Oracle MICROS Simphony First Edition PA-DSS Implementation Guide Version 1.7

Part Number: E68683-01

About This Document

This document is intended as a quick reference guide to provide guidance and instructions for customers, resellers, and integrators to implement Simphony First Edition (First Edition) software into a merchant environment in a PCI DSS compliant manner. This document relates specifically to Simphony First Edition version 1.7 (and higher) 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. 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.

Please note that the only mobile devices that have been validated for Simphony First Edition with Transaction Services 1.x are a Dell Venue 11 Pro Model 5130 tablet and a DT Research DT365 handheld terminal - Category 2 mobile devices that are optional.
Please see the Mobile FAQs at https://www.pcisecuritystandards.org/security_standards/documents.php?document=mobile-faqs for more information about mobile devices and to understand the types of mobile devices that can and cannot be validated as part of PA-DSS. The use of any of these devices may affect PCI DSS compliance, and customers should check with their acquirer/brand for more information. For more detailed information concerning PCI compliance, please refer to the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

Copyright Information

Printing History

- This Implementation Guide is reviewed annually by the Oracle Hospitality or updated by Oracle whenever there is a major update to the application, such as a new release.
- This Implementation Guide is provided with the software when purchased by Oracle customers.
- Minor corrections and updates may be incorporated into reprints of the current edition without changing the publication date or the edition number.

Edition	Month	Year	Software Version
1st	May	2012	1.6.10
2nd	May	2013	1.6.10
3rd	January	2014	1.6.10
4th	July	2014	1.6.10 MR9
5th	October	2014	1.6.10 MR9
6th	November	2015	1.7
7th	February	2016	1.7

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 [1]

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:** Protect all systems against malware and regularly update anti-virus software or programs
- **Requirement 6:** Develop and maintain secure systems and applications

[1] Reprinted from the 'PCI DSS Requirements and Security Assessment Procedures, v3.0' document, available on the PCI Security website, < https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

Implement Strong Access Control Measures

- **Requirement 7:** Restrict access to cardholder data by business need to know
- **Requirement 8:** Identify and authenticate access to system components
- **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 for all personnel

Additional PCI DSS Requirements for Shared Hosting Providers

- **Requirement A.1 (Appendix A)**: Shared hosting providers must protect the cardholder data environment

Who Should be Reading This Document

This document is intended for the following audiences:

- Oracle MICROS Installers/Programmers
- Oracle Dealers
- Oracle Customer Service
- Oracle Training Personnel
- MIS Personnel
- Oracle MICROS Simphony First Edition Users

What the Reader Should Already Know

This document assumes that the user has the following knowledge or expertise:

- Operational understanding of PCs
- Understanding of basic network concepts
- Familiarity with Simphony First Edition software
- Familiarity with operating peripheral devices

Simphony First Edition Version 1.7 and the PCI Data Standard

While Oracle Hospitality recognizes the importance of upholding card member 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 (plus an additional Appendix A requirement) of the PCI Data Security Standard v3.0. Information within this section pertains only to how the Simphony First Edition Version 1.7 software conforms to these PCI Data Security Standards.

To ensure the payment application is implemented into a secure network environment, Simphony First Edition 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, as long as they meet the minimum requirements for firewalls as defined 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. [2]

[2] "Payment Card Industry (PCI) Data Security Standard doc", p. 19, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>

See the *Simphony_First_Edition_Port_Numbers* document located on the Oracle Help Center at http://docs.oracle.com/en/industries/hospitality/ for more information about securing network access.

In accordance with the PCI Data Security Standard, the Oracle Hospitality 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, the Oracle Hospitality 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, Simphony First Edition 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/.

PCI-DSS Requirement 1.3.7 aligns with the PA-DSS Requirement 9: Cardholder data must never be stored on a server connected to the Internet and substandard **9.1** Store cardholder data only on servers not connected to the Internet.

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. [3]

Oracle Hospitality advises against using any administrative accounts, such as the "sa" account for application access to the database, for application logins. Customers and resellers/integrators are advised to always assign strong passwords to these default accounts even if these accounts are not used. These default accounts should then be disabled or not used. Strong application and system passwords must be used whenever possible. Oracle Hospitality 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 24. 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. All non-console administrative access must be encrypted using technologies such as SSH, VPN for web-based management and other non-console administrative access. Telnet or rlogin must never be used for administration.

Oracle Hospitality product documentation is available on the Oracle Help Center at http://docs.oracle.com/en/industries/hospitality/.

- Refer to *MICROSHW_Wireless Networking Best Practices* for more information about the secure use of wireless technology
- Refer to the *Simphony First Edition Security Guide* for more information about enhancing Simphony FE security or changing and encrypting passwords

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/.

PCI-DSS Requirement 2.1.1 aligns with the **PA-DSS Requirement 6: Protect wireless transmissions** and the PA-DSS sub-standards 6.1 and 6.3.

[3] "Payment Card Industry (PCI) Data Security Standard doc", p. 28, v3.0, November 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

Simphony First Edition 1.7 utilizes the following protocols when supporting wireless network connections for payment devices:

- SOAP used by XML Web service
- TCP\IP and proprietary protocol

Simphony First Edition 1.7 utilizes the following card readers for the payment process.

Manufacturer	Model	Card Reader
Oracle Hospitality Workstations	Integrated Unit	Yes
ViVOtech	4500/4800	Yes
MagTek	DynaPro Audio Jack Reader	Yes
MagTek	DynaPro Mini Card Reader	Yes
VeriFone	e231 Sleeve	Yes
VeriFone	e232 Sleeve	Yes

Required Third Party software:

- Microsoft .net Framework Runtime
- Microsoft Visual C++ Runtime
- Microsoft Web Service Extensions Runtime
- Microsoft SQL Server Native Client
- Oracle ODP.net database driver

PCI-DSS Requirement 2.2.2 aligns with the **PA-DSS Requirement 8: Facilitate secure network implementation** and the PA-DSS sub-standards 8.2

PCI-Compliant Remote Access (PA-DSS 10.1 and 10.2)

The PCI standard requires that if employees, administrators, or vendors are granted remote access to the payment-processing environment; access should be authenticated using a two-factor authentication mechanism. The means two of the following three authentication methods must be used:

1. Something you know, such as a password or passphrase.
2. Something you have, such as a token device or smart card.
3. Something you are, such as a biometric.

Securely implement remote-access software

Perform the following steps to ensure that all remote access to the payment application is performed in a secure manner:

- Change default settings in the remote-access software (for example, change default passwords and use unique passwords for each customer).
- Allow connections only from specific (known) IP/MAC addresses.
- Use strong authentication and complex passwords for logins (See PA-DSS Requirements 3.1.1 through 3.1.11).
- Enable encrypted data transmission according to PA-DSS Requirement 12.1.
- Enable account lockout after a certain number of failed login attempts (See PA-DSS Requirement 3.1.9 through 3.1.10).
- Establish a Virtual Private Network ("VPN") connection via a firewall before access is allowed.
- Enable the logging function.

Restrict access to customer environments to authorized integrator/reseller personnel.

PCI-DSS Requirement 2 aligns with the **PA-DSS Requirement 10: Facilitate secure remote access to payment application** and substandard 10.2.3.

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 also 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. [4]

Simphony First Edition 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 Security Standard.

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

Simphony First Edition 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.

PCI-DSS Requirement 3.2 aligns with the **PA-DSS Requirement 1: Do not retain full track data, card verification code or value (CAV2, CID, CVC2, and CVV2), or PIN block data**.

[4] "Payment Card Industry (PCI) Data Security Standard doc", p. 34, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

PCI-DSS Requirement 3.5 aligns with **PA-DSS Requirement 2: Protect stored cardholder data** and sub-standards 2.4, 2.5, and 2.6.

Encryption keys should be rotated on a regular basis and they are purged as part of the standard Simphony First Edition data purging process.

See the *Simphony First Edition Security Guide* at http://docs.oracle.com/en/industries/hospitality/.for more information on the key rotation process.

Key management activities must be performed per PCI DSS:

- Perform the key rotation as outlined in the Key Manager manual on the required schedule per PCI DSS.
- Manage the pass phrases used to perform the key rotation operation.
- Restrict access to the Key Management functions by assigning the correct permissions to the authorized users.

During the key rotation process, the following is performed automatically:

- Generation of strong cryptographic keys.
- Secure cryptographic key distribution.
- Secure cryptographic key storage.
- Retirement of obsolete keys.

PCI-DSS Requirement 3.5 aligns with **PA-DSS Requirement 2: Protect stored cardholder data** and sub-standards 2.4, 2.5, and 2.6.

Simphony First Edition 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 Security Standard.

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Simphony First Edition 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.

PCI-DSS Requirement 3.3 aligns with **PA-DSS Requirement 2: Protect stored cardholder** data.

Securely Deleting Historical Data

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

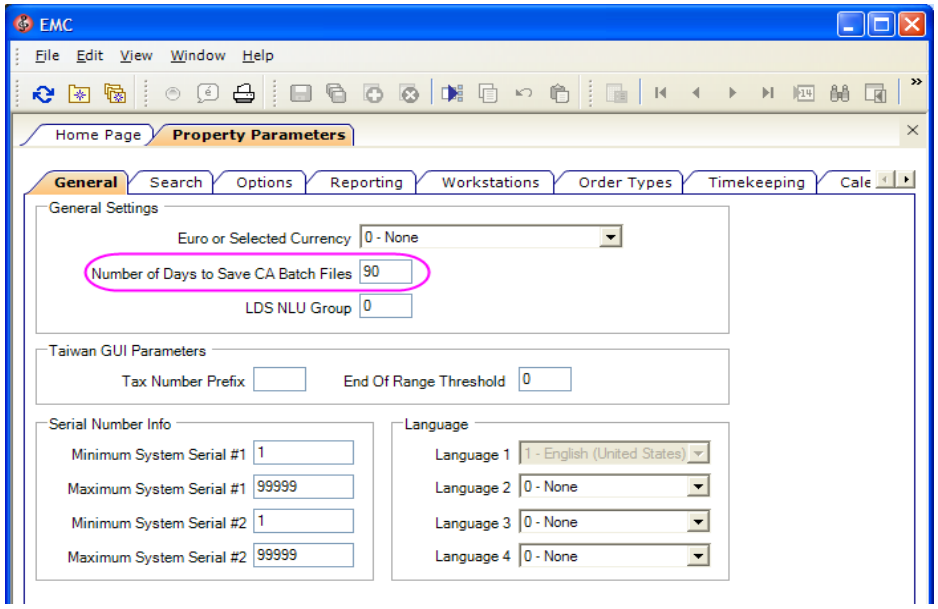
Conversions from Oracle Hospitality 9700 3.x or 4.x to Simphony First Edition 1.7 (and higher) must therefore include securely erasing the legacy database and all old log files from the system after upgrading to Simphony First Edition. Historical data must be securely removed wherever it resides. The Simphony First Edition upgrade itself will encrypt all sensitive data in the database when the initial database conversion occurs. Refer to the *Simphony Upgrade Best Practices* document for instructions on how to securely remove such data.

Note that historical data from previous Oracle Hospitality 9700 3.x or 4.x software cannot be re-encrypted with new keys in Simphony First Edition. This historical data must be securely deleted, following the guidelines above.

Purging Cardholder Data

Cardholder data exceeding the merchant-defined retention period must be purged. Credit card batch purging is configured within the Enterprise Management Console (EMC).

To configure credit card batch purging, navigate to the General tab of the Property Parameters module, as seen below. Within the 'General Settings' section, enter the number of days to save credit card batch files.



In Simphony First Edition, check details purge automatically every 45 days.

Windows Restore Points

The Oracle Corporation requires that Microsoft Windows restore points be disabled so card data from memory cannot be found in the restore point.

Collecting Sensitive Authentication Data for Troubleshooting

It is against Oracle Corporation's policy to collect any Sensitive Authentication Data (including any track data, card validation codes or PIN data) or Cardholder Data for any reason. Our troubleshooting processes do not require the collection of Sensitive Authentication Data or Cardholder Data, nor should it be accepted from a customer.

For more information, refer to the *Oracle Global Customer Support Security Practices* document located at http://docs.oracle.com.

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

PCI-DSS Requirement 3.2 aligns with PA-DSS Requirement 1: Do not retain full track data, card verification code or value (CAV2, CID, CVC2, and CVV2), or PIN block data and sub-

standards 1.1.4 and 1.1.5.

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. [5]

PCI-DSS Requirement 4.1.1 aligns with **PA-DSS Requirement 6: Protect wireless transmissions** and the sub-standards for 6.2.

Simphony First Edition uses Triple-DES 168-bit encryption to ensure credit card data is transmitted across public networks in a manner compliant with the PCI Data Security Standard. When transmitting cardholder data over the Internet *always* use TLS and when transmitting wirelessly, *always* use the highest level of encryption available. When using the TLS protocol, always ensure the use of trusted keys or certificates.

Wireless transmissions of cardholder data must be encrypted over both public and private networks. Encrypt transmissions by using Wi-Fi Protected Access (WPA2) technology, or IPSEC VPN.

Use one of the above methodologies and rotate the keys quarterly (or automatically if the technology permits) and whenever there are changes in personnel who have access to keys. Always restrict access based on media access code (MAC) address. For more information, refer to the *MICROSHW_Wireless Networking Best Practices* document on the Oracle Help Center at http://docs.oracle.com.

[5] "Payment Card Industry (PCI) Data Security Standard doc", p. 44, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

Because of the PCI Data Security Standard, the Oracle Hospitality mandates each site use secure encryption transmission technology (i.e., IPSEC, VPN) 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 e-mail, customers and resellers must use an e-mail 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 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. Protect all systems against malware and regularly update anti-virus software or programs

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.
Additional anti-malware solutions may be considered as a supplement to the anti-virus software; however, such additional solutions do not replace the need for anti-virus software to be in place. [6]

In accordance with the PCI Data Security Standard, the Oracle Corporation 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, "Protect all systems against malware and regularly update anti-virus software or programs", 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 systems must have all appropriate software patches to protect against the exploitation and compromise of cardholder data by malicious individuals and malicious software. [7]

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.*

[6] "Payment Card Industry (PCI) Data Security Standard doc", p. 46, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.
[7] "Payment Card Industry (PCI) Data Security Standard doc", p. 49, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

The Oracle Corporation 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 Oracle product website.

While the Oracle Corporation 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.

PCI-DSS Requirement 6.4.5 aligns with the **PA-DSS Requirement 5: Develop secure payment applications** and the following sub-standards 5.4.4:

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/.

Release Versioning Scheme

The following information discusses the Release Versioning Scheme that is used for all Oracle products. Simphony First Edition started using this implementation beginning with the version 1.2 release.

Numbering Overview

All software products released from MICROS Systems use the following numbering scheme: **A.B.CCDD.EEEE**

- "**A**" = Major Release
- "**B**" = Feature Version
- "**CC**" = Maintenance Release (previously called "Service Pack"; sometimes called a "Rollup" or "Maintenance Rollup")
- "**DD**" = Hot Fix (often called a "patch", sometimes a "nova")
- "**EE**" = Build number

Note: *For the first Maintenance Release, the version will be 1.7.0100; for the first Hot Fix, the version will be 1.7.0001.*

- *When a new Feature Version (B) is released, the "CCDD" counters are all reset to 0.*
- *When a new Maintenance Release (CC) is released, only the "DD" counters are reset to 0.*

Product Release Publication

In general, a new General Release of a software product occurs every 1-2 years, Feature Versions every 3-4 months, and Maintenance Releases approximately every 6-8 weeks. Hot Fixes are not published on a schedule; they are created on an as-needed basis and only provided to the requesting customer or channel. Hot Fixes are created on a very frequent basis (at least weekly and sometimes daily).

Product Release Summary

Major Releases contain significant new capabilities. Some examples include:

- Large features and functionality
- Support for new operating systems or database platforms
- Additional product modules
- Defect corrections

Feature Versions contain new capabilities and enhancements. Some examples include:

- Additional features and functionality
- Defect corrections

Maintenance Releases contain the following types of fixes:

- Defect corrections to existing features and functionality.
- A rollup of Hot Fixes created prior to the release of a Maintenance Release.

Hot Fixes are small software changes which generally address a single issue or defect.

- New features and functionality are not included in a Hot Fix.

Certification

Software Changes Affecting Cardholder Data Security

Software changes which affect cardholder data security are only General Released in a Major Release or Feature Version which has completed the full PA-DSS certification process.

Note: *Critical software changes which affect cardholder data security that must be made available outside of a Major Version or Feature Release are only provided in a Maintenance Release for customers who agree to and sign a PA-DSS waiver.*

Release Governance

- All Major Releases are PCI PA-DSS validated prior to General Release.
- All Feature Versions are PCI PA-DSS validated prior to General Release.
- Maintenance Releases are not PCI PA-DSS validated.
- Hot Fixes are not PCI PA-DSS validated.

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/.

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. [8]

The Oracle Corporation 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] "Payment Card Industry (PCI) Data Security Standard doc", p. 61, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

8. Identify and authenticate access to system component

Assigning a unique identification (ID) to each person with access ensures that each individual is uniquely accountable for their 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 and processes. The effectiveness of a password is largely determined by the design and implementation of the authentication system—particularly, how frequently password attempts can be made by an attacker, and the security methods to protect user passwords at the point of entry, during transmission, and while in storage. [9]

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. This includes accounts used by vendors and other third parties (for example, for sup- port or maintenance). However, Requirements 8.1.1, 8.2, 8.5, 8.2.3 through 8.2.5, and 8.1.6 through 8.1.8 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).*

The Oracle Corporation recognizes the importance of establishing unique IDs for each person with computer access. No two Oracle 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 the Oracle Corporation 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 Simphony First Edition application, always assign unique usernames and complex passwords to each account. The Oracle Corporation mandates applying these guidelines to not only application passwords, but to Windows passwords as well.

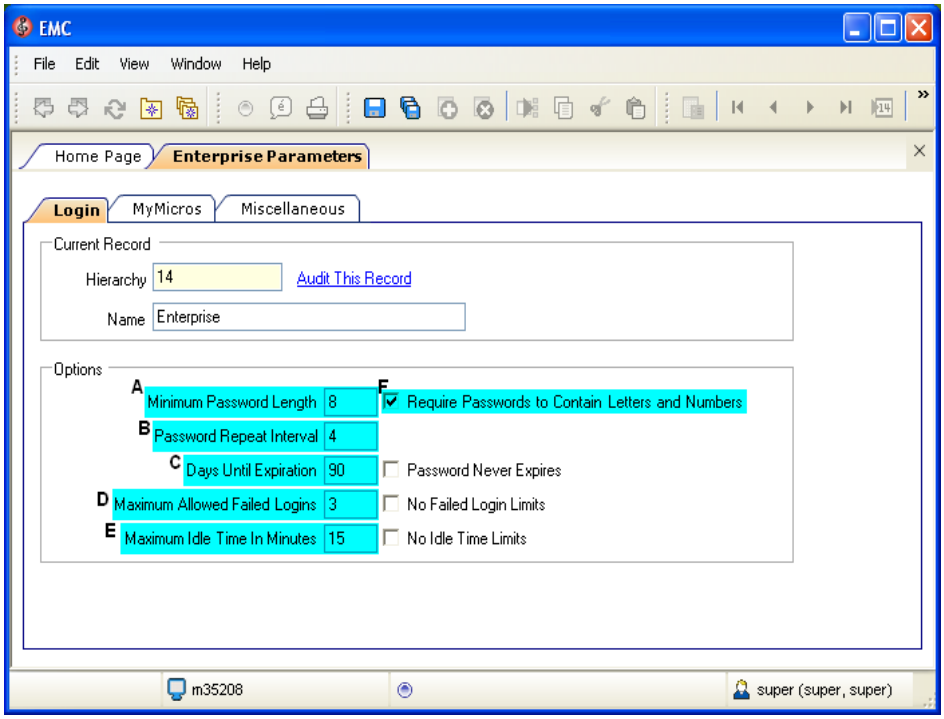
Furthermore, the Oracle Corporation advises users to control access, via unique usernames and PCI-compliant complex passwords, to any PCs, servers, and databases with payment applications and cardholder data.

PCI-DSS Requirements 8.1 and 8.2 align with the **PA-DSS Requirement 3: Facilitate secure network implementation** and sub-standards 3.1 and 3.2.

[9] "Payment Card Industry (PCI) Data Security Standard doc", p. 64, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

Creating Secure Passwords

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



In the *EMC | Enterprise | Parameters | Login Tab |* ***Enhanced Password Security Tab***, ensure these options (above in cyan) are configured as follows:

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

Oracle Hospitality mandates changing your master username password in the EMC, following the above guidelines, after logging in for the first time.

PCI-DSS Requirement 8.3 aligns with the **PA-DSS Requirement 10: Facilitate secure remote access to payment application** and sub-standard 10.1.

Remote Access

Oracle Hospitality mandates two-factor authentication for remote access to the site's network by Oracle Corporation 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 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 10 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 *Oracle Global Customer Support Security Practices* document located at http://docs.oracle.com.

For more information on Requirement 8 of the PCI Data Security Standard, "Identify and authenticate access to system components", please consult the PCI Security Standards Council website, https://www.pcisecuritystandards.org/.

PCI-DSS Requirement 8 aligns with the **PA-DSS Requirement 10: Facilitate secure remote access to payment application** and sub-standard 10.2.3.

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. [10]

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

The Oracle Corporation 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/.

[10] "Payment Card Industry (PCI) Data Security Standard doc", p. 73, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

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. [11]

Oracle Hospitality provides a comprehensive audit trail utility within the EMC that serves as the centralized logging system. The Audit Trail utility allows privileged users to track Simphony First Edition specific activities.

PCI-DSS Requirement 10.1 aligns with the **PA-DSS Requirement 4: Log payment application activity** and sub-standard 4.1.

PCI-DSS Requirement 10.5.3 aligns with the **PA-DSS Requirement 4: Log payment application activity** and sub-standard 4.4.

Microsoft SQL Server

Enable Database Logging

PCI-DSS Requirement 10 aligns with the **PA-DSS Requirement 10: Facilitate secure remote access to payment application** and sub- standards 10.2.3.

Note: *For maximum security and functionality, Oracle Hospitality strongly recommends consulting with a Microsoft SQL Server or Oracle Database administrator to perform this task.*

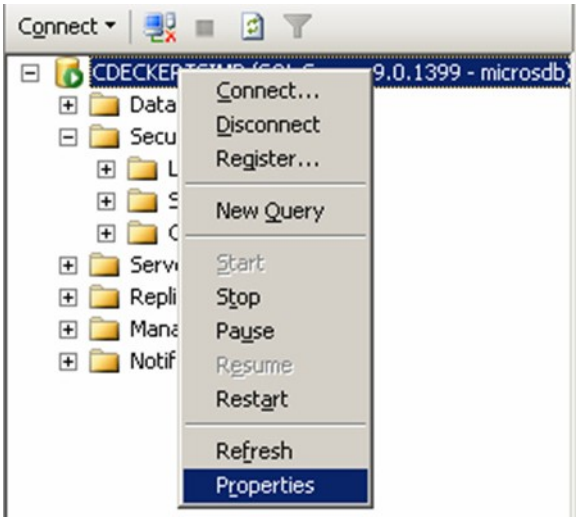
For customers interested in implementing more extensive auditing within Microsoft SQL Server, see below.

For information on C2 audit tracing for Microsoft SQL Server 2008, refer to the following link from the Microsoft Developer Network website, http://msdn.microsoft.com/.

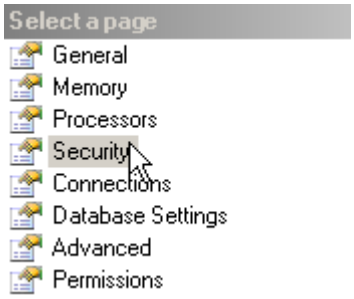
[11] "Payment Card Industry (PCI) Data Security Standard doc", p. 82, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

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

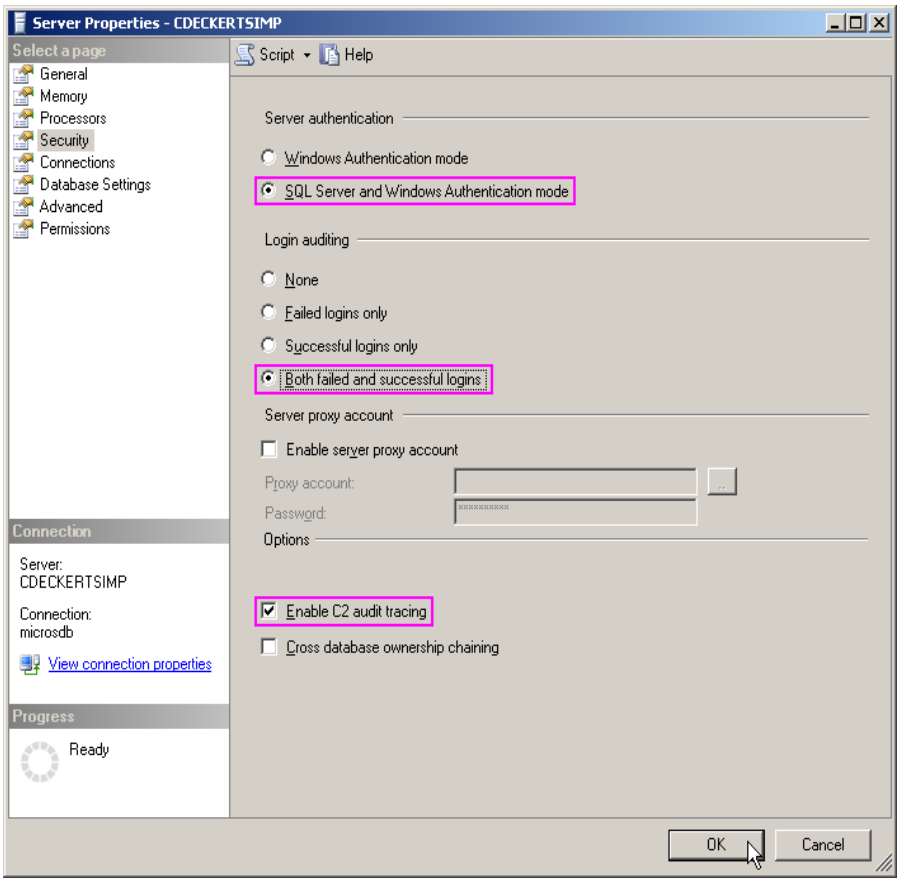
1. Within Microsoft SQL Server Management Studio, select the Server until it highlights. Right-click the server and select Properties.



2. Select *Security* until it highlights.



3. Follow the steps outlined below.
   a. Within the Server Authentication section, select the "SQL Server and Windows Authentication mode" option, as seen circled above.
   b. Within the Login auditing section, select the "Both failed and successful logins" option.
   c. Within the Options section, select the "Enable C2 audit tracing" option.



Oracle Database

Enable the Oracle Audit Trail

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_OPERATIONSstatic 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 data file) 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.*

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://docs.oracle.com/.

For more information, please see the "Database Auditing: Security Considerations" chapter within the *Oracle Database Security Guide* available for download from http://docs.oracle.com.

The EMC Audit Trail

In accordance with the PCI Data Security Standard, Oracle Hospitality mandates activity logging on the database server for all actions taken by any individual with root or administrative privileges via enabling the Audit Trail feature. The EMC Audit Trail utility is the system's centralized logging system. The Simphony First Edition database Audit Trail utility is automatically enabled by default and requires no initial configuration.

For more information on the Audit Trail Utility, see the *Simphony First Edition Security Guide* document.

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. [12]

In accordance with the PCI Data Security Standard, the Oracle Hospitality mandates regular testing of security systems and processes.

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/.

[12] "Payment Card Industry (PCI) Data Security Standard doc", p. 89, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

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. [13]

PCI-DSS Requirement 12.3.9 aligns with the **PA-DSS Requirement 10: Facilitate secure remote access to payment application** and the sub-standard 10.2.1.

In accordance with the PCI Data Security Standard, the Oracle Hospitality 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.

[13] "Payment Card Industry (PCI) Data Security Standard doc", p. 97, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

Additional PCI DSS Requirements for Shared Hosting Providers

Requirement A.1 (Appendix A): Shared hosting providers must protect the cardholder data environment

As referenced in Requirement 12.8 and 12.9, all service providers with access to cardholder data (including shared hosting providers) must adhere to the PCI DSS. In addition, Requirement 2.6 states that shared hosting providers must protect each entity's hosted environment and data. Therefore, shared hosting providers must additionally comply with the requirements in this Appendix. [14]

In accordance with the PCI Data Security Standards v3.0 (Nov., 2013), Oracle Hospitality mandates a maintained policy that addresses information security for Shared Hosted Providers as outlined in the *Payment Card Industry (PCI) Data Security Standard Requirements and Security Assessment Procedures* document.

[14] "Payment Card Industry (PCI) Data Security Standard doc", pages 107-108, v3.0, November, 2013. <https://www.pcisecuritystandards.org/documents/PCI_DSS_v3.pdf>.

Oracle Software Update Policy

Oracle Hospitality may occasionally provide Simphony First Edition software updates remotely. As such, each site must develop usage policies for critical employee-facing technologies (for example, 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 (for example, 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.
- 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.

Oracle Hospitality 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 12.

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 Reporting and Analytics Advanced (formerly mymicros.net) installed, the following steps are recommended to disable the unused JBOSS functionality.

How to remove the JMX-Console, Admin-Console and Web-Console for Reporting and Analytics Advanced

For versions of mymicros.net 8.1.0 and higher, it is recommended that the following steps are performed after deployment:

1. Ensure that the **Micros Portal** Service is turned off.
2. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**myPortal**server**default****deploy*** directory.
   - Delete the **admin-console.war** and **jmx-console.war** folders.
3. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**myPortal**server**default**deploy****management****console-mgr.sar*** directory.
   - Delete the **web-console.war** folder.
4. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**myPortal**server****default*** directory.
   - Delete the **tmp** and **work** folders.
5. Restart the **Micros Portal** Service.

For versions of mymicros.net 6.2.0 through 8.0.1, it is recommended that the following steps are performed after deployment:

1. Ensure that the **Micros Portal** Service is turned off.
2. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**myPortal**server**default****deploy*** directory.
   - Delete the **admin-console.war** and **jmx-console.war** folders.
3. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**myPortal**server**default**deploy****management****console-mgr.sar*** directory.
   - Delete the **web-console.war** folder.

4. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**myPortal**server****default** directory.

   - Delete the **tmp** and **work** folders.

5. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**myPortal**server**default**deploy**http invoker.sar**invoker.war****WEB-INF** directory.

6. Open the **web.xml** file.

7. Search for the following XML element in the **web.xml**:

```
<servlet-mapping>
    <servlet-name>JMXInvokerServlet</servlet-name>
    <url-pattern>/JMXInvokerServlet/*</url-pattern>
  </servlet-mapping>
```

8. Comment it out as shown below:

```
<!--<servlet-mapping>
        <servlet-name>JMXInvokerServlet</servlet-name>
        <url-pattern>/JMXInvokerServlet/*</url-pattern>
    </servlet-mapping>-->
```

9. Search for the following XML element in the **web.xml**:

```
<servlet-mapping>
    <servlet-name>JMXInvokerServlet</servlet-name>
    <url-pattern>/readonly/JMXInvokerServlet/*</url-pattern>
  </servlet-mapping>
```

10. Comment it out as shown below:

```
<!--<servlet-mapping>
        <servlet-name>JMXInvokerServlet</servlet-name>
        <url-pattern>/readonly/JMXInvokerServlet/*</url-pattern>
    </servlet-mapping>-->
```

11. Save the **web.xml** and close the file.

12. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**myPortal**server**default****deploy** directory.

13. Open the **jmx-invoker-service.xml** file.

14. Search for the following XML element:

```
<interceptor      code="org.jboss.jmx.connector.invoker.AuthenticationInterceptor"
  securityDomain="java:/jaas/jmx-console"/>
```

You will find that it is commented out and a comment has been kept just above this element that reads:

```
<-- Uncomment to require authenticated users
```

15. Uncomment this XML element as shown below:

```
<!-- Uncomment to require authenticated users -->
<interceptor      code="org.jboss.jmx.connector.invoker.AuthenticationInterceptor"
  securityDomain="java:/jaas/jmx-console"/>
```

16. Save the **jmx-invoker-service.xml**.
17. Restart the **Micros Portal** Service.

How to remove the JMX-Console, Admin-Console and Web-Console for iCare\Loyalty

For versions of iCare 8.1.0 and higher, it is recommended that the following steps are performed after deployment:

1. Ensure that the **Micros Stored Value Card** Service is turned off.
2. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**iCare**server**default****deploy*** directory.
   - Delete the **admin-console.war** and **jmx-console.war** folders.
3. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**iCare**server**default**deploy****management*****console-mgr.sar*** directory.
   - Delete the **web-console.war** folder.
4. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**iCare**server****default*** directory.
   - Delete the **tmp** and **work** folders.
5. Restart the **Micros Stored Value Card** Service.

For versions of iCare 6.2.0 through 8.0.1, it is recommended that the following steps are performed after deployment:

1. Ensure that the **Micros Stored Value Card** Service is turned off.
2. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**iCare**server**default****deploy*** directory.
   - Delete the **admin-console.war** and **jmx-console.war** folders.
3. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**iCare**server**default**deploy****management*****console-mgr.sar*** directory.
   - Delete the **web-console.war** folder.
4. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**iCare**server****default*** directory.
   - Delete the **tmp** and **work** folders.
5. Using Windows Explorer, navigate to the *<Drive>*:*Micros**Simphony**MyMicros**iCare**server**default**deploy**http-invoker.sar**invoker.war****WEB-INF*** directory.
6. Open the **web.xml** file.
7. Search for the following XML element in the **web.xml**:

```
<servlet-mapping>
    <servlet-name>JMXInvokerServlet</servlet-name>
    <url-pattern>/JMXInvokerServlet/*</url-pattern>
  </servlet-mapping>
```

8. Comment it out as shown below:

```
<!--<servlet-mapping>
        <servlet-name>JMXInvokerServlet</servlet-name>
        <url-pattern>/JMXInvokerServlet/*</url-pattern>
    </servlet-mapping>-->
```

9. Search for the following XML element in the **web.xml**:

```
<servlet-mapping>
    <servlet-name>JMXInvokerServlet</servlet-name>
    <url-pattern>/readonly/JMXInvokerServlet/*</url-pattern>
  </servlet-mapping>
```

10. Comment it out as shown below:

```
<!--<servlet-mapping>
        <servlet-name>JMXInvokerServlet</servlet-name>
        <url-pattern>/readonly/JMXInvokerServlet/*</url-pattern>
    </servlet-mapping>-->
```

11. Save the **web.xml** and close the file.
12. Using Windows Explorer, navigate to the *<Drive>:\Micros\Simphony\MyMicros\iCare\server\default**deploy*** directory.
13. Open **jmx-invoker-service.xml** file.
14. Search for the following XML element:

```
<interceptor      code="org.jboss.jmx.connector.invoker.AuthenticationInterceptor"
  securityDomain="java:/jaas/jmx-console"/>
```

You will find that it is commented out and a comment has been kept just above this element that reads:

```
<-- Uncomment to require authenticated users
```

15. Uncomment this XML element as shown below:

```
<!-- Uncomment to require authenticated users -->
<interceptor      code="org.jboss.jmx.connector.invoker.AuthenticationInterceptor"
  securityDomain="java:/jaas/jmx-console"/>
```

16. Save the **jmx-invoker-service.xml**.
17. Restart the **Micros Stored Value Card** Service.

Note: *For versions of mymicros.net and iCare prior to 6.2.0, it is recommended to upgrade to a more secure version.*