micros®
9700 HMS

9700 HMS Version 3.6 PA-DSS Implementation Guide

General Information

About This Document

This document is intended as a quick reference guide to provide guidance and instructions for customers, resellers, and integrators to implement 9700 HMS software into a merchant environment in a PCI DSS compliant manner. This document relates specifically to *MICROS 9700 Version 3.6 Hospitality Management System* software.

About PCI Compliance

When customers offer their bankcard at the point of sale, over the Internet, on the phone, or through the mail, they want assurance that their account information is safe.[1] That's why the Payment Card Industry (PCI) Data Security Standard was instituted. The program is intended to protect cardholder data—wherever it resides—ensuring that members, merchants, and service providers maintain the highest information security standard.

For more detailed information concerning PCI compliance, please refer to the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

[1] Reprinted from "Cardholder Information Security Program", <http://usa.visa.com/merchants/risk_management/cisp_overview.html>

Declarations

Warranties

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Printing History

New editions of this guide incorporate new and changed material since the previous edition. Minor corrections and updates may be incorporated into reprints of the current edition without changing the publication date or the edition number.

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4th	December	2012	3.6
5th	July	2013	3.6
6th	November	2013	3.6

About The PCI Data Security Standard

PCI compliance is required of all merchants and service providers that store, process, or transmit cardholder data. The program applies to all payment channels, including retail (brick-and-mortar), mail/telephone order, and e-commerce. To achieve compliance with PCI, merchants and service providers must adhere to the Payment Card Industry (PCI) Data Security Standard, which offers a single approach to safeguarding sensitive data for all card brands. This Standard is a result of a collaboration among the credit card industry and is designed to create common industry security requirements, incorporating the PCI requirements.

Using the PCI Data Security Standard as its framework, PCI provides the tools and measurements needed to protect against cardholder data exposure and compromise across the entire payment industry. The PCI Data Security Standard, shown below, consists of twelve basic requirements supported by more detailed sub-requirements:

The PCI Data Security Standard[2]

Build and Maintain a Secure Network

- **Requirement 1:** Install and maintain a firewall configuration to protect cardholder data
- **Requirement 2:** Do not use vendor-supplied defaults for system passwords and other security parameters

Protect Cardholder Data

- **Requirement 3:** Protect stored cardholder data
- **Requirement 4:** Encrypt transmission of cardholder data across open, public networks

Maintain a Vulnerability Management Program

- **Requirement 5:** Use and regularly update ant-virus software
- **Requirement 6**: Develop and maintain secure systems and applicationsImplement Strong Access Control Measures

[2] Reprinted from the ‘PCI DSS Requirements and Security Assessment Procedures, v2.0’ document, available on the PCI Security website,< https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

Implement Strong Access Control Measures

- **Requirement 7:** Restrict access to cardholder data by business need-to-know
- **Requirement 8:** Assign a unique ID to each person with computer access
- **Requirement 9:** Restrict physical access to cardholder data

Regularly Monitor and Test Networks

- **Requirement 10:** Track and monitor all access to network resources and cardholder data
- **Requirement 11:** Regularly test security systems and processes

Maintain an Information Security Policy

- **Requirement 12:** Maintain a policy that addresses information security

Who Should be Reading This Document

This document is intended for the following audiences:

- MICROS Installers/Programmers
- MICROS Dealers
- MICROS Customer Service
- MICROS Training Personnel
- MIS Personnel
- 9700 HMS Users

What the Reader Should Already Know

This document assumes that you have the following knowledge or expertise:

- Operational understanding of PCs
- Understanding of basic network concepts
- Experience with Microsoft Windows 2000 or Windows 2003
- Familiarity with the 9700 HMS software
- Familiarity with operating MICROS peripheral devices

9700 HMS Version 3.60 and the PCI Data Standard

While MICROS Systems, Inc. recognizes the importance of upholding cardmember security and data integrity, certain parameters of the PCI Data Security Standard and PCI compliance are the sole responsibility of the client. This section contains a description of the 12 points of The PCI Data Security Standard. Information within this section only pertains to how the 9700 HMS Version 3.60 software conforms to The PCI Data Security Standard.

To ensure the payment application is implemented into a secure network environment, 9700 HMS does not interfere with the use of network address translation (NAT), port address translation (PAT), traffic filtering network device, anti-virus protection, patch or update installation, or use of encryption.

For a complete description of the PCI Data Security Standard, please consult the PCI Security Standards Council website https://www.pcisecuritystandards.org/.

Build and Maintain a Secure Network

1. Install and maintain a firewall configuration to protect cardholder data

Firewalls are devices that control computer traffic allowed between an entity's networks (internal) and untrusted networks (external), as well as traffic into and out of more sensitive areas within an entity's internal trusted networks. The cardholder data environment is an example of a more sensitive area within an entity's trusted network. A firewall examines all network traffic and blocks those transmissions that do not meet the specified security criteria. All systems must be protected from unauthorized access from untrusted networks, whether entering the system via the Internet as e-commerce, employee Internet access through desktop browsers, employee e-mail access, dedicated connections such as business-to-business connections, via wireless networks, or via other sources. Often, seemingly insignificant paths to and from untrusted networks can provide unprotected pathways into key systems. Firewalls are a key protection mechanism for any computer network. Other system components may provide firewall functionality, provided they meet the minimum requirements for firewalls as provided in Requirement 1. Where other system components are used within the cardholder data environment to provide firewall functionality, these devices must be included within the scope and assessment of Requirement 1.[3]

[3] "Payment Card Industry (PCI) Data Security Standard doc", p. 20, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

In accordance with the PCI Data Security Standard, MICROS Systems, Inc. mandates every site, including wireless environments, install and maintain a firewall configuration to protect data. Configure your network so that databases and wireless access points always reside behind a firewall and have no direct access to the Internet.

Personal firewall software must be installed on any mobile and employee-owned computers with direct connectivity to the Internet, such as laptops used by employees, which are used to access the organization's network. The firewall software's configuration settings must not be alterable by employees.

Because of the PCI Data Security Standard, MICROS Systems, Inc. mandates each site ensure that servers, databases, wireless access points, and any medium containing sensitive data reside behind a firewall. The firewall configuration must restrict connections between publicly accessible servers and any system component storing cardholder data, including any connections from wireless networks.

The firewall configuration must also place the database in an internal network zone, segregated from the demilitarized zone (DMZ) with the web server. A DMZ can be used to separate the Internet from systems storing cardholder data.

Customers and resellers/integrators should establish and maintain payment applications so that cardholder data is not stored on Internet-accessible systems.

As a PCI compliant measure, 9700 HMS does not require the database server and web server to be on the same server.

To ensure your firewall configuration is set up in compliance with Requirement 1 of the PCI Data Security Standard, "Install and maintain a firewall configuration to protect cardholder data", please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

2. Do not use vendor-supplied defaults for system passwords and other security parameters

Malicious individuals (external and internal to an entity) often use vendor default passwords and other vendor default settings to compromise systems. These passwords and settings are well known by hacker communities and are easily determined via public information.[4]

[4] "Payment Card Industry (PCI) Data Security Standard doc", p. 24, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

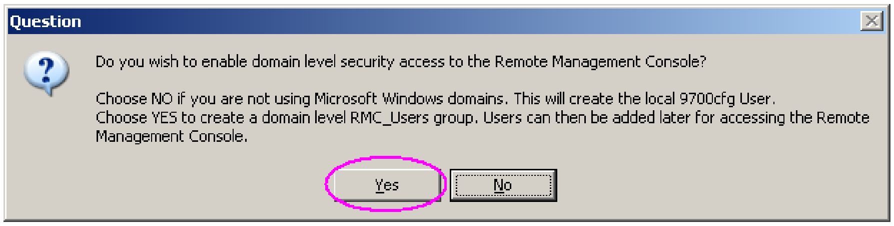
9700 HMS v. 3.60 will modify or remove the following default accounts if they have been previously installed:

- “9700cfg”
- “csremote”
- “micros”
- “m9700”

The “micros” and “csremote” legacy accounts will no longer be installed. These accounts have been removed from the installation process as they are not used and, when not securely deleted, can compromise PCI compliancy. When upgrading to 9700 HMS v. 3.60 from a previous version, these accounts will be disabled after the upgrade process completes. To prevent compromised security and maintain PCI compliance, 9700 HMS v. 3.60 will modify or remove these default accounts if they have previously been installed.

The legacy “m9700” account will be disabled after the 9700 HMS v. 3.60 installation/upgrade process completes.

The “9700cfg” account is used for remote Remote Management Console (RMC) access. This account will be disabled after the 9700 HMS v. 3.60 installation/upgrade process completes. If credit card transactions are performed through the 9700 HMS system, this account must be deleted and the domain level security options must be enabled during the 9700 HMS installation/ upgrade process, as shown below.



Do you wish to enable domain level security access to the Remote Management Console?

Choose NO if you are not using Microsoft Windows domains. This will create the local 9700cfg User.
Choose YES to create a domain level RMC_Users group. Users can then be added later for accessing the Remote Management Console.

Reported Security issue - Winstation Users

To remain PCI compliant, if a WINSTATION client is installed on a 9700 v3.x Application server (or another computer on the 9700 network), when Winstation is installed, a User account named WINSTATION is created in the “Power Users” group with a default password of ‘micros’. One may subsequently login to the server with this account and password. MICROS recommends that a privileged user navigate to the User Profiles-> User Accounts-> Local Users and Groups-> Users-> and right-click the WINSTATION user-> select the ‘Set Password’ option and change the WINSTATION User’s password of ‘micros’ to a stronger more secure password, confirm it and click the ‘OK’ button. This recommendation would also apply to all Winstation Workstation clients (not including Windows CE devices). Currently, this reported issue affects all 9700 v3.x versions.

For more information, see the *9700 Secure Default Account Handling* document.

Strong application and system passwords must be used whenever possible. MICROS Systems, Inc. mandates customers and resellers/integrators always create PCI DSS-compliant complex passwords to access the payment application. For more information on how to create a PCI compliant password in the Enterprise Management Console (EMC), please see page 16.

Customers and resellers/integrators are advised to control access, via unique username and PCI DSS-compliant complex passwords, to any PCs, servers, and databases with payment applications and cardholder data.

For wireless environments, change wireless vendor defaults, including but not limited to, default service set identifier (SSID), password, and SNMP community strings. Disable SSID broadcasts. Enable Wi-Fi protected access (WPA2) technology for encryption and authentication. For more information, refer to the *MICROS Wireless Networking Best Practices: A Payment Application Data Security Standard (PA-DSS) Implementation Guide Supplement* document.

All non-console administrative access must be encrypted using technologies such as SSH, VPN, or SSL/RLS (transport layer security) for web-based management and other non-console administrative access. Telnet or rlogin must never be used for administration.

For more information on Requirement 2 of The PCI Data Security Standard, “Do not use vendor-supplied defaults for system passwords and other security parameters”, please consult the PCI Security Standards Council website https://www.pcisecuritystandards.org/.

Protect Cardholder Data

3. Protect stored cardholder data

Protection methods such as encryption, truncation, masking, and hashing are critical components of cardholder data protection. If an intruder circumvents other security controls and gains access to encrypted data, without the proper cryptographic keys, the data is unreadable and unusable to that person. Other effective methods of protecting stored data should be considered as potential risk mitigation opportunities. For example, methods for minimizing risk include not storing cardholder data unless absolutely necessary, truncating cardholder data if full PAN is not needed, and not sending unprotected PANs using end-user messaging technologies, such as e-mail and instant messaging.[5]

MICROS Systems, Inc. uses credit card masking and Triple-DES 168-bit encryption to ensure credit card data is stored in a manner compliant with the PCI Data Standard.

As a PCI compliant measure to protect stored data, production 9700 HMS systems should never reside directly on the Internet and a firewall should always be placed between the 9700 HMS system and Internet/corporate network gateways.

9700 HMS does not allow unmasked credit card information to be printed on guest checks displayed on the workstation, customer receipts, and journals in order to comply with Requirement 3 of The PCI Data Security Standard. Only the last four digits of the Primary Account Numbers (PAN) are displayed.

9700 HMS does not support the transmission of card information via email or Instant Message (IM).

Securely Deleting Historical Data

Historical data (magnetic stripe data, card validation codes, PINs, or PIN blocks) stored by previous versions of the 9700 HMS software must be securely removed as a necessary component of PCI compliancy. Refer to the *9700 Upgrade Best Practices* document for instructions on how to securely remove such data.

Any cryptographic material, such as cryptographic keys used for computation or verification of cardholder data or sensitive authentication data stored by previous versions of the software, must also be securely removed as a necessary component of PCI compliancy. Refer to the *9700 Upgrade Best Practices* document for instructions on how to securely remove such data.

[5] "Payment Card Industry (PCI) Data Security Standard doc", p. 28, v2.0, October, 2010. <https://www.pcisecuritystandards.org/security_standards/documents.php/pci_dss_v2.pdf>.

Conversions from 9700 HMS v. 2.x to 9700 HMS v. 3.x must therefore include securely erasing the legacy flat-file database and all old log files from the system after upgrading to 9700 HMS v. 3.x. Historical data must be securely removed wherever it resides. The 9700 HMS upgrade itself will encrypt all sensitive data in the v. 3.6 database when the initial database conversion occurs. For more information, refer to the *9700 Upgrade Best Practices* document.

Windows® Restore Points

MICROS Systems, Inc. requires that Windows® restore points be disabled so card data from memory cannot be found in the restore point.

Collecting Sensitive Authentication Data for Troubleshooting

To ensure customer data is protected, MICROS Systems, Inc. mandates 9700 HMS customers and resellers/integrators must only collect sensitive authentication data (i.e., log files, debug files, databases, etc.) needed to solve a specific problem. Such data must only be stored in specific, known locations with limited access.

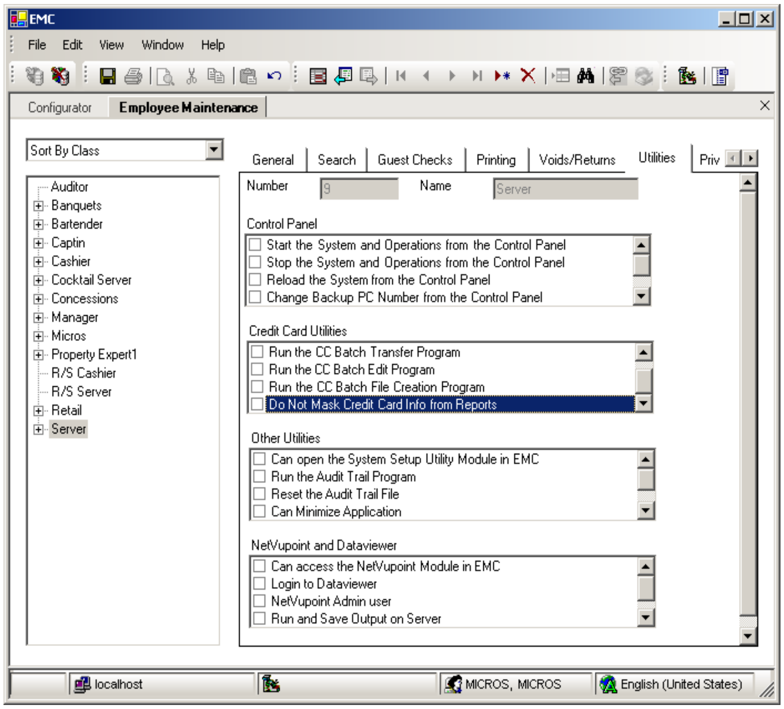
Customers and resellers/integrators must only collect the limited amount of data needed to solve a specific problem and must encrypt such sensitive authentication data while stored. After such data is no longer used, it must be immediately and securely deleted. For more information, refer to the *Customer Support Sensitive Information Security Policy & Handling Guidelines* document.

To be in compliance with Requirement 3 of the PCI Data Security Standard, please ensure the following Credit Card Masking options in the Enterprise Management Console (EMC) are configured as shown below.

Disabled Option

The following option is disabled by default:

- *Personnel | Employees | Maintenance | Select Employee Class | Utilities tab | Credit Card Utilities*: **Do Not Mask CC Info from CC Reports**



Number 9 Name Server

Control Panel

□ Start the System and Operations from the Control Panel
□ Stop the System and Operations from the Control Panel
□ Reload the System from the Control Panel
□ Change Backup PC Number from the Control Panel

Credit Card Utilities

□ Run the CC Batch Transfer Program
□ Run the CC Batch Edit Program
□ Run the CC Batch File Creation Program
□ Do Not Mask Credit Card Info from Reports

Other Utilities

□ Can open the System Setup Utility Module in EMC
□ Run the Audit Trail Program
□ Reset the Audit Trail File
□ Can Minimize Application

NetVupoint and Dataviewer

□ Can access the NetVupoint Module in EMC
□ Login to Dataviewer
□ NetVupoint Admin user
□ Run and Save Output on Server

Note *This option must remain configured as shown above (disabled) to comply with Requirement 3 of The PCI Data Security Standard.*

For more information on Requirement 3 of The PCI Data Security Standard, “Protect cardholder stored data”, please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

4. Encrypt transmission of cardholder data across open, public networks

Sensitive information must be encrypted during transmission over networks that are easily accessed by malicious individuals. Misconfigured wireless networks and vulnerabilities in legacy encryption and authentication protocols continue to be targets of malicious individuals who exploit these vulnerabilities to gain privileged access to cardholder data environments.[6]

[6] “Payment Card Industry (PCI) Data Security Standard doc”, p. 35, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

The 9700 HMS application requires that all POS clients and the server must be established over a secure, private network to ensure that no traffic (including transmission of cardholder data) between 9700 HMS components will be sent over a public network or Internet. MICROS requires that customers and resellers/integrators establish and maintain secure transmissions of cardholder data.

Wireless transmissions of cardholder data must be encrypted over both public and private networks. Encrypt transmissions by using Wi-Fi Protected Access (WPA2) technology, IPSEC VPN, or SSL/TLS. Always restrict access based on a media access code (MAC) address. For more information, please refer to the *MICROS Wireless Networking Best Practices: A Payment Application Data Security Standard (PA-DSS) Implementation Guide Supplement* document.

Because of the PCI Data Security Standard, MICROS Systems, Inc. mandates each site use secure encryption transmission technology (i.e., IPSEC, VPN, or SSL/TLS) when sending cardholder information over public networks, including when using wireless connections, E-mail, and services such as Telnet, FTP, etc. When sending credit card numbers via email, customers and resellers must use an email encryption solution.

Modems should not reside in application servers unless absolutely necessary. If a modem is installed, it should be kept powered off or disabled except when needed. For added security, the modem should be configured to use automatic call back and data encryption. Firewalls will not protect against attacks via the modem.

All non-console administrative access must be encrypted using technologies such as SSH, VPN, or SSL/RLS (transport layer security) for web-based management and other non-console administrative access. Telnet or rlogin must never be used for administration.

For more information on Requirement 4 of The PCI Data Security Standard, “Encrypt transmission of cardholder data across open, public networks”, please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

Maintain a Vulnerability Management Program

5. Use and regularly update anti-virus software

Malicious software, commonly referred to as “malware”—including viruses, worms, and Trojans—enters the network during many business approved activities including employee e-mail and use of the Internet, mobile computers, and storage devices, resulting in the exploitation of system vulnerabilities. Anti-

virus software must be used on all systems commonly affected by malware to protect systems from current and evolving malicious software threats.[7]

In accordance with the PCI Data Security Standard, MICROS Systems, Inc. mandates regular use and regular updates of anti-virus software.

Anti-virus software must be deployed on all systems commonly affected by viruses, particularly personal computers and servers.

To ensure your anti-virus software is set up in compliance with Requirement 5 of the PCI Data Security Standard, “Use and regularly update anti-virus software”, please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

6. Develop and maintain secure systems and applications

Unscrupulous individuals use security vulnerabilities to gain privileged access to systems. Many of these vulnerabilities are fixed by vendor provided security patches, which must be installed by the entities that manage the systems. All critical systems must have the most recently released, appropriate software patches to protect against exploitation and compromise of cardholder data by malicious individuals and malicious software.[8]

***Note:** Appropriate software patches are those patches that have been evaluated and tested sufficiently to determine that the patches do not conflict with existing security configurations. For in-house developed applications, numerous vulnerabilities can be avoided by using standard system development processes and secure coding techniques*

MICROS Systems, Inc. uses standard system development processes to ensure software integrity and security, including maintaining separate development and production environments and ensuring the separation of duties between the development/test and production environments. Updated patches and security updates are available via the MICROS product website, <http://www.micros.com>. While MICROS Systems, Inc. makes every possible effort to conform to Requirement 6 of the PCI Data Security Standard, certain parameters, including following change control procedures for system and software configuration changes, and the installation of available security patches, depend on site specific protocol and practices.

[7] “Payment Card Industry (PCI) Data Security Standard doc”, p. 37, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

[8] “Payment Card Industry (PCI) Data Security Standard doc”, p. 38, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

To ensure your site develops and maintains secure systems and applications in compliance with Requirement 6 of The PCI Data Security Standard, “Develop and Maintain Secure Systems and Applications”, please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

Implement Strong Access Control Measures

7. Restrict access to cardholder data by business need-to-know

To ensure critical data can only be accessed by authorized personnel, systems and processes must be in place to limit access based on need to know and according to job responsibilities. “Need to know” is when access rights are granted to only the least amount of data and privileges needed to perform a job.[9]

MICROS Systems, Inc. recognizes the importance of data control, and does so by establishing access based upon employee job level. This mechanism ensures access to sensitive information is restricted, password protected, and based on a need-to-know basis.

Access to customer passwords by resellers/integrator personnel must be restricted.

For more information on Requirement 7 of The PCI Data Security Standard, “Restrict access to cardholder data by business need-to-know”, please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

8. Assign a unique ID to each person with computer access

Assigning a unique identification (ID) to each person with access ensures that each individual is uniquely accountable for his or her actions. When such accountability is in place, actions taken on critical data and systems are performed by, and can be traced to, known and authorized users.[10]

Note: *These requirements are applicable for all accounts, including point-of-sale accounts, with administrative capabilities and all accounts used to view or access cardholder data or to access systems with cardholder data. However, Requirements 8.1, 8.2 and 8.5.8 through 8.5.15 are not intended to apply to user accounts within a point-of-sale payment application that only have access to one card number at a time in order to facilitate a single transaction (such as cashier accounts).*

[9] “Payment Card Industry (PCI) Data Security Standard doc”, p. 44, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

MICROS Systems, Inc. recognizes the importance of establishing unique IDs for each person with computer access. No two MICROS users can have the same ID, and each person's activities can be traced, provided the client site maintains proper configuration and adheres to privilege level restrictions based on a need-to-know basis.

While MICROS Systems, Inc. makes every possible effort to conform to Requirement 8 of the PCI Data Security Standard, certain parameters, including proper user authentication, remote network access, and password management for non-consumer users and administrators, for all system components, depend on site specific protocol and practices.

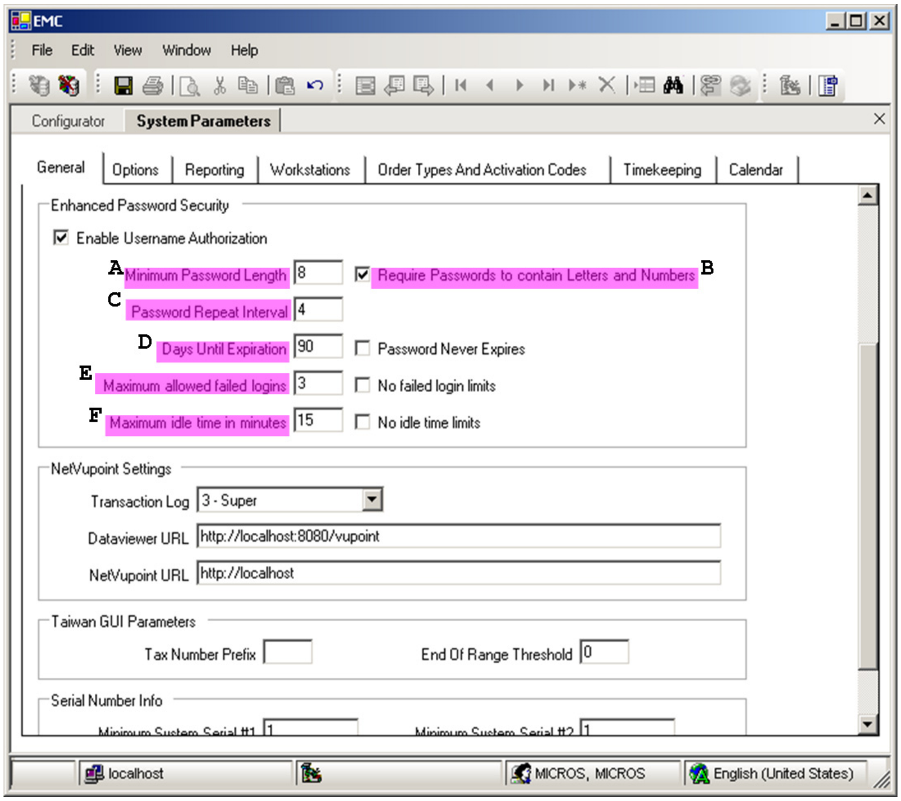
To ensure strict access control of the 9700 HMS application, always assign unique usernames and complex passwords to each account. MICROS Systems, Inc. mandates applying these guidelines to not only MICROS passwords, but to Windows® passwords as well.

Furthermore, MICROS Systems, Inc. advises users to control access, via unique usernames and PCI-compliant complex passwords, to any PCs, servers, and databases with payment applications and cardholder data.

[10] "Payment Card Industry (PCI) Data Security Standard doc", p. 46, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

Creating Secure Passwords

To comply with Requirement 8 of the PCI Data Security Standard, ensure the following options in the Enterprise Management Console (EMC) are configured as shown below.



Enhanced Password Security

☑ Enable Username Authorization

A Minimum Password Length 8 ☑ Require Passwords to contain Letters and Numbers B

C Password Repeat Interval 4

D Days Until Expiration 90 □ Password Never Expires

E Maximum allowed failed logins 3 □ No failed login limits

F Maximum idle time in minutes 15 □ No idle time limits

NetVupoint Settings

Transaction Log 3 - Super

Dataviewer URL http://localhost:8080/vupoint

NetVupoint URL http://localhost

Taiwan GUI Parameters

Tax Number Prefix End Of Range Threshold 0

Serial Number Info

Minimum System Serial #1 1 Minimum System Serial #2 1

In the *EMC | System Information | Parameters | General tab | Enhanced Password Security tab*, ensure these options (above in pink) are configured as follows:

- A: Ensure “Minimum Password Length” is at least 8
- B: Ensure “Require Passwords to contain Letters and Numbers” is checked
- C: Ensure “Password Repeat Interval” is at least 4
- D: Ensure “Days Until Expiration” is not greater than 90
- E: Ensure “Maximum Allowed Failed Logins” is not greater than 6
- F: Ensure “Maximum Idle Time in Minutes” is not greater than 15

MICROS Systems, Inc. mandates changing your master username password in the EMC, following the above guidelines, after logging in for the first time.

Remote Access

MICROS Systems, Inc. mandates two-factor authentication for remote access to the site's network by MICROS Systems, Inc. employees, administrators, and third parties. Technologies such as remote authentication and dial-in service (RADIUS), terminal access controller access control system (TACACS) with tokens, or VPS based on SSL/TLS or IPSEC with individual certificates must be used.

Remote access software security features must always be used and implemented. Therefore, default settings in the remote access software must be changed so that a unique username and complex password is used for each customer.

Never use the default password. Adhere to the PCI DSS password requirements established on page 6 when creating the new, strong password. Passwords must contain at least 8 characters, including a combination of numbers and letters. Adhere to the same PCI DSS password requirements when creating customer passwords. Passwords must contain at least 8 characters, including a combination of numbers and letters.

Connections must only be allowed from specific, known IP/MAC addresses. Strong authentication or complex passwords for logins must be used. Encrypted data transmission and account lockout after a certain number of failed attempts must be enabled. The systems must be configured so that a remote user must establish a Virtual Private Network (VPN) connection via a firewall before access is allowed.

Logging functions must be enabled for security purposes. Access to customer passwords must always be restricted. For more information, refer to the *MICROS Customer Support Access Policy* document.

For more information on Requirement 8 of the PCI Data Security Standard, "Assign a unique ID to each person with computer access", please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

9. Restrict physical access to cardholder data

Any physical access to data or systems that house cardholder data provides the opportunity for individuals to access devices or data and to remove systems or hardcopies, and should be appropriately restricted. For the purposes of Requirement 9, "onsite personnel" refers to full-time and part-time employees, temporary employees, contractors and consultants who are physically present on the entity's premises. A "visitor" refers to a vendor, guest of any onsite personnel, service workers, or anyone who needs to enter the facility for a short duration, usually not more than one day. "Media" refers to all paper and electronic media containing cardholder data.[11]

In accordance with the PCI Data Security Standard, MICROS Systems, Inc. mandates the restriction of physical access to cardholder data. Inbound and outbound traffic to the cardholder data environment must be restricted.

MICROS Systems, Inc. mandates users not store cardholder data on Internet-accessible systems. To ensure cardholder data is not stored on Internet-accessible systems, the web server and data server must not be on the same server.

To ensure your site is set up in compliance with Requirement 9 of The PCI Data Security Standard, "Restrict physical access to cardholder data", please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

Regularly Monitor and Test Networks

10. Track and monitor all access to network resources and cardholder data

Logging mechanisms and the ability to track user activities are critical in preventing, detecting, or minimizing the impact of a data compromise. The presence of logs in all environments allows thorough tracking, alerting, and analysis when something does go wrong. Determining the cause of a compromise is very difficult, if not impossible, without system activity logs.[12]

MICROS Systems, Inc. provides a comprehensive audit trail utility within the EMC, that allows privileged users to track MICROS specific activities.

[11] "Payment Card Industry (PCI) Data Security Standard doc", p. 51, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

[12] "Payment Card Industry (PCI) Data Security Standard doc", p. 55, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

Microsoft SQL Server®

Enable Database Logging

***Note:** For maximum security and functionality, MICROS Systems, Inc. strongly recommends consulting with a Microsoft SQL Server® or Oracle® Server database administrator to perform this task.*

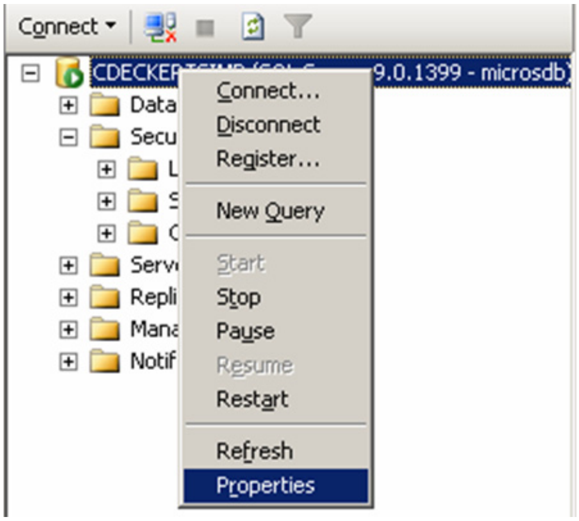
For customers interested in implementing more extensive auditing within MS SQL Server®, see below.

For information on C2 audit tracing on MS SQL Server 2000, refer to the following link to access the *SQL Server 2000 C2 Administrator's and User's Security Guide* available for download from Microsoft's website, http://www.microsoft.com/technet/prodtechnol/sql/2000/maintain/sqlc2.mspx

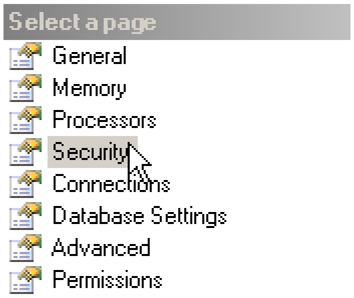
For information on C2 audit tracing for MS SQL Server 2005,
refer to the following link from the Microsoft Developer Network website, http://msdn.microsoft.com/en-us/library/ms189114(SQL.90).aspx

The following steps may be taken to enable C2 audit tracing.

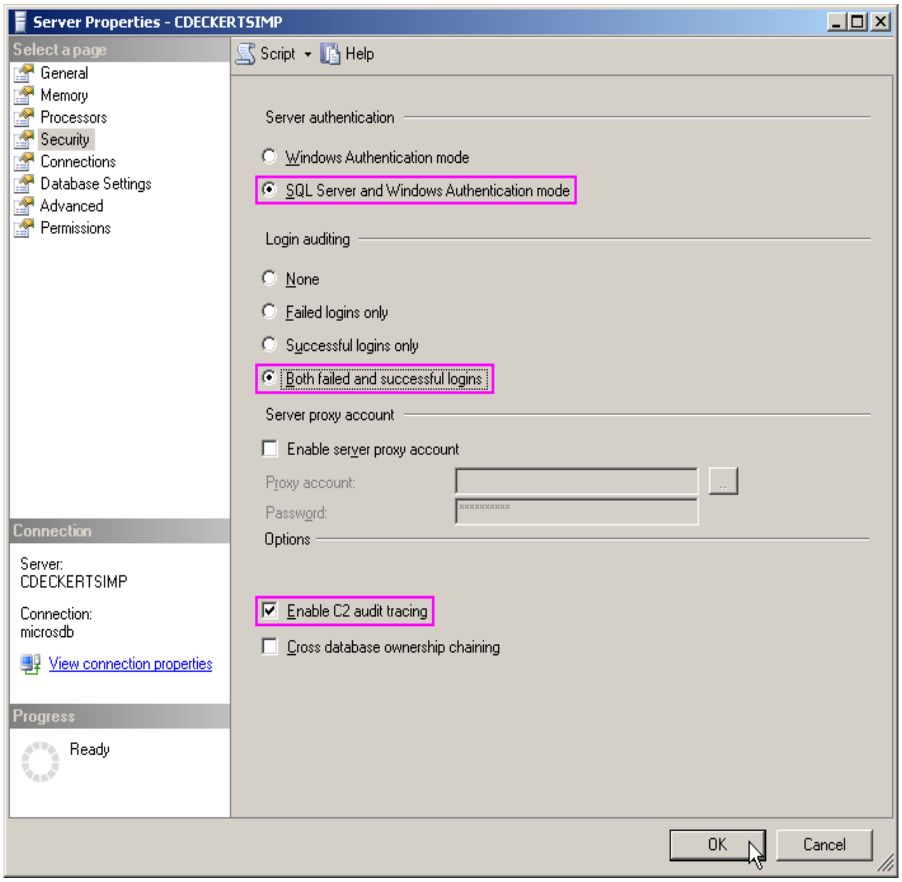
1. Within Microsoft® SQL Server Management Studio, select the Server until it highlights. Right-click the server and select *Properties*.



2. Select *Security* until it highlights.



3. Follow the steps outlined below.



Server: CDECKERTSIMP

Connection: microsdb

Server authentication

○ Windows Authentication mode

● SQL Server and Windows Authentication mode

Login auditing

○ None

○ Failed logins only

○ Successful logins only

● Both failed and successful logins

Server proxy account

□ Enable server proxy account

Proxy account:

Password: xxxxxxxxxx

Options

☑ Enable C2 audit tracing

□ Cross database ownership chaining

- Within the Server Authentication section, select the "SQL Server and Windows Authentication mode" option, as seen circled above.

- Within the Login auditing section, select the "Both failed and successful logins" option.

- Within the Options section, select the "Enable C2 audit tracing" option.

Oracle®

1. To enable the Oracle® server Audit Trail, set the `AUDIT_TRAIL` static parameter within the Parameter file, which has the following properties:

```
AUDIT_ TRAIL = { none | os | db |db, extended
|xml |xml,extended }
```

The following list provides a description of each setting:

- `none` or `false`: Auditing is disabled.
- `db` or `true`: Auditing is enabled with all audit records stored in the database audit trail (SYS.AUD$).
- `db,extended`: As db, but the SQL_BIND and SQL_TEXT columns also populated.
- `xml`: Auditing is enabled, with all audit records stored as XML format OS files.
- `xml,extended`: As xml, but the SQL_BIND and SQL_TEXT columns are also populated.
- `os`: Auditing is enabled with all audit records directed to the operating system's audit trail.

Note *The `AUDIT_TRAIL` static parameter **cannot** be equal to '`none`' or '`false`' in order to comply with Requirement 10 of The PCI Data Security Standard.*

The `AUDIT_SYS_OPERATIONS` static parameter enables or disables the auditing of operations issued by users connecting with SYSDBA or SYSOPER privileges, including the SYS user. All audit records are written to the OS audit trail.

Note *The `AUDIT_SYS_OPERATIONS` static parameter must be set to '`true`' to comply with Requirement 10 of The PCI Data Security Standard.*

The `AUDIT_FILE_DEST` parameter specifies the OS directory used for the audit trail when the os, xml and xml,extended options are used. It is also the location for all mandatory auditing specified by the `AUDIT_SYS_OPERATIONS` parameter.

Note *Privileged access to the database, starting and stopping of the database, and structural changes (such as adding a datafile) will now be audited.*

No audit actions are captured yet until audit actions are defined. For instruction on how to define audit actions, see the Oracle® Database Security Guide.

2. Use the `AUDIT` statement to setup detailed auditing. The `AUDIT` statement can be used to track the occurrence of SQL statements in subsequent user sessions, specific SQL statements or all SQL statements authorized by a particular system privilege, and track operations on a specific schema object.

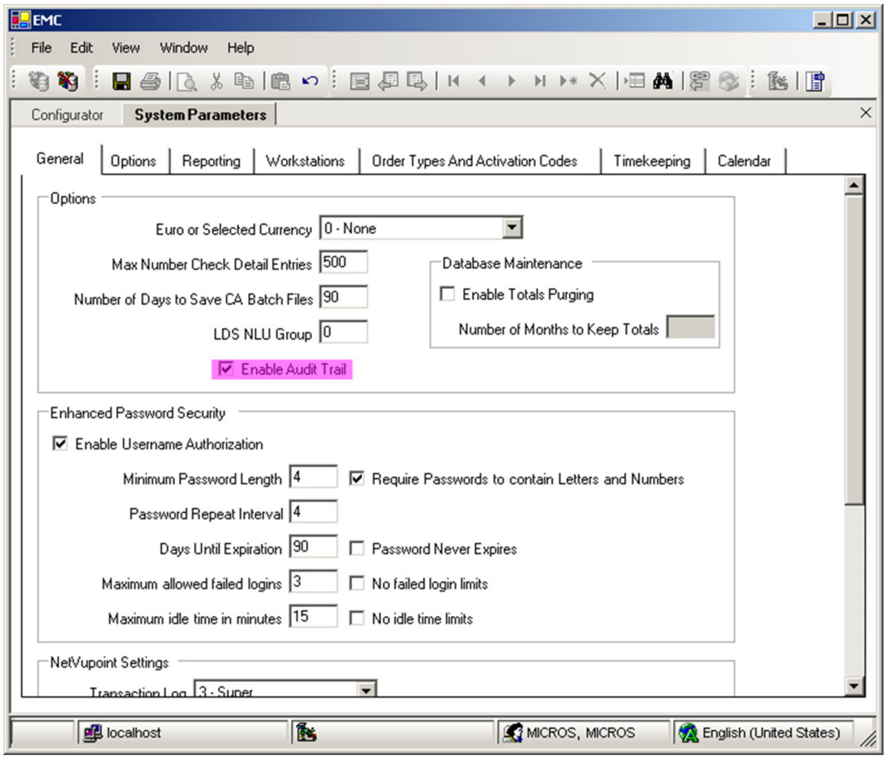
   For detailed information on using the `AUDIT` statement, see the “AUDIT” section of the *Oracle® Database SQL Reference*, http://download.oracle.com/docs/cd/B19306_01/server.102/b14200/statements_4007.htm#i2059073.

For more information, please see the “Database Auditing: Security Considerations” chapter within the *Oracle® Database Security Guide* available for download from Oracle’s website, www.oracle.com.

The EMC Audit Trail

In accordance with the PCI Data Security Standard, MICROS Systems, Inc. mandates activity logging on the database server for MICROS related actions taken by any individual with root or administrative privileges via enabling the audit trail feature. Always enable audit logs for systems that store, process, and transmit cardholder data. For more information on the Audit Trail Utility, see the *9700 Security Guide* document.

To enable the Audit Trail, navigate to the *System Information | System Parameters module | General tab* within the EMC and check the option "Enable Audit Trail", as shown below.



Options

Euro or Selected Currency: 0 - None

Max Number Check Detail Entries: 500

Number of Days to Save CA Batch Files: 90

LDS NLU Group: 0

☑ Enable Audit Trail

Database Maintenance

□ Enable Totals Purging

Number of Months to Keep Totals:

Enhanced Password Security

☑ Enable Username Authorization

Minimum Password Length: 4 ☑ Require Passwords to contain Letters and Numbers

Password Repeat Interval: 4

Days Until Expiration: 90 □ Password Never Expires

Maximum allowed failed logins: 3 □ No failed login limits

Maximum idle time in minutes: 15 □ No idle time limits

NetVupoint Settings

Transaction Log: 3 - Super

To ensure your site is in compliance with Requirement 10 of The PCI Data Security Standard, "Track and monitor all access to network resources and cardholder data", please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

11. Regularly test security systems and processes

Vulnerabilities are being discovered continually by malicious individuals and researchers, and being introduced by new software. System components, processes, and custom software should be tested frequently to ensure security controls continue to reflect a changing environment.[13]

In accordance with the PCI Data Security Standard, MICROS Systems, Inc. mandates regular testing of security systems and processes.

[13] "Payment Card Industry (PCI) Data Security Standard doc", p. 59, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

To ensure your site’s security systems and processes are setup in compliance with Requirement 11 of The PCI Data Security Standard,“Regularly test security systems and processes”, please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

Maintain an Information Security Policy

12. Maintain a policy that addresses information security

A strong security policy sets the security tone for the whole entity and informs personnel what is expected of them. All personnel should be aware of the sensitivity of data and their responsibilities for protecting it. For the purposes of Requirement 12, “personnel” refers to full-time and part-time employees, temporary employees, contractors and consultants who are “resident” on the entity’s site or otherwise have access to the cardholder data environment.[14]

In accordance with the PCI Data Security Standard, MICROS Systems Inc. mandates a maintained policy that addresses information security. A site’s maintained information security policy should include information on physical security, data storage, data transmission, and system administration.

MICROS Software Update Policy

MICROS Systems, Inc. may occasionally provide 9700 HMS software updates remotely. As such, each site must develop usage policies for critical employee-facing technologies (i.e., remote-access technologies, wireless technologies, removable electronic media, laptops, personal data/digital assistants (PDAs), e-mail usage, and Internet usage) to define proper use of these technologies for all employees and contractors.

Ensure these usage policies require the following:

- Require explicit management approval to use the devices.
- Require that all device use is authenticated with username and password or other authentication item (i.e., token).
- Require a list of all devices and personnel authorized to use the devices.
- Require labeling of devices with owner, contact information, and purpose.
- Require acceptable uses for the technology.
- Require acceptable network locations for the technology.

[14] “Payment Card Industry (PCI) Data Security Standard doc”, p. 64, v2.0, October, 2010. <https://www.pcisecuritystandards.org/documents/pci_dss_v2.pdf>.

- Require a list of company-approved products.
- Require automatic disconnect of modem sessions after a specific period of inactivity.
- Require activation of modems used by vendors only when needed by vendors, with immediate deactivation after use.
- Prohibit the storage of cardholder data onto local hard drives, floppy disks, or other external media when accessing such data remotely via modem.
- Prohibit cut-and-paste and print functions during remote access.

MICROS Systems, Inc. recommends all customers and resellers/integrators use a personal firewall product if computer is connected via VPN or other high-speed connection, to secure these "always-on" connections, per PCI DSS standards as documented on page 5.

To ensure your information security policy is setup in compliance with Requirement 12 of The PCI Data Security Standard, "Maintain a policy that addresses information security", please consult the PCI Security Standards Council website https://www.pcisecuritystandards.org/.

Additional Security Information

For customers with NetVupoint installed, the following steps are recommended to disable the unused JBOSS functionality.

How to disable the JMX-console

1. Stop the MICROS Portal Service.
2. Using Windows Explorer, navigate to the <install dir>:\MICROS\netvupoint\mymicrosv4\server\default\deploy folder.
3. Copy the JMX-console directory to a backup location.
4. Delete the JMX-console directory.
5. Restart the MICROS Portal Service.

How to disable the EJBInvoker-Servlet & JMXInvoker-Servlet

1. Stop the MICROS Portal Service.
2. Using Windows Explorer, navigate to the <install dir>:\MICROS\netvupoint\mymicrosv4\server\default\deploy folder.
3. Copy the http-invoker.sar directory to a backup location.
4. Delete the http-invoker.sar directory.
5. Restart the MICROS Portal Service.

How to disable the Web-console

1. Stop the MICROS Portal Service.
2. Using Windows Explorer, navigate to the <install dir>:\MICROS\netvupoint\mymicrosv4\server\default\deploy\management\console-mgr.sar folder.
3. Copy the web-console.war directory to a backup location.
4. Delete the web-console.war directory.
5. Restart the MICROS Portal Service.

9700 HMS v3.x Port Information

The following TCP/UDP Ports are used by the 9700 HMS v3.x system. Network Port numbers may be required by some sites in order to configure network firewall settings.

Winstation and Diskless Clients

Winstation or diskless clients can communicate to a Soft Cluster Controller (SCC) on the 9700 Application server. It is possible to configure up to 8 different SCCs on a single 9700 system.

- SCC 8 -TCP 5011
- SCC 9 - TCP 5012
- SCC10 - TCP 5013
- SCC11 - TCP 5014
- SCC12 - TCP 5015
- SCC13 - TCP 5016
- SCC14 - TCP 5017
- SCC15 - TCP 5018

SAR & Mobile MICROS clients

- TCP 5200
- TCP 6001-6025

Workstation 4 Client Application Loader (CAL)

- UDP 7301
- TCP 7300

Diskless Workstations

- Diskless clients require the use of Bootp for client configuration. Bootp uses UDP.
- 67 UDP Bootp
- 69 UDP tftp

NetCC

- TCP 5002
- Uses Bootp for configuration

  UDP 67 Bootp

  UDP 69 tftp

IP Printers

- TCP 9100
- UDP 10004 (used for IP Printer discovery)

KDS

- TCP 5002 Display
- TCP 5023 Controller

9700 Interface Ports

All TCP Ports used for 9700 HMS interfaces are configurable from within the interface configuration of the EMC.

The following are the default TCP Ports for common interfaces:

- TCP 5006 Table Management System
- TCP 5007 Property Management System
- TCP 5008 Credit Authorization
- TCP 5009 System Interface Module (SIM)
- TCP 5021 SIMDB Server

EBUTO/MOR

- UPD 5002
- TCP 5002

Legato

- TCP 6000
- TCP 31415
- TCP 31416

NetVupoint Reports

- TCP Port 80

Dataviewer

- TCP Port 8080

CA/PMS default

- TCP Port 5008

Remote Management Console (RMC)

RMC utilizes Microsoft DCOM technology and is governed by the rules of this Technology.

- The RMC uses TCP Port 135 and a dynamically allocated TCP Port in the range of 1024 - 65535.
- Also, the RMC client must be able to reach the Server by its actual IP address.
- You cannot use RMC through firewalls that perform address translation.
- It is possible to restrict the Port range used by the RMC. Please refer to the Microsoft web-site for information regarding DCOM Port restriction.

mymicros.net

- TCP 24 (Required for Download of surrogate applications and updates)
- TCP 110
- TCP 80 (Used for SSL Connectivity)

iCare

- TCP 80 (Access to Web Site)
- TCP 9443 (Used for SSL Connectivity)

Microsoft SQL Server®

- TCP Port 1433

Oracle®

- http://docs.oracle.com/html/B14399_01/app_port.htm

Installation Port Ranges

The following table lists the Port ranges used by components that are configured during the installation. By default, the first Port in the range is assigned to the component, if it is available.

Component	Port	Port Range
Enterprise Manager Agent Enterprise Manager Database Control	HTTP	1830 - 1849
Enterprise Manager Agent Enterprise Manager Database Control	HTTP	5500 - 5519
Enterprise Manager Agent Enterprise Manager Database Control	RMI	5520 - 5539
Enterprise Manager Agent Enterprise Manager Database Control	JMS	5540 - 5559
iSQL*Plus	HTTP	5560 - 5579
iSQL*Plus	RMI	5580 - 5599
iSQL*Plus	JMS	5600 - 5619
Ultra Search	HTTP	5620 - 5639
Ultra Search	RMI	5640 - 5659
Ultra Search	JMS	5660 - 5679