Microsoft®
System Center
Mobile Device Manager 2008

# System Center Mobile Device Manager 2008 Service Pack 1

## Security Target

**EAL4 augmented with ALC_FLR.3**

**Version 1.1**

**July 2009**

# Document History

| Version | Date | Author | Description |
|---|---|---|---|
| 1.0 | 10-Jul-09 | Doug Stuart (stratsec) | Released. |
| 1.1 | 31-Jul-09 | Doug Stuart (stratsec) | Certifier comments |

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# 1 ST introduction (ASE_INT)

## 1.1 References

**Table 1 – ST and TOE reference information**

| | |
|---|---|
| **ST Title** | System Center Mobile Device Manager 2008 Service Pack 1 Security Target |
| **ST Version** | 1.1, 31-JUL-09 |
| **TOE Reference** | System Center Mobile Device Manager 2008 Service Pack 1, which includes the following:<br>• MDM Enrollment Server (Version 1.0.4050.0)<br>• MDM Device Management Server (Version 1.4050.0)<br>• MDM Gateway Server (Version 1.0.4050.0)<br>• MDM Self Service Portal (Version 1.0.4050.0) |
| **Assurance Level** | EAL4 augmented with ALC_FLR.3 |
| **CC Identification** | Common Criteria for Information Technology (IT) Security Evaluation, Version 3.1 (Revision 2), September 2007.<br>International Standard – International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 15408:2005. |

## 1.2 TOE overview

### 1.2.1 TOE type and usage

1 The Target of Evaluation (TOE), Microsoft's System Center Mobile Device Manager (SCMDM_SP1, also referred to as MDM) 2008 with Service Pack 1, is an enterprise server solution designed to provide a secure management and monitoring solution for Windows Mobile-powered devices. SCMDM_SP1 empowers Administrators to provide a secure data and network access for their mobile workforce, while retaining a high degree of control over their mobile device usage.

2 SCMDM_SP1 provides a security management platform for Windows Mobile phones with over 130 policies and settings and built-in mechanisms that help prevent the misuse of corporate data. Administrators can lock down many areas of the Windows Mobile Smartphones and Pocket PCs, including certain communications and device functionality, application installation and execution settings and more. SCMDM_SP1 can be used to manage security on all Windows Mobile devices across the enterprise network, from an enterprise wide perspective down to individual Windows Mobile devices and users.

3 SCMDM_SP1 is a simple and comprehensive solution for distributing software to Windows Mobile devices and maintaining an inventory of devices in a complex organizational environment. SCMDM_SP1 enables cost-effective device enrollment through over-the-air (OTA) provisioning and bootstrapping and helps Administrators streamline device management through role–based administration, MMC snap-ins, and Microsoft Windows PowerShell™ cmdlets. Comprehensive reporting tools within Mobile Device Manager provide IT professionals with improved visibility of devices and helps reduce the cost and complexity of managing devices within a corporate network.

4 SCMDM_SP1 is designed to facilitate a seamless user experience across cellular or Wi-Fi data connections. The solution provides a single point for security–enhanced, behind-the-firewall access to corporate data and line of business (LOB) applications. With SCMDM_SP1, Administrators can facilitate security over public wireless networks through a Mobile virtual private network (VPN) link. The VPN link secures wireless communications between a Windows Mobile device and corporate servers through an SSL–encrypted tunnel, underpinned by an IPsec encrypted tunnel between the Windows Mobile device and MDM gateway. This double-barreled combination of IPsec and SSL encryption, both implementing mutual certificate based authentication lends a definite edge over other systems that generally use a single security barrier. With features such as fast reconnect and session persistence, Mobile VPN also helps maintain connectivity whilst reducing bandwidth overheads.

5 The introduction of Service Pack 1 extends the functionality of SCMDM_SP1 2008 to include the following:

a) **Multiple Instances.** Supports deployments where multiple points of control are required within a single forest.

b) **PIN Reset.** Allows users to request a PIN reset on their device.

c) **Enrollment Auto Discovery.** Facilitates easier self-service enrollments.

d) **Virtualization.** Provides Hyper-V testing support using Windows Server 2003 as a guest OS.

6 The TOE comprises the following server components:

a) **MDM Enrollment Server.** This server manages the requests for and retrieving of certificates for devices and for creating the Active Directory® Domain Service objects that will represent these devices.

b) **MDM Device Management Server.** MDM Device Management Server is the primary administration and management service for all managed devices. MDM Device Management Server is the functional hub for device Group Policy application, device software packages, and device data wipes. This server communicates with existing infrastructure servers, and manages the translation of information and commands between SCMDM_SP1 and managed Windows Mobile devices.

c) **MDM Gateway Server.** The MDM Gateway Server is located in the perimeter network, also known as the DMZ or screened subnet. This server provides the ingress for managed device sessions, and forwards network and device management communications between the company network and the device.

d) **MDM Self-Service Portal.** Provides an interface for users who have forgotten the password on their Windows Mobile devices to request a one-time recovery password to access the device and reset the password. If the recovery password feature in MDM Self Service Portal is enabled then users can retrieve the recovery password themselves by using the portal.

### 1.2.2 Major TOE security functions and features

7 Table 2 highlights the range of TOE security features and the functions that are included within the scope of the evaluation.

**Table 2 – TOE security functions and features**

| TOE security function | TOE security feature |
|---|---|
| **Device security management.** The TOE provides Administrators with the capability to enroll and manage Windows Mobile devices. | **Device enrollment.** The TOE provides the capability to securely enroll a Windows Mobile device to build a trust relationship. |
| | **Managing security policies.** The TOE provides the capability to configure and enforce security policy settings on managed Windows Mobile devices. |
| | **Managing device block.** The TOE provides the capability to block a managed Windows Mobile device from establishing a VPN and accessing the enterprise network. |
| | **Performing remote device wipe.** An Administrator can issue a command to wipe a managed Windows Mobile device in the event that the device may have been compromised. |
| | **PIN reset.** The TOE provides the capability for a Windows Mobile user on a managed device to request an authentication reset. |

| TOE security function | TOE security feature |
|---|---|
| **Device configuration management.** The TOE provides Administrators with the capability to review the configuration of Windows Mobile devices and distribute software to the devices. | **Software Distribution.** The TOE has the ability to distribute software packages and updates to Windows Mobile devices. |
| | **Managing device inventory.** The TOE provides the capability to view different types of current information on managed Windows Mobile devices. |
| **Mobile VPN capability.** The TOE implements standards-based communications so that Mobile Users can securely access the enterprise environment. | **Implementing IPsec capability.** The TOE implements standard IPsec ESP to provide encryption communications between itself and a managed Windows Mobile device. |
| | **Facilitating secure enterprise access.** The TOE supports mutual certificate authenticated, SSL encrypted communications between Windows Mobile devices and enterprise services and MDM administration servers. |
| | **Line of business access control.** The TOE provides Administrators with the capability to define the enterprise LOB servers that Windows Mobile devices can connect to. |
| **SCMDM_SP1 Management.** The TOE controls access so that only authorized Administrators can perform device management functions and ensures that all communication between MDM components is secure. | **Implementing role-based access control.** The TOE applies roles to authorized Administrators to control access to the range of device management functions. |
| | **Transferring data internally securely.** The TOE implements a trusted communications path between the physically separate components of the TOE. |

### 1.2.3 Supporting non-TOE components

8 The following components are required in the normal operational environment for the TOE, however, they are considered to be non-TOE components:

a) **Server operating systems and hardware.** All three SCMDM_SP1 server types require 64-bit editions of Windows Server® 2003 with Service Pack 2.

b) **Windows Mobile devices and MDM client software.** The TOE manages Windows Mobile devices, however, these devices and the MDM client software are not considered to be components of the TOE.

c) **Database server.** The services on MDM Device Management Server and MDM Enrollment Server require a backend database to manage device configuration, tasks, and status settings. These SQL databases are pivotal to configure and update managed devices, however, they are not considered to be within the scope of the TOE.

d) **Windows Software Update Server (WSUS).** MDM software distribution uses WSUS to allow for the distribution of applications to managed devices. The administrator uses MDM software distribution to create, monitor, and push application packages to managed devices.

e) **Certificate services.** The MDM client and server security model requires X.509 certificates. MDM works directly with existing Public Key Infrastructure (PKI) for client and server certificate signing.

f) **Active Directory Domain Service**: SCMDM_SP1 uses the Windows directory service to store details for Windows Mobile devices managed by SCMDM_SP1, as well as managing Group Policy settings that are applied to each managed device.

g) **LOB application servers**: Windows Mobile devices managed by SCMDM_SP1 can gain secure access to enterprise LOB application servers. This includes Exchange and custom application servers.

h) **Web publishing server**: The MDM Enrollment server is required to be visible to the Internet to allow for mobile clients to contact it to perform enrollment. The use of an intermediate web publishing server to act as a proxy between the MDM Enrollment server and the Internet is required to mitigate potential risks arising from an internal service directly exposed to the Internet.

i) **Management console**: A management console permits Administrators to interact with the TOE. SCMDM_SP1 provides a set of administration tools that when installed on a client within the company domain provides the Management console. The management console provides a graphical user interface (GUI) in addition to a command-line based Powershell interface.

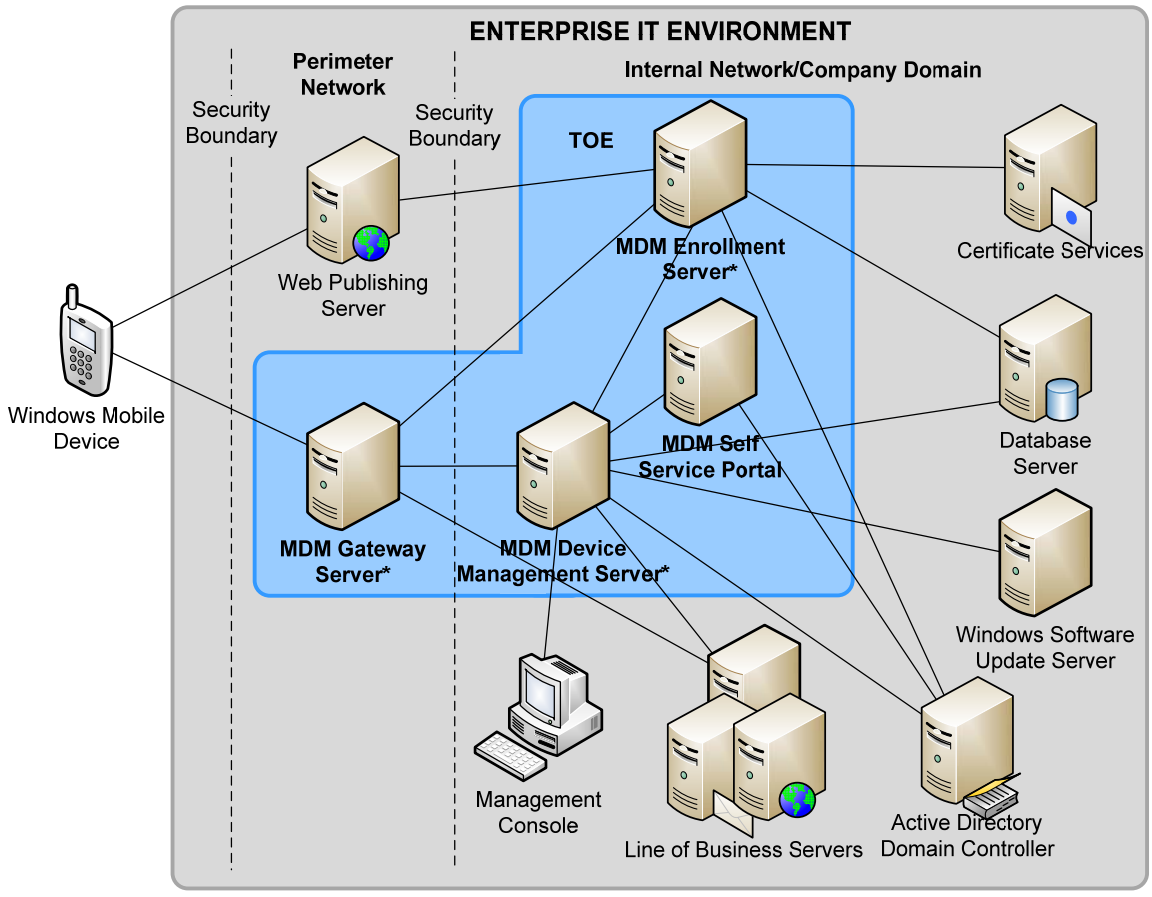
j) **Internet Information Services (IIS)**: SCMDM_SP1 uses IIS hosted web sites to provide interconnectivity between SCMDM_SP1 components, between managed Windows Mobile devices and SCMDM_SP1, and also between Administrators and SCMDM_SP1. SCMDM_SP1 requires IIS to be installed on each of the SCMDM_SP1 servers.

k) **Group Policy Management Console (GPMC) and Group Policy Extensions**: Group Policy extensions allows Administrators to manage Windows Mobile device and Mobile User settings through the GPMC.

## 1.3 TOE description

### 1.3.1 Physical scope of the TOE

9 The TOE is limited to the server components that comprise SCMDM_SP1, as detailed in the figure below.




* TOE excludes the server operating system and hardware

**Figure 1 - TOE Boundary**

#### 1.3.1.1 Managed device connectivity

10 The majority of Windows Mobile devices support two methods for connecting:

a) The cellular data network of the Mobile Operator that connects to the Internet.

b) An 802.11-based Wi-Fi connection. The Wi-Fi service could connect the device to several different types of networks.

11 Once a Windows Mobile device has successfully enrolled with SCMDM_SP1 (via the MDM Enrollment server), the device will establish connectivity with the enterprise via the Mobile VPN (connecting to the MDM Gateway server). The Windows Mobile device will connect to the enterprise using the best available Internet channel that is available at the time. If a better connection becomes available while the Mobile VPN is connected, the device will not change automatically. As an example, a device connected through Mobile VPN over a cellular connection to MDM Gateway Server continues to use the cellular connection even if a Wi-Fi connection becomes available. However, if the cellular connection becomes unavailable, the Mobile VPN transitions seamlessly to the best communication channel available.

12 The following list identifies the access connection routes for a device that have been evaluated:

a) **Cellular data connection**: This is the standard cellular mobile data service, such as General Packet Radio Service (GPRS), or Code Division Multiple Access (CDMA). Devices make these connections by using the data network of the cellular provider, and then connect to the Internet through the Mobile Operator IP network. From this point, the devices connect to the external MDM Gateway Server, where they authenticate and connect to internal resources. The Mobile Operator may provide direct, private access from the cellular mobile data service to an entry point in your company network. In this case, devices can connect over the cellular network and access the external MDM Gateway Server, where they authenticate and then connect to internal resources.

b) **Wi-Fi hotspot connection**: These connections provide a route to the Internet through a third-party owned and managed Wi-Fi connection. Wi-Fi hotspots are in many public places around the world, such as airports and coffee shops. With these connections, your devices connect to the network owned by the third party (often protected by an IEEE 802.1X password or certificate) and are routed to the Internet. From there, the device connects to the external MDM Gateway Server for authentication and connection to enterprise resources.

13 Figure 2 (below) demonstrates the above connectivity options. In both situations, it is strongly recommended that a firewall is installed and configured between the MDM Gateway Server, Web Publishing Server and internal company resources.

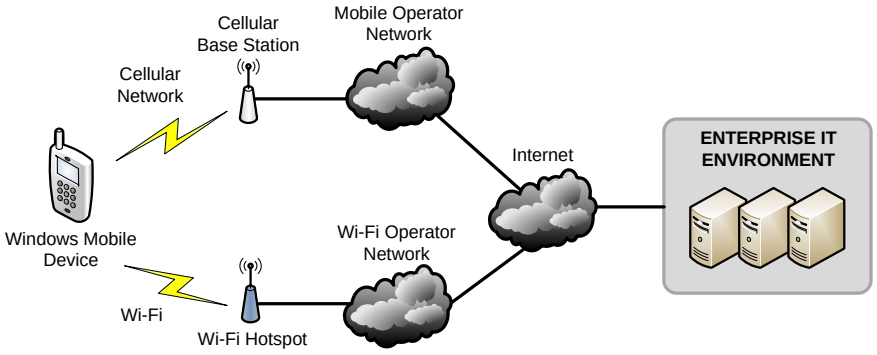



**Figure 2 - Device Connectivity**

#### 1.3.1.2 MDM Multiple Instance Functionality

14 In MDM, an instance specifies a separate, independent installation of MDM in a forest or in a domain. Microsoft System Center Mobile Device Manager (MDM) 2008 Service Pack 1 can support multiple instances in a single domain or across a forest, which provides flexibility and increased manageability for companies that deploy MDM in an enterprise-wide topology. This architecture provides a security-enhanced boundary between each MDM instance; therefore, managed devices will not have access to MDM servers in other instances.

15 The MDM multiple instance functionality is summarized by the following:

a) **Single forest, multiple instances.** MDM allows an administrator to set up one or more instances and manage the devices that are associated with each instance. Each instance runs independently from any other instance in the forest. Also, an administrator may create multiple instances within a single domain.

b) **Security-enhanced access.** An MDM Gateway Server in any geographical location will only accept traffic from managed devices that are permitted to connect to its instance. The MDM Gateway Server inspects managed device traffic and either allows or blocks the Internet Protocol security (IPsec) session based on whether the device is authorized for that particular instance.

c) **Help Desk support and management.** Help Desk administrators can manage devices and servers in one or more specific instances. Also, other MDM management roles—such as MDM server administrators, device administrators, security administrators, and device support personnel—can be restricted to manage servers and devices in one or more specific instances.

d) **Administration of an instance.** MDM IT administrators can easily detect the instance to which they are attaching in MDM Console or in MDM Shell. Their management actions are only permitted in instances for which they have the authority to manage.

16 The following illustration shows a multiple instance environment for MDM.

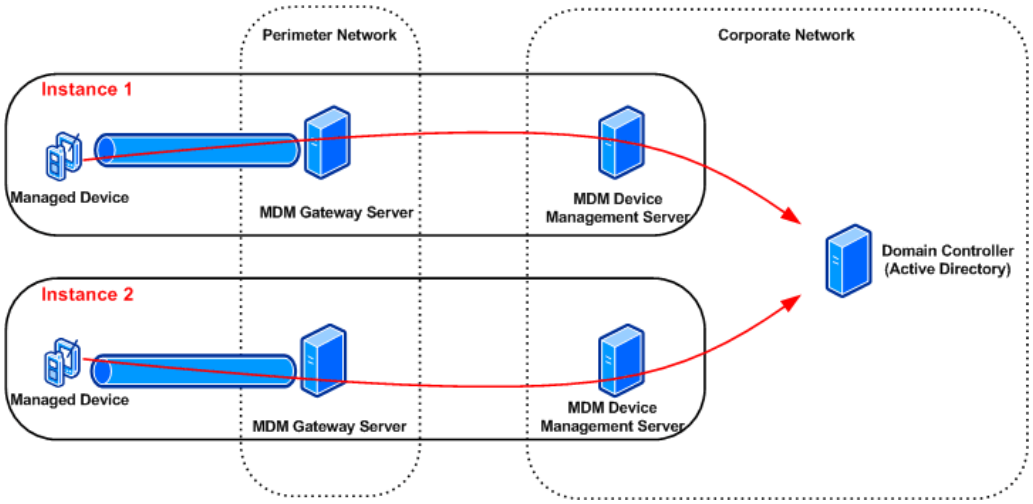



**Figure 3 – Multiple instances of MDM.**

#### 1.3.1.3 MDM Enrollment Server

17 MDM Enrollment Server provides a protected over the air (OTA) process to for devices to be enrolled with SCMDM_SP1 and the enterprise domain. Using the Enrollment Server, Windows Mobile devices are able to have a device account created in Active Directory, as well as request and receive a device certificate that is then used to authenticate the device and protect communications with the enterprise. To help protect against malicious attacks, MDM Enrollment Server uses shared-secret encryption to perform protected enrollment (an enrollment password provided to the Mobile User via an out-of-band channel). This lets users enroll their device without having to cradle it and without having physical access to the company network.

18 Regardless of the size of an organization, the enterprise requires only one MDM Enrollment Server, however can be scaled out if required. For example, if an organization has to support the concurrent enrollment of thousands of Windows Mobile devices, consider MDM Enrollment Server similar to a server that is running IIS. In this scenario, you should follow the best practices for any IIS instance, and scale MDM Enrollment Server according to the expected traffic load.

19 It is strongly recommended that a web publishing server (such as Internet Security and Acceleration Server (ISA) 2004, or any other suitable evaluated product) is used to proxy all communications between Windows Mobile devices and the MDM Enrollment server.

#### 1.3.1.4 MDM Gateway Server

20 The MDM Gateway Server is the pivotal access point for managed devices. Typically, this server is installed in the perimeter network of the enterprise. MDM Gateway Server is a stand-alone gateway that faces the Internet from inside the perimeter network. Typically, it is not domain-joined and shares no accounts or passwords with the internal company domain. It does not directly use Active Directory Domain Service, NTLM, or Kerberos access to authenticate devices because these would require MDM Gateway Server to be domain-joined or to store domain credentials.

21 MDM Gateway Server authenticates incoming connection requests by using an offline certificate evaluation process that queries the device machine certificate.

22 The MDM Gateway Server provides a network access point for managed Windows Mobile devices through the implementation of the Mobile VPN. Mobile VPN implements ‘double envelope’ security by allowing SSL secured communications between the Windows Mobile device and enterprise server underpinned by an IPsec encrypted tunnel between the Windows Mobile device and MDM Gateway Server. The IPsec secured tunnel operates in ESP mode, authenticated (using mutual certificate authentication) and encrypted traffic between the device and gateway.

23 MDM Gateway Server has the following characteristics:

a) It stands alone, facing the Internet from inside the perimeter network and outside the company network firewall.

b) It cannot initiate connections into the company network; instead it can only receive connections from inside the company network. Specifically, MDM Gateway Server can only receive connections from the GCM service on MDM Device Management Server.

c) It authenticates incoming connection requests from Windows Mobile devices by checking the device certificate validity against the trusted certification authority

chain. It blocks incoming connections if the device ID is in the blocked-device list configured by the administrator.

#### 1.3.1.5 MDM Device Management Server

24 The MDM Device Management Server is the device management interface between management systems on the company network, such as Active Directory and Windows Update Server (WSUS) 3.0 SP1, and managed Windows Mobile devices. It enables support for policy-based configuration management, software distribution, asset management, and device wipe. Administrators can manage Windows Mobile devices in a manner similar to the way they manage portable and desktop computers within the company.

25 Communication between MDM Device Management Server and a managed device complies with the Open Mobile Alliance (OMA) Device Management (DM) protocol. MDM Device Management Server translates device management tasks, submitted by management systems on the company network, into OMA DM commands. MDM Device Management Server sends the commands to the managed device during the next scheduled connection interval of the device. The managed device returns response messages that contain the results and any requested status information.

#### 1.3.1.6 MDM Self-Service Portal

26 The MDM Self Service Portal is a web-based interface that lets users manage their Windows Mobile powered devices. By using MDM Self Service Portal, based on system administrator settings, a user can enroll a device, monitor enrollment status, and wipe a device that they no longer want or that is no longer in their possession. The portal also provides the capability for the user to retrieve an authentication reset PIN.

### 1.3.2 Logical scope of the TOE

#### 1.3.2.1 MDM Gateway Server

27 As illustrated in Figure 4, the following components comprise the MDM Gateway Server and are part of the TOE:

a) **MDM VPN agent**: The MDM VPN agent is an IIS hosted web service that accepts configuration information, including block lists from the MDM Device Management Server. The MDM Gateway Server can only receive connections from inside the company network and does not initiate connections into the internal network.

b) **IPsec policy engine**: The IPsec policy engine establishes and manages the IPsec tunnel with a managed device. The policy engine works with the Mobile VPN network driver interface specification (NDIS) IPsec Intermediate (IM) drivers to establish authenticated and encrypted communications over the Mobile Operator network or a public Wi-Fi network.

c) **Alerter service**: The Alerter service is an IIS hosted web service that receives alerts from MDM Device Management Server for urgent commands, such as a managed device wipe. The Alerter service verifies that the managed device is connected to the network. If the managed device is connected to the network, the Alerter agent contacts the managed device immediately to issue the required commands. If the device is not connected, the Alerter agent caches the alert requests and contacts the device immediately after it connects.

d) **Mobile VPN Driver**: The Mobile VPN (NDIS IPsec IM) driver manages network communications with the managed device. It checks that data coming from the managed device is valid, encrypted and authenticated, and that the device has a

valid IPsec Security Association. The NDIS IM driver performs data transformation, filters packets, and forwards packets.

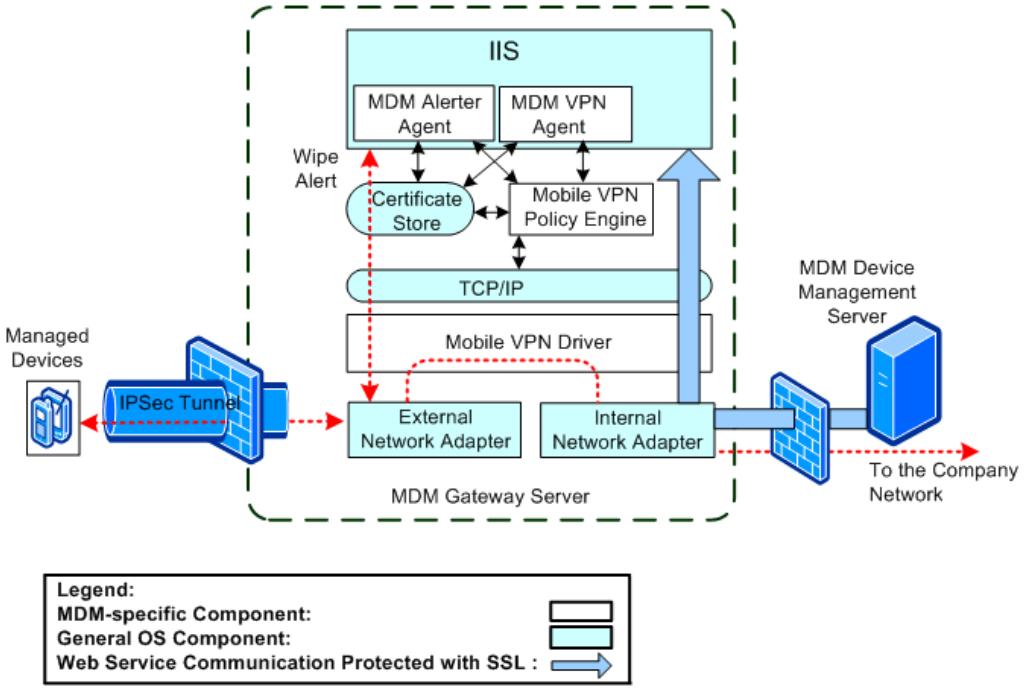



**Figure 4 – Components of the MDM Gateway Server**

### 1.3.2.2 MDM Enrollment Server

28 As illustrated in Figure 5, the following components comprise the MDM Enrollment Server:

a) **MDM Administration service**: This collection of (IIS hosted) web services is functionally similar to the administration services on MDM Device Management Server and comprises a set of services that operate within the context of an IIS web service and like the Device Manager equivalent, accepts commands issued as cmdlets via Powershell as well as commands from components operating on the MDM Device Management server. Because the Enrollment Web service uses TCP port 443, the default administration web site port is 8445.

b) **Enrollment Web service**: Internet Information Services (IIS) hosts this web service that manages incoming requests from Windows Mobile devices to enroll in the managed infrastructure. After the Enrollment Web service receives a request, the service manages communications with the Windows Mobile device until it becomes a domain-joined managed device. Once enrolled, the MDM Gateway Server handles all communications between the Windows Mobile device and the enterprise.

c) **Enrollment service**: The Enrollment service exists as a NT managed service (also referred to as a Windows service) to perform operations by the Enrollment server that require increased privileges within the enterprise environment. These operations include requesting and obtaining certificates on behalf of Windows Mobile devices from the enterprise certificate authority, as well as creating and deleting Windows Mobile device accounts within Active Directory.

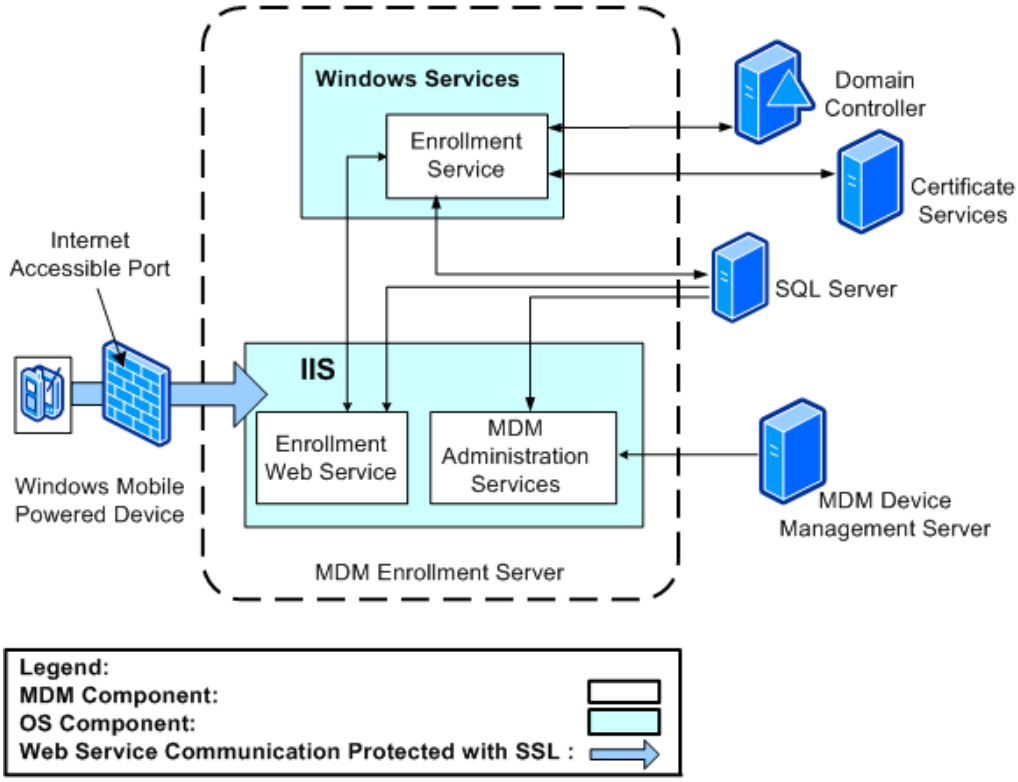



**Figure 5 – Components of the MDM Enrollment Server**

#### 1.3.2.3 MDM Device Management Server

29 As illustrated in Figure 6, the following components comprise the MDM Device Management Server:

a) **MDM Administration service.** Operates as an IIS hosted web service that processes requests from the MDM management console and other MDM components. All calls to the MDM Administration Service undergo authentication and authorization checks before administration tasks are performed.

b) **OMA Service.** The OMA service converts all tasks and commands issued by SCMDM_SP1 components (via the central database) into OMA DM compliant commands and then issues them to the device for execution. Once the device has executed the request, a response is sent back to the OMA service which updates the central database accordingly.

c) **MDM Software Distribution service.** Manages and distributes software to managed devices. This service works with the WSUS instance to distribute software for installation to Windows Mobile device clients.

d) **MDM Active Directory Group Policy service.** Retrieves Group Policy information from Active Directory and calculates the Resultant Set of Policy (RSoP) for managed devices.

e) **MDM Remote Wipe service.** Issues remote wipe commands to delete the contents of a managed device when it is lost, stolen, or for re-provisioning purposes.

f) **MDM Gateway Central Management (GCM).** Sends configuration, alerts and device block list information to the MDM Gateway Server. The GCM is the only Device Manager component that communicates with the Gateway Server.

g) **MDM PIN reset service.** The MDM Device Management Server also provides a PIN reset drover to communicate with the MDM Self Service Portal and enable the capability for authentication reset for Mobile Users.

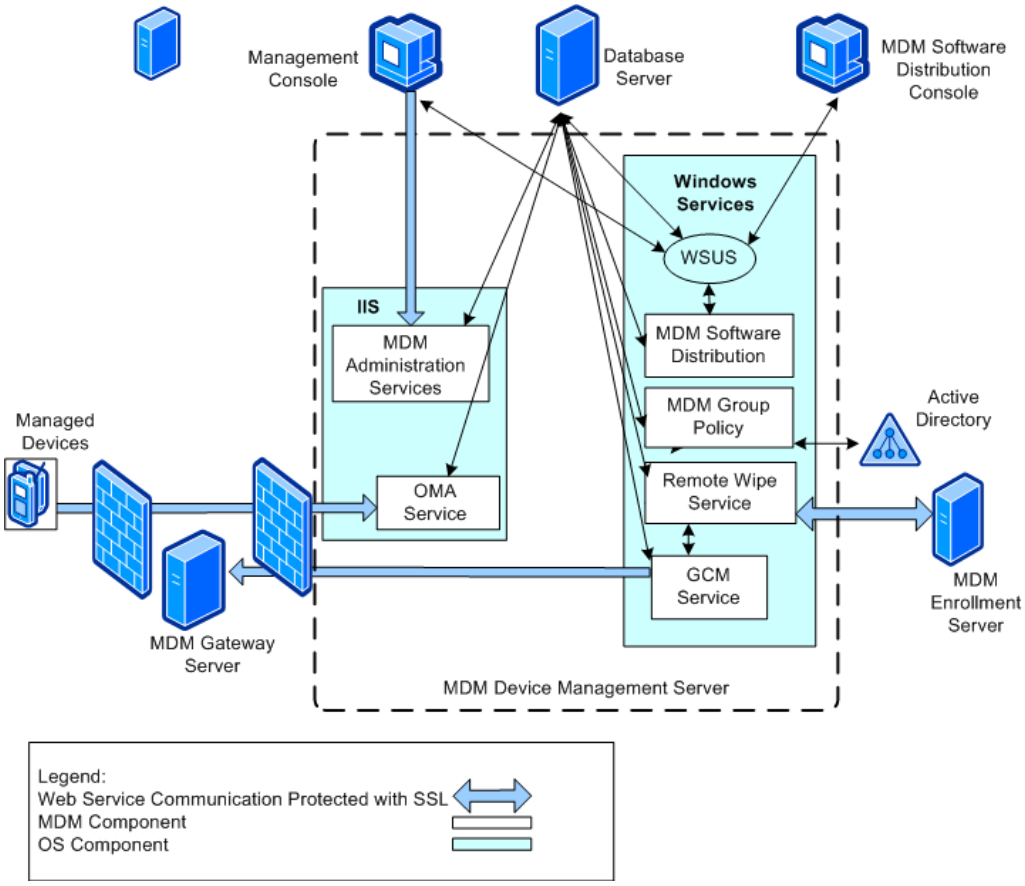



**Figure 6 – Components of the MDM Device Management Server**

### 1.3.2.4 MDM Self-Service Portal

30 As illustrated in Figure 7, the following components comprise the MDM Self-Service Portal:

a) **Integrated Windows Authentication.** MDM Self Service Portal uses Windows Integrated Authentication in Internet Information Services (IIS) to help provide strong user authentication. Windows Integrated Authentication results in either NTLM or Kerberos authentication and is dependent on the client and server computer configurations.

b) **User Self Service Portal ASP Application.** ASP.NET pages provide the web site user interface (UI) on the computer on which you install MDM Self Service Portal. IIS authenticates the user based on the Windows domain credentials for that user. Administrators can manage the Web site functionality and services by using the Portal Administration page.

c) **MDM Shell and Cmdlets.** Mobile Device Manager (MDM) Shell, built on Microsoft® Windows® PowerShell technology, provides a command-line interface that enables Automation of administrative tasks by using cmdlets (pronounced "command-lets") and scripts.

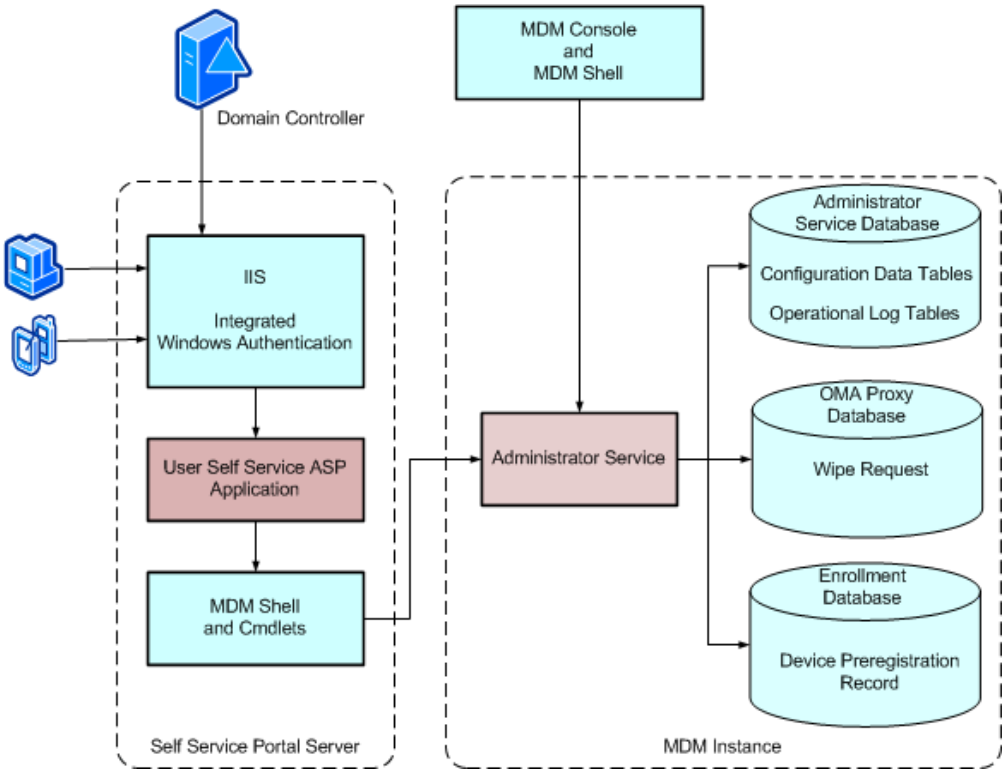



**Figure 7 – Components of the MDM Self Service Portal**

# 2 Conformance claim (ASE_CCL)

## 2.1 CC conformance claims

31 The ST and TOE are conformant to version 3.1 (Revision 2) of the Common Criteria for Information Technology Security Evaluation.

32 CC conformance claims include the following:

a) **Part 2 conformant.** Conformant with the Common Criteria for Information Technology Security Evaluation Part 2: Security functional requirements, Version 3.1 (Revision 2), September 2007, CCMB-2007-09-002.

b) **Part 3 conformant, EAL4 augmented.** Conformant with Common Criteria for Information Technology Security Evaluation Part 3: Security assurance requirements, Version 3.1 (Revision 2), September 2007, CCMB-2007-09-003. Evaluation is EAL4 augmented with ALC_FLR.3.

# 3 Security problem definition (ASE_SPD)

## 3.1 Overview

33 This section describes the nature of the security problem that the TOE is designed to address. The security problem is described through any threats to the assets that the TOE will be providing protection, relevant organizational security policies, and any assumptions about security aspects of the operational environment.

## 3.2 Threats

**Table 3 – Threats**

| Identifier | Threat statement |
|---|---|
| T.ENROLLMENT | An attacker may enroll as a managed Windows Mobile device to establish an enterprise trust relationship, allowing unauthorized access to enterprise applications, data and services. |
| T.ENT_ACCESS | An attacker may gain physical access to a managed Windows Mobile device and use the established trust relationship to gain access to enterprise applications, data and services. |
| T.DEVICE_CONFIG | An attacker may gain physical access to a managed Windows Mobile device and gain unauthorized access to locally stored user data. |
| T.DEVICE_ACCESS | An attacker may gain physical access to an unlocked managed Windows Mobile device and gain unauthorized access to locally stored user data. |
| T.DEVICE_MAINTAIN | A Mobile User may locally configure a managed Windows Mobile device that weakens the security posture of the device potentially enabling an attacker (who obtains the device) to access locally stored user data and/or use the established trust relationship to access TOE facilitated enterprise applications, data and services. |
| T.APP_INSTALL&EXECUTE | A Mobile User may install and execute malicious code on a managed Windows Mobile device, resulting in the compromise of the device and potential compromise of TOE facilitated enterprise applications, data and services. |
| T.DEVICE_STATUS | An Administrator may be unable to determine the current configuration and status of a managed Windows Mobile device, introducing uncertainty as to whether the Windows Mobile device is compliant with enterprise security policies. This potential non-compliance may be exploited by an attacker to gain unauthorized access to the Windows Mobile device. |
| T.DEVICE_TRUST | An attacker may masquerade as a managed Windows Mobile device and access enterprise applications, data and services facilitated by the TOE. |

| Identifier | Threat statement |
|---|---|
| T.COMMS_PERIM | An attacker may compromise the confidentiality or integrity of SCMDM_SP1 configuration, commands or user or enterprise data being transmitted between the Windows Mobile device and the enterprise by monitoring or altering communications traffic. |
| T.CTRL_ACCESS | An Administrator may perform unauthorized tasks associated with managing Windows Mobile devices. |
| T.COMMS_TOE | An attacker may masquerade as one of the physically detached components of the TOE and attempt to compromise the integrity of TSF, using the access to perform unauthorized device management tasks. |

## 3.3 Organization Security Policies

**Table 4 – Organization Security Policies**

| Identifier | OSP statement |
|---|---|
| P.SELF_SERVICE | Enterprise users of Windows Mobile devices must be capable of performing self management of device authentication in a secure manner. |

## 3.4 Assumptions

**Table 5 – Assumptions**

| Identifier | Assumption statement |
|---|---|
| A.IT_AUTH | The IT environment will provide a mechanism for authenticating Mobile Users when accessing enterprise applications, data and services. |
| A.IT_CERT | The IT environment will provide certificate services for the TOE and line of business servers to support certificate provisioning and secure channel establishment with managed Windows Mobile devices. |
| A.IT_CHANNEL | The IT environment will provide the client-side of a secure channel between the MDM Gateway Server and the managed Windows Mobile device. |
| A.ENTERPRISE | The MDM Device Management Server, MDM Enrollment Server, Domain Controller, Database Server, Certificate Services, Windows Server Updates Services and Administration Console are located within the enterprise boundary (company domain) and are protected from unauthorized logical and physical access. |

| Identifier | Assumption statement |
|---|---|
| A.PERIMETER | The MDM Gateway Server and Web Publishing Server are located within the perimeter network and are protected from unauthorized physical access. These servers are also protected from unauthorized logical access, however are considered more prone to compromise than servers that reside within the company domain (as assumed in A.ENTERPRISE) as they reside in a perimeter environment that is exposed to the Internet. |
| A.ADMIN | Administrators are not careless, willfully negligent, or hostile, and will follow and abide by the instructions provided by administrator documentation. |

# 4 Security objectives (ASE_OBJ)

## 4.1 Overview

34 The security objectives are concise statements of the TOE's response to the security problem. Some objectives are to be achieved through the security functionality of the TOE and some elements of the problem will be addressed through the establishment of a secure environment in which the TOE must operate.

## 4.2 Security objectives for the TOE

**Table 6 – Security objectives for the TOE**

| Identifier | Objective statement |
|---|---|
| O.ENROLLMENT | The TOE shall provide the capability for securely enrolling a Windows Mobile device and associating a Mobile User with that device. |
| O.ENT_ACCESS | The TOE shall provide the capability for blocking managed Windows Mobile devices that may be considered compromised or lost. |
| O.DEVICE_CONFIG | The TOE shall provide the capability for configuring security related settings for Windows Mobile devices. |
| O.DEVICE_ACCESS | The TOE shall provide the capability for issuing a command to a managed Windows Mobile device so that the device performs a hard-reset and makes all user data inaccessible. |
| O.DEVICE_MAINTAIN | The TOE shall restrict the ability for Mobile Users to modify security related configuration settings. |
| O.APP_INSTALL&EXECUTE | The TOE shall provide the capability of blocking the installation and execution of applications or executable code on managed Windows Mobile devices. |
| O.DEVICE_STATUS | The TOE shall provide the Administrator with the capability to determine the current configuration status of a managed Windows Mobile device. |
| O.DEVICE_TRUST | The TOE shall provide the capability to securely authenticate managed Windows Mobile devices, and only once authenticated, permit data exchange. |
| O.COMMS_PERIM | The TOE shall provide the capability for establishing a secure communications channel between itself and a managed Windows Mobile device. |
| O.CTRL_ACCESS | The TOE shall provide the capability for controlling access of Administrators to specific device management tasks depending on their allocated role. |

| Identifier | Objective statement |
|---|---|
| O.COMMS_TOE | The TOE shall provide the capability for establishing a trusted communications path between physically separate TOE components. |
| O.SELF_SERVICE | The TOE shall provide enterprise users of Windows Mobile devices with the capability of resetting device authentication only after they have successfully authenticated within their enterprise environment. |

## 4.3 Security objectives for the operational environment

**Table 7 – Security objectives for the operational environment**

| Identifier | Objective statement |
|---|---|
| OE.IT_AUTH | The IT environment must provide a mechanism for authenticating Mobile Users when accessing enterprise applications and services. |
| OE.IT_CERT | The IT environment must provide certificate services for the TOE to support secure channel establishment with managed Windows Mobile devices. |
| OE.CHANNEL | The operational environment must provide the server-side of a secure channel between the MDM Gateway Server and a managed Windows Mobile device. |
| OE.PERIMETER | The Administrator shall ensure that the MDM Gateway Server is located within a DMZ network and is protected from unauthorized logical and physical access. |
| OE.ENTERPRISE | The Administrator shall ensure that the MDM Device Management Server, MDM Enrollment Server, Domain Controller, Database Server, Certificate Services, Windows Server Updates Services and Administration Console are all located within the enterprise boundary and are protected from unauthorized logical and physical access. |
| OE.ADMIN | The Administrator shall not be careless, willfully negligent, or hostile, and shall follow and abide by the instructions provided by the administrator documentation. |

## 4.4 Security objectives rationale

### 4.4.1 Security objectives for the TOE

**Table 8 – Mapping of TOE security objectives to threats and OSPs**

| Threats and Policies | Objective | Justification |
|---|---|---|
| T.ENROLLMENT | O.ENROLLMENT | This objective addresses the threat of an unauthorized enrollment by a Windows Mobile device by implementing mechanisms that provide an authenticated and secure enrollment process. |
| T.ENT_ACCESS | O.ENT_ACCESS | This objective addresses the threat of an attacker gaining access to enterprise resources through a compromised Windows Mobile device by implementing a mechanism to block compromised devices. |
| T.DEVICE_CONFIG | O.DEVICE_CONFIG | This objective addresses the threat of an attacker gaining access to information stored on the Windows Mobile device by protecting the device with security mechanisms configured by an Administrator using the TOE. |
| T.DEVICE_ACCESS | O.DEVICE_ACCESS | This objective addresses the threat of an attacker gaining access stored locally on a Windows Mobile device by being able to issue a remote command to wipe all locally stored data. |
| T.DEVICE_MAINTAIN | O.DEVICE_MAINTAIN | This objective addresses the threat of a Mobile User configuring a device insecurely by being able to restrict the ability for a Mobile User to modify security related settings. |
| T.APP_INSTALL& EXECUTE | O.APP_INSTALL& EXECUTE | This objective addresses the threat of a Mobile User installing and executing unauthorized applications and software by implementing an application control capability that can be applied to a managed Windows Mobile device. |
| T.DEVICE_STATUS | O.DEVICE_STATUS | This objective addresses the threat of an administrator not being able to confirm current device status by implementing a capability for reviewing Windows Mobile device inventory data. |

| Threats and Policies | Objective | Justification |
|---|---|---|
| T.DEVICE_TRUST | O.DEVICE_TRUST | This objective addresses the threat of an attacker masquerading as a managed Windows Mobile device by implementing a trusted communications channel between the managed device and the TOE. |
| T.COMMS_ENT | O.COMMS_ENT | This objective addresses the threat of SCMDM_SP1, user or enterprise data being compromised when being communicated between a managed device and the TOE by implementing a Mobile VPN solution. |
| T.CTRL_ACCESS | O.CTRL_ACCESS | This objective addresses the threat of an authorized administrator performing unauthorized management tasks provided by the TOE by implementing role-based access control mechanisms. |
| T.COMMS_TOE | O.COMMS_TOE | This objective addresses the threat of communications between physically separate parts of the TOE being compromised or a device/system masquerading as a component of the TOE by implementing authenticated and encrypted communications channels. |
| T.COMMS_PERIM | O.COMMS_PERIM | This objective addresses the threat of an attacker attempting to monitor or alter communications traffic by establishing a secure communications channel between itself and a managed Windows Mobile device. |
| P.SELF_SERVICE | O.SELF_SERVICE | This objective addresses the organization security policy that requires authorized user of Mobile Devices to be capable of resetting device authentication data in a secure manner without the involvement of the enterprise. |

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### 4.4.2 Security objectives for the operational environment

**Table 9 – Mapping of security objectives for the operational environment**

| Assumptions | Objectives | Justification |
|---|---|---|
| A.IT_AUTH | OE.IT_AUTH | This objective for the IT environment upholds the assumption that the environment will provide authentication mechanisms for Mobile Users accessing enterprise resources. |
| A.IT_CERT | OE.IT_CERT | This objective for the IT environment upholds the assumption that the environment will provide certificate services to support the establishment of authenticated and secure communications between the Windows Mobile devices, the TOE and line of business servers. |
| A.IT_CHANNEL | OE.IT_CHANNEL | This objective for the IT environment upholds the assumption that the environment will provide the client-side of a secure channel. |
| A.PERIMETER | OE.PERIMETER | This objective for the operational environment upholds the assumption that the components of the TOE that are required to interface directly with managed Windows Mobile devices are physically protected and located within the perimeter network boundary. |
| A.ENTERPRISE | OE.ENTERPRISE | This objective for the operational environment upholds the assumption that the components of the TOE are physically protected and located within the enterprise network boundary. |
| A.ADMIN | OE.ADMIN | This objective for the operational environment upholds the assumption that administration personnel can be trusted. |

# 5 Security requirements

## 5.1 Overview

36 This section defines the security requirements satisfied by the TOE. Each requirement has been extracted from version 3.1 of the Common Criteria, part 2 providing functional requirements and part 3 providing assurance requirements.

37 Table 10 describes the approved operations for SFRs and the document conventions that are used within this ST to depict their application:

**Table 10 – Operations on security requirements**

| Operation | Description |
|---|---|
| Assignment | The assignment operation provides the ability to specify an identified parameter within a requirement. Assignments are depicted using bolded text and are surrounded by square brackets as follows [**assignment**]. |
| Selection | The selection operation allows the specification of one or more items from a list. Selections are depicted using bold italics text and are surrounded by square brackets as follows [***selection***]. |
| Refinement | The refinement operation allows the addition of extra detail to a requirement. Refinements are indicated using bolded text, for **additions**, and strike-through, for ~~deletions~~. |
| Iteration | The iteration operation allows a component to be used more than once with varying operations. Iterations are depicted by placing a letter at the end of the component identifier as follows FDP_IFF.1a and FDP_IFF.1b. |

## 5.2 Security functional requirements

### 5.2.1 Overview

38 This section contains the security functional components from part 2 of the Common Criteria with the operations completed. Table 11 provides a summary of the security functional requirements selected for the TOE.

**Table 11 – Summary of TOE Security Functional Requirements**

| Identifier | Title |
|---|---|
| FIA_ATD.1 | User attribute definition |
| FIA_SOS.2 | TSF generation of secrets |
| FIA_UID.2 | User identification before any action |
| FIA_UAU.2 | User authentication before any action |

| Identifier | Title |
|---|---|
| FIA_UAU.4 | Single-use authentication mechanisms |
| FDP_IFC.1 | Subset information flow control (Device Block SFP) |
| FDP_IFF.1 | Simple security attributes (Device Block SFP) |
| FMT_MSA.3 | Static attribute initialisation (Device Block SFP) |
| FMT_MSA.1a | Management of security attributes (Device Block SFP) |
| FMT_MSA.1b | Management of security attributes (Device Block SFP) |
| FTA_TSE.1 | TOE session establishment (Device block) |
| FTP_ITC.1 | Inter-TSF trusted channel |
| FPT_TDC.1 | Inter-TSF basic TSF data consistency |
| FPT_ITC.1 | Inter-TSF confidentiality during transmission |
| FPT_ITI.1 | Inter-TSF detection of modification |
| FMT_SMR.1 | Security roles |
| FPT_ITT.2 | TSF data transfer separation |
| FMT_SMF.1 | Specification of management functions |
| FMT_MOF.1a | Management of security functions behaviour (Role Management) |
| FMT_MOF.1b | Management of security functions behaviour (Mobile VPN) |
| FMT_MOF.1c | Management of security functions behaviour (Device Management) |
| FMT_MOF.1d | Management of security functions behaviour (Device Inventory) |
| FMT_MOF.1e | Management of security functions behaviour (Recovery PIN) |
| FMT_MOF.1f | Management of security functions behaviour (Self Service) |

### 5.2.2 FIA_ATD.1 User attribute definition

| | |
|---|---|
| **Hierarchical to:** | No components. |
| **FIA_ATD.1.1** | The TSF shall maintain the following list of security attributes belonging to individual **Mobile User**s: [<br>**a) Enrollment Identifier,**<br>**b) Enrollment Password,**<br>**c) MDM Enrollment Server URL,**<br>**d) Device Name,**<br>**e) Organizational Unit, and**<br>**f) Mobile User Identifier**]. |
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.3 FIA_SOS.2 – TSF generation of secrets

| | |
|---|---|
| **Hierarchical to:** | None. |
| **FIA_SOS.2.1** | The TSF shall provide a mechanism to generate secrets that meet [<br>**a) contains both alpha and numeric characters, and**<br>**b) has 8 characters**]. |
| **FIA_SOS.2.2** | The TSF shall be able to enforce the use of TSF generated secrets for [**Mobile Device Enrollment**]. |
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.4 FIA_UID.2 – User identification before any action

| | |
|---|---|
| **Hierarchical to:** | FIA_UID.1 Timing of identification. |
| **FIA_UID.2.1** | The TSF shall require each user to be successfully identified before allowing any other TSF-mediated actions on behalf of the user. |
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.5 FIA_UAU.2 – User authentication before any action

| | |
|---|---|
| **Hierarchical to:** | FIA_UAU.1 Timing of authentication |
| **FIA_UAU.2.1** | The TSF shall require each user to be successfully authenticated before allowing any other TSF-mediated actions on behalf of that user. |
| **Dependencies:** | FIA_UID.2 User identification before any action<br>(Used in place of FIA_UID.1) |
| **Notes:** | The TOE performs Mobile User authentication during enrollment through the use of the password created by the administrator during pre-enrollment.<br>The operational environment performs authentication for administrators, however the TOE ensures that the administrator is authorized (through checking the administrator's membership of the correct domain group associated with the administrative role) |

### 5.2.6 FIA_UAU.4 – Single-use authentication mechanisms

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FIA_UAU.4.1** | The TSF shall prevent reuse of authentication data related to [**Mobile Device Enrollment**]. |
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.7 FDP_IFC.1 Subset information flow control (Device Block SFP)

| | |
|---|---|
| **Hierarchical to:** | No other components |
| **FDP_IFC.1.1** | The TSF shall enforce the [**Device Block SFP**] on [<br>**a) Subject:**<br>**i. Mobile Device.**<br>**b) Information:**<br>**i. Enterprise Data.**<br>**c) Operation:**<br>**i. Access Enterprise Data**]. |
| **Dependencies:** | FDP_IFF.1 Simple security attributes |
| **Notes:** | None. |

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### 5.2.8 FDP_IFF.1 Simple security attributes (Device Block SFP)

| | |
|---|---|
| **Hierarchical to:** | None. |
| **FDP_IFF.1.1** | The TSF shall enforce the [**Device Block SFP**] based on the following types of subject and information security attributes: [<br>**a) Subject:**<br>**i. Mobile Device**<br>**a. Device ID**<br>**b) Information:**<br>**i. Enterprise Data.** |
| **FDP_IFF.1.2** | The TSF shall permit an information flow between a controlled subject and controlled information via a controlled operation if the following rules hold: [<br>**a) the mobile device is managed by the TOE and has been successfully enrolled,**<br>**b) the mobile device has been authenticated and a Mobile VPN established with the MDM Gateway Server,** |
| **FDP_IFF.1.3** | The TSF shall enforce the **additional Device Block SFP rules** [**None**]. |
| **FDP_IFF.1.4** | The TSF shall explicitly authorise an information flow based on the following rules: [**None**]. |
| **FDP_IFF.1.5** | The TSF shall explicitly deny an information flow based on the following rules: [<br>**a) If the Device Identifier is contained within the Device Block list then the managed device will not be permitted to establish a Mobile VPN session and all information flow to the enterprise will be denied**]. |
| **Dependencies:** | FDP_IFC.1 Subset information flow control<br>FMT_MSA.3 Static attribute initialisation |
| **Notes:** | None. |

### 5.2.9 FMT_MSA.3 Static attribute behaviour (Device Block SFP)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MSA.3.1** | The TSF shall enforce the [**Device Block SFP**] to provide [***permissive***] default values for security attributes that are used to enforce the SFP. |
| **FMT_MSA.3.2** | The TSF shall allow the [**no roles**] to specify alternative initial values to override the default values when an object or information is created. |
| **Dependencies:** | FMT_MSA.1 Management of security attributes<br>FMT_SMR.1 Security roles |
| **Notes:** | None. |

### 5.2.10 FMT_MSA.1a Management of security attributes (Device Block SFP)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MSA.1a.1** | The TSF shall enforce the [**Device Block SFP**] to restrict the ability to [***modify***] the security attributes [**the Device Identifiers (contained within the Device Blocklist)**] to [**the Device Administrator or Device Support roles**]. |
| **Dependencies:** | [FDP_ACC.1 Subset access control, or<br>FDP_IFC.1 Subset information flow control]<br>FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions |
| **Notes:** | None. |

### 5.2.11 FMT_MSA.1b Management of security attributes (Device Block SFP)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MSA.1b.1** | The TSF shall enforce the [**Device Block SFP**] to restrict the ability to [***query***] the security attributes [**the Device Identifiers (contained within the Device Blocklist)**] to [**the Server Administrator, Device Administrator, Device Support, or Helpdesk Operator roles**]. |
| **Dependencies:** | [FDP_ACC.1 Subset access control, or<br>FDP_IFC.1 Subset information flow control]<br>FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions |
| **Notes:** | None. |

### 5.2.12 FTA_TSE.1 – TOE session establishment (Device block)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FTA_TSE.1.1** | The TSF shall be able to deny session establishment based on [**the device ID existing on the Blocked Device List**]. |
| **Dependencies:** | No dependencies. |
| **Notes:** | The Administrator can prevent a compromised managed Windows Mobile device from establishing a connection through the MDM Gateway Server by blocking the device. A device is blocked when it is added to the blocked device list. |

### 5.2.13 FTP_ITC.1 – Inter-TSF trusted channel

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FTP_ITC.1.1** | The TSF shall provide a communication channel between itself and ~~another~~ **a remote** trusted IT product that is logically distinct from other communication channels and provides assured identification of its end points and protection of the channel data from modification or disclosure. |
| **FTP_ITC.1.2** | The TSF shall permit [***the remote trusted IT product***] to initiate communication via the trusted channel. |
| **FTP_ITC.1.3** | The TSF shall initiate communication via the trusted channel for [<br>**a) establishing or maintaining Mobile VPN capability,**<br>**b) requesting device inventory data,**<br>**c) sending device security policy,**<br>**d) sending device configuration data, and**<br>**e) sending the current application control data,**<br>**f) issuing a remote wipe command,**<br>**g) distributing software and updates**<br>**h) retrieving the reset PIN**]. |
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.14 FPT_TDC.1 – Inter-TSF basic TSF data consistency

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FPT_TDC.1.1** | The TSF shall provide the capability to consistently interpret [<br>**a) device inventory data,**<br>**b) device security policy,**<br>**c) device configuration data,**<br>**d) the remote wipe command, and**<br>**e) software distribution data**]<br>when shared between the TSF and another trusted IT product. |
| **FPT_TDC.1.2** | The TSF shall use [**SyncML Device Management Protocol, Version 1.1.2 Approved Version 12-Dec-03, Open Mobile Alliance**] when interpreting the TSF data from another trusted IT product. |
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.15 FPT_ITC.1 – Inter-TSF confidentiality during transmission

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FPT_ITC.1.1** | The TSF shall protect all TSF data transmitted from the TSF to another trusted IT product from unauthorised disclosure during transmission. |
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.16 FPT_ITI.1 – Inter-TSF detection of modification

| | |
|---|---|
| **Hierarchical to:** | Not other component. |
| **FPT_ITI.1.1** | The TSF shall provide the capability to detect modification of all TSF data during transmission between the TSF and another trusted IT product within the following metric: [**SHA-2, as specified by Federal Information Processing Standard (FIPS) Publication 180-1, "Secure Hash Algorithm", August 2002**]. |
| **FPT_ITI.1.2** | The TSF shall provide the capability to verify the integrity of all TSF data transmitted between the TSF and another trusted IT product and ~~perform~~ [**ignore the TSF data, and request the originating trusted product to send the TSF data again**] if modifications are detected. |

| | |
|---|---|
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.17 FMT_SMR.1 – Security roles

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_SMR.1.1** | The TSF shall maintain the roles [<br>**a) Device Administrator (DeviceAdministrators),**<br>**b) Device Support (DeviceSupport),**<br>**c) Helpdesk Operator (HelpdeskOperator),**<br>**d) Server Administrator (ServerAdministrators),**<br>**e) Enrollment Servers (EnrollmentServers),**<br>**f) Device Management Servers (DeviceManagementServices)**<br>**g) Instance Authorized Users (InstanceAuthorizedUsers),**<br>**h) Self Service Servers (SelfServiceServers),**<br>**i) Managed Devices (ManagedDevices),**<br>**j) Security Administrator (SecurityAdmins), and**<br>**k) Read Only Users (ReadOnlyUsers)].** |
| **FMT_SMR.1.2** | The TSF shall be able to associate users with roles. |
| **Dependencies:** | FIA_UID.2 User identification before any action |
| **Notes:** | SCMDM_SP1 uses role-based access control as a method for controlling the management functions of authorized administrators of the TOE.<br>SCMDM_SP1 SP1 provides additional authorization roles to ensure that MDM components communicating (servers, devices, tools, etc) with other MDM components are from the same MDM instance. |

### 5.2.18 FPT_ITT.2 – TSF data transfer separation

| | |
|---|---|
| **Hierarchical to:** | FPT_ITT.1 Basic internal TSF data transfer protection |
| **FPT_ITT.2.1** | The TSF shall protect TSF data from [***disclosure and modification***] when it is transmitted between separate parts of the TOE. |
| **FPT_ITT.2.2** | The TSF shall separate user data from TSF data when such data is transmitted between separate parts of the TOE. |
| **Dependencies:** | No dependencies. |
| **Notes:** | None. |

### 5.2.19 FMT_SMF.1 Specification of management functions

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_SMF.1.1** | The TSF shall be capable of performing the following security management functions: [<br>**a) Manage the Mobile VPN capability.**<br>**b) Retrieve and display device inventory.**<br>**c) Create and apply device security policy.**<br>**d) Facilitate secure enterprise access.**<br>**e) Issue the remote wipe command.**<br>**f) Manage software distribution.**<br>**g) Create and apply the device Blocklist.**<br>**h) Manage device enrollment.**<br>**i) Manage SCMDM_SP1 server roles.**<br>**j) Manage SCMDM_SP1 administrator roles.**<br>**k) Retrieve the Recovery PIN.**<br>**l) Manage the Self Service capability**]. |
| **Dependencies:** | No dependencies. |
| **Notes:** | SCMDM_SP1 SP1 includes additional capability that provides a self-service portal for implementing a PIN reset feature (Authentication Reset). The purpose of this feature is to allow a legitimate user to access their device if they forget the PIN by providing a onetime* PIN (Recovery PIN or RPIN) that allows them to access the device and reset their PIN. |

### 5.2.20 FMT_MOF.1a Management of security functions behaviour (Role Management)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MOF.1a.1** | The TSF shall restrict the ability to [***modify the behavior of***] the functions [<br>**a) Manage SCMDM_SP1 server roles, and**<br>**b) Manage SCMDM_SP1 administrator roles]** to **[Server Administrator (ServerAdministrators)].** |
| **Dependencies:** | FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions |
| **Notes:** | None. |

### 5.2.21 FMT_MOF.1b Management of security functions behaviour (Mobile VPN)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MOF.1b.1** | The TSF shall restrict the ability to [***modify the behaviour of***] the functions [<br>**a) Manage the Mobile VPN capability**] to [**Server Administrator (ServerAdministrators)**]. |
| **Dependencies:** | FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions |
| **Notes:** | None. |

### 5.2.22 FMT_MOF.1c Management of security functions behaviour (Device Inventory Management)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MOF.1c.1** | The TSF shall restrict the ability to [***modify the behaviour of***] the functions [<br>**a) Create and apply device security policy.**<br>**b) Issue the remote wipe command.**<br>**c) Manage software distribution.**<br>**d) Manage device enrollment.]**<br>to [**Server Administrator (ServerAdministrators) and Device Administrator (DeviceAdministrators)**]. |
| **Dependencies:** | FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions |
| **Notes:** | None. |

### 5.2.23 FMT_MOF.1d Management of security functions behaviour (Device Inventory)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MOF.1d.1** | The TSF shall restrict the ability to [***modify the behaviour of***] the functions [<br>**a) Retrieve and display device inventory.]** to [**Device Support (DeviceSupport)**]. |
| **Dependencies:** | FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions |

| | |
|---|---|
| **Notes:** | None. |

### 5.2.24 FMT_MOF.1e Management of security functions behaviour (Recovery PIN)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MOF.1e.1** | The TSF shall restrict the ability to [***enable***] the functions [**retrieve recovery PIN]** to [**Instance Authorized Users (InstanceAuthorizedUsers), Device Administrator (DeviceAdministrators) and Device Support (DeviceSupport)**]. |
| **Dependencies:** | FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions |
| **Notes:** | The intention of this requirement is to permit authorized users to retrieve their own recovery PIN. In addition, the requirement identifies that administrators and support roles are permitted to manage this function. |

### 5.2.25 FMT_MOF.1f Management of security functions behaviour (Self Service)

| | |
|---|---|
| **Hierarchical to:** | No other components. |
| **FMT_MOF.1f.1** | The TSF shall restrict the ability to [***determine the behaviour of, disable, enable, modify the behaviour of***] the functions [**Self Service]** to [**Device Administrator (DeviceAdministrators) and Device Support (DeviceSupport)**]. |
| **Dependencies:** | FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions |
| **Notes:** | None. |

## 5.3 Security assurance requirements

46 The assurance package for the evaluation is Evaluation Assurance Level 4 (EAL4), augmented by the Life cycle support component that provides basic flaw remediation (ALC_FLR.3).

47 Complete details of all assurance components are located in part 3 of the Common Criteria. Table 12 below provides a summary of the TOE security assurance requirements for this evaluation.

**Table 12 – Summary of security assurance requirements**

| Assurance class | Assurance components |
|---|---|
| ADV: Development | ADV_ARC.1 Security architecture description |
| | ADV_FSP.4 Complete functional specification |
| | ADV_IMP.1 Implementation representation of the TSF |
| | ADV_TDS.3 Basic modular design |
| AGD: Guidance documents | AGD_OPE.1 Operational user guidance |
| | AGD_PRE.1 Preparative procedures |
| ALC: Life-cycle support | ALC_CMC.4 Production support, acceptance procedures and automation |
| | ALC_CMS.4 Problem tracking CM coverage |
| | ALC_DEL.1 Delivery procedures |
| | ALC_DVS.1 Identification of security measures |
| | ALC_FLR.3 Systematic flaw remediation |
| | ALC_LCD.1 Developer defined life-cycle model |
| | ALC_TAT.1 Well-defined development tools |
| ASE: Security Target evaluation | ASE_CCL.1 Conformance claims |
| | ASE_ECD.1 Extended components definition |
| | ASE_INT.1 ST introduction |
| | ASE_OBJ.2 Security objectives |
| | ASE_REQ.2 Derived security requirements |
| | ASE_SPD.1 Security problem definition |

| Assurance class | Assurance components |
|---|---|
| | ASE_TSS.1 TOE summary specification |
| ATE: Tests | ATE_COV.2 Analysis of coverage |
| | ATE_DPT.2 Testing: security enforcing modules |
| | ATE_FUN.1 Functional testing |
| | ATE_IND.2 Independent testing – sample |
| AVA: Vulnerability assessment | AVA_VAN.3 Focused vulnerability analysis |

## 5.4 Security requirements rationale

### 5.4.1 Dependency analysis

**Table 13 –Dependency demonstration**

| SFR | Dependency | Inclusion |
|---|---|---|
| FIA_ATD.1 | None | |
| FIA_SOS.2 | None | |
| FIA_UID.2 | None | |
| FIA_UAU.2 | FIA_UID.1 Timing of identification | FIA_UID.2 |
| FIA_UAU.4 | None | |
| FDP_IFC.1 | FDP_IFF.1 Simple security attributes | FDP_IFF.1 |
| FDP_IFF.1 | FDP_IFC.1 Subset information flow control<br>FMT_MSA.3 Static attribute initialization | FDP_IFC.1<br>FMT_MSA.3 |
| FMT_MSA.3 | FMT_MSA.1 Management of security attributes<br>FMT_SMR.1 Security roles | FMT_MSA.1<br>FMT_SMR.1 |
| FMT_MSA.1a – c | [FDP_ACC.1 Subset access control, or<br>FDP_IFC.1 Subset information flow control]<br>FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions | <br>FDP_IFC.1<br>FMT_SMR.1<br>FMT_SMF.1 |
| FTA_TSE.1 | None | |
| FTP_ITC.1 | None | |

| SFR | Dependency | Inclusion |
|---|---|---|
| FPT_TDC.1 | None | |
| FPT_ITC.1 | None | |
| FPT_ITI.1 | None | |
| FMT_SMR.1 | FIA_UID.1 Timing of identification | FIA_UID.2 |
| FPT_ITT.2 | None | |
| FMT_SMF.1 | None | |
| FMT_MOF.1a, b, c, d, e and f. | FMT_SMR.1 Security roles<br>FMT_SMF.1 Specification of Management Functions | FMT_SMR.1<br>FMT_SMF.1 |

### 5.4.2 SFR rationale

48 The below table provides the mapping between the security objectives and the SFRs used to satisfy the objectives. Following the table is a subsequent description of the security objectives and how they are met by the mapped SFRs.

**Table 14 – Mapping TOE SFRs to objectives**

| Objective | SFRs |
|---|---|
| O.ENROLLMENT | FIA_ATD.1<br>FIA_SOS.2<br>FIA_UID.2<br>FIA_UAU.2<br>FIA_UAU.4 |
| O.DEVICE_MAINTAIN | FMT_SMF.1 |
| O.ENT_ACCESS | FDP_IFC.1<br>FDP_IFF.1<br>FIA_UID.2<br>FIA_UAU.2<br>FMT_MSA.3<br>FMT_MSA.1a<br>FMT_MSA.1b<br>FTA_TSE.1 |
| O.DEVICE_ACCESS | FMT_SMF.1 |

| Objective | SFRs |
|---|---|
| O.DEVICE_CONFIG | FMT_SMF.1 |
| O.APP_INSTALL&EXECUTE | FMT_SMF.1 |
| O.DEVICE_STATUS | FMT_SMF.1 |
| O.DEVICE_TRUST | FTP_ITC.1<br>FPT_TDC.1 |
| O.COMMS_PERIM | FPT_ITC.1<br>FPT_ITI.1 |
| O.CTRL_ACCESS | FIA_UID.2<br>FIA_UAU.2<br>FMT_SMR.1<br>FMT_MOF.1a<br>FMT_MOF.1b<br>FMT_MOF.1c<br>FMT_MOF.1d |
| O.COMMS_TOE | FPT_ITT.2 |
| O.SELF_SERVICE | FMT_SMR.1<br>FMT_MOF.1e<br>FMT_MOF.1f |

#### 5.4.2.1 O.ENROLLMENT

49 *The TOE shall provide the capability for securely enrolling a Windows Mobile device and associating a Mobile User with that device.*

50 Pre-enrollment is undertaken (prior to enrollment) in order for the administrator to define or generate user attributes [FIA_ATD.1], of note are the enrollment identifier and enrollment password [FIA_SOS.2] required for enrollment of the device. Identification and authentication of the Mobile User using these attributes is required before the TOE permits any other actions [FIA_UID.2 and FIA_UAU.2]. Once the Mobile User has been enrolled, reuse of the enrollment credentials is not permitted [FIA_UAU.4].

#### 5.4.2.2 O.ENT_ACCESS

51 *The TOE shall provide the capability for blocking managed Windows Mobile devices that may be considered compromised or lost.*

52 Accessing enterprise information is permitted only if the Windows Mobile device is managed and subsequently identified and authenticated by the TOE [FDP_IFF.1, FIA_UID.2 and FIA_UAU.2]. If the device has been added to the device block list, it will not be permitted to establish a connection with the TOE, and subsequently will not be

able to access enterprise information [FDP_IFF.1, FDP_IFC.1 and FTA_TSE.1]. The device block list is initially empty [FMT_MSA.3] until such time as an administrator that has been granted the required security role adds a device [FMT_MSA.1a]. Other security roles are permitted to query the device block list [FMT_MSA.1b].

#### 5.4.2.3 O.DEVICE_CONFIG

53 *The TOE shall provide the capability for configuring security related settings for Windows Mobile devices.*

54 Administrators added to the correct security roles are permitted to create and apply a security policy to the Windows Mobile device that sets specific security configuration settings [FMT_SMF.1].

#### 5.4.2.4 O.DEVICE_ACCESS

55 *The TOE shall provide the capability for issuing a command to a managed Windows Mobile device so that the device performs a hard-reset and makes all user data inaccessible.*

56 Administrators added to the correct security roles are able to require a wipe of a register Windows Mobile device [FMT_SMF.1].

#### 5.4.2.5 O.DEVICE_MAINTAIN

57 *The TOE shall restrict the ability for Mobile Users to modify security related configuration settings.*

58 Administrators added to the correct security roles are able to create and apply a specific security policy to a Windows Mobile device, configuring security settings which are unable to be modified by the Mobile User [FMT_SMF.1].

#### 5.4.2.6 O.APP_INSTALL&EXECUTE

59 *The TOE shall provide the capability of blocking the installation and execution of applications or executable code on managed Windows Mobile devices managed.*

60 Administrators added to the correct security roles are able to create and apply a specific security policy to a Windows Mobile device, configuring security settings which block the ability for applications or executable code to be either installed or executed on the Windows Mobile device [FMT_SMF.1].

#### 5.4.2.7 O.DEVICE_STATUS

61 *The TOE shall provide the Administrator with the capability to determine the current configuration status of a managed Windows Mobile device.*

62 Administrators added to the correct security roles are able to view the device inventory of individual managed Windows Mobile devices [FMT_SMF.1].

#### 5.4.2.8 O.DEVICE_TRUST

63 *The TOE shall provide the capability to securely authenticate managed Windows Mobile devices, and only once authenticated permit data exchange.*

64 The TOE uses mutual certificate based authentication to establish a secure connection with the managed Windows Mobile device, and then use this channel to perform data exchange [FTP_ITC.1]. The TOE is capable of interpreting data received from the managed Windows Mobile device regarding device inventory, security policy,

configuration, wipe command execution and software distribution [FPT_TDC.1] so that it can be consistently interpreted and acted upon by the TOE and administrators.

#### 5.4.2.9 O.COMMS_PERIM

65 *The TOE shall provide the capability for establishing a secure communications channel between itself and a managed Windows Mobile device.*

66 The TOE exposes an accessible point for managed Windows Mobile devices to connect to and establish a secure connection (an IPsec VPN) with the TOE [FPT_ITC.1]. Data sent to the TOE from a managed Windows Mobile device is interrogated to ensure that it has not been modified in transit (using the secure hashing algorithm SHA-2). If such modification is detected, the TOE requests a resend of the data from the Windows Mobile device [FPT_ITI.1].

#### 5.4.2.10 O.CTRL_ACCESS

67 *The TOE shall provide the capability for controlling access of Administrators to specific device management tasks depending on their allocated role.*

68 The TOE provides for a number of different security roles that are able to perform various administrative tasks in the configuration and operation of the TOE [FMT_SMR.1] once the administrator has been successfully identified [FIA_UID.2] and authenticated [FIA_UAU.2]. Three such roles, the Server Administrator, Device Administrator and Device Support roles have the ability to perform tasks to configure the TOE [FMT_MOF.1a, FMT_MOF.1b, FMT_MOF.1c and FMT_MOF.1d].

#### 5.4.2.11 O.COMMS_TOE

69 *The TOE shall provide the capability for establishing a trusted communications path between physically separate TOE components.*

70 The TOE requests the establishment of HTTPS connections to TOE components that reside on a different SCMDM_SP1 server by connecting to an Internet Information Services (IIS) website hosted on the target SCMDM_SP1 server [FPT_ITT.2]. The HTTPS protocol provides protection for unauthorized disclosure and modification of data sent between SCMDM_SP1 servers.

#### 5.4.2.12 O.SELF_SERVICE

71 *The TOE shall provide the capability for allowing a Windows Mobile user to conduct authentication recovery services after successfully authenticating with their enterprise credentials.*

72 The TOE implements the MDM Self Service Portal, a web-based interface that can be configured to permit Windows Mobile users manage their Windows Mobile powered devices. On this portal, based on settings the administrator configures, users can enroll their Windows Mobile powered devices, monitor enrollment status, and wipe managed devices that they no longer want or that are no longer in their possession. Windows Mobile users are also permitted to retrieve an authentication reset password or PIN. [FMT_MOF.1e and FMT_MOF.1f]

### 5.4.3 SAR rationale

73 This ST contains the assurance requirements from the CC EAL4 assurance package augmented with ALC_FLR.3. Augmentation was chosen to provide the added assurance that is provided by defining a systematic approach to flaw remediation.

74 This ST is based on good rigorous commercial development practices and has been developed for a generalized environment for a TOE that is generally available and does not require modification to meet the security needs of the environment specified in this ST.

75 The EAL chosen is based on the statement of the security environment (threats, organizational policies, assumptions) and the security objectives defined in this ST. The sufficiency of the EAL chosen is justified based on those aspects of the environment that have impact upon the assurance needed in the TOE.

76 The dependency analysis provided at Table 13 and the analyses provided in Table 14 demonstrate that the IT security functions work together to satisfy the stated security functionality of the TOE.

77 The implementation of SFR dependencies demonstrates mutual support between security requirements, and therefore, the security functions and mechanisms that implement them.

# 6 TOE summary specification (ASE_TSS)

## 6.1 Overview

78 This chapter provides the TOE summary specification, a high-level definition of the security functions claimed to meet the functional and assurance requirements.

79 The TOE security functions include the following:

a) **Device security management.** The TOE provides Administrators with the capability to enroll and manage Windows Mobile devices.

b) **Device configuration management.** The TOE provides Administrators with the capability to review the configuration of Windows Mobile devices and distribute software to the devices.

c) **Mobile VPN capability.** The TOE implements standards-based communications so that Mobile Users can securely access the enterprise environment.

d) **SCMDM_SP1 Management**. The TOE controls access so that only authorized Administrators can perform device management functions and ensures that all communication between MDM components is secure.

## 6.2 Device security management

### 6.2.1 Device enrollment

80 Before a Windows Mobile device can connect to the MDM Gateway Server using Mobile VPN, it must first establish itself as a known and authenticated object in the Active Directory® Domain Service and obtain a valid machine certificate. MDM Enrollment Server creates an Active Directory Domain Service computer account for the device, and requests a machine certificate from enterprise certificate services, then issues the certificate to the Windows Mobile device. MDM Enrollment Server also links the computer account to the Active Directory account for the user. MDM Enrollment Server then creates a link between the certificate and the device object in the Active Directory Domain Service.

81 By design, the enrollment password is for one-time use only and has a limited lifetime (the default is eight hours). If the enrollment process fails, the password is valid until it is either used successfully or it expires. After expiration, the administrator must generate a new enrollment request and communicate the password to the user.

82 The following enrollment steps show how a Windows Mobile device can authenticate to MDM Gateway Server and become an MDM-managed device:

a) The administrator uses a wizard to create a new device enrollment request.

b) This process generates a one-time enrollment password that the administrator shares with the user of the device in a secure manner.

c) The user starts an enrollment wizard on the device and provides the e-mail address that the wizard will use to connect to MDM Enrollment Server.

d) If the enrollment process cannot discover the address for MDM Enrollment Server, it prompts the user for the URL.

e) The enrollment wizard on the Windows Mobile device contacts MDM Enrollment Server and requests the Enterprise Trust Root Certificate.

f) The enrollment wizard authenticates the server response by verifying that the returned data was derived from the one-time enrollment password and the Enterprise Trust Root Certificate.

g) The enrollment wizard generates a certificate request and sends it to MDM Enrollment Server together with a hash that is generated from the one-time enrollment password and the certificate request.

h) MDM Enrollment Server creates an Active Directory Domain Service computer account for the device, and the device certificate is issued based on the certificate request received from the device. MDM Enrollment Server also links the computer account to the Active Directory account for that user.

i) The machine certificate is returned to the device, completing the process.

j) The device disconnects from MDM Enrollment Server and prompts the user to reset the device.

### 6.2.2 Managing security policies

83 Over 130 individual policy items exist that can be configured to govern the operation of the Windows Mobile device and the Mobile User accessing the device. The policies govern the security and functionality of the Windows Mobile device. Following are each of the policies that can be configured and applied via SCMDM_SP1.

84 Device Policies:

a) **Password Policies**

1. Require password
2. Password type
3. Password timeout
4. Number of passwords remembered
5. Password expiration
6. Minimum password length
7. Wipe device after failed attempts
8. Code word frequency
9. Code word
10. Block user reset of authentication on the device

b) **Platform Lockdown**

1. Turn off POP and IMAP Messaging
2. Turn off SMS and MMS messaging
3. Turn off removable storage
4. Turn off camera
5. Turn off wireless LAN
6. Turn off Infrared
7. Turn off Bluetooth

8. Allowed Bluetooth profiles
9. Block Remote API access to ActiveSync

c) **Application Disable**

1. Turn off blocked application notification
2. Blocked application notification message
3. Block applications in-ROM
4. Allow specified unsigned applications to run as privileged
5. Allow specified unsigned applications to run as normal

d) **Security Policies**

1. Remove unmanaged SPC certificates
2. Remove unmanaged privileged certificates
3. Remove unmanaged normal certificates
4. Remove unmanaged Root certificates
5. Remove unmanaged intermediate certificates
6. Remove manager role permission from user
7. Block unsigned .cab file installation
8. Block unsigned theme installation
9. Block unsigned applications from running on devices
10. Turn off user prompts on unsigned files

e) **File Encryption**

1. Turn on device encryption
2. Specify device encryption file list
3. Exclude files from device encryption
4. Turn on storage card encryption

f) **Device Management**

1. Configure the Windows Update for Windows Mobile Service
2. Configure device management when roaming
3. Management session reset reminder timeout

g) **Mobile VPN Settings**

1. Mobile VPN name
2. Mobile VPN gateway name
3. Corporate proxy server name for internet access
4. Allow user to turn off Mobile VPN
5. Always connected when roaming
6. Time interval between keepalive packets
7. Allow AES data encryption algorithm

8. Allow Triple DES data encryption algorithm
9. Allow Diffie Hellman group 2
10. Allow Diffie Hellman group 5
11. Allow Diffie Hellman group 14

h) **Software Distribution**

1. Enable client-side targeting

85 User Policies:

a) **ActiveSync**

1. Set message format (HTML or Plain Text)
2. Maximum Email age filter allowed
3. Set maximum size limit for plain text email
4. Set maximum size limit for HTML email
5. Set age limit for calendar items
6. Set maximum attachment size allowed
7. Block synchronization when roaming
8. Turn off Desktop PIM Sync
9. Server name
10. Peak days
11. Peak start time
12. Peak end time
13. Synchronization frequency during peak times
14. Synchronization frequency during off-peak times

b) **Messaging SMIME policies**

1. Require message signing
2. Require message encryption
3. Set signing algorithm
4. Encryption algorithm
5. Negotiate encryption algorithm
6. Allow soft certificates

c) **PIN Reset Service**

1. Retrieve the device recovery password
2. Update the device recovery password
3. Update device recovery password encryption key

### 6.2.3 Managing device block

86 A compromised managed Windows Mobile device can be prevented from establishing a connection through to the MDM Gateway Server by blocking the device. A device is blocked when an administrator adds it to the blocked device list.

87 A blocked device cannot establish a virtual private network (VPN) connection with MDM Gateway Server until the device is removed from the block list, if the device is enrolled with a new certificate.

### 6.2.4 Performing remote device wipe

88 The remote wipe service provides the ability for an administrator to immediately wipe data from a Windows Mobile device. Upon the issue of a wipe request, an alert is issued to the device (via Mobile VPN) requesting it to establish an OMA DM connection with the MDM Device Management server, at which point the wipe is issued, executed and confirmation sent back to the Device Management server. If the device is not currently connected to the Mobile VPN, the alert is cached and sent to the device the next time that it connects.

89 The remote wipe service communicates with a domain controller to remove the Active Directory Domain Service object for the device. It will also communicate with the Certification Authority to revoke the certificate that the device was using. The command also ensures that the MDM Gateway server and databases are updated so that the device will not be able to connect to the system using its previous credentials. The device can go through the enrollment process again if it needs to re-join the managed environment.

### 6.2.5 Retrieve recovery PIN

90 If you forget your Windows Mobile device password and password reset is enabled for MDM 2008 SP1, you can reset your device password by using a recovery password. If the MDM 2008 SP1 administrator has enabled the password reset feature for MDM 2008 SP1 Self Service Portal, you can use the portal to request a recovery password from MDM 2008 SP1. You then enter the recovery password on your device to create a new password and access the device.

## 6.3 Device configuration management

### 6.3.1 Software Distribution

91 SCMDM_SP1 uses WSUS to allow applications to be distributed to managed devices. Additionally, SCMDM_SP1 works with WSUS to check for and push application packages to managed devices. The Device Management server regularly checks with WSUS for newly published software packages, evaluating all the managed devices against the applicability rules of the packages and approval information. Using this information, the Device Management server determines which packages are applicable to each device and creates the required OMA DM commands in the database. When a device connects, it will automatically download and install the packages offered to it by the Device Management server.

92 The following steps summarizes how MDM software distribution issues software packages to a managed Windows Mobile device:

a) At a scheduled connection time, the device connects to the OMA service on MDM Device Management Server by using MDM Gateway Server. An SSL session

establishes between the device and the OMA service by using an OMA DM session.

b) MDM Device Management Server obtains the OMA DM commands for the device from the database.

c) MDM Device Management Server offers the applicable software packages to the device.

d) The device downloads and automatically installs the software packages.

e) The device reports the result of the software package installation back to MDM Device Management Server.

f) MDM Device Management Server updates the inventory information for the device in its SQL database.

### 6.3.2 Managing device inventory

93 SCMDM_SP1 uses a SQL based reporting infrastructure to provide administrators with vital information about the specific Windows Mobile devices in the organization. When the device is authenticated with the Device Management server, critical information is collected about the device. For example, the administrator has access to a broad range of information, including the following:

a) Operating system and version,

b) Device model, make, ID and language,

c) Hardware ID,

d) Device hardware specifications, and storage information,

e) Certificates installed,

f) Applications installed,

g) User email settings,

h) Security policy settings, and

i) Device settings.

94 SCMDM_SP1 regularly retrieves a standard set of device inventory information on a predefined schedule; however administrators have the ability to create custom inventory tasks operating on specific schedules and obtaining and reporting specific device inventory information.

## 6.4 Mobile VPN capability

### 6.4.1 Implementing IPsec capability

95 After a device successfully finishes the enrollment process, it uses its Mobile VPN client to connect to the MDM Gateway Server. The Mobile VPN client uses IPsec to authenticate and encrypt data passed between the devices and MDM Gateway Server. After authentication, devices can be managed over Mobile VPN the user of the Windows Mobile device can access (permitted) enterprise resources in a controlled manner.

96 The Windows Mobile device must create an IPsec tunnel to MDM Gateway Server to access the internal resources of your organization. The following steps show how the VPN tunnel is created:

a) The device begins an Internet Key Exchange version 2 (IKEv2) connection request by using the Mobile VPN client software that is included in Windows Mobile 6.1.

b) MDM Gateway Server receives the connection request, starts an IKEv2 or IKEv2 Mobility and Multi-homing (MOBIKE) negotiation with the devices.

c) During this negotiation:

1. To authenticate the device, MDM Gateway Server verifies with the certification authority that the machine certificate of the device is valid.
2. The device verifies that the machine certificate for MDM Gateway Server is valid and trusted.
3. The device and MDM Gateway Server negotiate the Mobile VPN connection parameters.
4. If these checks completed successfully, the device and server have authenticated themselves.

d) The device then requests or renews a virtual IP address from MDM Gateway Server. The server first checks that this is the only connection that it has with the device (only one connection per device is allowed), and then issues an IP address from the available Mobile VPN address pool configured during MDM Gateway Server Setup. If previously connected to MDM Gateway Server, the device can request the same virtual IP address previously assigned. MDM Gateway Server will assign it if it is available.

e) The device uses the IP address received from the server as the virtual IP address for the IPsec connection. After the IP address is assigned and the connection parameters negotiation is complete, an IPsec-encrypted tunnel can be set up between the device and server.

f) This IPsec connection forwards all traffic through the IPsec tunnel to and from the device.

97 MDM Gateway Server now manages all network traffic from the device and provides an endpoint for the Mobile VPN tunnel. MDM Gateway Server can now route traffic from the device to your company network, or forward traffic toward a configured network proxy service, or directly to the Internet, depending on the configuration defined by the network administrator.

### 6.4.2 Facilitating secure enterprise access

98 Devices connected to the enterprise using the Mobile VPN can connect to line of business servers internal to the company domain if permitted by SCMDM_SP1 and network administrators.

99 There are several methods that SCMDM_SP1 can route traffic to internal LOB traffic:

a) **Direct access by using NetBIOS name**: The LOB application that is running on the managed Windows Mobile device sends a request to the NetBIOS name of an LOB service that resides within the company internal or perimeter network. The managed device transmits this message through the virtual private network (VPN) tunnel. Based on the local routing table, MDM Gateway Server forwards the message to the next router which then sends it to the server that hosts the LOB service. This is also known as a network hop.

b) **Direct access by defining networks or domains that map to the company network**: During the provisioning process, you can use Group Policy settings to

configure the list of company-internal destinations on the managed device. After the company network destinations are configured on the managed device, the LOB application that is running on the device sends a request to an LOB service that resides within the company internal or perimeter network. This LOB service destination is listed in the company network list. Network traffic then moves from the managed device through the VPN tunnel, bypassing the provisioned proxy. Based on the local Windows-based operating system routing table, MDM Gateway Server forwards this message to the next network hop.

c) **Proxy access (Web proxy traffic)**: In this case, when the Mobile VPN connected, a proxy was configured for network access. The LOB application that is running on the managed device sends a request to an LOB service that resides within the company internal or perimeter network. The destination URL is a fully qualified domain name (FQDN) or an IP address. The managed device sends the request to the provisioned proxy through the VPN tunnel. MDM Gateway Server queries the local Windows-based operating system routing table for the proxy location. The proxy receives this message, applies the proxy policy, changes its source IP address, and then sends it back to its destination LOB service.

d) **Direct access**: In this case, when the Mobile VPN connected, no proxy was configured for network access. The LOB application that is running on the managed device sends a request to an LOB service that resides within the company internal or perimeter network. The destination URL is a fully qualified domain name (FQDN) or an IP address. The managed device sends the request to MDM Gateway Server directly. MDM Gateway Server queries the local Windows-based operating system routing table for the LOB service location and then sends the request to the destination LOB service.

## 6.5 SCMDM_SP1 Management

### 6.5.1 Implementing role-based access control

100 The TOE implements the following roles and restricts the associated tasks to these roles:

a) Device Administrator:

1. Remove a wipe request for the specified managed Windows Mobile device if the wipe request is yet unprocessed.
2. Add a compromised managed Windows Mobile device to the blocked device table.
3. Configure the properties of the wipe service.
4. Create a new device inventory collection task.
5. Create a new managed device enrollment request.
6. Create a new wipe request that deletes all content on the targeted managed device.
7. Remove a managed device from the Blocked Device Table.
8. Remove a pending enrollment request for a managed device.
9. Remove a wipe request for the specified managed device if the wipe request is yet unprocessed.
10. Remove operational log entries from the Enrollment service database.

11. Remove the specified device inventory collection task from the task list on the server.
12. Resume all device inventory collection tasks that were suspended by using the Disable-MDMInventory cmdlet.
13. Return information about devices that SCMDM_SP1 manages.
14. Return information about the current set of managed blocked devices.
15. Return operational log entries from the Enrollment service database.
16. Return pending managed device enrollment requests.
17. Return status information for the specified managed device.
18. Return the collection of servers in SCMDM_SP1.
19. Return the complete set of collected inventory data for the specified managed device.
20. Return the complete set of transaction information for the specified managed device from the server operations log file.
21. Return the current configuration of the Enrollment service.
22. Return the current configuration of the Group Policy service.
23. Return the current configuration of the wipe service.
24. Return the current global device management configuration.
25. Return the currently active device inventory collection tasks.
26. Return the global virtual private network (VPN) settings shared among all computers that are running MDM Gateway Server.
27. Return the unprocessed wipe requests for the specified managed device.
28. Set all device inventory collection settings to their default values.
29. Set the collection frequency for a device inventory collection item.
30. Return the current configuration of MDM software distribution service.
31. Set the configuration of MDM software distribution service.
32. Set the configuration of the Group Policy service.
33. Set the global device management configuration values.
34. Suspend all currently active device inventory collection tasks.
35. Update the current configuration of the Enrollment service by using the provided values.
36. Update the global VPN settings shared among all computers that are running MDM Gateway Server.
37. Update the Resultant Set of Policy (RsoP) held by the server for a given device.

b) Device Support:

1. Remove a wipe request for the specified managed Windows Mobile device if the wipe request is yet unprocessed.
2. Add a compromised managed device to the blocked device table.

3. Create a new managed device enrollment request.
4. Create a new wipe request that deletes all content on the targeted managed device.
5. Remove a managed device from the Blocked Device Table.
6. Remove a pending enrollment request for a managed device.
7. Remove a wipe request for the specified managed device if the wipe request is yet unprocessed.
8. Return information about devices that SCMDM_SP1 manages.
9. Return information about the current set of managed devices that are blocked
10. Return operational log entries from the Enrollment service database.
11. Return pending managed device enrollment requests.
12. Return status information for the specified managed device.
13. Return the collection of servers in SCMDM_SP1.
14. Return the complete set of collected inventory data for the specified managed device.
15. Return the complete set of transaction information for the specified managed device from the server operations log file.
16. Return the current configuration of the Enrollment service.
17. Return the current configuration of the Group Policy service.
18. Return the current configuration of MDM software distribution service.
19. Return the current configuration of the wipe service.
20. Return the current gateway-specific settings and the last known configuration status.
21. Return the current global device management configuration.
22. Return the currently active device inventory collection tasks.
23. Return the global VPN settings shared among all computers that are running MDM Gateway Server.
24. Return the unprocessed wipe requests for the specified managed device.
25. Update the RsoP held by the server for a given device.

c) Helpdesk Operator:

1. Create a new managed device enrollment request.
2. Remove a pending enrollment request for a managed device.
3. Return information about devices that SCMDM_SP1 manages.
4. Return information about the current set of managed devices that are blocked.
5. Return operational log entries from the Enrollment service database.
6. Return pending managed device enrollment requests.
7. Return status information for the specified managed device.

8. Return the collection of servers in SCMDM_SP1.
9. Return the complete set of collected inventory data for the specified managed device.
10. Return the complete set of transaction information for the specified managed device from the server operations log file.
11. Return the current configuration of the Enrollment service.
12. Return the current configuration of the Group Policy service.
13. Return the current configuration of MDM software distribution service.
14. Return the current configuration of the wipe service.
15. Return the current gateway-specific settings and the last known configuration status.
16. Return the current global device management configuration.
17. Return the currently active device inventory collection tasks.
18. Return the global VPN settings shared among all computers that are running MDM Gateway Server.
19. Return the unprocessed wipe requests for the specified managed device.
20. Update the RsoP held by the server for a given device.

d) Server Administrator:

1. Add a new computer that is running MDM Gateway Server to SCMDM_SP1.
2. Configure the properties of the wipe service.
3. Disable Windows Preprocessor (WPP) logging for one or more components.
4. Enable WPP logging for one or more components.
5. Remove MDM Gateway Server and all corresponding properties from SCMDM_SP1.
6. Return information about devices that SCMDM_SP1 manages.
7. Return information about the current set of managed devices that are blocked.
8. Return operational log entries from the Enrollment service database.
9. Return pending managed device enrollment requests.
10. Return status information for the specified managed device.
11. Return the collection of servers in SCMDM_SP1.
12. Return the complete set of collected inventory data for the specified managed device.
13. Return the complete set of transaction information for the specified managed device from the server operations log file.
14. Return the current configuration of the Enrollment service.
15. Return the current configuration of the Group Policy service.
16. Return the current configuration of the wipe service.

17. Return the current gateway-specific settings and the last known configuration status.
18. Return the current global device management configuration.
19. Return the currently active device inventory collection tasks.
20. Return the global VPN settings shared among all computers that are running MDM Gateway Server.
21. Return the unprocessed wipe requests for the specified managed device.
22. Set the configuration of the Group Policy service.
23. Return the current configuration of MDM software distribution service.
24. Set the configuration of MDM software distribution service.
25. Set the global device management configuration values.
26. Start the VPN service on the specified MDM Gateway Server.
27. Stop the VPN service on the specified MDM Gateway Server.
28. Update the current configuration of the Enrollment service by using the provided values.
29. Update the current settings for the specified MDM Gateway Server.
30. Update the global VPN settings shared among all computers that are running MDM Gateway Server.
31. Update the RsoP held by the server for a given device.

e) Enrollment Servers

1. Return information about the current set of managed devices that are blocked.

f) Device Management Servers

1. Add a compromised managed Windows Mobile powered device to the blocked device table.

### 6.5.2 Transferring data internally securely

101 Communications between the three TOE server components (MDM Device Management server, MDM Gateway server and MDM Enrollment server) are protected from unauthorized eavesdropping and modification through the use of authentication and encryption controls.

102 Server certificates issued by a Certificate Authority (CA) within the enterprise environment are installed on the individual servers and websites and are used for authentication between servers, and subsequent encryption using SSL/TLS of all data transmitted between the TOE components.

## 6.6 SFR Implementation

103 The following table provides a mapping between each of the TOE security functions and the security functional requirements claimed.

**Table 15 – TOE Function Mapping to SFRs**

| TOE Security Function | SFR Satisfied |
|---|---|
| Device enrollment | FIA_ATD.1 |
| Device enrollment | FIA_SOS.2 |
| Device enrollment<br>Implementing role-based access control | FIA_UID.2 |
| Device enrollment<br>Implementing IPsec capability<br>Implementing role-based access control | FIA_UAU.2 |
| Device enrollment | FIA_UAU.4 |
| Managing device block | FDP_IFC.1 |
| Device enrollment<br>Managing device block<br>Implementing IPsec capability | FDP_IFF.1 |
| Managing device block | FMT_MSA.3 |
| Managing device block | FMT_MSA.1a |
| Managing device block | FMT_MSA.1b |
| Managing device block<br>Implementing IPsec capability | FTA_TSE.1 |
| Implementing IPsec capability<br>Managing device inventory<br>Managing security policies<br>Software distribution<br>Performing remote device wipe | FTP_ITC.1 |
| Managing device inventory<br>Managing security policies | FPT_TDC.1 |

| TOE Security Function | SFR Satisfied |
|---|---|
| Software distribution<br>Performing remote device wipe | |
| Transferring data internally securely | FPT_ITC.1 |
| Implementing IPsec capability | FPT_ITI.1 |
| Implementing role-based access control | FMT_SMR.1 |
| Transferring data internally securely | FPT_ITT.2 |
| Implementing IPsec capability<br>Managing device inventory<br>Managing security policies<br>Facilitating secure line of business access<br>Performing remote device wipe<br>Software distribution<br>Managing device block<br>Device enrollment<br>Implementing role-based access control | FMT_SMF.1 |
| Implementing role-based access control | FMT_MOF.1a |
| Implementing role-based access control | FMT_MOF.1b |
| Implementing role-based access control | FMT_MOF.1c |
| Implementing role-based access control | FMT_MOF.1d |
| Implementing role-based access control | FMT_MOF.1e |
| Implementing role-based access control | FMT_MOF.1f |