scanning configuration settings and stored user data. The ACT scans installed software looking for compatibility by comparing discovered applications against a known (and updated) list of application compatibility knowledge for Vista. Configuration Manager 2007 includes simplified and enhanced versions of USMT and ACT, making it even easier to upgrade to Vista.

Using the Configuration Manager 2007 console, an administrator can configure user files and settings to be scanned and stored securely in a designated State Migration Point. When the deployment of Vista is complete, Configuration Manager 2007 restores user settings and files to the new desktop, completing a secure migration of user state to Windows Vista.

Configuration Manager supports the following OS Deployment installation scenarios:

- **Bare Metal.** In this scenario, a new piece of hardware is configured with Windows, and the user data with applications could be migrated to the target once completed (if necessary).
- **In-place upgrade.** In this scenario, the user's data is captured and then the target system is upgraded to Windows Vista (wipe-and-load or in-place upgrade). If the user's computer meets the Windows Vista hardware requirements, a new computer is not required.
- **Side-by-side upgrade.** In this case, a new computer is deployed using Configuration Manager 2007 Operating System deployment. Configuration Manager 2007 user migration can then perform the secure migration of user and application data to the newly deployed computer. The old computer may then be wiped, decommissioned or re-deployed to another user. This enhanced Operating System deployment capability provides more flexibility with less time required to deploy and fewer resources (such as disk space and bandwidth for image replication), reducing the cost and time to deploy new operating systems.
- **Offline with Removable media** – In this situation, a pre configured version of Windows and applications could be prepared and made available to the user for installation from a CD/DVD or USB Flash device.
- **Network Based** – PXE based network delivery of an Operating System build is also supported using Windows Deployment Services (WDS), enabling the ability to use network speeds for the build and configuration of Windows.

Ensuring Compliance

IT administrators spend an inordinate amount of time deploying and fine-tuning systems with the goal of obtaining optimal performance from each system. When critical systems (such as Exchange mail servers or SQL database servers) drift from their desired configurations, whether the configuration settings were changed by accident or malicious intent, networks are opened to potential security vulnerabilities and stability issues.

Maintaining compliance within an organization relies on the ability to keep systems configured in such a way that operating system configuration remains at a state set by an administrator, security remains intact, applications remain configured properly, and any other critical settings remain as required for optimal performance and security.

Desired Configuration Management is a new reporting addition in Configuration Manager 2007 that provides the administrator visibility into the current drift of any system against a known baseline. Using Desired Configuration Management, an administrator can set a baseline of settings for several system components such as:

- Registry and file settings
- Directories
- Applications (desired or prohibited)
- Operating System level
- Software Updates

IT organizations can incorporate best practice configuration settings, called Configuration Packs, in several ways:

- Download pre-built Configuration Packs from Microsoft or third parties that address certain compliance configurations or best practices, such as Sarbanes-Oxley and HIPAA requirements.

- Manually create custom baselines using Configuration Manager 2007.
- Import (or export) baselines to allow the sharing of customized baselines.
- Extend Configuration Item and baseline management capabilities through System Center Partner relationships.

Once IT organizations have created one or more baselines, administrators can apply the baselines to collections of servers or clients. On administrator-scheduled intervals, the baselines assigned to collections compare and report on configuration drift that may have occurred.

Configuration Drift Reporting

IT administrators can initiate reports that gather configuration drift data on the following items:

- Individual Configuration items such as an applications (ex. 'Microsoft Word 2007')
- Entire Configuration baseline (ex. 'Northwest Datacenter' baseline)
- An entire Collection of systems (ex. 'Exchange Systems')
- Targeted, individual systems (ex. 'EXCHANGE-SRV1')

This flexible reporting ensures that IT organizations can collect and report on the information they need to make decisions about their network. Optionally, an administrator can create a collection that is automatically populated and comprised of systems that have drifted from their desired configuration, creating an automated response process for high priority configuration settings.

Once Configuration Manager has discovered configuration drifts, an administrator can review the reports and decide how to remediate those discrepancies. Configuration Manager can automatically remediate non-compliant systems through a number of capabilities, Software Distribution, Software Updates, OS Deployment and Network Access Protection.

Enhanced perimeter security

Security, both within a corporate network and for roaming users, requires flexibility so that it offers the necessary level of protection without hindering access to resources. In the case of perimeter security, enforcing levels of system access typically stop at the organizational firewall. Often systems behind the corporate firewall are entrusted with almost unrestricted network access. In networks where compromised systems expose the organization to risk, better access protection is warranted.

Microsoft's Network Access Protection (NAP) takes security one step further, requiring that systems meet a minimum level of security. Failure to meet a system health validation check results in the denial of access to resources until the computer meets the defined level of system health. Health Validation using NAP ensures that systems within the firewall are just as protected and scrutinized as systems connecting from the outside.

Configuration Manager 2007 delivers out of the box integration for NAP, extending the capabilities of native NAP found in Windows Server 2008. In addition to the core NAP policy support for configurations found in Windows Security Center, Configuration Manager extends this to provide system health validation for software updates. When combined with new support for Internet-Based Client Management (IBCM), NAP deployment with Windows Server 2008 and Configuration Manager increases perimeter security and system health validation and protects network resources without affecting user experience or business productivity.

Better Mobile Device Management

SMS 2003 provided a feature pack to provide management of mobile devices. Now a default feature, Configuration Manager 2007 integrates mobile device management, to help IT organizations manage the proliferation of personal mobile devices and point-of-sale or other Windows embedded devices in their environment. Configuration Manager 2007 enhances mobile device management to include the following functionality:

- Allowing configuration of mobile device network connections
- Performing hardware and software inventory on mobile devices
- Deploying mobile applications through Configuration Manager software distribution
- Managing mobile device configuration options (such as password requirements)
- New reporting options for mobile devices

Mobile device management now provides roaming mobile users the ability to utilize network resources while offering administrators the ability to manage mobile devices with the rest of the network assets. Configuration Manger supports the following mobile devices and platforms:

- Windows Mobile for Pocket PC 2003
- Windows Mobile for Pocket PC 2003 Second Edition
- Windows Mobile for Pocket PC Phone Edition 2003
- Windows Mobile for Pocket PC Phone Edition 2003 Second Edition
- Windows Mobile Smartphone 2003
- Windows Mobile for Pocket PC 5.0
- Windows Mobile for Pocket PC Phone Edition 5.0
- Windows Mobile 5.0 Smartphone
- Windows CE 4.2 (ARM processor only)
- Windows CE 5.0 (ARM and x86 processors)
- Windows Mobile 6 Standard
- Windows Mobile 6 Professional
- Windows Mobile 6 Classic

By integrating support for mobile devices, Configuration Manager 2007 gives IT organizations a single, unified tool for managing all the devices on their network. Configuration Manager 2007 allows IT organizations to bring all the personal and corporate mobile devices under central control, reducing management costs, support calls and non-secure mobile connections to network resources.

Summary

With the increased demand for complex, highly available services, IT organizations require tools that reduce management costs and complexity while increasing IT service levels. Configuration Manager 2007 provides centralized, policy-based automation that lets IT organizations manage all the devices in their enterprise including servers, clients and mobile devices across physical, virtual and distributed systems.

By upgrading to Configuration Manager 2007, organizations get:

- Integrated Windows Server 2008* and Windows Vista support
- Simplified operating system deployment through the use of task sequences
- Integrated mobile device management
- Enhanced insight and control of their IT assets through Asset Intelligence
- Management tools to help ensure compliance with desired configuration standards

- Enhanced perimeter security (utilizing Windows 2008 Server and Network Access Protection)
*Service Pack 1 required

Configuration Manager 2007 builds on and integrates with the Microsoft platform making it the best choice for managing and deploying Windows. And, because it includes operating system and application knowledge and integrates with other Windows tools, Configuration Manager gives IT administrators flexibility and interchangeability making management more efficient and letting enterprises maximize their investment in Windows technologies.

Appendix

Configuration Manager Feature Comparison Matrix

Feature	SMS 2003	SCCM 2007
Administrative UI		
Product Install	Good	Improved, Pre-requisite checking
Drag-and-Drop	No	Yes
Multi-select	No	Yes
Actions Pane	No	Yes
Preview Pane	No	Yes
Wizards	Some	Pervasive
Homepages	No	Yes
Icons	NT 3.51-style	High Precision
Folders	Only organizational, no replication	Organizational and Search Folders; replication to child sites
Operating System Deployment		
End-to-end deployment	Yes ¹	Yes
Fully automated	No ¹	Yes
Wipe-and-load upgrade	Yes	Yes
Bare metal deployment w/PXE	Loose integration w/RIS	Built-in integration w/WDS
Side-by-side	BDD scripts	Yes, w/built-in SMP
Fully offline deployment	No ¹	Yes
Integrated Vista upgrade planning	No	Yes
Full server deployment	No	Yes
Security	Good	Much stronger
Flexibility/customizability	Good	Excellent
Vista/Windows Server 2008 compatibility	Good	Excellent ²
Device driver management	No*	Yes
Boot Image Management	No*	Yes
Task Sequencing	Basic	Excellent
Asset Management		
Asset Inventory	Good ³	Much Improved
Integration with Usage Monitoring	No	Yes
Database Updates	Service Packs	Service Packs, Online Updates
Security and Configuration Management		
Desired Configuration Management	No ⁴	Yes
Pre-Defined Configuration Packs	No	Yes
Quarantine Support (NAP integration)	No	Yes
Manage over Internet	VPN Required	No VPN Needed
Smartphone/PDA Support	When Cradled	Wireless & Over-the-Air
Patch & Update Management	Good – Add-on pack	Excellent - Integrated with WSUS 3.0

Secure network storage of user state during Operating System deployment	No	Yes
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1 – Capable with the addition of the Business Desktop Solution Accelerator

2 – Windows Server 2008 Support requires System Center Configuration Manager Service Pack 1 or greater.

3- Asset Intelligence was introduced with SMS 2003 Service Pack 3

4- Desired Configuration Monitoring is a Solution Accelerator add-on to SMS 2003