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Restaurant Enterprise Solution Version 4.4 Installation Guide

General Information

About This Document

This document provides installation and setup instructions for the MICROS Restaurant Enterprise Solution (RES) Version 4.4 software. The process ensures the proper transfer and configuration of the files, programs, and databases required for the smooth operation of the applications.

The procedures described in this document are applicable to both and upgraded systems.

Declarations

Warranties

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Contents

To help you navigate the document, information is organized in sections and displayed in the following sequence:

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

What the Reader Should Already Know

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

- Operational understanding of PCs
- Understanding of POS terminology and concepts
- Working knowledge of the Microsoft Windows interface

RES Setup Procedures

Before You Begin: Tips, Traps, and Precautions

Before running the RES Setup procedure, the following should be noted:

- The individual installing the software must be logged on as "Administrator" before running RES Setup on a Microsoft® Windows XP or Windows 2003 system.
- Make sure that all programs/applications are closed on the PC. If the system detects an active program/process during the installation routine, a notification to close may display.
- When upgrading on a RES system where the MICROS Portal is installed, be sure to manually shut down the Micros Agent and Micros Watchdog services. Failure to shut down these Portal-related services can result in a system lockup during database conversion.
- MICROS recommends using NTFS partitions for both the Operating System and the MICROS drive. This is because the NTFS file system provides greater security than FAT partitions.
- Before attempting a RES 4.x installation, all versions of RES v. 3.x must be completely removed from the system. RES v. 3.x must also be removed before upgrading the Operating system to either XP or 2003.

  ***Note**: Ensure that you have an upgradeable version of RES v. 4.x before attempting to apply this RES 4.x patch.*

  RES 3.x cannot be removed successfully from an XP or 2003 system. Be advised that manually removing the MICROS tree and registry will **not** equate to a clean removal of RES.

  Refer to page 40 for instructions on removing the RES software.

- Before installing Win 2003 or XP on the server, make sure that any OPOS devices and related software that need to be installed are compliant with the operating systems. Failure to do so may prevent KDS Controller from loading after setup.

- When installing on a Win 2003 system, double-clicking on **Setup.exe** to run a full RES build will display the following warning:

  "This type of file could harm your computer if it contains malicious code."

  Users then have the option of pressing **Open** (to continue with setup), **Cancel** (to exit), or a generic **More Info** button. This can be problematic, particularly with remote installations.

  To avoid this, users can disable the warning message as follows:

  1. Open Internet Explorer.
  2. Go to *Tools* | *Internet Options* | *Security* | *Internet* | *custom level*.
  3. Scroll down to **Launching Applications and unsafe files** and change the value from *Prompt* to *Enable*.

- During RES 4.x installation, both the Backup Server Service (**ResBSM.exe**) and the KDS Controller are installed to all clients running the XP or 2003 operating systems. Though installed, please note that the Backup Server Service and KDS Controller are not supported on Microsoft XPE and WePOS.

- MICROS recommends assigning no more than 8 print devices to a client. More than that may cause the print service to fail.

- WS4's will need at least 128 MB of RAM installed. Users can verify the amount of RAM by checking *My Computer* | *Control Panel* | *System* | *Memory*. If the amount of Program Memory Allocated is approximately 50000 KB, then the PC has 128 MB of RAM. If the value is only 17000 KB, then it only has 64 MB of RAM and may experience low memory errors.

- Rerunning RES Version 4.0 or higher for purposes of installing, modifying, or repairing any of the applications will reset all of the applications to their General Release versions. If you have already installed service packs to RES 4.x, you will need to rerun all service packs again. Failure to do may prevent you from opening previously installed programs.

- Powering off either the WS4 or the Server during an upgrade to a version of RES can cause the WS4's compact flash to become corrupt. This can also occur if you pull the power cord out of the WS4 while it is writing to the compact flash. To correct the problem, the compact flash must be reformatted using a compact flash reader.

- When using an Eclipse PCWS in a RES 4.x system, be sure to set the O/S field to what the actual operating system is. If installing a new Operating System, set the **O/S** field to the new Operating System prior to installing the new OS. Failure to do so can cause some COM Port issues.

  To view and/or modify the setting:

  1. Reboot the workstation.
  2. Press **F2** to enter the BIOS setup program.
  3. Go to the **Advanced** tab.
  4. Verify that the **O/S** field is set to the workstation's Operating System.

     Since Windows XP is not available as a selection, the WinNT2K selection should be made for XP installations.

- When updating the system's Time Zone setting, users must stop/start RES services before attempting to run POS Operations. This will resynchronize the RES application time zones (which are set on startup) with those on the updated POS clients.

  Failure to do so, or to reboot the system, will cause errors when using the Future Order feature and may affect other timer-related functionality.

- When running Setup with Microsoft Anti-Spyware installed, the system displays a series of warning messages when the MICROS Secure Desktop or other RES applications are started. Should this occur, users are advised to simply press the **Allow** button to continue. Do **not** press the **Block** key, as this will cause problems with the system.

- When upgrading the HHT 8800 from RES 3.x to RES 4.0 or higher, be advised that the HHT Loader will not check for Software Updates until the device is either rebooted or re-cradled after use.

- The firewall on a RES 4.0 server must have the following ports open before it can accept requests from a Win 32 client:

  - TCP: 7300
  - UDP: 7301

- Firewalls should be enabled prior to installing RES 4.x on a Win 2003 Server. If the firewall is enabled after installation, the clients will not be able to communicate with the server and will continuously display prompts for Backup Server Mode (BSM) and Stand-alone Resiliency (SAR).

  To fix the problem post installation, users should:

  1. Start the firewall from *Control Panel* | *Windows Firewall*.
  2. Run **Micros\common\Bin\ConfigureICF.bat**. This will update the exceptions list that RES needs to successfully run with the firewall enabled.

  For more on firewall setup, see Appendix D, page 78.

- Certain Micros applications (e.g., KDS Controller, Backup Server, ILDS, IFS) can be configured to run on both the server or a client (XP or 2003). When switching the configuration to run a service on a PC, users should do the following to ensure that the system updates properly:

  1. Make the necessary changes in POS Configurator to run the service on the PC.
  2. Open Micros Control Panel.
  3. Highlight *Restaurant* and click **Reload**. This will propagate all changes out to all clients.
  4. Reboot the Server.

5. Reopen MICROS Control Panel. Highlight *Restaurant* and click **Reboot All** to reboot all of the clients.

- This version of the software supports PCWS Model Ultra running Windows NT or higher as a client only. A minimum of 128 MB of RAM is required.

- If a PCWS is to be used as the RES server, MICROS recommends the PCWS Model 2010 with a Pentium processor and 512 MB of RAM.

- When using the HP 100 USB printer, the correct procedure is to set the device as the Windows default printer, while leaving the **Default Printer Name** blank in POS Configurator (*System* | *Restaurant* | *Description*). Otherwise, selecting this printer as the 3700 default will result in type size and formatting errors.

- RES Versions 4.x do not support Fast User Switching on the Windows XP platform. This option allows 2 users to log onto the computer simultaneously, and to switch between active users without having the current user log off first. If enabled, it may cause some applications and/or processes to fail.

- The ILDS folder and files are created in **\Micros\common\etc** (RES 4.x instead of **\Micros\res\pos\bin** (RES 3.x).

- If running a RES patch, the system will reference the wrong RES prerequisite version number in *Add/Remove Programs.* This is because RES patches are unable to update version information in Add/Remove Programs.

- When a RES 4.0 Server is patched, all clients except for the Symbol 8800 will be updated automatically. The Symbol 8800 will need to be rebooted or re-cradled after the server has been patched in order to receive the update.

- RES must be removed prior to upgrading the Operating System to either Microsoft XP or 2003. RES cannot be completely removed from an XP or 2003 system. Even manually removing the MICROS tree and registry will not result in a clean removal of RES.

- If upgrading from RES Version 3.x to RES 4.x, the 3.x version must be removed before attempting installation. Otherwise, setup will not proceed. For instructions on removing RES 3.x from the system see Appendix L: Removing RES 3.x Software beginning on page 131.

- There are conversion issues due to custom tables, triggers, stored procedures, etc. that Sybase 9 cannot handle. Therefore, every customer must upgrade their existing database on a lab system prior to installing at a live site. This serves to verify that the upgrade will be successful.

- RES version 3.x is installed to the *C:\Micros* folder by default. RES version 4.x, is installed to C:*Program Files**Micros* by default. Because there is a space between the "Program" and "Files" in the folder name "Program Files," any custom scripts and batch files should contain quotes (e.g., "") when referencing the MICROS folder architecture. For example:

  %microsdrive%\Micros\Common\Bin\registerIIS.bat

  In version 4.x (if Micros is installed to Program Files), this same line would need to be surrounded by quotes (e.g., *"%microsdrive%\Micros\common\Bin\registerIIS.bat").*

- The LX Display Controller needs to be configured to use the correct touch screen driver when installed. If this is not done, the touch screen will still work, but the tool bar buttons may become depressed and will not come back up.

  Follow these steps to configure the correct touch screen driver:

  1. Go to *Start* | *Programs* | *Windows Explorer* | *Control Panel* | *Touch Display.*
  2. Select the correct driver for your monitor.
     Ex: Elo Touch
  3. Select the correct connection type.
     Ex: USB
  4. Reboot the Display Controller.

- To avoid a possible disruption in network communications, set the following option on the server and any clients that are allowed to go into Standby mode.

  1. Open *Device Manager* and right-click on your Network Card.
  2. Select *Properties* | *Power Management* and then *Disable* the **Allow the computer to turn off this device to save power** option.

- The Setname Utility (setname.cfg) is no longer supported on clients running RES versions 4.3 or higher. Setname of the servers is still supported. This will have no impact on functionality because when RES is installed on a Win32 client, CAL automatically changes the client's name and IP Address to match what is configured in the database.

Database Conversion

- **MICROS no longer supports database Version 3.0 or below. The conversion process will only work with database Version 3.1 or higher**.

- An existing Version 3.1/3.2 database with multiple languages created through the **Translate.exe** application may not convert properly. The first language in the database, which is the English US language, will convert correctly.

- When upgrading an existing database, Sybase 9 may have trouble converting custom elements such as tables, triggers, and stored procedures that are not supported in this version. To avoid this problem, customers should upgrade their existing database on a lab system prior to installing at a live site. This will ensure that the database is viable, or allow the customer to make needed corrections if it is not.

Licensing

- After accepting the Licensing Agreement at the start of the RES Version 4.x InstallShield program, if you press **Next** then **Back** to return to the Licensing screen, you will have to accept the agreement twice more before the installation will continue.

- This version of the software requires a MICROS 4.x activation code for each RES module, with the exception of the Guest Services Solution Module.

Labor Management Access

- When installing a site with RES 4.0 or higher, users will be unable to access Labor Management if the only features installed during setup are:
  - RES Infrastructure
  - RES POS Applications
  - Labor Management

  The problem can be corrected by following these steps:

  1. Install the RES 4.0 or higher software.
  2. Browse to the root of the RES 4.x Software CD and double-click on the **AddPM.reg**.
  3. Turn on the system as normal.

  This issue will be permanently corrected in the next RES release.

Guest Services Solutions (GSS)

- If you are currently running GSS on a RES 3.0 system and are upgrading to version RES 4.x, please refer to the *RES 3.2 Service Pack 3 ReadMe First, MD0003-065* for instruction on updating your GSS configuration prior to the RES 4.x installation.

Kitchen Display System (KDS)

- The .NET framework version 1.1 must be loaded on Windows NT and 2000 clients that want to run the KDS display application.

Documentation

- Documentation is available from the MICROS website, on the RES Product page.

Site Requirements

In order to successfully install and enable a RES Setup system, the following requirements must be met:

	Servers		Clients			
	Win 2003	XP	Win 2003	Win 2000[1]	XP Pro	NT[1]
Win XP Pro sp2		X			X	
Win 2003	X		X			
Win 2000 Pro sp3				X		
NT 4.1 sp 6a or greater						X
IE 6.0 sp1 or higher	X	X	X	X	X	X
.NET Framework 1.1 sp1[2]	X	X	X	X[3]	X	X[3]
IIS[4]	X	X				
MSI 3.0	X	X				
MDAC 2.6 sp 1						X
ASP.Net	X	X				

[1] Backup Server Mode (BSM) clients and KDS Controller on a client must be Win 2003 or XP only.

[2] Manager Procedures will only work with .NET version 1.1 installed. Sites that have upgraded to .NET version 2.0 can re-register the Micros install to version 1.1 by running the **RegisterIIS.bat** file, located in the **\MICROS \Common\bin** folder on the Server.

[3] Must be loaded on Win 2000 and NT clients that want to run the KDS display application.

[4] Requires IIS 5.0 for WinXP Pro and 6.0 for Win 2003. IIS is NOT required on clients.

Additional Software Requirements

The following third-party applications are used with RES Setup. These application versions must not be changed by the installation of other third-party software. Any changes to the software application will make the RES System unsupportable.

Application	Version
Microsoft DCOM	1.3 or higher
ODBC	3.52 or higher
Sybase Adaptive Server	9.0.2.3267
Crystal Reports Professional*	9.2.3.1336
Borland Delphi Engine	5.1.1.1
Sentinel Software Key Driver	7.0.0.0
Adobe Acrobat Reader	6.0 or higher
ADO	2.6 sp1 or higher

*Crystal Reports viewer is installed with RES. If report development is required, the installer must load a full version of Crystal Report Professional. If done, RES Setup must be reloaded afterwards.

Reports developed in later versions of Crystal must be saved using Version 9 format.

Hard-Drive Space Requirements

The space requirements listed below assume that the full range of options are to be installed:

RES Environment	2003/XP Server	Windows Client
Clean, no prior RES installation	1.2 GB + size of DB	600 MB
Over existing RES	1.3 GB + size of DB	600 MB

Prior to setup, the system calculates how much space is required for installation of the selected features. If the available disk space is inadequate, an error message is displayed.

Note *RES 4.0 and higher requires a minimum of 200 MB free space on the root drive, (usually C:). This is true even if choosing to install RES to a different drive.*

For optimum system performance, 30% of the root drive should be free space.

Server Requirements

Overview

This section provides guidelines for configuring a RES store system. Please refer to the Enterprise Management site survey and consult with MICROS Research & Development, Product Management when configuring the EM corporate server.

There are four computer resources that affect system performance:

- Memory (RAM)
- Hard-Disk Size
- Controller Type/Number
- Processor Speed

The demands placed on these resources by RES and Enterprise Office applications are a function of the database and the number of transactions posted in the system. Transactions may be posted from any one of the RES applications. These guidelines are predicated on the RES server being dedicated to RES applications only. If the RES server is to be used for other third-party applications, additional resources may be required. Please refer to third-party software source requirements when determining the configuration needs of your system.

The recommendations provided in this section are designed to yield an acceptable performance under average conditions and based on the current version of software. Every effort is made by the development group to prevent significant increases in server resource requirements as RES moves forward. However, because of our reliance on third-party components such as the Microsoft Operating System, Sybase ASA DBMS, and other tools, we cannot guarantee that the suggested minimum requirements will be suitable for future versions of RES, Sybase, and the Windows OS.

For increased performance, or if the customer is planning future upgrades, MICROS recommends increasing the hardware to the next level of server configuration. These recommendations are based on the current Personal Computer offerings.

Disclaimer

The MICROS Research & Development team has neither tested nor certified PCs from other manufacturers, nor does it keep current on their offerings.

As a rule, the MICROS Customer Service and Research & Development groups do not support PCs from other manufacturers. Non-MICROS PCs should be evaluated in terms of their equivalence to the Hewlett-Packard model. For example, a Dell Optiplex is an equivalent model for an HP Vectra, but NOT for an E60 or E800 Net Server.

MICROS neither recommends nor supports loading an operating system on a hardware platform that is not officially supported by the manufacturer. For example, the E60 and E800 do not support Windows XP Pro, while the Vectra line does not support Windows 2003.

Service and support for customers not using a MICROS-approved product will be the total responsibility of the end user. (Note: Performance testing and initial configuration of a third-party PC is available at prevailing rates.)

Further System Recommendations

Performance can be enhanced significantly by increasing RAM and by storing the database on a second hard drive, or moving to a RAID configuration with a caching RAID Controller.

- **Clients** — Windows XP Pro Hard Drive clients provide better performance for larger configurations.
- **Network** — A 10-MB flat network provides adequate performance for a 25-workstation configuration. Integrating into existing, non-MICROS networks requires special considerations.
- When determining system size, the total number of clients refers to all units, including POS Clients, KDS Clients, Hand-Held Terminals, and Backoffice Clients.

- **Resiliency** – Raid 5 is a resilient hard-drive configuration that will protect a site in the event of a single hard drive failure. Any sites that require additional operational and data resiliency should consider using a Raid 5 configuration on an appropriate server. It is always recommended to utilize raid configurations through the hardware controller and not recommended to use the raid features of the Operating System.

- **Dual Processors** – RES 3.x does not support servers with Dual Processors. RES 4.0 and higher do support Dual Processors and Dual Core Servers, however RES applications will not take advantage of the dual-processor/core technology. This means that the user will not see a major performance improvement over a computer utilizing a single processor.

- RES does not currently support servers with hyper-threading enabled; that configuration is not recommended at this time.

- For system purchases, RAM should be purchased in 1 GB increments. Not only is this the most cost effective option, it is the most efficient. Larger RAM means less slot are used and space is preserved for future expansion.

- A mass storage device is recommended when configuring your system. Make sure that this backup storage device has sufficient capacity to hold the MICROS database and all other critical files.

  MICROS recommends backing up to the server's physical hard-drive or to another PC on the network (i.e., an Eclipse workstation). Tape drives may still be used, but are no longer common. ZIP, Jazz, and CD Read/Write drives are not recommended as they do not have adequate capacity to backup a RES database.

  RES 4.0 and higher installs an encrypted database. Sybase recommends that no compression be used when storing an encrypted database. This should be taken into consideration when selecting a backup storage device.

- Hard drives can be an important factor in selecting a PC. For maximum system performance, at least 33% of the hard-drive should be free during operations. This is true for each hard drive and each drive partition.

  Disk defragmentation tools such as Diskeeper are recommended to maintain hard drives at their most optimum performance. Note that when upgrading to RES 4.0 or higher, the size of the database will grow a minimum of 40%.

System Configuration Types

System configuration is based on three factors: 1) number of clients, 2) volume of transactions, and 3) POS Only versus full RES (POS and Enterprise Office) installation.

For clarity, transaction levels are defined as follows:

- **Low Transaction volume** — Refers to a site where the volume of transactions rarely engages all workstations simultaneously. Hotels and some fine dining table-service restaurants (TSRs) are typically low-volume sites.

- **Medium Transaction volume** — Refers to a site where all workstations are often (but not always) engaged simultaneously. Family-style TSRs and moderately busy quick-service restaurants (QSRs) are examples of medium-volume sites.

- **High Transaction volume** — Refers to a site where all workstations are continually and simultaneously engaged. High transaction rates, during extended, peak meal periods are typical of QSRs. Also included in this category are TSRs and hotels with a busy bar, and stadiums and arenas where the transaction volume is concentrated during an event timeframe.

Recommended Configurations

System Purchases

This section provides a matrix of possible server configurations. To determine your optimum setup, match the letter in the Client/Volume table (top) with the corresponding column in the Server Configuration details table (below).

# of Clients	Low Volume		Medium Volume		High Volume	
	POS	POS & EO	POS	POS & EO	POS	POS & EO
4	A	A	A	A	A	A
8	A	A	A	B	B	B
12	B	B	B	B	B	B
16	B	B	B	B	B	B
20	B	B	B	B	B	B

Note *Any system with more than 9 clients must automatically use Configuration B. This is due to the Operating System.*

Server Configuration	A (Less than 10 clients)	B (More than 10 clients)
Base	DC5100 - Tower	ML350 G4 - Tower
Processor Speed	3.2 GHz Pentium 4	3.2 GHz Pentium 4
RAM	1-2 GB	2-4 GB
HD Size	Two 80-GB Hard Drives	Two 80-GB Hard Drives
Network Card	10/100 Network Card	Two 10/100/100 Network Cards
CD Drive	DVD\CDRW Combo	DVD\CDRW Combo
Modem	56K Intel	56K Intel
Floppy Drive	Optional	Optional

Server Configuration	A (Less than 10 clients)	B (More than 10 clients)
OS[1]	Windows XP Pro SP2	Windows 2003 Server
KDS Controller OS requirements	Windows XP Pro SP2	Windows Server 2003

[1]POS Backup Server must be the same operating system as the RES Server.

Client Requirements

RES UWS Client Requirements

The following table provides the minimum hardware requirements for RES user workstation clients:

Network	10/100 Interface Network
Processor	166 MMX MHz
Random Access Memory (RAM)	128 MB
Hard Drive	4 GB
Operating System	Windows NT/W2K/XP Pro/ Win2003[1]
Virtual Registry Size	20 MB

[1]RAM requirements for a specific operating system should be used when the minimum is higher than 128 MB.

RES Mobile MICROS Client Requirements

The following table provides the minimum hardware/software requirements for RES Mobile MICROS clients:

Network	802.11b Wireless Ethernet
Processor	ARM SA 1110
Random Access Memory (RAM)	64 MB

Operating System	Pocket PC 2002[1]
Monitor	Monochrome or Color
Software	Microsoft Active Sync[2]

[1]PPC 2000, if not using Manager Procedures.

[2]Download available on the Microsoft® website (www.microsoft.com).

Before Running Server Setup

The section describes activities required prior to running setup for RES Versions 4.0 or higher.

Temp Folder Requirements

Follow these steps to set up the temp variables for the operating system:

1. Logon using the administrative user name/password.
2. From the Windows Start Menu, select *Settings* | *Control Panel.*
3. Double-click the **System** icon and select the **Advanced | Environment Variables** button.
4. Make sure that the Temp and TMP paths in the User Variables box are the same as those in the System Variables box, and that they are valid for the system.
5. Click **OK** to exit the system.

Database Rebuilds

On rare occasions, the system fails when attempting to upgrade the database from RES 3.x to RES 4.x. Typically, this occurs when the installer imports the same database into a number of sites without clearing totals and rebuilding the database first. The problem arises because the Sybase 6 database is trying to autoincrement the trigger for the installation and has reached the maximum value allowed for the data type.

To avoid this problem, MICROS recommends rebuilding the database prior to running the RES 4.x installation. Since RES 4.x includes an upgrade to Sybase 9, the database cannot be corrected in a version 4.x site. To fix it, a copy of the 3.x database will have to be rebuilt on a RES 3.2 before it can be imported and updated on the RES 4.x system.

IIS Installation

Follow these steps to install Internet Information Services (IIS) security. (Refer to Appendix E, for more information on the IIS program.)

On Windows XP Pro

Note *You will need to access the I386 folder. If this is not already on your computer, you can find it on the Win XP Pro CD.*

1. From the Windows Start menu, select *Settings* | *Control Panel* | *Add/Remove Programs*.
2. Click the **Add/Remove Windows Components** button.
3. Check the **Internet Information Services (IIS)** box.
4. Click **Next**.
5. If prompted for the I386 folder, enter the path or browse to it. Click **OK**.
6. When IIS setup completes, reboot the system.

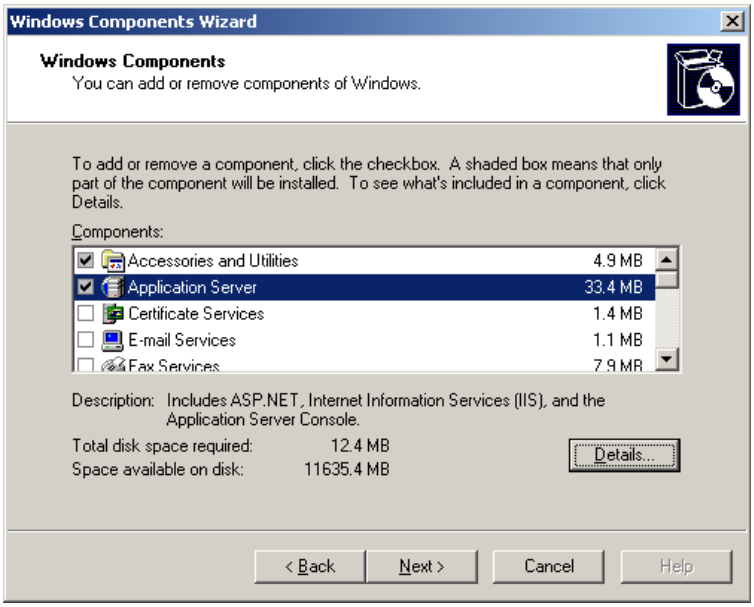
On Win 2003 Server

Note *You will need to access the I386 folder. If this is not already on your computer, you can find it on the Win 2000 CD.*

1. From the Windows Start menu, select *Settings* | *Control Panel* | *Add/Remove Programs*.

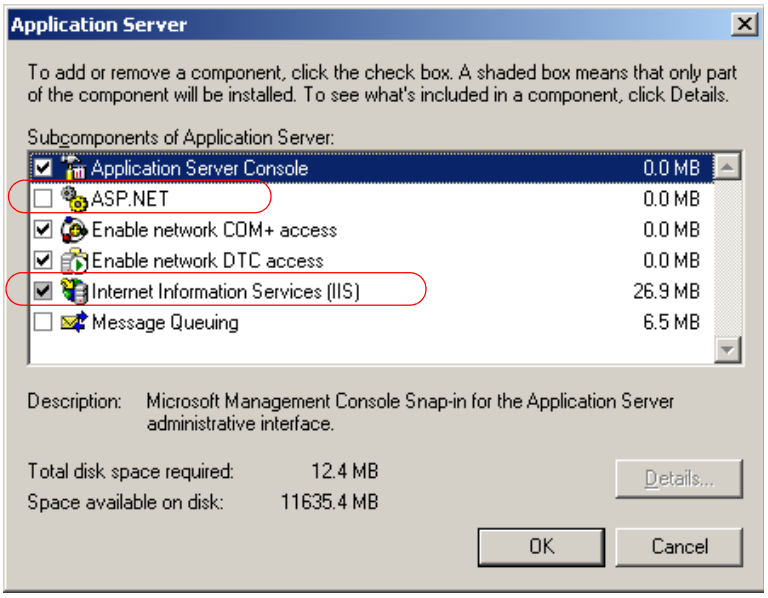
2. Click the **Add/Remove Windows Components** button (left side).

3. Check the **Application Server** box.



4. Click the **Details** button.

5. In the subcomponents list box, make sure that both the **ASP.NET** and **Internet Information Services (IIS)** boxes are checked. Click **OK**.



6. Click **Next**.

7. If prompted for the I386 folder, enter the path or browse to it. (If this is not already on your computer, it can be found on the Microsoft Windows Server 2003 CD.)

8. Click **OK**.

9. When IIS setup completes, reboot the system.

mymicros.net

If your server is running **mymicros.net**, you will have to stop the Micros Agent and Micros Watchdog services prior to running RES 4.x Setup:

1. From the Windows Start menu, select *Settings* | *Control Panel* | *Administrative Tools* | *Services*.

2. Double click on Micros Agent, and click *Stop*.

3. Double click on Micros Watchdog, and click *Stop*.

Limitations

Please note the following caveats and limitations before running Setup for RES 4.0 or higher:

- Due to changes in setup processes, RES no longer supports Repairing or Modifying features. If a problem occurs, sites will have to reinstall the software.
- Removing software via the *Add/Remove* programs applet does not append to the **MICROSRESSETUP.LOG** on the server.
- RES does not support adding applications from the setup program (e.g., Enterprise Office, TMS), once a service pack or hotfix has been applied. To do this, users will have to remove and reinstall the software.

Running Server Setup

MICROS provides two methods for running RES Setup on a server — interactive and non-interactive. The most common method is the interactive (attended) mode, which provides a series of questions and options to guide you toward successful installation of the software.

The non-interactive (unattended) method procedurally functions as an interactive session, but uses a pre-configured response file to answer the system queries presented during installation. This method is intended for use by customers with large rollout requirements. Its purpose is to ensure a uniform installation across locations.

About the Process

Before RES 4.x can be installed, the server must meet the minimum requirements for third-party applications (e.g., Sybase Adaptive Server, Crystal Reports, etc.) that are integral to RES operations. A list of these programs is provided on page 15.

To assist the user, the MICROS setup process has been divided into two installation programs. A separate CD is provided for each:

- **Prerequisites** — Installs or upgrades all of the necessary third-party applications. This should be done first.
- **RES** — Installs or upgrades the selected RES application files and updates the MICROS database.

Please note that a successful installation requires the two setup programs to have compatible version/build numbers. In other words, to ensure that RES 4.4 installs properly, the user must first load the 4.4 Prerequisites.

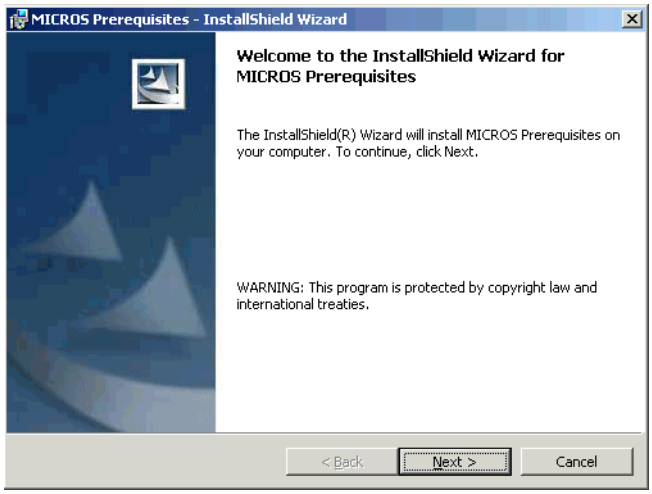
Note *Although the prerequisites do not change with each release, it is crucial that the third-party applications remain in sync with RES.*

To reduce risk, MICROS recommends running the comparable Prerequisite upgrade prior to any RES 4.x installation.

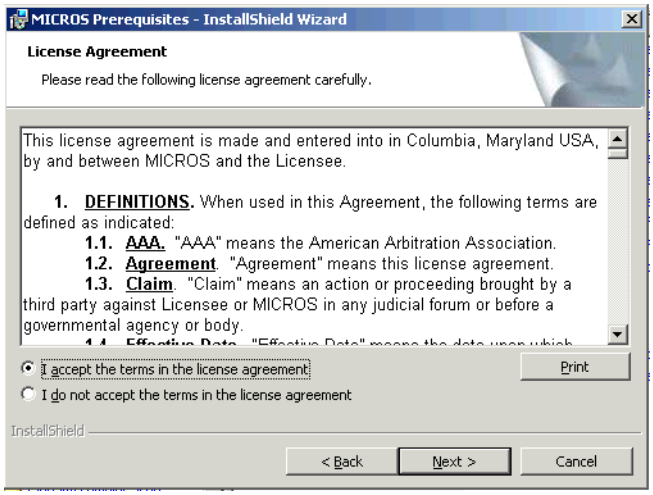
Follow the steps below to install the system software on a RES Server PC. Remember, if you are loading RES 4.0 or higher on a system that previously had a version of RES installed, you must first remove the older version of RES. Instructions on removing RES can be found in this document, beginning on page 40.

Installing the Prerequisites

1. Insert the RES 4.x Prerequisites CD in the PC's CD-ROM drive. The Welcome screen is displayed.

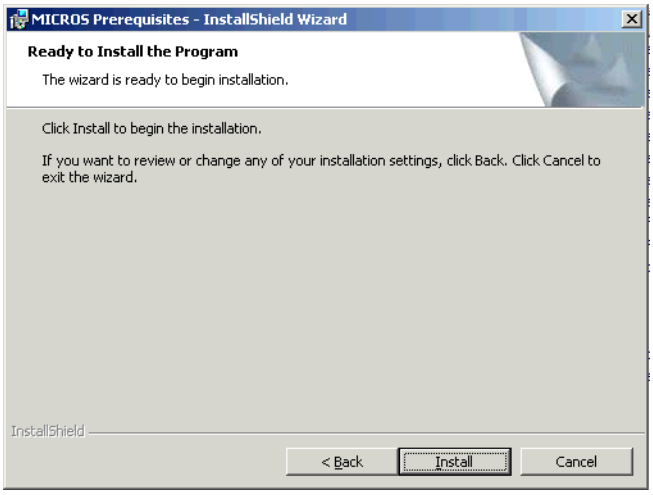


2. Click **Next** to continue the installation. The Licensing Agreement is displayed.

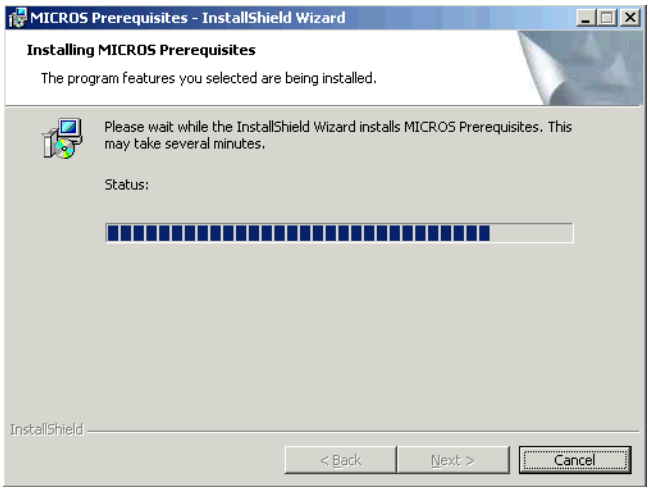


3. Scroll down to review or click **Print** to print the license agreement using the active printer. You must accept the license agreement before the **Next** button is enabled.

4. Click **Next** to accept terms of the license agreement. A confirmation screen is displayed.



5. Click **Install** to continue. A status screen is provided to monitor the progress as the prerequisites are installed.



Note *When upgrading a previous 4.x installation, a problem may arise with the previously installed prerequisite files. This is very rare.*

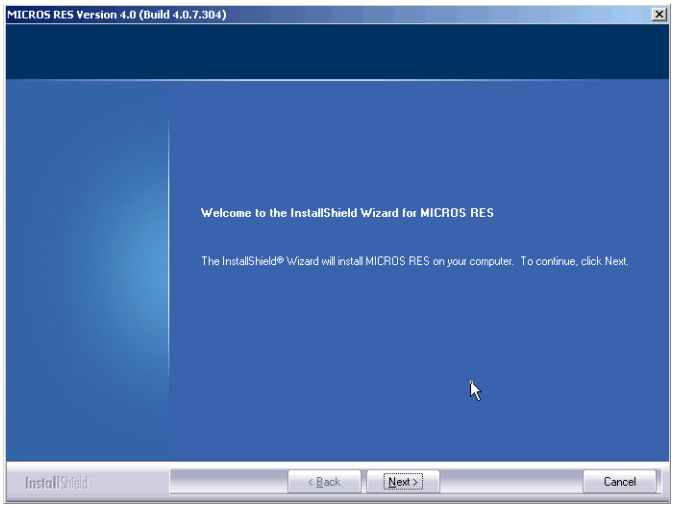
If this occurs, the system will prompt you to remove and reinstall the prerequisites. To do this, you must uninstall the RES release BEFORE uninstalling the prerequisites.Once all files are removed, you can install the er versions of each.

6. If no problems are encountered, the system will display a screen when the installation has been completed successfully. Press **Finish** to exit the setup program.

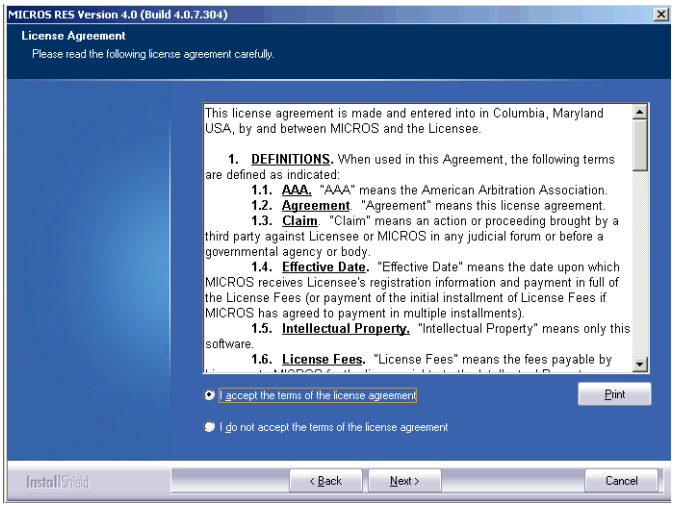
Note *It is not possible to start the database after installing or upgrading the 4.x prerequisites. It will only start again, after RES 4.x setup (installation or upgrade) has been completed.*

Installing RES Interactively

1. Insert the RES Version 4.x Program CD into the PC's CD-ROM drive. The Welcome screen is displayed.



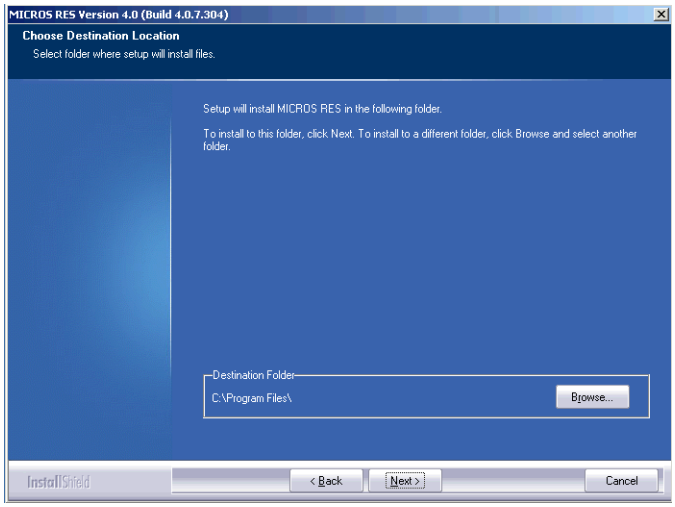
2. Click **Next** to continue the installation. The Licensing Agreement is displayed.



3. Scroll down to review or click **Print** to print the license agreement using the active printer.

4. Click **Next** to accept terms of the license agreement. The system performs an internal diagnostic to determine whether all software prerequisites (OS and MICROS) are installed. If any of the system requirements is missing, setup will halt and you will not be able to continue until the appropriate prerequisites have been met. If the Server passes the diagnostics, the **Next** button will be enabled.

5. Press **Next** to continue. If this is an upgrade installation, proceed to step 8. If this is a installation, the Destination screen will be displayed.

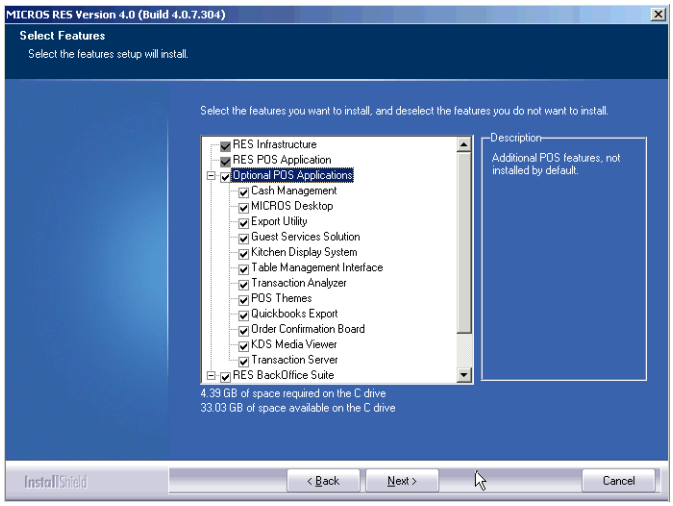


6. Use the **Browse** button to specify where you want the MICROS files installed. The default location is *C:\Program Files\Micros*.

Note *Before installing to a location other than \Micros, make sure that custom applications will support this directory structure.*

Once a drive is selected, the system will check to ensure that there is sufficient space available to continue the installation.

7. Press **Next** to continue. The Features selection screen is displayed.

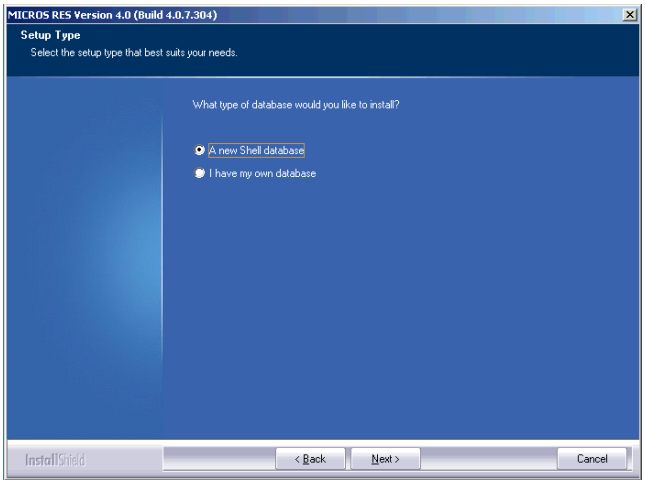


8. Check the components to be installed from the options listed. RES Infrastructure and RES POS Applications are required; all other selections are optional and may be chosen individually or by ‘parent’ feature. Setup will only install the selected items.

   If this is an upgrade, the system will preselect all previously installed applications. You may add/remove selections before continuing. A brief description is provided as each application is selected.

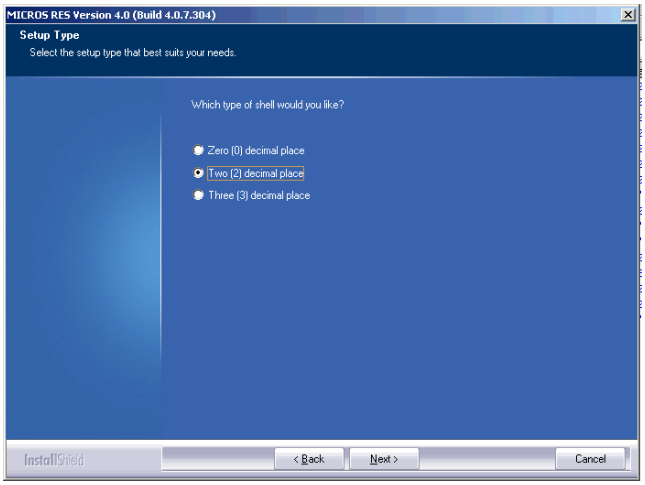
   The space required for installation and what is available on the drive are displayed at the bottom of the screen.

9. Click **Next** to continue. The Setup Type screen is displayed.



10. Select the appropriate radio button to install a database or upgrade an existing one.

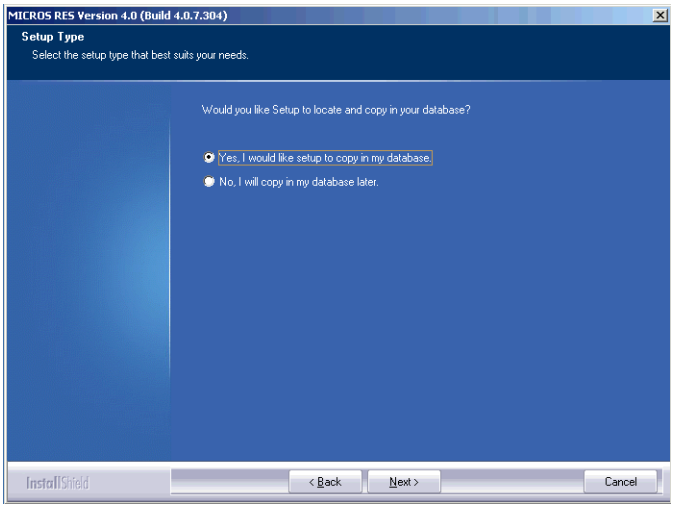
    - If a shell database is selected, a follow-up screen is shown.



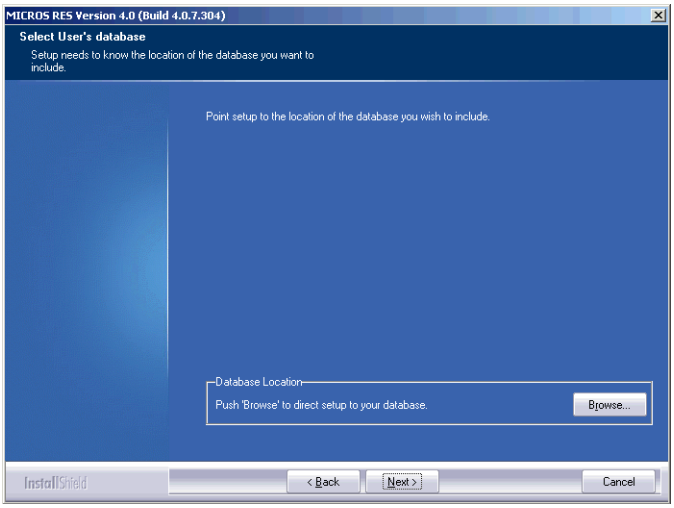
A shell database allows you to start programming from scratch with no preconfigured options or touchscreens. The number of decimal places selected depends on the currency used. For example, the US Dollar uses 2 decimal places and the Russian Ruble uses 3.

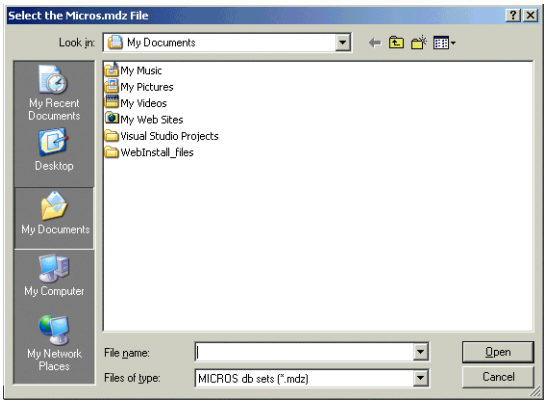
Select the appropriate option and click **Next** to continue.

- If updating an existing database, a different screen is displayed, asking if you want setup to copy your database in during installation or if you will do this manually at a later time.



- If **Yes** is selected, the Select User's database screen is displayed, asking for the database location. Use the **Browse** button to display a standard Open File dialog box and navigate to it.

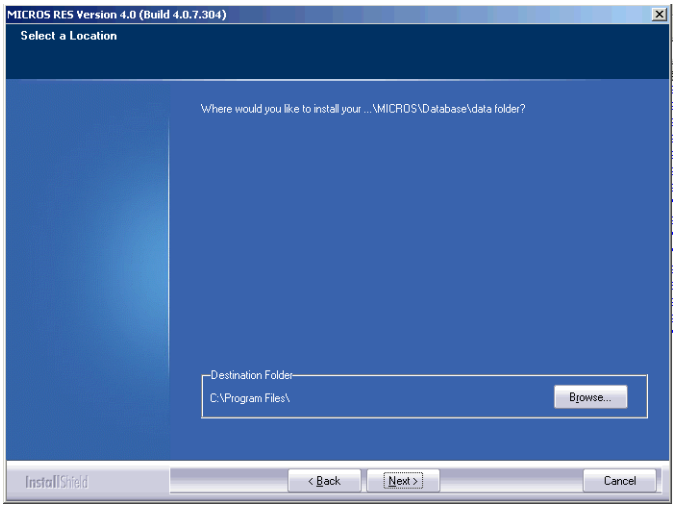




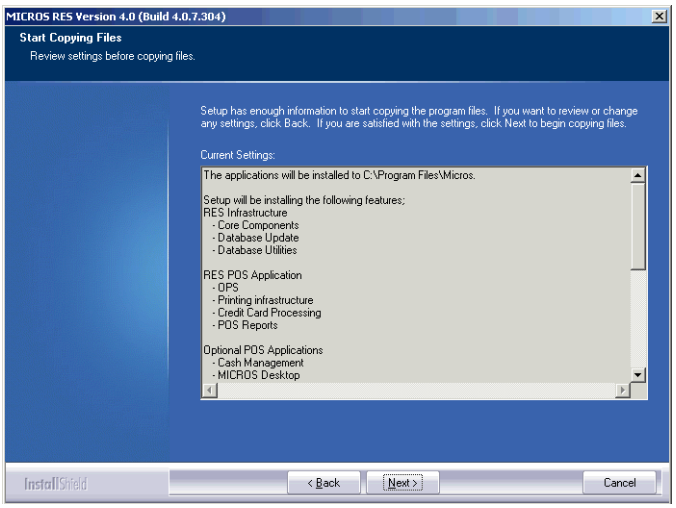
Note *The Open File dialog defaults to .db files. This may be changed by the user.*

- If **No** is selected, setup will complete without installing a database.

11. Once the database is selected for installation, the system prompts for a destination folder. Use the **Browse** button to navigate to the preferred location.

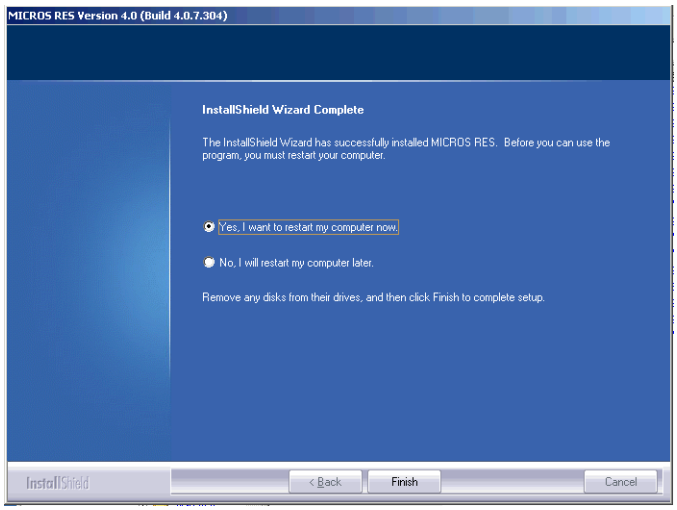


12. Click **Next** to continue. A summary of the selected options is provided for review.



13. Click **Next** when you are ready to proceed. If any running applications are detected, you will be prompted to close them and resume RES Setup.

14. Reboot the system, if prompted. Depending on the type of installation, this may or may not be required.



Before Running POS Operations

Once the software is installed on the system, the default transport encryption key needs to be set before POS Operations will run. To do this:

1. Setup an employee with access privileges for Database Manager (*POS Configurator* | *Employees* | *Employee Classes* | *Privileges* | *Privilege Options* \ **Allow Encryption Key Change**).

2. From the Windows Start menu, select *All Programs* | *MICROS Applications* | *Utilities* | *Database* | *MICROS Database Manager* to launch the DM application.

3. Select the *Encryption Keys* form

4. Check the **Change Transport Key** option and then press the **Change Encryption Keys** button.

This will set the default transport encryption key for the system. From here, the system may be configured and run as usual.

MICROS RES Setup Log File

RES Setup creates a log file for both clients and servers. This file documents all events during setup in case some part of the installation is in question and the log is needed for reference. The following table specifies the name and location of this log by device type.

Type	Filename	Location
Server	MicrosPrerequisitesSetup.log MicrosResSetup.log MicrosResPatch.log	\Windows
Win32 Client	Setup_log.txt	\CALTemp\Packages\Win32RES
WS4 Client	Setup_log.txt	\CALTemp\Packages\WS4RES
HHT Client (Symbol MC50)	Setup_log.txt	\Application\CALTemp\Packages\PPCRES

Perl Runtime for Quickbooks

Beginning with Version 3.1, RES Setup will no longer automatically install the Perl Runtime program required for use with the Quickbooks interface. The Perl program will still be available on the RES CD. If necessary, it can be added to the appropriate directory as follows:

1. In the MICROS directory, create a *Support* folder and *Utils* sub-folder.

2. Copy the **Perl.exe** from the RES CD Disk *Micros**Support**Utils* to the same path on the hard drive.

Remove MICROS Software

From RES 4.0 Hotfix 1 or Higher

1. Save the database to a safe location outside of the MICROS tree.

2. From the Windows Start Menu, select *Control Panel* | *Add/Remove Programs* or insert the RES CD in the CD-ROM drive to launch setup.

3. When the maintenance screen displays, choose *Remove* and click **Next**.

4. After the *Remove* process is complete, click **Yes** at the prompt to reboot the system.

5. Open the Windows Explorer and save any custom files, reports, etc. from the *Micros* tree to another location. Delete the *Micros* tree.

6. Go to the *Control Panel* | *System* |*Advanced* | *Environmental Variables*. Delete the Micros_Current_Installation variable.

7. Open Regedit and go to *HKLM\Software*. Delete the MICROS hive.

> ***Note*** *Be sure to save the license codes first. Then use regedit to delete HKLM\Software\Micros.*
>
> *Although all path information created by RES 4.0 is removed, some parameters left over from previous versions can be missed. Be sure to check and manually delete any MICROS path information, especially if you intend to reinstall RES to a (letter) drive location.*

8. Reboot the PC.

From RES 4.x Clients (XP and Higher)

1. From the Windows Start Menu, select *Control Panel* | *Add/Remove Programs*. Highlight and remove Win32 CAL client.

2. Select *Services* and stop all MICROS services.

3. Open the Windows Explorer and save any custom files, reports, etc. from the *Micros* tree to another location. Delete the *Micros* tree.

4. In the Registry, go to *My Computer\HKey_Local_Machine\Software* and delete the entire MICROS hive.

5. In the Registry, go to *My Computer\HKey_Local_Machine\System\ CurrentControlSet\Services* and delete the following*:*

   - *dbUpdateServer*
   - *MICROS Backup Server*
   - *MICROS CAL Client*
   - *MICROS Credit Card Server*
   - *MICROS ILDS Server*
   - *MICROS Interface Server*
   - *MICROS KDSController*
   - *MICROS Print Controller*
   - *MICROSDesk*
   - *srvConnAdvisor*
   - *srvMDSHTTPService*

6. Reboot the client.

From RES 3.2 Server

Follow these steps to remove MICROS software from a server running Version 3.2 or lower:

1. From the Windows Start Menu, select *Programs* | *MICROS Applications* | *MICROS Control Panel* to launch the interface.

2. Click the button to set the Restaurant to OFF.

3. From the Windows Start Menu, select *Settings* | *Control Panel* | *Administrative Tools* | *Services*. Stop all MICROS services, including those not installed by RES GR. Specifically:

   - MICROS 3700 System
   - MICROS Caller ID Service
   - MICROS Distributed Service Manager
   - MICROS Secure Desktop
   - MICROS LM Com Scheduler

   and the non-RES services:

   - ValueLink, Watchdog, Agent, etc.

4. Select **Add/Remove Programs**. Highlight and remove all MICROS programs (e.g., EM, ValueLink) **except for RES.** (RES will be removed in Step 11.)

5. *(Optional)* If ValueLink is installed, open Windows Explorer and navigate to the *WinNT\system32* folder. Save the **vlink.cfg** file to a safe location.

6. Open a DOS window. From the command line, navigate to the *\MICROS\res\pos\bin* directory. Enter the following commands to remove the Connection Advisor service:

   ```
   connadvisor –uninstall
   connadvisor –unregister
   ```

7. Select *Start* | *Run* | *Regedit* to open the Registry.

8. Go to *My Computer\HKey_Local_Machine\System\Current ControlSet\Services* and delete those MICROS services that were not installed by RES GR.

9. Go to *HKey_Local_Machine\Software\MICROS\Common* and highlight *LicenseManager.* From the menu bar, select *Registry | Export Registry File...* to save the license codes to a safe location, outside the MICROS tree.

10. Open the Windows Explorer and navigate to the ***MICROS\ Database\Data*** folder. Save the **micros.db** and **micros.log** to safe location.

11. Return to *Settings | Control Panel | Add/Remove Programs* to remove the MICROS RES 3.2 software.

12. Go back to Windows Explorer and manually delete the MICROS tree.

13. In the Registry, go to *My Computer\HKey_Local_Machine* and delete the following*:*

    - *Software\MICROS*
    - *Software\Borland*
    - *Software\ODBC\odbc.ini\micros*
    - *Software\ODBC\odbc.ini\microsOld*
    - *Software\ODBC\odbc.ini\microsSetup*
    - *Software\ODBC\odbc.ini\ODBC Data Sources*
    - *Software\ODBC\odbcInst.ini\Adaptive Server Anywhere 6.0*
    - *Software\ODBC\odbcInst.ini\Adaptive Server Anywhere 6.0 Translator*
    - *Software\ODBC\odbcInst.ini\ODBC Drivers\Adaptive Server Anywhere 6.0*
    - *Software\ODBC\odbcInst.ini\ODBC Translators\Adaptive Server Anywhere 6.0 Translator*
    - *System\CurrentControlSet\Services\3700d*

- *System\CurrentControlSet\Services\Micros Backup Server*
- *System\CurrentControlSet\Services\Micros CAL Service*
- *System\CurrentControlSet\Services\CISERVICE*
- *System\CurrentControlSet\Services\svcCashManager*
- *System\CurrentControlSet\Services\MicrosCashManagementComServer*
- *System\CurrentControlSet\Services\srvConnAdvisor*
- *System\CurrentControlSet\Services\Micros Database Service*
- *System\CurrentControlSet\Services\DbUpdateServer*
- *System\CurrentControlSet\Services\MICROS Distributed Service Manager*
- *System\CurrentControlSet\Services\svcCOMScheduler*
- *System\CurrentControlSet\Services\srvMDSHTTPService*
- *System\CurrentControlSet\Services\MicrosDesk*
- *System\CurrentControlSet\Services\SQLANYs_sql (Server Name)*

14. Reopen the Control Panel and select *System* | *Advanced* | *Environment variables*. Delete the *Micros_Current_Installation* entry.

    (**Note**: If the system was at GR, this would already be removed. This step is only necessary if a patch had been installed.)

15. Reboot the PC.

From RES 3.2 Clients

Follow these steps to remove MICROS software from a client running Version 3.2 or lower:

1. From the Windows Start Menu, select *Settings* | *Control Panel* | *Administrative Tools* | *Services*. Stop the following MICROS services:

   - MICROS 3700 System
   - MICROS Backup Server
   - MICROS Connection Advisor (only present after SP1)
   - MICROS DB Update Service
   - MICROS MDS HTTP Service
   - MICROS Secure Desktop

2. Select *A***dd/Remove Programs**. Highlight and remove MICROS res3000 v3.2. (**Note**: There may be multiple instances of this program listed; if so, remove them all.)

3. Open a DOS window. From the command line, navigate to the *\MICROS\res\pos\bin* directory. Enter the following commands to remove the Connection Advisor service:

   ```
   connadvisor –uninstall
   connadvisor –unregister
   ```

4. Open Windows Explorer and manually delete the MICROS tree.

5. Select *Start* | *Run* | *Regedit* to open the Registry.

6. Go to *My Computer\HKey_Local_Machine* and delete the following*:*

   - *Software\MICROS*
   - *Software\Borland*
   - *Software\ODBC\odbc.ini\micros*
   - *Software\ODBC\odbc.ini\microsOld*

- *Software\ODBC\odbc.ini\microsSetup*
- *Software\ODBC\odbc.ini\ODBC Data Sources*
- *Software\ODBC\odbcInst.ini\Adaptive Server Anywhere 6.0*
- *Software\ODBC\odbcInst.ini\Adaptive Server Anywhere 6.0 Translator*
- *Software\ODBC\odbcInst.ini\ODBC Drivers\Adaptive Server Anywhere 6.0*
- *Software\ODBC\odbcInst.ini\ODBC Translators\Adaptive Server Anywhere 6.0 Translator*
- *System\CurrentControlSet\Services\3700d*
- *System\CurrentControlSet\Services\Micros Backup Server*
- *System\CurrentControlSet\Services\srvConnAdvisor*
- *System\CurrentControlSet\Services\DbUpdateServer*
- *System\CurrentControlSet\Services\srvMDSHTTPService*
- *System\CurrentControlSet\Services\MicrosDesk*
- *System\CurrentControlSet\Services\SQLANYs_sql (Client Name)*

7. Reopen the Control Panel and select *System* | *Advanced* | *Environment variables*. Delete all MICROS environment variables (e.g., ASANY, SqlAny, Micros_current version, etc.).

8. Reboot the PC.

Move MICROS to a Drive

This procedure requires the use of a 4.x Demo database. The database must use all default settings (Encryption Keys and Passwords) and the process must be initiated by an employee who is privileged to restore a database (*POS Configurator* | *Employees* | *Employee Classes* | *Privileges* |*Privilege Options* | **Allow DB Restore**).

1. Open the Database Manager utility and click the **Backup Database** option to open the form.

2. Check the **Backup Database** check box and click **Run Backup** to create the appropriate backup files.

3. Save a copy of the most recent database archive *\Micros\Database\Data\Backup\Archive* \ **Micros_{Date}.mbz** to a location outside the *\MICROS* tree.

4. Remove RES 4.x using the direction provided in this manual, beginning on page 40.

5. Install RES 4.0 or higher. When prompted, select the options to have setup install your 4.0 or higher Demo database. This includes specifying a database location.

6. When Installation is complete, reopen Database Manager and sign-in as a privileged Employee.

7. Select the **Restore Database** button. In the popup window, select the archived database saved in Step 2 above.

8. Run Database Manager and select the **Rebuild\Update** option.

9. Check the option **Update\Upgrade Database** and click **Run.**

Running Client Setup

This section provides instructions for installing RES on both hard-drive and hand-held clients.

Hard-Drive Client Installation

As of RES 4.0, hard-drive clients use the Client Application Loader (CAL) technology to locate, install, and maintain the most up-to-date programs implemented on the RES Server.

For Windows Clients

1. Verify that the appropriate version of Windows is installed.
2. Verify that the appropriate version of CAL Client is installed.
3. Verify that Internet Explorer 6.0 sp1 (or higher) is installed.
4. Verify that.NET Framework 1.1 sp1 is installed.

Since workstations typically do not have a keyboard connected, it is necessary to configure the system to perform an auto-admin logon. The configured user does NOT need to have administrative privileges. The user does need to be a member of the **Power User** group. MICROS recommends that you DO NOT use the legacy microssvc user for this purpose.

5. Enable the Windows Autologon feature as a valid Windows user.
   - Select *Start* | *Run* | *Regedit*.
   - Go to *My Computer\HKEY_LOCAL_MACHINE\ Software\Microsoft\Windows NT\CurrentVersion\ Winlogon*.
   - Verify that the following three STRING values are added/ modified:
     - AutoAdminLogon = 1
     - DefaultUserName = User name of your choice
     - DefaultPassword = Password of the user you choose

6. Close Regedit and reboot the workstation. This Windows client should automatically login after the above steps are completed.

7. Plug into the MICROS network and boot up the client.

8. Use the CAL configuration to link this client into the system. The client application loader should start downloading the RES software right after the configuration is complete.

Note *When configuring the CAL Client application path, the user can select the drive, but the path should not be specified. An error will occur if a non-root application path is entered (e.g. C:\MICROSAPPS).*

Mobile MICROS Client Installation

Support for hand-held devices was added in the RES 3.2 general release. For more information, refer to the 3700 Mobile MICROS on-line document, available from the MICROS website.

Workstation 4 CAL Client Installation

Support for WS4 clients was added in the RES 3.2 release. WS4 devices use the Client Application Loader (CAL) technology to locate, install, and maintain the most up-to-date software programs implemented on the server.

Note *For more information on the WS4, please refer to the Workstation 4 Setup Guide, available on the MICROS website under Products | Hardware Solutions | Documentation.*

Follow these steps to install a workstation:

1. Unpack the device and connect to the system LAN.
2. When the device is powered up for the first time, the CAL looks for and displays a list of CAL Servers on the network.
3. Select a CAL Server and click OK. A list of the Server's available workstations is displayed. Workstations configured but not assigned are placed at the top of the list.
4. Select an available workstation and click OK. The system will automatically load the workstation ID and network configuration fields. This may be changed manually, if desired.
5. Save the configuration. The system will automatically transfer the required application software.
6. Once all software has been downloaded, the 3700 POS and/or KDS applications will start.

RDC Client Installation

Support for Restaurant Display Controller (RDC) clients was added in the RES 3.2 release. RDC devices use the Client Application Loader (CAL) technology to locate, install, and maintain the most up-to-date software programs implemented on the server

Follow these steps to install an RDC Client:

1. Unpack the device, attach a keyboard or bump bar, and connect to the system LAN.

2. When the device is powered up for the first time, the CAL looks for and displays a list of CAL Servers on the network.

3. Use the **Up/Down Arrows** on the bump bar or keyboard to scroll the list and highlight the required server. Click **OK** to accept the entry.

   Once a server is identified, a list of the RDC workstations is displayed, along with their current status. To be included on the list, the device must have been added to the system through POS Configurator.

4. Use the **Up/Down Arrows** on the keyboard or bump bar to highlight a selection and press Save/OK to accept. The system will automatically load the workstation ID and network configuration fields. This may be changed manually, if desired.

5. Save the configuration. The system will automatically transfer the required application software.

6. Once all software has been downloaded, the 3700 POS and/or KDS applications will start.

Installing Point Releases and Hotfixes

This section describes the requirements and procedures for installing an upgrade to the RES Version 4.0 or higher software.

Site Requirements Review

With RES Version 4.0 or higher, the installation process comprises two parts: a **Prerequisite** file and a **RES** setup file. Updates to these files are made independently of each other. Therefore, running the Prerequisites installation may not be necessary for every RES patch release.

Important *POS Operations will no longer start if the site is not PCI-compliant. Make sure that the proper steps are taken to achieve compliance. For detailed information regarding PCI-compliance, see the PCI Compliance Verified as the Site section beginning on page 166.*

Before You Begin

- Make sure that *Script Locking* is turned off when using Norton Anti-Virus software, and that all anti-virus software is disabled when running the service pack.
- If using McAfee VirusScan 8.0, disable the Script Stopper software located in the directory under *McAfee Security Center* | *Virus Scan* | *Configure virus scan options* | *Advanced*.
- When upgrading on a RES system where the MICROS Portal is installed, be sure to manually shut down the Micros Agent and Micros Watchdog services. Failure to shut down these Portal-related services may result in a system lockup during database conversion.
- RES Setup creates 2 log files, **MicrosResPatch.log**, and **MicrosMainPatch.log**, that are both located on the RES Server in the Windows folder. The MicrosResPatch.log documents the pre and post installation procedures and the microsmainpatch.log covers the installation of the files. The client setup log is located in the CALTemp folder on each client and is called Setup_log.txt.

- Users who have modified the **Global.css** file (allowing Manager Procedures to support double-byte characters) will need to restore the original version of this file (located in the *Micros\common\ ManagerProcAsp* folder) before installing the Service Pack. Failure to do so will prevent the Service Pack from running. Once the installation is complete, the modified file can be copied back to the directory.

- When installing a Service Pack, the user must log in with Administrator rights both before running the patch and after the server reboots.

- Sites using Product Management (PM) software should reconcile and approve all packing slips and invoices prior to applying the service pack upgrade. Otherwise, the system may not prevent a user from selecting and modifying receipts in a closed period.

- Verify that the prerequisites and versions of RES meet the requirements for patch installation. Prior to installation, the patch will check the prerequisites and RES version in the registry. The patch will not run if the version string does not match. If the patch is run a second time the error message, “Patch terminated by custom action,” will display. To determine the specific action that stopped the patch, users can scroll to the bottom of WinDir\MicrosRESPatch.log.

Installation and Setup

Follow these steps to install the patch:

Stop the System

1. In the MICROS Control Panel, set the Restaurant to **OFF**.

2. Make sure all hard-drive clients are at system closed.

Note *If you are running the MICROS Secure Desktop on Win32 clients, you must manually shut down and disable the service before running the hot fix.*

Reset the service to “automatic” after successfully completing client installation and then reboot the clients.

3. Close all applications prior to running the Service Pack, including the MICROS Control Panel.

4. If you have altered any RES core files, you must replace them with the original versions before proceeding. Failure to do so will not stop the patch, but some files may not get updated.

Note *Prior to installation the system is scanned for escalation files (files with the extension .prepatchrestore). If one is found (e.g. Ops.exe.prepatchrestore), the .prepatchrestore extension will be deleted, and the patch will be able to update the escalated file.*

Apply the Service Pack

1. Create a temporary working folder on your server's hard drive. Make sure that you have 1 GB of available space on the hard drive where the application is stored and the drive where Windows resides.

2. Copy the file to the temporary folder on the RES Server. Double-click to decompress the files from this self-extracting executable. A DOS window will display during the Service Pack installation. The Service Pack will install automatically, copying the files to the appropriate directories.

3. The server will automatically reboot.

Update the Clients

Hard-Drive Clients

In RES 4.x hard drive clients use CAL to update just like WS4's do. After the server reboots, all clients will automatically upgrade. They will reboot several times during the upgrade process.

WS4 Clients

WS4 clients will use CAL to automatically update to the current version of RES. Once the server has rebooted, CAL will start the upgrade process. This should occur within 5 minutes of the Server rebooting.

Mobile MICROS Clients

The PPC clients (e.g. MC50) use CAL to get updated. All other Mobile MICROS clients will use the POS Loader to automatically update to the current version of RES.

Once the server has rebooted, the POS Loader will start the upgrade process. This should occur within 5 minutes of the server rebooting. If the upgrade process does not start, cold boot the unit.

Once the upgrade is complete, cold boot the unit.

When a RES 4.0 Server is patched, all clients except for the Symbol 8800 will be updated automatically. The Symbol 8800 will need to be rebooted or re-cradled after the server has been patched in order to receive the update.

Note *If during device setup the user accidentally taps outside of the active window, the window will disappear. If this occurs the user must perform a warm reboot of the system by pressing the OFF key, and restart the setup process.*

PCI Compliance Verified at System Startup

The system will now verify that the site is compliant with the PCI Credit Card Data Security Standard upon starting POS Operations. This will occur if the following conditions are met:

- The site is not in demo mode, and
- At least 1 tender is linked to a non-demo driver.

If the site is not compliant, POS Operations will not start and an error message will appear. The text in the log will indicate the reason why the site was deemed to be non-PCI compliant. All error messages and steps to correct them are listed in the *Error Messages* section on page 58.

The system uses the following criteria to determine a site's PCI-compliance:

- DBA database password is not set to the default.

- MICROS database password is not set to the default.
- Database file encryption passphrase is not set to the default.
- Sensitive data passphrase is not set to the default.
- Complex Security enabled at the site.
- Security is configured as specified in the *RES Version 4.4 Payment Application Best Practices Implementation Guide, MD0003-117*. These settings include:
  - **Days Until Expiration** (*POS Configurator* | *System* | *Restaurant* | *Security*). This field specifies the number of days that a password may remain active before it must be changed. This value cannot be greater than 90 days.
  - **Minimum Password Length** (*POS Configurator* | *System* | *Restaurant* | *Security*). Enter the minimum number of characters required for the password length. This field must be set to a minimum of 7.
  - **Password Repeat Interval** (*POS Configurator* | *System* | *Restaurant* | *Security*). Enter the number of different passwords that must be used before an old password can be repeated. This option must be set to a minimum of 4.
  - **Require Alphanumeric Passwords** (*POS Configurator* | *System* | *Restaurant* | *Security*). Select this option to require passwords to contain letters and numbers. This option must be enabled.
  - **Maximum Allowed Failed Logins** (*POS Configurator* | *System* | *Restaurant* | *Security*). Enter the number of failed logins that may occur before locking the user out of his/her account. This value cannot be greater than 6.
  - **Maximum Idle Time** (*POS Configurator* | *System* | *Restaurant* | *Security*). Enter the number of minutes an administrative application will remain idle before the application will undo any saved changes and exit, requiring the user to login again. This setting cannot be more than 15 minutes.

- **Mask Credit Card Number** *(POS Configurator | Sales | Tender/Media | CC Tender*). This option must be enabled to mask all credit card numbers in the database.
- **Mask Expiration Date** (*POS Configurator | Sales | Tender/Media | CC Tender*). This option must be enabled to mask all credit card expiration dates in the database.
- **Mask Cardholder Name** (*POS Configurator | Sales | Tender/Media | CC Tender*). When enabled, the cardholder name is masked in all displays, logs, reports, journals, and printouts. This option must be enabled.

Error Messages

In the event that a site is not PCI-compliant, POS Operations will fail to start, and the user will be prompted with an error message indicating that the site is not PCI-compliant.

To determine the specific reason why the system is not PCI-compliant, the user should reference the **3700d.log** file or the MICROS Security Event Log. A list of potential messages can be found in the *Error Messages Logged in the 3700d.log File* section on page 169.

Appendix A: SEI KDS Client Hardware Setup

Support for the Select Electronics, Inc. (SEI) hardware platform is available for sites running RES 3.2 or higher. SEI offers an economical alternative to the traditional PC-based KDS system.

SEI KDS runs on the 32-bit OASys processor, which can host up to 4 independent video monitors and 4 2x9 bump bars. An EV1000 video card is required for each monitor connected to the base unit. With multiple units, up to 16 KDS displays can be linked to a single POS server.

Note *The OASys KDS includes a duplicate video port with each video card. The duplicate can be connected to a second monitor, allowing 2 monitors to display identical information. Some restrictions may apply. Refer to the vendor's documentation for more information.*

Within the RES kitchen, a mix of both SEI KDS and traditional units is allowed.

This section provides information for setup of the **SEI KDS hardware only**. For additional information on configuring the RES KDS clients, refer to SEI KDS Client Support topic in the KDS Online Feature Reference Manual.

Server Connections

OASys units can be connected to the POS server in two ways:

1. **RS232 (com port)** — This method allows the OASys unit to use all four slots for SE video cards (i.e., four KDS clients supported per OASys unit.)

2. **TCP/IP (Ethernet)** — This method uses one of the unit's four slots for a network card. The other three can be used for SE video cards (i.e., three KDS clients supported per OASys unit.)

Hardware Setup

SEI OASys offers “out-of-the-box,” plug-n-play hardware that can be set up and ready to go in minutes. This section describes the basic steps needed to assemble and connect the base units, bump bars, video displays, and related cables in preparation for configuring the system.

Before You Begin

Before attempting to assemble each SEI OASys unit, assemble the following equipment:

- 1 OASys Processor Base Unit
- 1-4 EV1000 or AV1000 Video Cards (one for each KDS display to be linked to the base unit)
- 1 Ethernet Card (Optional; for connecting to the server via a network)
- 1-4 Bump Bars (one for each KDS display to be linked to the base unit)
- Phillips-head Screwdriver
- Flat-head Screwdriver
- Copy of the Select Electronics OASys KDS Hardware Installation Manual (Available from their website, http://www.selectelectronics.com/). Refer to this document for background information and clarification of terms.

Warning *For your safety and the integrity of the equipment, do not disconnect ANYTHING to the OASys base unit without first disconnecting the power.*

For Ethernet Communication

Follow these steps to set up the hardware for connection to the network server:

1. Using the screwdrivers, remove the cover from the OASys unit.
2. Locate the OASys video cards required for this unit. Cards may be loose or pre-loaded.
3. Set the ID dip switches for each of the video cards. Dip switches indicate the slot where the card resides in the base unit.

Tip *Each video card must be assigned a unique ID # (location) in the base unit. To avoid confusion, MICROS recommends labeling the cards sequentially; where CN2=ID1, CN3=ID2, and CN4=ID3. (CN1 is reserved for the Serial Card.*

4. Load the video cards in their assigned slots.
5. Insert the network card into CN5.
6. Plug in the bump bar. Bump bar IDs should be set to **1** (factory default) for all bump bars.
7. Attach and turn on all monitors.
8. Attach power cable and turn on system. The system starts initializing the monitors, writing first to Monitor 1 and then confirming setup on the rest of the monitors. When complete, confirm that each monitor displays the appropriate video assignment.
9. Disconnect the power and attach a PC Keyboard to the OASys base unit.

Note *A keyboard must be attached to activate the setup utility.*

10. Plug in power again.

11. When the OASys Setup Utility displays, select 1 to enter the base unit configuration.

12. On the Vendors screen, select 9 to go to the next page.

13. Select 5 for MICROS Ethernet. When the prompt “You have selected MICROS Ethernet” displays, select Y to confirm.

14. At the prompt, enter the full IP Address of the base unit.

Note *To move to the next IP octet, press the **Enter** key.*

---

15. When the full IP address has been typed in, press **Enter** one more time. At the prompt, select **Y** to confirm the address.

16. At the prompt, enter the RES System Subnet Mask, using the **Enter** key to move between IP octets.

17. Press **Enter** one more and, at the prompt, select **Y** to confirm the address.

18. The system will ask you to program your ethernet card with specific IRQ (10), I/O Address (0x300) and Half Duplex. Be sure to confirm in later steps that your ethernet card is set up this way.

19. Select **Y** to continue to the ethernet card setup utility. At this point the system will automatically take you to the Ethernet Adapter Setup and Diagnostic Utility.

20. From the main menu, select View Configuration to review settings. If a change is necessary, select Setup to return to the configuration screens.

21. When all changes are complete, power off the base unit and unplug the keyboard.

22. Plug the ethernet cable into the base unit and power the base unit back on. The base unit will automatically display video assignments on each monitor and be ready for RES KDS client configuration.

For RS232 Communication

Follow these steps to set up the hardware for com port communication:

1. Using the screwdrivers, remove the cover from the OASys unit.
2. Locate the OASys video cards required for this unit. Cards may be loose or pre-loaded.
3. Set the ID dip switches for each of the video cards. Dip switches indicate the slot where the card resides in the base unit.

Tip *Each video card must be assigned a unique ID # (location) in the base unit. To avoid confusion, MICROS recommends labeling the cards sequentially; where CN2=ID1, CN3=ID2, CN4=ID3, and CN5=ID4. (CN1 is reserved for the Serial Card.*

---

4. Load the video cards in their assigned slots.
5. Plug in the bump bar. Bump bar IDs should be set to **1** (factory default) for all bump bars.
6. Attach and turn on all monitors.
7. Attach power cable and turn on system. The system starts initializing the monitors, writing first to Monitor 1 and then confirming setup on the rest of the monitors. When complete, confirm that each monitor displays the appropriate video assignment.
8. Disconnect the power and attach a PC Keyboard to the OASys base unit.

Note *A keyboard must be attached to activate the setup utility.*

---

9. Plug in power again.
10. When the OASys Setup Utility displays, select **1** to enter the base unit configuration.
11. On the **Vendors** screen, select **9** to go to the next page.

12. Select 4 for MICROS RS232. When the prompt “You have selected MICROS RS232” displays, select **Y t**o confirm.

13. When all changes are complete, power off the base unit and unplug the keyboard.

14. Plug the serial cable into the base unit and power the base unit back on. On boot up, the system will display “MICROS RS232 Version.” It will then automatically display video assignments on each monitor and be ready for RES KDS client configuration.

Appendix B: Silent Installation Procedures (Server)

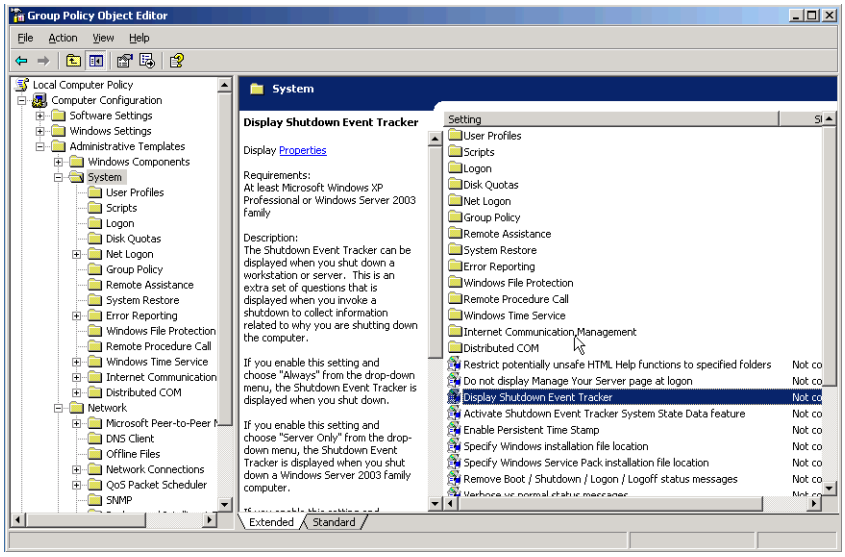
This appendix provides instructions for setting the system properties required to perform a silent (non-interactive) installation on a system Server.

On a Windows 2003 Server system, attempts to shut down the system will cause a dialog box to display prompting the user to enter a reason for the shutdown. Since user interaction defeats the purpose of a remote install, users will need to turn off the prompting mechanisms before proceeding. To do this:

1. From the Windows menu, select *Start* | *Run*.

2. When the dialog box displays, type **gpedit.msc** and click the **OK** button. The Group Policy Object Editor is shown.

3. Select *Computer Configuration* | *Administrative Templates* | *System*.



4. Double-click on **Display Shutdown Event Track** to open the form.

5. Select the **Disabled** radio button.

6. Click **OK** to save and close the form.

Procedures

The process for running a silent installation is divided into three phases:

1. Generate the response file by running Setup on the master system.

2. Create a CD set that includes the generated response file.

3. Run Setup from the user-generated CD, using the correct switches to run silently and access the response file.

   For example: If you create a CD with response file off the root of Disk 1, then the path to run setup would be:

   \ Setup.exe /s /f1 \ServerSetup.iss /verbose C:\Winnt\Micros|ResSetup.log

Detailed instructions for creating a response file, running silent setup, and generating a log file are included in the following pages.

Record Mode

To run a Standard-project installation in silent mode, you must first generate a response file by running:

Setup.exe /r

from a command-line prompt. The response file stores information about the data entered and options selected by the user at run time. In addition, the command displays all the run-time dialog boxes and stores the data in the **Setup.iss** file, which is saved to the system's Windows folder.

Sample Response File

```
[{7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-DlgOrder]
Dlg0={7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-SdWelcome-0
Count=7
Dlg1={7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-SdLicense-0
Dlg2={7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-ApplicationSelection4-0
Dlg3={7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-DatabaseSelection-0
Dlg4={7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-DocumentationDialog-0
Dlg5={7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-SdStartCopy-0
Dlg6={7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-SdFinishReboot-0
[{7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-SdWelcome-0]
Result=1
{7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-SdLicense-0]
Result-1
{7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-ApplicationSelection4-0]
ApplicationDrive=C:\
Install RES3700=TRUE
InstallBackOffice=TRUE
{7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-DatabaseSelection-0]

DatabaseDrive=C:\

DatabaseToInstall=SAMPLE
nResult=1
{7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-DocumentationDialog-0]
DocumentationDrive=C:\
InstallDocumentation-TRUE
```

{7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-SdStartCopy-0]
Result=1
{7B11AC4C-7465-4353-AB5B-962AE5BC0AD6}-SdFinishReboot-0]
Result=6
BootOption=3

> ***Note*** *If you are installing silently over an existing installation, the database will automatically be updated and the DatabaseSelection Dialog will be bypassed.*

Alternate Response Files

An alternative response file name and location can be defined using the **/f1** switch. This switch is available when creating a response file (with the **/r** option) and when using the response file (with the **/s** option). An example of the command is as follows:

Setup.exe /s /f1"C:\Temp\Setup.iss"

Silent Mode

Once the response file has been generated, silent installation can be invoked by running:

Setup.exe /s

from a command line prompt. By default, the system will use the information contained in the previously generated response file (**Setup.iss**).

This command will also suppress the **setup.exe** initialization window for a Basic MSI installation program; it does not read a response file. To run a Basic MSI product silently, enter the command:

Setup.exe /s /v/qn

To specify the values of public properties for a silent Basic MSI installation, you can use a command such as **Setup.exe /s /v" /qn INSTALLDIR=D: \Destination"**.

Log Files

Silent Setup automatically generates a log file called **MicrosResSetup.log**. When running a Standard-project installation program in silent mode (i.e., using the **/s** argument), the log file is, by default, created in the same directory as the response file. (Typically, this location is on **Disk1**, in the same folder as **Setup.ins**).

An alternative name and location can be specified using the **/f2** argument as follows:

Setup.exe /s /f2”C:\MicrosResSetup.log”

File Structure

The Setup.log file contains three sections. The first section, **[InstallShieldSilent]**, identifies the version of InstallShield Silent used in the silent installation. It also identifies the file as a log file.

The section, **[Application]**, identifies the installed application’s name and version, and the company name.

The third section, **[ResponseResult]**, contains the result code indicating whether or not the silent installation succeeded. An integer value is assigned to the **ResultCode** keyname in the **[ResponseResult]** section. InstallShield places one of the following return values after the **ResultCode** keyname:

 0 Success.
-1 General error.
-2 Invalid mode.
-3 Required data not found in the Setup.iss file.
-4 Not enough memory available.
-5 File does not exist.
-6 Cannot write to the response file.
-7 Unable to write to the log file.
-8 Invalid path to the InstallShield Silent response file.
-9 Not a valid list type (string or number).
-10 Data type is invalid.
-11 Unknown error during setup.
-12 Dialogs are out of order.
-51 Cannot create the specified folder.
-52 Cannot access the specified file or folder.
-53 Invalid option selected.

Appendix C: GSS Setup

Guest Services Solution (GSS) is the latest addition to the RES suite of software applications. Previously distributed on a separate CD, the application has been fully integrated into the core of RES products. Beginning with RES Version 3.1 Service Pack 1, GSS is included as part of the RES installation.

This appendix provides instructions for installing the Rochelle Caller ID device.

Installing Caller ID with Rochelle Box

Use the following steps to install Caller ID with the Rochelle Box.

> ***Note*** *Before installing Caller ID with the Rochelle box, contact the phone company to have the phone line split so that one part goes to the phone and the other part goes to the Rochelle box.*

Rochelle Model 2045

1. Add the following registry entry to the server:

Key Location	[HKEY_LOCAL_MACHINE\SOFTWARE\MICROS\GSS\CALLERID\ROCHELLE\PARAMETERS]
Name	ComPort
Data	COM1*

*COM1 is the default setting. If using Caller ID on a COM port other than COM1, be sure to set the value accordingly.

2. Attach the Rochelle Caller ID box to the correct COM port on the Server.

3. Start the MICROS Caller ID Service from the Windows Control Panel Services.

> ***Note*** *Visit www.rochelle.com for more information about installing your Caller ID device.*

Rochelle Model 2050

1. Add the following registry entry to the server:

Key Location	[HKEY_LOCAL_MACHINE\SOFTWARE\MICROS\GSS\CALLERID\ROCHELLE]
Name	NumDevices
Data	1

The device registry settings for the first device are added at the key location shown below. Default parameters are provide:

Key Location	[HKEY_LOCAL_MACHINE\SOFTWARE\MICROS\GSS\CALLERID\ROCHELLE\PARAMETERS]
Name	ComPort
Data	COM1*
Name	ComParameters
Data	Baud = 2400 Parity = N Data = 8 Stop = 1
Name	InitString
Data	AT_F0\r\nAT_R0=0\r\n
Name	DeviceLines
Data	4

*COM1 is the default setting. If using Caller ID on a COM port other than COM1, be sure to set the value accordingly.

The device registry settings for each additional device are added at \SOFTWARE\MICROS\GSS\CALLERID\ROCHELLE\PARAMETERS[#], where [#] refers to the device number. The table below provides the default parameters for sample Device 2:

Key Location	[HKEY_LOCAL_MACHINE\SOFTWARE\MICROS\GSS\CALLERID\ROCHELLE\PARAMETERS2]
Name	ComPort
Data	COM3
Name	ComParameters
Data	Baud = 2400 Parity = N Data = 8 Stop = 1
Name	InitString
Data	AT_F0\r\nAT_R0=0\r\n
Name	DeviceLines
Data	4

2. Attach the Rochelle Caller ID box to the correct COM port on the Server.

3. Start the MICROS Caller ID Service from the Windows Control Panel Services.

Note *Visit www.rochelle.com for more information about installing your Caller ID device.*

Running Caller ID in Demo Mode

Use the following steps to run Caller ID in Demo Mode:

1. Add the following registry entry to the server:

Key Location	[HKEY_LOCAL_MACHINE\SOFTWARE\MICROS\GSS\CALLERID\ROCHELLE\PARAMETERS]
Name	ComPort
Data	COM1*

*COM1 is the default setting. If using Caller ID on a COM port other than COM!, be sure to set the value accordingly.

2. Attach a null model cable from COM1 to COM2 on the server.
3. Start the Rochelle Emulator.
4. Start the MICROS Caller ID Service from the Windows Control Panel Services.

Note *The Rochelle emulator can be found on the Guest Services Solution product page at www.micros.com.*

Appendix D: System Security Setup

Internet Information Services (IIS) Security

Prior to RES Setup, Internet Information Services (IIS) security is configured to maximize security without affecting the functionality required by RES software. The IIS security is configured using Microsoft's IIS Lockdown tool.

If either the operating system drive or the Micros drive are FAT partitions, the IIS Lockdown procedure will not complete. Therefore, Micros recommends using an NTFS file system on both the operating system drive and the Micros drive. If your system is currently using a FAT partition, you can convert to an NTFS partition using the Convert command.

Note *Prior to running RES Setup, you should convert any FAT drives to NTFS so the IIS lockdown procedure will be able to complete.*

The next two sections list the IIS security changes that are made by RES Setup.

IIS Lockdown

The following changes are made to lockdown IIS:

Component	Action
HTTP	Enabled
FTP	Disabled
SMTP	Disabled
NNTP	Disabled
ASP	Disabled
Index Server Web Interface	Disabled
Server Side Includes	Disabled
Internet Data Connector	Disabled

Component	Action
Internet Printing	Disabled
HTR Scripting	Disabled
WebDAV	Disabled
Anonymous User Execute Rights	Disabled
Anonymous User Write Rights	Disabled
issamples virtual directory	Removed
MSADC virtual directory	Removed
iisadmin virtual directory	Removed
iishelp virtual directory	Removed

URL Security

The following changes are made for URL security scanning:

- Only allow the following HTTP verbs: GET, HEAD, POST, DEBUG
- Deny the following extensions: .asp, .cer, .cdx, .asa, .exe, .bat, .cmd, .com, .htw, .ida, .idq, .htr, .idc, .shtm, .shtml, .stm, .printer, .ini, .log, .pol, .dat
- Disallow high bit characters in URL
- Disallow dots that are not file extensions
- Log URL activity
- Deny the following request headers: Translate:, If:, Lock-Token:
- Deny the following URL Sequences: .., ./, \, :, %, &

Modifying IIS Security Settings

The security settings made to Internet Information Services (IIS) during RES Setup may be modified if alternate settings are required by third-party software. To change the IIS security settings, perform the steps in the following sections after RES Setup has been run:

Restore Security Settings

1. Run **iislockd.exe** from the **\MICROS\NetSetup\System32\inetsrv** directory.
2. Click Next.
3. Select Yes.
4. Click Next.
5. Click Finish.

The security settings are restored to their most recent previous state, which is either prior to running RES Setup or the last time **iislockd.exe** was run.

Modify the IIS Files

1. Edit the [MICROSALT] section of the **iislockd.ini** file located in the **\MICROS\NetSetup\System32\inetsrv** directory as required..

Warning *Do not modify the [MICROS] section of the iislockd.ini file.*

Note *Refer to the Iislockd.chm file located in the \MICROS\NetSetup\System32\inetsrv directory for information on modifying this file.*

2. Edit the **urlscan_micros_customer.ini** files located in the **\MICROS\NetSetup\System32\inetsrv** directory as required..

Warning *Do not modify the urlscan_micros_default.ini file.*

Note *Refer to the UrlScan.doc file located in the \MICROS\NetSetup\System32\inetsrv directory for information on modifying this file.*

Loading the Security Settings

1. Run **iislockd.exe** from the **\MICROS\NetSetup\System32\inetsrv** directory.

2. Select Agree on the Microsoft license agreement screen.

3. Select Customer Configurable Settings.

Note *To return to the default MICROS settings, select MICROS Default Settings.*

---

4. Click Next three times for processing to begin.

5. Click Next.

6. Click Finish.

Starting the Default Web Site

It may be necessary to start the default web site once the security settings are loaded. To start the default web site:

1. Select *Start Menu* | *Settings* | *Control Panel* | *Administrative Tools* | *Internet Services Manager.*

2. If the default web site is stopped, right-click on the site and select Start.

Note *If you are running a Windows Server product with more than one web site, use these steps to start the appropriate web sites. If there are multiple web sites, there may not be a "default web site".*

Firewall Setup

Firewalls should be enabled prior to installing RES 4.x on a Windows XP or 2003 Server. Setup will vary depending on the operating system used.

Windows XP with SP2 or higher

On the Win XP platform, firewalls are supported beginning with Service Pack 2. Follow these steps to enable the firewall:

1. From the Windows Start menu, select *Settings* | *Control Panel* | *Windows Firewall* to open the properties form.
2. On the *General* tab, select the **On** radio button and press **OK** to save. Exit the form.
3. Install RES.

Windows 2003 Server with SP1 or higher

On the Win 2003 platform, firewalls are supported beginning with Service Pack 1. Follow these steps to enable the firewall:

1. From the Windows Start menu, select *Settings* | *Control Panel* | *Administrative Tools* | *Services*.
2. Double-click the Windows Firewall/ICS service to open the properties form. The *General* tab will be displayed.
3. From the **Startup-type** drop-down list, set the service to *Automatic*.
4. Press the **Start** button to start the service and **OK** to save. Exit the form.
5. Install RES.

If the firewall is enabled after installation, the clients will not be able to communicate with the server and will continuously display prompts for Backup Server Mode (BSM) and Stand-alone Resiliency (SAR).

Once RES is installed, the problem can be corrected by running the batchfile %**MicrosDrive%\Micros\common\Bin\ConfigureICF.bat**. This will update the exceptions list that RES needs to successfully run with the firewall enabled.

Exceptions

RES 4.0 or higher allows the following exceptions to the Windows firewall:

- **MDSHttpService.exe** (MICROS MDS Http Service)
- **DBEng9.exe** (MICROS Database Engine
- **Cmbo.exe** (MICROS Cash Management Back Office)
- **CM.exe** (MICROS Cash Management Server)
- **Procedures.exe** (MICROS Manager Procedures
- **OPS.exe** (MICROS POS Operations)
- **MicrosDsk.exe** (MICROS Desktop)
- **CALSrv.exe** (MICROS CAL Service)
- **McrsCAL.exe** (MICROS CAL Client)
- **DBSrv9.exe** (Sybase Database Server)
- **ILDS.exe** (International Liquor Dispensing Server)
- **KDSDisplay.exe** (KDS Display Client)
- **KDSController.exe** (Kitchen Display Server)
- **CIService.exe** (Caller ID Server)
- File and Print Sharing

Appendix E: Frequently Asked Questions (FAQs)

This section provides answers to the most frequently asked questions about RES.

RES 4.x Issues

1. Why won't the image display after I replace the res3700.bmp file in \micros\res\pos\etc folder?

The **res3700.bmp** has been moved to the **\Bitmaps** folder under MICROS. RES Setup automatically moves this file from its old location to the folder. If you wish to place your own **res3700.bmp** on the system, you must copy it to the appropriate folder location on each client, as indicated below:

Note *A single .bmp file may be used on all three platforms. However, you may want to create a separate file for the Mobile MICROS due to its smaller screen size.*

- **Win32 Clients** — **\MICROS\RES\POS\Bitmaps**.
- **WS4 Clients** — **\MICROS\Bitmaps**:

  To replace the file on the WS4:

  1. Copy the **res3700.bmp** to the following folder on the RES Server: **\MICROS\RES\CAL\WS4\Files\CF\MICROS\Bitmaps**
  2. Wait up to 30 seconds for the file to transfer to the WS4 Client.
  3. Reboot the WS4 Client to load the image for POS Operations.

- **Mobile MICROS — \MICROS\Bitmaps**.

  To replace the file on the Mobile MICROS client:

  1. Copy the **res3700.bmp** to the following folder on the RES Server: **\MICROS\RES\CAL\HHT\MICROS\Bitmaps**
  2. Wait up to 30 seconds for the file to transfer to the Mobile MICROS Client.
  3. Reboot the Mobile MICROS Client to load the image for POS Operations.

Note *Bitmaps used for POS touchscreen keys should also be placed in the **Bitmaps** folder.*

---

2. Why are all client nodes listed in the POS Configurator (Devices | Network Nodes) displayed in the MICROS Control Panel even when they are not currently connected to the system?

With this release, MICROS Control Panel allows the user to specify whether all client nodes or just connected client nodes will be displayed. Previously (Version 3.1 and lower), only connected client nodes were shown. This remains the default behavior.

To display all clients:

1. From the Windows Start Menu, select **Programs | MICROS Applications | MICROS Control Panel**.
2. Go to the menu bar and select **View | Show All Clients**. The system tree is modified to display all clients.

3. After changing the computer name or IP address of the Server, why can't I start POS Operations on any of my clients?

Changes made to the Server identity are not automatically propagated out to the clients. To send these changed to the clients:

1. From the Windows Start Menu, select **Programs | MICROS Applications | MICROS Control Panel**.
2. Highlight the SQL Database Server node.
3. Go to the Status tab and click the **Reload** button.

Within a few minutes, the clients should be operational.

4. Is the host file still important to the system?

Yes, the host file is still used by the RES System and must be accurate. The RES System also uses a file called **MDSHosts.xml**. This file is automatically generated by the system and should not be manually copied or edited by the user. The location of the file depends on the platform, as indicated below:

- **Server — \MICROS\Common\etc**
- **Win32 Clients — \MICROS\Common\etc**
- **WS4 and Mobile MICROS — \MICROS\etc**

Note *For troubleshooting purposes, this file may be read only. Do not edit this file in any way.*

This file is generated by the system and is based on information from the MICROS database. The following POS Configurator forms need to have accurate client information in order for the file to be correct:

- *Devices* | *Network Node*
- *Devices* | *Devices*
- *Devices* | *User Workstations*
- *System* | *Restaurant*

Client Issues

1. Can I save the Compact Flash on a malfunctioning MICROS 3700 WS4?

Yes. If you have a WS4 Client that has gone bad, you simply remove the Compact Flash from that unit and install it into a good WS4.

Note *For information and instructions on removing/installing the Compact Flash, please refer to the Workstation 4 Setup Guide, available on the MICROS website under Products | Hardware Solutions | Documentation.*

---

2. Can I move a WS4 from one system to another?

Yes. To do this, follow these steps to remove the MICROS folder from the Compact Flash of the WS4 before installing a unit into a RES System:

1. On the WS4, open the Windows Explorer and navigate to **\CF**.
2. Delete the **\MICROS** subfolder at this location.
3. Power up the WS4 Client and establish a network connection to the system.
4. Reconfigure CAL as follows:
   - Select Start | Programs | CAL | Reconfigure CAL.
   - Select the RES Server to which this WS4 will be connected. (Do not select the DHCP option.)
   - Select a name for this WS4 Client from the list of available nodes.
   - Save the configuration. CAL will update the unit with the system application software.

3. How do I map a drive to a WS4 client?

You don't. The WS4 does not allow files to be transferred to it using traditional Windows methods. Instead, files are transferred to the unit via the Client Application Loader (CAL). For information on setting up CAL packages and files, refer to *Client Application Loader (CAL) File Specification (MD0003.061)*, available as **CAL.pdf** in the *\Support\sdk* folder on the RES 4.x CD.

On the other hand, the system Server and its hard-drive (Win32) clients may be accessed *from* the WS4 using a method similar to Windows mapping. To do this:

1. From the WS4, open the Windows Explorer.
2. In the location box, type the UNC path of the PC to be accessed.

   For example, to access the **c:\micros\res\pos** share on a server with a computer name of "RESServer 5," enter **\\RESServer5\micros\res\pos**.

Once the appropriate share has been accessed, you may perform the required Windows operation.

4. How do I set up my custom icons to work on a Mobile MICROS and WS4 client?

The **customicons.dll** created for previous versions of RES will work only on hard-drive clients. Additional **customicons.dll** files were created for Mobile MICROS and WS4 devices. As before, you will need to load your own icons into these files using an Icon Editor.

All **customicons.dll** files are available in the **Support\custom icons** folder on the RES 4.x CD and must be manually copied to the folder location for each client type:

- **Win32 Clients — \MICROS\RES\POS\Bin**
- **WS4 Clients — \MICROS\Bin**

  To copy the file to the WS4:

  1. Create a **\MICROS\RES\CAL\WS4\Files\CF\MICROS\Bin** folder on the RES Server:
  2. Copy the WS4 **customicons.dll** to this folder.
  3. Wait up to 30 seconds for the file to transfer to the WS4 Client.

- **Mobile MICROS — \MICROS\Bin**

  To copy the file to the Mobile MICROS client:

  1. Create a **\MICROS\RES\CAL\HHT\MICROS\Bin** folder on the RES Server:
  2. Copy the Mobile MICROS **customicons.dll** to this folder.
  3. Wait up to 30 seconds for the file to transfer to the Mobile MICROS Client.

Note *You will need to reboot the clients in order for the images to take effect.*

---

5. How do I copy my OPSDisplayUser.cfg to all clients?

A single **OPSDisplayUser.cfg** file may be used on all three platforms. However, because it is not included in RES Setup, the file will not automatically copy during the installation. Instead, it must be manually copied to the following folder location for each client type:

- **Win32 Clients — \MICROS\RES\POS\etc**
- **WS4 Clients — \MICROS\etc**

  To transfer the file to the WS4:

  1. Copy the **OPSDisplayuser.cfg** file to the **\MICROS\RES\CAL\WS4\Files\CF\MICROS\etc** folder on the RES Server.
  2. Wait up to 30 seconds for the file to transfer to the WS4 Client.
  3. Reboot the WS4 Client to load the settings for POS Operations.

- **Mobile MICROS — \MICROS\etc**

  To transfer the file to the Mobile MICROS:

  1. Copy the **OPSDisplayuser.cfg** file to the **\MICROS\RES\CAL\HHT\MICROS\etc** folder on the RES Server.
  2. Wait up to 30 seconds for the file to transfer to the Mobile MICROS Client.
  3. Reboot the Mobile MICROS Client to load the settings for POS Operations.

6. How do I copy custom scripts to all clients?

Scripts are custom files, created by the installer to do a variety of tasks. They are not included during installation, but must be manually copied to the appropriate directory.

Note *Because the WS4 and Mobile MICROS platforms are based on Windows CE, existing Win32 scripts may not work on those platforms. Be aware that compiled files may need to be recompiled in a development environment that supports this type of Operating System.*

Although scripts can reside anywhere on the system, MICROS recommends storing them together in the **Scripts** folder. The location of this folder will vary, depending on the client type:

- **Win32 Clients — \MICROS\RES\POS\Scripts**
- **WS4 Clients — \MICROS\Scripts**

  To add scripts to the WS4:

  1. Copy file(s) to the **\MICROS\RES\CAL\WS4\Files\CF\MICROS\Scripts** folder on the RES Server.
  2. Wait up to 30 seconds for the file(s) to transfer to the WS4 Client.

- **Mobile MICROS — \MICROS\Scripts**

  To add scripts to the Mobile MICROS:

  1. Copy file(s) to the **\MICROS\RES\CAL\HHT\MICROS\Scripts** folder on the RES Server.
  2. Wait up to 30 seconds for the file(s) to transfer to the Mobile MICROS Client.

7. How do I copy SIM scripts to all clients?

A single SIM script (**pmsxxx.isl)** may be used on all three platforms. This file is not included during installation, but must be manually copied to the appropriate client directory.

Note *Because the WS4 and Mobile MICROS platforms are based on Windows CE, existing Win32 scripts may not work on those platforms. For more information, refer to the RES 3.2 Read Me First (MD0003-057).*

- **Win32 Clients — \MICROS\RES\POS\etc**
- **WS4 Clients — \MICROS\etc**

  To add SIM scripts to the WS4:

  1. Copy the **pmsxxx.isl** file to the **\MICROS\RES\CAL\WS4\Files\CF\MICROS\etc** folder on the RES Server.
  2. Wait up to 30 seconds for the file to transfer to the WS4 Client.

- **Mobile MICROS — \MICROS\etc**

  To add SIM scripts to the Mobile MICROS:

  1. Copy the **pmsxxx.isl** file to the **\MICROS\RES\CAL\HHT\MICROS\etc** folder on the RES Server.
  2. Wait up to 30 seconds for the file to transfer to the Mobile MICROS Client.

8. How do I open a file on a WS4 Client?

Files can be opened on a WS4 Client as follows:

- Using WordPad:
  - From the Windows Start Menu, select *Programs* | *Microsoft WordPad* to start the application.
  - From the menu bar, select *File* | *Open* to launch the dialog box.
  - Browse to the appropriate file and select. (You may need to change the **File Type** to *All Documents* to locate the desired file.)
  - Double-click to open the file.
- Opening a file directly:
  - Locate the required file in the Window Explorer.
  - Rename the file, giving it a .txt or .doc extension.
  - Double-click to open the file.

9. Where can I find MICROS Confidence Test on a WS4 Client?

This application can be launched from the Windows Start Menu by selecting *Programs* | *MICROS Applications* | *Confidence Test*.

Note *The WS4 comes with a built-in diagnostic utility for all hardware components. This utility may also be used. To access it:*

- *From the Desktop, touch the My Computer icon twice.*
- *Touch the DOC icon twice.*
- *Touch the Utilities folder twice.*
- *Touch the DiagUtility icon twice to start the WS4 diagnostic utility.*

If a shortcut for the MICROS Confidence test is not available, you can always access the program via Explorer using the following steps:

- From the Windows Start Menu, select *Programs* | *Windows Explorer.*
- Open **\CF\MICROS\bin**.
- Touch **microscfdtest.exe** twice.

10. How do I open the Windows Registry on a WS4 Client?

The registry on a WS4 is similar to a Win32 client registry. MICROS does not recommend editing the registry directly. However, should it be necessary, the following steps should be taken:

- From the Desktop, touch the My Computer icon twice.
- Touch the DOC icon twice.
- Touch the Utilities folder twice.
- Touch the regeditWS4 icon twice to start the WS4 registry editor.

Note *Mobile MICROS Clients do not permit direct access to the registry.*

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11. How do I start POS Operations on a WS4 Client?

If the WS4 Client is up, POS Operations should be running already. That is the default start position for this workstation. If it is not, you may start OPS by going to the Windows Start Menu and selecting *Programs* | *MICROS Applications* | *Start POS.*

If a shortcut is not available, you can always access the program via Explorer using the following steps:

- From the Windows Start Menu, select *Programs* | *Windows Explorer.*
- Open **\CF\MICROS\bin**.
- Touch **AppStarter.exe** twice.

12. Why does POS Operations say “System Closed” on a Client?

Although POS Operations should always be running on the clients, that does not guarantee the units will be operational (i.e., able to ring transactions).

In RES 4.0 or higher, clients are not individually controlled by the MICROS Control Panel. You cannot start and stop POS Operations on these devices.

All clients are considered unmanaged clients — they take on the state of the RES Server. Therefore, if the Server is set to Back of House in the MICROS Control Panel, then all unmanaged clients will display a “System Closed” screen.

To ring transactions on unmanaged clients, the MICROS Control Panel must set the entire RES System (i.e., the Restaurant) to Front of House.

13. How do I bring up the CE Task Manager on a WS4 Client?

To start Task Manager on a WS4 Client, hold down the [Alt] key and press the [Tab] key on the keyboard.

14. How do I access other applications while POS Operations is running on a WS4 Client?

The CE Operating System does not provide a mechanism for minimizing POS Operations. You can still program a Minimize function key on a touchscreen, but be aware that when the key is pressed, it will bring up the Windows CE Start Bar. From here, you can access other applications, as necessary.

If a keyboard is attached to the WS4, the Windows CE Start Bar may be accessed by holding down [Ctrl] and pressing the [Esc] key.

15. How do I shutdown POS Operations on a WS4 Client?

Although MICROS does not recommend shutting down POS Operations on a WS4, we recognize that sometimes this is necessary for troubleshooting purposes.

To shutdown POS Operations, attach a keyboard to the WS4 and do the following:

- Bring up the Windows CE Start Bar by pressing the [Ctrl]-[Esc] key combination simultaneously.
- Hold down the [Alt] key and touch the POS Operations application that appears in the Task Bar. A **Close** option will display at the bottom of the screen.
- Press **Close** to shutdown POS Operations.

16. How do I turn off my WS4 Client?

The power switch is located on the front right of the unit, on the underside of the display screen. It is a small circular switch that protrudes very little and can be easily missed.

To turn off the unit, you must hold the power switch for at least five seconds. Make sure that the Operator LED changes from a solid green to OFF. **This is critical**. Failure to properly turn off the power will place the unit in Suspend Mode, not OFF. For more information about the power switch and it's different states, refer to the Workstation 4 Setup Guide, available from the MICROS Website under *Products* | *Hardware* | *Documentation*.

17. How do I create a screen capture on a Mobile MICROS HHT or a WS4 Client?

Microsoft provides a utility called "Remote Display Control" which may be used through ActiveSync® to capture HHT screens and save them as bitmap files.

Currently, there are no tools available to capture screens on a WS4.

18. Can I load other applications on a WS4 Client?

The WS4 is capable of running any CE-compatible application. However, the WS4 is intended to be a POS appliance that allows the RES user to run POS Operations and Manager Procedures. By running other applications on the WS4, you assume the responsibility for installation and testing on this platform.

The WS4 has a built-in Client Application Loader (CAL). Additional information can be found in the *Workstation 4 Setup Guide* and in the *Client Application Loader (CAL) File Specification (MD0003-061)*, available as **CAL.pdf** in the *\Support\sdk* folder available on the RES 4.x CD.

19. Do I need to translate OPS text for each client platform?

No. You can create one set of OPS translation files and copy them to all three platforms.

20. Why are my fonts different sizes since I upgraded to 3.2?

Please refer to the document “Editing OPSDisplayUserConfig File,” located on the RES 4.x CD under **\Support\sdk**.

21. Is there a way to set the number of lines displayed in the database tables?

Yes. By default, when viewing any of the database tables through the Interactive SQL (DBISQL), there is a MICROS-imposed limit of 500 records. To change this:

1. Open ISQL by selecting *Start* | *MICROS Applications* | *Utilities* | *Database* | *Sybase Adaptive Server Anywhere* | *Interactive SQL*.

2. From the menu bar, select *Tools* | *Options* and click on the **Results** icon.

3. Change the **Maximum number of rows to display** to the desired value.

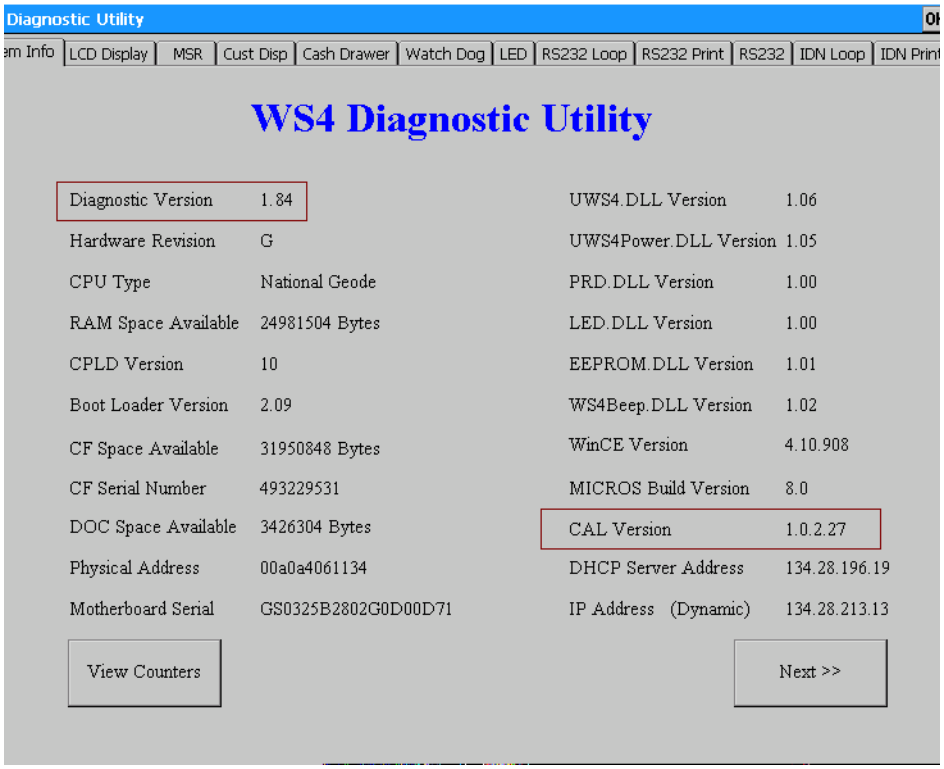
Appendix F: Wireless Workstation 4

This section describes procedures for setting up the Wireless Workstation 4 (WS4).

Before You Begin

Before installing the Cisco Wireless Card in the WS4, follow these steps to confirm that the system has been upgraded to RC5.1 or higher. To do this:

1. From the WS4, click *Start* | *Programs* | *Windows Explorer* | *Doc* | *Utilities* | *DiagUtility* to open the utility program.



2. Check to make sure that the following versions of the software are running:

   - Diagnostic Version 1.84
   - CAL Version 1.0.2.26 or higher

If these versions are not installed on the workstation(s), you will need to upgrade the system through the Client Application Loader (CAL), using a hard-wired network cable. This must be done before configuring the wireless network card.

Encryption

The wireless Cisco card does not support 128-bit encryption. If you are using 128-bit encryption on your wireless access point, you will need to downgrade it to 40-bit encryption.

Configuring the Workstation

Once the workstation is running the correct versions of the software, follow these steps to configure for wireless communication:

1. In the MICROS Control Panel, set the Restaurant level to **Off** or **Database**.
2. Power off the WS4.
3. Disconnect any LAN cables.
4. Insert the Cisco wireless card into the card slot on the bottom of the WS4.
5. Power on the WS4.
6. After the system restarts (the first 1-2 seconds), press **[Ctrl]-[Shift]-[End]** to exit CAL.
7. Configure the wireless card:
   - From the Windows Start menu, click *Settings* | *Control Panel* | *Network and Dial-up Connections*.
   - Select CISCO1. A dialog window is displayed.
   - On the *IP Address* tab, select one of the radio buttons to either manually enter an IP Address or use DHCP to assign one automatically.

- Skip the *Name Servers* tab.
- Go to the *Wireless Networks* tab).
- Select an access point from the list of **Available Networks** and click the **Configure** button to define encryption that will allow the workstation and access point to communicate.

  An example of 40-bit encryption would be:

  1. Enable only the **Data encryption (WEP enabled)** option.
  2. Disable all other options.
  3. Click **Modify WEB KEY**.
  4. Input the network key (e.g., 1011121314). The access key should be the same value/number you selected when you configured your wireless access point for encryption. If you are using a Symbol device, you have the ability to insert your own values or select one of four predefined values.
  5. In the **Key Format** box, choose *Hexadecimal* digits.
  6. Select a **Key Length** of *40-bit* (10 digits).
  7. The **Key Index** can remain at *0*.
  8. Click **OK** to exit.
  9. Click **OK** again.
  10. Verify that your selected network is in the **Preferred networks** list. If not, highlight it and click the **Add** button.

Other Security Considerations

While configuring the CISCO card, users may define the **Network to Access**. This is done through the Windows Start Menu by selecting *Settings* | *Control Panel* | *Cisco1* | *Wireless Networks* and clicking the **Advanced** button.

The following options are presented:

1. Any available Network (access point preferred).

2. Access point (Infrastructure) networks only.

3. Computer-to-Computer (Ad hoc) networks only.

For greater security, MICROS recommends using option 2, allowing communications with the defined access point only.

8. Exit all forms.

9. From the ICON tray (bottom right corner of the task bar), double-click on the Cisco1 network icon. The icon looks like 2 computer screens.

10. Go to the *IP Information* tab and confirm the information.

11. Go to the *Wireless Information* tab. Confirm the connection to the access point and signal strength.

12. Reboot the WS4.

Once the unit comes back up, the error message “Network Cable is not connected. Please reconnect.” may be displayed. Click **OK** to continue. This message is triggered by a timeout condition and does not affect operation. It will be addressed in the next version of CAL.

Be advised that the message may display every time the workstation is rebooted. In addition, the system may ask if you want to disable CAL. If this occurs, select **No**.

At this point, the system should be on the network and CAL should be looking for updates. If not, retrace your steps and try again.

Note *If you are changing the IP Address or the Name of either the Client or Server, you will need to configure the POS Configurator accordingly.*

In addition, you will need to point the workstation to the Server by going to the Windows Start Menu and selecting Programs | Reconfigure CAL.

Known Issues

The following issues have been noted while configuring the Wireless Workstation 4:

1. Location and antenna positions are very fragile. Moving the antenna six inches can cause the WS4 to lose its connection and create a system-closed message until the signal is reacquired. When this happens, the WS4 should go to SAR Mode, provided that the feature is enabled.

2. Side-by-side WS4 units displayed different characteristics in their ability to get a signal, and in the degree of signal strength going to the same access point.

Appendix G: SwitchTo.exe

Description

SwitchTo.exe is a Windows application that allows users to change the system's focus (i.e., the active, foreground window) from one application to another using a command-line prompt.

Platforms

Win32, CE-WS4

File Location:

%RESROOTDIR%\Bin

Usage

SwitchTo.exe is a command line application with 4 possible arguments:

> ***Note*** *Using the Switchto.exe command without a command line parameter will display a short message box describing the available switches.*

-w WindowTitle

The -w switch tells the application to bring the window with the specified windows title to the foreground.

Example

C:\MICROS\res\pos\bin>SwitchTo.exe -w 3700 POS Operations

(Brings POS Operations to the foreground)

-c Class Name

The -c switch tells the application to bring the window with the specified windows class to the foreground.

Example

C:\MICROS\res\pos\bin>SwitchTo.exe -c 3700OPSAPP

-s StartCommand

The -s command is to start an application if the window with the windows title or class name cannot be found.

Example

C:\MICROS\res\pos\bin>SwitchTo.exe -w 3700 POS Operations -s Ops.exe

(Starts OPS.exe if the Windows title cannot be found.)

Common Name

The common name allows windows that have different class names and Windows titles across platforms to be unified under a single, logical name. At this time, the only common name supported by the application is KDS.

Example

C:\MICROS\res\pos\bin>SwitchTo.exe KDS

Configuring a Logical Name

Optional logical names can be added using the Windows registry. The optional logical names only operate on the windows title.

To add another logical name to the registry:

1. Make sure that following Key has been added:

   HKEY_LOCAL_MACHINE\SOFTWARE\MICROS\Common\SwitchTo

2. Add a String Value to this registry key and enter the logical name as the string value identifier. Add the desired window title as the actual string value.

Example

String Name: OPS

String Value: 3700 POS Operations

Sample Command: C:\MICROS\res\pos\bin>SwitchTo.exe OPS (changes focus to POS Operations)

Appendix H: Order Confirmation Board (OCB)

This section contains instructions for installing, configuring, and using the 3700 POS Interface to the Texas Digital AccuView Order Confirmation Board (OCB) or the Texas Digital Wenview OCB.

The OCB Interface supports output from the following POS Clients to the OCB device:

- RES Server
- Win32 Client
- WS4 Client

Installation

In RES 4.x, OCB files are installed with RES Setup. Some editing, renaming and copying of the appropriate files is necessary to configure the system for use.

Procedures

Follow these steps to configure the OCB Interface software:

1. Configure the files on the RES Server. After RES Setup has been run, all files are located in the %micros%\micros\res\pos\scripts folder.

   Confirm that the folders listed below exist on your server. If not, create them.

   - **OCBClient.isl** Rename and copy to the following folders:
     - **%microsdrive%\micros\res\pos\cal\win32\files\micros\res\pos\etc**
     - **%microsdrive%\micros\res\pos\cal\ws4\files\cf\micros\etc**
   - **OCBClient.ini** Copy to the following folders:
     - **%microsdrive%\micros\res\cal\win32\files\micros\res\pos\scripts**
     - **%microsdrive%\micros\res\cal\ws4\files\cf\micros\scripts**

Note *The OCBClient.isl file must be renamed to match the Interface Configuration.*

Note *The installation of the client files to the CAL folder structure is all that is needed to install the OCB Interface software on a client. Once the files have been downloaded to the client, they may be deleted from the server and edited at the client level. This optional procedure allows you to create a unique configuration at any of the clients.*

2. Register the OCB Service on the Server. To do this select **Run** from the Windows Start menu. When the dialog box opens, enter the following text:

   "%microsdrive%\micros\res\pos\scripts\OCBServer.exe" /service

   Press **OK**.

   This will install the service and configure it to automatically start when the Server is booted up.

3. Confirm that the Service has been properly installed. To do this:

   - From the Windows Start menu, select *Settings* | *Control Panel* | *Administrative Tools* | *Services*.
   - Confirm that there is an entry in the Service list for *MICROS OCB Server* and that its **Startup Type** is set to *Automatic*.
   - Highlight the entry and click the **Start Service** button. (This will be done automatically on subsequent reboots of the Server.)

- Confirm that the service starts up without error. If an error is displayed, the cause is most likely a problem with the **OCBServer.ini** file. Among the likely errors messages are:
  - *The data is Invalid* — The **OCBServer.ini file** contains an invalid configuration.
  - *The system cannot find the file specified* — The **OCBServer.ini** file is missing or in the wrong location.

4. Add OCB Server to the Firewall Exception List. The **ConfigureICF.bat** file will be run automatically as part of installing the patch.

> ***Note*** *After running RES Setup, the ConfigureICF.bat file can be found in the %microsdrive%\micros\common\bin folder.*

Configuration

Most configuration is done at the Server in the **OCBServer.ini** file. This file defines the OCB devices attached to the system and the device-specific settings for each.

Server Setup

Each OCB device entry contains the following set of configuration items:

[Device] — Defines the device type and communication parameters.	
DeviceType	0 = None 1 = Texas Digital AccuVIEW 2 = Texas Digital WenVIEW 3 = Texas Digital AccuVIEW CE
ConnectType	1 = COM Port 2 = TCP/IP [Not currently supported]
ComPort	1 = COM1 2 = COM2 ...etc.

[Device] — Defines the device type and communication parameters.	
BaudRate	1 = 1200 2 = 9600 3 = 19200 (Suggested Baud Rate for AccuVIEW OCB devices) 4 = 38400 5 = 57600 6 = 115200 NOTE: If the site encounters display issues set the baud rate to 19200 (3 in the OCBServer.ini file).
IpAddress	IP Address of the OCB device [Not currently supported]

[Labels] — Defines the labels for various display elements.	
TotalLabel	Label displayed at the bottom of the OCB display immediately before the total due value.
TaxLabel	Label displayed at the bottom of the OCB display immediately before the tax value.
TotalScreenLine1	Line 1 of the text displayed on the total screen. The total screen is displayed after an order has been completed and the associated check on the POS has been service totaled or final tendered.
TotalScreenLine2	Line 2 of the text displayed on the total screen.

[Default Message] — Defines the default message displayed on WenVIEW OCB devices. This text is displayed whenever the OCB is idle and not taking an order.	
Line1, Line2, ...	Defines each line of the default Message. Can add or delete lines as necessary (Line3, Line4, etc.).

[Scroll Text] — Defines the set of messages scrolled at the bottom of the OCB display. AccuVIEW devices can display an unlimited number of scroll messages. WenVIEW devices can display only 1 scroll message.	
ScrollText1, ScrollText2, ...	Defines the text of each scrolling message. Can add/ delete scroll messages as necessary (ScrollText3, ScrollText4, etc.).

[Display Options] — Contains the display options available for the device.	
DisplayMenuItems, DisplayDiscounts, DisplayTenders, DisplayServiceCharges	Determines whether or not the specified detail type will be displayed on the OCB. 0 = Do not display 1 = Display
DisplayVoids	Determines whether or not void entries will be displayed. 0 = Voiding detail items results in the associated detail type being removed from the display. 1 = Voiding detail items results in the original item staying on the display and an additional entry being added to the bottom of the display with an inverse quantity.
DisplayMenuLevelPrefix	Determines whether or not menu level prefixes will be displayed. This option has no effect if the menu item is not configured to display the menu level prefix using the **Menu level name** menu item class option. The main or sub level prefix is selected based on the **Use sub menu level for pricing** menu level class option.

[Display Options] — Contains the display options available for the device.	
DisplayTaxAndTotalLine	Determines whether or not a running tax and total line will be shown at the bottom of the OCB display when an order is taken. 0 = Do not display 1 = Display
DisplayTotalScreen	Determines whether or not the total screen will be displayed. The total screen is displayed after an order has been completed and the associated check on the POS has been service totaled or final tendered. If set to 0, the total screen will be skipped and the display will go directly to the default message screen (WenVIEW) or slide show (AccuVIEW). 0 = Do not display 1 = Display

In addition to the device-specific options, the following set of global options are system-wide and are available in the **OCBServer.ini**.

[Global Options].	
CurrencySymbol	Defines the currency symbol displayed with the total due on the total screen. If blank, defaults to '$'.

Example of OCBServer.ini supporting two OCB devices

[Global Options]

CurrencySymbol = "@"

;

;OCB Device Configuration

;

;DeviceType : 0 = None, 1 = Texas Digital AccuVIEW, 2 = Texas Digital WenVIEW

;ConnectType : 1 = COMPort, 2 = TCP/IP (Not currently supported)

;IpAddress : IP address of OCB (Not currently supported)

;ComPort : 1 = COM1, 2 = COM2, etc.

;BaudRate : 1 = 1200, 2 = 9600, 3 = 19200, 4 = 338400, 5 = 57600, 6 = 115200

[OCB1 Device]

DeviceType = 1

ConnectType = 1

ComPort = 1

BaudRate = 3

IpAddress = ““

[OCB2 Device]

DeviceType = 0

ConnectType = 0

ComPort = 0

BaudRate = 0

IpAddress = ““

;

; Label Definitions

;

[OCB1 Labels]

TotalLabel = “Total: “

TaxLabel = “Tax: “

TotalScreenLine1 = “YOUR”

TotalScreenLine2 = “TOTAL IS”

```
;
[OCB2 Labels]
TotalLabel = “TTL: “
TaxLabel = “TX: “
TotalScreenLine1 = “YOUR TOTAL”
TotalScreenLine2 = “IS”


;
; Display Options

;
[OCB1 Display Options]
DisplayMenuItems = 1
DisplayDiscounts = 1
DisplayServiceCharges = 1
DisplayTenders = 1
DisplayVoids = 0
DisplayMenuLevelPrefix = 0
DisplayTaxAndTotalLine = 1
DisplayTotalScreen = 1

[OCB2 Display Options]
DisplayMenuItems = 1
DisplayDiscounts = 0
DisplayServiceCharges = 0
DisplayTenders = 0
DisplayVoids = 1
DisplayMenuLevelPrefix = 0
DisplayTaxAndTotalLine = 1
DisplayTotalScreen = 1
```

;
; Default Message Definitions
;
; Currently only applies for a WenVIEW device
; Can add/delete lines as necessary (Line3, Line4, ...)

;
[OCB1 Default Message]
; N/A

;
[OCB2 Default Message]
Line1 = ““
Line2 = “ Welcome To “
Line3 = “ The OCB”

;
; Scroll Text Definitions
;
; AccuVIEW supports unlimited scroll lines, WenVIEW supports only one.
; Can add/delete lines as necessary (ScrollText5, ScrollText6, ...)

[OCB1 Scroll Text]
ScrollText1 = “Today’s Specials :“
ScrollText2 = “Hamburger Combo only $2.00“
ScrollText3 = “Chicken Nuggets only $1.00“
ScrollText4 = “Chicken Filet Sandwich only $2.00“

[OCB2 Scroll Text]
ScrollText1 = “Try our Famous Bacon Cheeseburger Combo for only $2.00!!”“

Client Setup

The Client-side configuration is done in the **OCBClient.ini.** All Clients that are going to output to the OCB need the following configuration setup:

[Options]	
ServerIP	Defines the IP address of the server hosting the OCB Service. In most cases, this will be the IP address of the 3700 RES Server.
OCBToClaimOnStartup	Defines the OCB device to claim on Startup. This can one of the following values: 0 = Do not claim any device on startup. 1 = Claim OCB device 1 on startup. 2 = Claim OCB device 2 on startup

Example of OCBClient.ini

[Options]

ServerIP = “127.0.0.1”

OCBToClaimOnStartup = 0 ; 0 = NONE, 1 = OCB1, 2 = OCB2

Touchscreens and Macros

To control the functionality of the OCB Interface, most installations will need to have touchscreen buttons and/or macros configured. This section provides a reference list of common configurations. Information provided his is for reference only. Actual selections will vary (and may be modified) based on a site’s requirements.

SIM Inquiry List

Inquiry Number	Summary	Details
1	OCB Start	Loads the **OCBClient.dll**, establishes a connection to the OCB Server, and claims the startup OCB device, if configured. This operation is automatically performed by the SIM script when POS starts up. This event can be used to restart the OCB Interface if it has been previously stopped using the **OCB Stop Inquiry** event.
2	OCB Stop	Releases the currently claimed OCB device, shuts down the connection to the Server, and unloads the OCBClient.dll. This operation is automatically performed by the SIM script when POS is shut down. If the OCB Server is currently down or unreachable, this operation can be used to completely bypass all OCB functionality preventing any delays associated with trying to reconnect to the OCB Server.
3	Perm. Claim OCB1	Will Permanently Claim OCB device #1. An informational message box will be displayed to the user indicating the result of the claim request (except when claiming a device on Startup).
4	Perm.Claim OCB2	Same as above, except for OCB device #2.

Inquiry Number	Summary	Details
5	Temp. Claim OCB1	Will Temporarily Claim OCB device #1. If successful, no message box will be displayed. If unsuccessful, the name of the owning workstation will be displayed in a formatted message box. The Temporary claim will be automatically released when one of the following operations is performed in POS Operations: Transaction Cancel Cancel Order Service Total Suspend Check Final Tender
6	Temp. Claim OCB2	Same as above, except for OCB device #2.
7	Release OCB1	Will Release OCB device #1, even if the current workstation does not currently have the device claimed. This operation must be used with caution as it may disrupt another user's operation of the OCB device.

Inquiry Number	Summary	Details
8	Release OCB2	Same as above, except for OCB device #2.
9	Set SEND flag	This flag is used to indicate that a SEND ORDER tender/media key is about to be used. Currently, SIM has no way to distinguish between a SEND ORDER key and a regular service total key. This flag is a work around and should be used to indicate that the next service total event is a SEND ORDER. It is intended to be used in a macro that calls this Inquiry event and then performs the actual SEND ORDER. When the SIM receives the next service total event, the processing of the END ORDER request is skipped and the flag is reset. For proper SEND ORDER functionality, all touchscreen keys linked to the SEND ORDER tender/media should be replaced with keys that call this macro.

Macros

1. **“Start Lane 1” / “Start Lane 2”** — Sends an order to a particular OCB device.
   - Call SIM Inquiry Event “Temp Claim OCB1” (5) or “Temp Claim OCB2” (6).
   - Begin Check (by Table, ID, etc.) — Not required for fast transaction environments.
2. **“Send Order”** — Replaces the standard SEND key.
   - Call SIM Inquiry Event “Set SEND flag” (9).
   - Tender/Media Number of the ‘Send’ tender.

User Touchscreen Buttons

1. **“Start Lane 1” / “Start Lane 2”** — Linked to the Macros defined above.
2. **“Claim Lane 1” / “Claim Lane 2”** — Linked to the SIM Inquiry Event “Perm. Claim OCB1” (3) or “Perm. Claim OCB2” (4).

Manager Touchscreen Buttons

1. **“Stop OCB”** — Linked to the SIM Inquiry Event “OCB Stop” (2).
2. **“Start OCB”** — Linked to the SIM Inquiry Event “OCB Start” (1).
3. **“Release Lane 1” / “Release Lane 2”** — Linked to the SIM Inquiry Event “Release OCB1” (7) or “Release OCB2” (8).

Appendix I: Table Management System (TMS)

About This Document

This document describes setup procedures required to run the MICROS Guest Connection table management system (TMS) software on a RES 3700 POS System. A brief description of the relationship between the TMS and POS features is also provided.

Guest Connection is an independently licensed and installed software application. For more information about this product, refer to the *Guest Connection Online Installation Guide* and the *Guest Connection User's Manual*, both of which are installed with the software.

Product Description

Guest Connection is a browser-based application that manages restaurant reservations and seating, captures guest history, and provides a communication link to the MICROS POS System. Guest Connection is designed for the multi-revenue center location, allowing a central reservation office to take reservations for all of the restaurants at a site.

Among the features supported by 3700 POS interface, Guest Connection:

- Sends a *Table Open* message to the 3700 POS when a guest is seated. This will begin a check at that table in the POS.
- Supports the following order statuses from the 3700 POS:
  - Check Open
  - Food Ordered
  - Check Paid
- Supports the following table statuses from the 3700 POS:
  - Table is bussed
  - Table is cleared
  - Table is closed
- Supports updates to a guest's order history from the 3700 POS. This includes menu item detail and summary totals.

Limitations

The following limitations should be noted between the Guest Connection and 3700 POS:

- 3700 POS does not send the following order statuses:
  - Check Printed
  - Course Ordered
  - Course fired
- 3700 POS does not accept the cancel or unseat message from Guest Connection. If a guest is unseated from a table in Guest Connection, the 3700 POS open check must be closed from within that application.
- Add/transfer messages are not accepted between 3700 POS and Guest Connection. When an add/transfer is done in one of the applications, the same procedure will need to be done on the other side. These functions are not supported from the 3700 POS:

  SIM Inquire 4 — Transfer

  SIM Inquire 5 — Add Check/Extend a Table
- Guest Connection supports only one check at a table. However, once a check is opened in Guest Connection, the POS user can split it or even add more checks to the open table. This can cause the following problems when a check is closed at that table:
  - On the Guest Connection side, the system accepts updates from the 3700 POS based on table number. Once the first check is paid, Guest Connection shows the table as paid, alerting the hostess to have the table cleared. This can cause confusion.

    Example:

    1. In Guest Connection, start a check at Table 10. The 3700 POS will automatically begin Check 10/1.
    2. On the 3700 POS side, start another check at table 10. The check will be labeled, 10/2.
    3. Close Check 10/2. The POS will send a check paid message to

Guest Connection, which then updates the table to a status of *Check Paid*.

- On the POS side, the system will display the error "Reservation not found" whenever the user attempts to close any of the remaining checks from that table. (From Guest Connection's point of view, there are no guests currently assigned to that table.)

System Requirements

Running the 3700 POS Guest Connection interface on a RES System requires the following:

- PMS/SIM must be licensed
- Guest Connection Version 1.50 or higher
- RES 3000 Version 3.2 Service Pack 3 HF1 or higher
- Guest Connection uses Microsoft SQL Server 2000 as its database. When installing on a RES site, be sure that the SQL Server edition is compatible with the site's operating system.

Configuration Models

Three different system configuration models are supported in this release.

Configuration #1

- RES Server running Windows 2003 or Windows XP Professional
- Guest Connection installed on the RES Server using GC part number 100124-148 Guest Connection CD — RES only

Configuration #2

- RES Server running Windows 2003 Server or Windows XP Professional
- Guest Connection installed on a separate PC, running Windows 2000 Server, and using GC part number 100124-147 Guest Connection CD

Configuration #3

- RES Server running Windows 2003 Server or Windows XP Professional
- Guest Connection installed on a separate PC, running Windows 2000 Professional, and using GC part number 100124-148 Guest Connection CD — RES only

TMS Installation

The 3700 Guest Connection interface is dependent on the version of RES 3.2 software. The interface is installed with the RES 4.x software. When installing RES 4.x be certain to select the **TMS Interface** option.

The interface is only installed on the RES Server. Once the software is installed, refer to the next section, **System Setup**, for instructions on configuring the 3700 interface.

Configuring the 3700 POS

To use Guest Connection on a RES 3700 POS System, users must establish a SIM interface to Guest Connection and set up an appropriate number of touch keys in POS Operations. The procedures for doing so are as follows:

Create the Interface

1. Open the POS Configurator and go to *Devices* | *Interfaces* | *General*.
2. Add a Guest Connection record with the following properties:
   - **Outgoing Message Name** — TMS 3700
   - **Timeout** — 20
   - **Network Node** — Server
   - **Number ID Digits** — 9
   - **Backup Interface** — (n/a)
   - **Log Transactions** — (not necessary)
   - **SIM Interface** — (must be checked)
   - **Interface Type** — TCP

3. Go to the *Interfaces* tab and enter the following:

   - **TCP Server Name** — Enter the IP address of the RES Server.
   - **TCP Port Number** — 5012

4. Save the record. Go to *Devices* | *Touchscreen Designer.*

5. Select the appropriate screen(s) on which to add the three SIM Inquire keys required for Guest Connection. Configure each key as follows:

   - **Legend** — Enter the button name
   - **Category** — SIM/PMS Inquire
   - **Interface** — Guest Connection
   - **Inquire Number** — Enter the number that corresponds to the selected SIM function:

     1 — Bus/Clear Table

     2 — Clean

     3 — Close

   Note *Touchscreen locations for SIM keys is subject to the needs and preferences of the user. MICROS recommends placing Inquires 1-3 on the Table Layout Screen, as they may be used without opening a check.*

   The SIM Functions Bus/Clear, Clean, and Close are revenue center-based. A user must be sign into the correct revenue center at the POS when performing one of these functions.

6. Save and go to *Revenue Center* | *RVC Table Seating* and confirm that tables have been set up for each revenue center. If corresponding table numbers are not programmed, Guest Connection will be unable to initiate a guest check on the 3700 POS when a guest is seated.

7. Save and close POS Configurator.

8. On the RES Server, open the Window's Explorer and navigate to the **\Micros\RES\POS\etc** folder.

9. Rename the **TMSInterface.isl** to **pms#.isl**, where # is the number of the TMS 3700 interface created for Guest Connection in *POS Configurator | Devices | Interfaces*.

   For example: If the TMS 3700 interface was number 2 on the Interface form, then the **TMSInterface.isl** script should be renamed **pms2.isl**.

10. Copy the **pms#.isl file** to the \MICROS\res\pos\etc folder onto the RES server. This file will need to be loaded onto all POS clients as well. Use the CAL file structure to copy the file to the etc folder on each client platform installed.

Editing the Interface File

1. Open the **TMSInterface.ini** file and change the following settings to match the user's system:

   - [SETTINGS]

     UWSSEQ —The uws_seq from micros.uws_def of the 3700 Server.

```
[SETTINGS]
LOG=TMSIntfc.log
UWSSEQ=24

[TMS-CONNECTION]
port=5200
ip=172.28.255.255

[3700-CONNECTION]
port=5012

[MICROS]
;VER=3.1
VER=3.2
```

SAMPLE FILE

- [TMS-CONNECTION]

  port — This is the port that allows Guest Connection to send/receive messages from the 3700 POS. This entry must match the MICROSPORT value in Guest Connection (*Maintenance* | *Look Ups* | *System* | *PARAM*).

  Note *Guest Connection is installed with port 5100 as the default setup value, which is already assigned in RES 3000 to the Cash Management application.*

  To avoid a conflict, Guest Connection users must change the port setting to 5200 or another unassigned value.

  ip — The IP address of the server where the Guest Connection interface service (**GC2MICROS.exe**) is installed.

- [3700-CONNECTION]

  port — This is the port that allows each 3700 POS client to send/receive messages from the RES Interface Server. This value must match the **TCP Port Number** defined in *POS Configurator* | *Devices* | *Interfaces* for the Guest Connection interface.

2. Copy the tmsinterface.ini file to the \MICROS\res\pos\etc folder on the server.
3. From the Windows Start menu, go to *Settings* | *Control Panel* | *Administrative Tools* | *Services*.
4. Right-click on *Micros TMS Interface* and select **Properties**.
5. Change the Startup Type to **Automatic**. The next time the system is rebooted, the interface will startup automatically. To activate immediately, right-click on *MICROS TMS Interface* and select Start.

   The service will write messages to the **3700d.log** file. This file can be viewed using logviewer. To view every message sent between the 3700 and Guest Connection, set Verbosity to 10 in the Control Panel.
6. Perform a warm boot (restart) of the system.

Recommended Options

In the 3700 POS Configurator

- Open POS Configurator and enable the option **One check per table** (*Revenue Center* | *RVC Transactions*).

In Guest Connection

- Change the **MICROSPORT** value to **5200** (*Maintenance* | *Look Ups* | *System* | *PARAM* | *Page 2*).
- Change the **MICROS GUID** to **N** (no) (*Maintenance* | *Look Ups* | *System* | *PARAM*). The default value is **Y**.
- Change the CODE 1 value to “Food Ordered” (Maintenance | Look Ups | General | TABLESTAT.

Shared Procedures

Guest checks can be initiated by either Guest Connection or POS Operations. MICROS recommends starting it in Guest Connection, unless the table will be splitting the check. This allows the hostess to control the table seating.

When entered through Guest Connection, the interface also begins a check in 3700 POS, passing the employee number, table number, and guest count assigned in Guest Connection. Once the POS has started the check, it passes back a message to Guest Connection updating the table status to *Check Begun*.

Similarly, when a check is started from the 3700 POS, the information is sent to the Guest Connection and the table is assigned a status of *Check Begun*.

Once started, the updated check information is available from either application.

Changing the Status

Once menu items are ordered and the check is service totaled for the first time, the system updates Guest Connection with a table status of *Appetizers Ordered*. Since the 3700 POS cannot send multiple courses, MICROS recommends changing the descriptor to *Items Ordered.*

When a check is final tendered through 3700 POS, the interface updates the table status in Guest Connection to *Check Paid* and, if configured to do so, sends Guest Connection the check's menu item detail.

At that point, the table should be cleaned, either through the 3700 POS or Guest Connection. The busser should then update the table status to *Table Bussed* through the 3700 POS.

When a table is no longer required, it's status can be set to *Table Closed*. This applies to single tables or sections. The function may be performed from either the 3700 POS or Guest Connection.

Table Status Indicators

During operations, POS Operations provides Guest Connection with updates on table status. The messages are reflected in Guest Connection as changes to the color of the table icon, shown in the table below:

Table Status	Color
No Server Assigned	Rust
Table Open and Cleaned	Green
Guests Seated	Peach
Check Begun	White
Items Sent	Purple
Check Paid	Red
Guest Left/Table Dirty	Grey
Table Closed	Black

Order History

Guest Connection maintains its own guest database to capture guest preferences, order history, and other personal data. POS Operations supports this functionality by providing check totals and order detail to Guest Connection whenever a check is final tendered.

Appendix J: Customized Installation Procedures

Introduction

This section provides information for sites with complicated Client/ Server setups that require customized installation.

Registry Settings

There are two registry settings that affect the RES patch. They are:

- HKLM\Software\Micros\Patch\BypassDBUpdate (True) :STRING
- HKLM\Software\Micros\Patch\BypassReboot (True) :STRING

These values must be set to True in order for them to work.

BypassDBUpdate

The existence of this registry value will cause the RES patch to bypass the database update portion of the patch.

BypassReboot

The existence of this value will cause the RES patch to bypass the execution of **Shutdown.exe**. The patch will simply stop. The Server will not reboot.

If running MICROS Desktop, the BypassReboot setting should NOT be used as this will leave the system on but disabled. The only recourse at that point is to reboot the server using the power button.

Appendix K: Pre and Post Custom Installation Procedures

A custom pre and post update hook has been added to allow an integrator to add their own install processes to the patch installation process.

When running a patch upgrade on the RES Server, the system can be setup to execute a batch file before the patch is started or before the patch is finished. These batch files cannot be used to reboot the system. They can be used to stop third party services that affect the RES system.

Follow these steps to create a custom file that can be called while a MICROS patch is running:

1. In the server's registry, go to *HKLM\Software\Micros* and add a key called **Patch**.

2. Create a string value for this key and name it either **CustomPreUpdate** or **CustomPostUpdate**, depending on when it will be executed.

   CustomPreUpdate will occur at the beginning of the patch. Use this key to shut down non-Micros services at this time (see Step 3).

   CustomPostUpdate will run after all files have been updated, but before the database is updated.

3. Set the value of CustomPreUpdate to the location of the file you want to call (e.g., *C:\Temp\StopService.bat*).

4. Set the value of CustomPostUpdate to the location of the file you want to call (e.g., *C:\temp\InstallCustomReports.bat*).

Appendix L: Removing RES 3.x Software

Introduction

This section provides instructions on removing RES 3.2 from the server and clients.

This is a required step if you are upgrading from RES Version 3.x to RES 4.x. Attempting installation before removing RES 3.x will cause setup to stop.

From RES 3.2 Server

Follow these steps to remove MICROS software from a server running Version 3.2 or lower:

1. From the Windows Start Menu, select *Programs* | *MICROS Applications* | *MICROS Control Panel* to launch the interface.

2. Click the button to set the Restaurant to OFF.

3. From the Windows Start Menu, select *Settings* | *Control Panel* | *Administrative Tools* | *Services*. Stop all MICROS services, including those not installed by RES GR. Specifically:

   - MICROS 3700 System
   - MICROS Caller ID Service
   - MICROS Distributed Service Manager
   - MICROS Secure Desktop
   - MICROS LM Com Scheduler

   and the non-RES services:

   - ValueLink, Watchdog, Agent, etc.

4. Select **Add/Remove Programs**. Highlight and remove all MICROS programs (e.g., EM, ValueLink) **except for RES.** (RES will be removed in Step 11.)

5. *(Optional)* If ValueLink is installed, open Windows Explorer and navigate to the *WinNT\system32* folder. Save the **vlink.cfg** file to a safe location.

6. Open a DOS window. From the command line, navigate to the *\MICROS\res\pos\bin* directory. Enter the following commands to remove the Connection Advisor service:

```
connadvisor –uninstall
connadvisor –unregister
```

7. Select *Start* | *Run* | *Regedit* to open the Registry.

8. Go to *My Computer\HKey_Local_Machine\System\Current ControlSet\Services* and delete those MICROS services that were not installed by RES GR.

9. Go to *HKey_Local_Machine\Software\MICROS\Common* and highlight *LicenseManager.* From the menu bar, select *Registry* | *Export Registry File...* to save the license codes to a safe location, outside the MICROS tree.

10. Open the Windows Explorer and navigate to the ***MICROS\Database\Data*** folder. Save the **micros.db** and **micros.log** to safe location.

11. Return to *Settings* | *Control Panel* | *Add/Remove Programs* to remove the MICROS RES 3.2 software.

12. Go back to Windows Explorer and manually delete the MICROS tree.

13. In the Registry, go to *My Computer\HKey_Local_Machine* and delete the following*:*

    - *Software\MICROS*
    - *Software\Borland*
    - *Software\ODBC\odbc.ini\micros*
    - *Software\ODBC\odbc.ini\microsOld*

- *Software\ODBC\odbc.ini\microsSetup*
- *Software\ODBC\odbc.ini\ODBC Data Sources*
- *Software\ODBC\odbcInst.ini\Adaptive Server Anywhere 6.0*
- *Software\ODBC\odbcInst.ini\Adaptive Server Anywhere 6.0 Translator*
- *Software\ODBC\odbcInst.ini\ODBC Drivers\Adaptive Server Anywhere 6.0*
- *Software\ODBC\odbcInst.ini\ODBC Translators\Adaptive Server Anywhere 6.0 Translator*
- *System\CurrentControlSet\Services\3700d*
- *System\CurrentControlSet\Services\Micros Backup Server*
- *System\CurrentControlSet\Services\Micros CAL Service*
- *System\CurrentControlSet\Services\CISERVICE*
- *System\CurrentControlSet\Services\svcCashManager*
- *System\CurrentControlSet\Services\MicrosCashManagementComServer*
- *System\CurrentControlSet\Services\srvConnAdvisor*
- *System\CurrentControlSet\Services\Micros Database Service*
- *System\CurrentControlSet\Services\DbUpdateServer*
- *System\CurrentControlSet\Services\MICROS Distributed Service Manager*
- *System\CurrentControlSet\Services\svcCOMScheduler*
- *System\CurrentControlSet\Services\srvMDSHTTPService*
- *System\CurrentControlSet\Services\MicrosDesk*
- *System\CurrentControlSet\Services\SQLANYs_sql (Server Name)*

14. Reopen the Control Panel and select *System* | *Advanced* | *Environment variables*. Delete the *Micros_Current_Installation* entry.

    (**Note**: If the system was at GR, this would already be removed. This step is only necessary if a patch had been installed.)

15. Reboot the PC.

From RES 3.2 Clients

Follow these steps to remove MICROS software from a client running Version 3.2 or lower:

1. From the Windows Start Menu, select *Settings* | *Control Panel* | *Administrative Tools* | *Services*. Stop the following MICROS services:

   - MICROS 3700 System
   - MICROS Backup Server
   - MICROS Connection Advisor (only present after SP1)
   - MICROS DB Update Service
   - MICROS MDS HTTP Service
   - MICROS Secure Desktop

2. Select *A***dd/Remove Programs**. Highlight and remove MICROS res3000 v3.2. (**Note**: There may be multiple instances of this program listed; if so, remove them all.)

3. Open a DOS window. From the command line, navigate to the *\MICROS\res\pos\bin* directory. Enter the following commands to remove the Connection Advisor service:

   ```
   connadvisor –uninstall
   connadvisor –unregister
   ```

4. Open Windows Explorer and manually delete the MICROS tree.

5. Select *Start* | *Run* | *Regedit* to open the Registry.

6. Go to *My Computer\HKey_Local_Machine* and delete the following*:*

   - *Software\MICROS*
   - *Software\Borland*
   - *Software\ODBC\odbc.ini\micros*
   - *Software\ODBC\odbc.ini\microsOld*
   - *Software\ODBC\odbc.ini\microsSetup*
   - *Software\ODBC\odbc.ini\ODBC Data Sources*
   - *Software\ODBC\odbcInst.ini\Adaptive Server Anywhere 6.0*
   - *Software\ODBC\odbcInst.ini\Adaptive Server Anywhere 6.0 Translator*
   - *Software\ODBC\odbcInst.ini\ODBC Drivers\Adaptive Server Anywhere 6.0*
   - *Software\ODBC\odbcInst.ini\ODBC Translators\Adaptive Server Anywhere 6.0 Translator*
   - *System\CurrentControlSet\Services\3700d*
   - *System\CurrentControlSet\Services\Micros Backup Server*
   - *System\CurrentControlSet\Services\srvConnAdvisor*
   - *System\CurrentControlSet\Services\DbUpdateServer*
   - *System\CurrentControlSet\Services\srvMDSHTTPService*
   - *System\CurrentControlSet\Services\MicrosDesk*
   - *System\CurrentControlSet\Services\SQLANYs_sql (Client Name)*

7. Reopen the Control Panel and select *System* | *Advanced* | *Environment variables*. Delete all MICROS environment variables (e.g., ASANY, SqlAny, Micros_current version, etc.).

8. Reboot the PC.

Appendix M: RES Security Standard

RES versions 4.0 and higher contain a comprehensive data security package. The RES security features described in this section address vulnerability concerns in an increasingly complex and rapidly changing technical environment.

The MICROS security standard implements strong data encryption at the application level to protect sensitive data wherever it resides on, or is transmitted within, the RES System. By targeting the application level, the MICROS solution eliminates problems associated with hardware- or transmission-specific processes and protocols. This allows sites to retain their existing hardware or network infrastructure as long as it meets MICROS RES minimum system requirements. In many cases, hardware- or protocol-level security can be enabled as an added means to secure sensitive data.

Note *Product design alone does not ensure system security. MICROS customers also bear responsibility for implementing their own security policies and procedures with regard to hiring practices, system access, and network firewalls.*

This section provides an overview of the RES Security Standard and discusses the areas that are affected by the changes. Topics covered include:

- Employee Security
- System Security
- Electronic Payments

Additionally, beginning with RES Version 4.3 Hotfix 1, a site must be PCI-compliant in order for POS Operations to start successfully. A detailed description of this feature is provided in the PCI Compliance Verified at System Startup section on page 166.

Employee Security

For security, the 3700 POS System includes options that limit employee access to forms and records in the configuration tools and to certain keys and functions during system operations. Access is restricted by assigning privileges to each employee class.

Usage

Access privileges are used to limit what an employee can see and do in the POS system. The primary mechanism for restricting access is through privilege levels, which are assigned by employee class. Privilege levels control access to menu items, discounts, tender/media, service charges, Manager Procedures, the POS Configurator, system clock-in, and autosequences.

Example

Jeff's Café is located on a street corner with busy pedestrian traffic on two sides. With so much activity, it's hard to keep tabs on all the tables and the restaurant is occasionally troubled by walk-out customers. The manager needed a method for closing these checks, but didn't want the wait staff to have access to this function. The solution was to program a [Tender/Media] key for walk-outs and to assign it a higher privilege level than the one granted to wait staff.

Because employees at the same privilege level could have access to each other's records, a secondary security mechanism was added to the system. This mechanism allows you to specify whether members of an employee class will have unrestricted access to each other's records, access to employees at the same level or below, or access to employees at a lower level only. Both POS Configurator and Manager Procedures are affected by the selection.

Configuration

The configuration section is divided as follows:

- Establishing Privilege Levels
- Setting Configurator Access
- Restricting Access to Employee Data

◆ Establishing Privilege Levels

Follow these steps to establish privilege levels for employees:

1. Open POS Configurator and go to the *Employees* | *Employee Classes* form.
2. Select the **Name** of an employee class from the table.
3. Go to the *Privileges* | *Privilege Level* tab.
4. From each of the drop-down lists, specify a privilege level for this employee class.

   Privilege Levels are ranked on a scale from 0-3, where 0 is the lowest and 3 is the highest level assigned. In general, assigning a privilege level means that employees of this class will have access to all records, keys, and operations associated with that level and lower.
5. Save all changes.

◆ Setting Configurator Access

Follow these steps to set the configurator access for an employee level:

1. Open POS Configurator and select *Employees* | *Configurator Access*.
2. Add a new record in the table.
3. In the **Employee Class** column, double-click to open the drop-down list and select one of the available employee classes.

4. In the **POScfg Form** column, double-click to open the drop-down list and select the form that members of the employee class may access.

5. Under **Access Privileges**, indicate the actions that may be performed on this form(s). Options include:

   - Allow read
   - Allow update
   - Allow insert
   - Allow delete

6. Save all changes.

Restricting Access to Employee Data

Follow these steps to restrict all employee classes' access to employee data:

1. Open POS Configurator and go to *System* | *Restaurant* | *Options.*

2. Under Restrict Access To Employee Data, select one of the following options:

   - No access limitation
   - Same level or lower
   - Lower level only

   To set this option, an employee must have been assigned a level 3 on the *Employee Class* | *Privilege Levels* form in the Mgr Procedures/ POS Config drop-down list. Otherwise, these options will not be displayed.

3. Save all changes.

System Security

Managing the system in a way that minimizes risk is critical to ensuring database security. The System Security section is divided into two sections, Overview and Configuration.

- Overview
  - Encryption
  - Password Management
  - Security Log
  - Risk Management
- Configuration

Overview

Encryption

Securing the system involves protecting two types of data:

- **Data at Rest** — Refers to data stored on persistent media, such as the system database or in the operating system's file system.
- **Data in Transit** — Refers to data transmitted from one computer process to another, where the process resides on different computers and the data must be transmitted across a network.

To secure data in these states, RES employs strong data encryption using industry-standard algorithms such as 3DES and AES. These algorithms are based on a complex system of mathematics that are used to scramble the original data, rendering it unreadable to anyone outside the secure system. The encryption mechanism includes the creation and storage of one or more software 'keys' that are used to encrypt and decrypt the data.

Current encryption algorithms are divided into two classes:

- **Symmetric** — Uses a single key to both encrypt and decrypt the data. This is the faster, though less secure method.

- **Asymmetric** — Uses separate but related keys (also referred to as a key pair), one to encrypt and one to decrypt the data. Functions are not assigned. That is, either key may be used to encrypt, but its opposite MUST be used to decrypt the results. This is the slower, more secure method.

Encrypted Areas

The RES 4.x systems include a number of data storage and relay components where data are accessible. For this reason, data encryption is applied in multiple layers across the following areas:

Data at Rest

RES stores information (data at rest) in three areas: 1) the in-store database, 2) the backup server database, and 3) the SAR client (stand-alone resilience) database. Each of these areas contains both *sensitive* and *non-sensitive* information. The server retains a copy of all three, but only the last two are kept locally on each client.

The in-store database is a long-term storage component for the site's data. The majority of information stored by RES is considered *non-sensitive*. That is, it includes all the options necessary to configure and run the program (touchscreen layouts, number of devices, business settings, etc.), as well as the historical transaction data (items, quantities, prices) gathered in the course of business.

Sensitive data refers to personal credit card information (customer names, account numbers, expiration dates) that are protected by law and must be guarded against accidental or improper disclosure.

For the in-store database, RES 4.x encrypts the entire database using standard AES encryption. This process is transparent to applications that are working within the RES system and are authorized to access the database via standard SQL tools. The encryption of the database file prevents unauthorized access through binary editors and/or hex dump utilities.

In addition to the primary database encryption, a second level of encryption is applied to sensitive data before it is stored in the database. This is done at the application level, by the program that writes the data to the database. When required, only those applications that need to will decrypt the data. For all other users, this data will appear encrypted when accessed via SQL tools.

The following chart lists by table and field, the information that is encrypted before it is posted to the database:

Table	Field
cc_auth_dtl	cc_acct_num customer_name expiration_date track_2_data
cc_batch_item_dtl	cc_acct_num customer_name expiration_date track_2_data
cc_batch_item_xfer_status	cc_acct_num expiration_date
cc_batch_item_dtl_temp	cc_acct_num expiration_date track_2_data
cc_vchr_dtl	cc_acct_num
tmed_dtl	cc_acct_num expiration_date
gss_customer_def	cc_card_number cc_expire_date
ref_dtl	ref (only if reference entry is a credit card number)
emp_password_def	emp_pwd

RES versions 4.0 and higher, address the problem of data temporarily stored on a workstation, including devices configured for Standalone Resiliency (SAR) or Backup Server Mode (BSM), by applying RSA encryption to the sensitive data before storing it in temporary files on the RES client. These temporary files are only retained for a short period of time before being deleted from the system.

◆ Data In Transit

During operations, data passes from the encrypted in-store database to a RES workstation and back. Typically, data is transported across a closed system such as a private LAN. This does not guarantee that the network is secure — particularly if the LAN includes wireless devices.

To address this issue, a separate transport key is used to encrypt all sensitive data before it is passed along the network. This is done at the application level and prevents unauthorized users from deciphering the files, regardless of how they are transported (LAN, WAN, WiFi). For added security, hardware- and transport-level protocols such as IPSEC, WEP, and WPA can be used to further encrypt transmissions.

Key Generation and Storage

The RES security paradigm requires the use of encryption keys in three areas:

- Encryption of the database.
- Encryption of the sensitive fields in the database.
- Encryption of sensitive data transmitted over the network.

Encryption keys are generated by inputting a pass-phrase and a series (typically 12 or more) of random bits known as a *Salt* value into a key derivation function or algorithm. This algorithm produces a key that is stored encrypted in an access-controlled section of the *Registry*, referred to as the **Key Store**.

During the initial installation or conversion to RES 4.x, a default key is provided. The default key allows sites to start-up the encrypted database.

◆ Changing the Key

RES allows users to change the default key by modifying the pass-phrase. This is referred to as *key rotation*. During key rotation, the entire database must be unloaded and reloaded, and all historical information is re-encrypted. This may require up to several hours to complete. Throughout the process, the POS must be down and the entire system will need to be rebooted once the rotation is finished.

WARNING!!!

Encryption Keys should NOT be changed unless required by the site and with permission from the customer's security expert.

Be advised that the loss of the pass-phrase will render the encrypted data unrecoverable. MICROS will be unable to help the site restore a database if the encryption key is changed and the pass-phrase is not available.

The mechanism for handling a key rotation is the **Database Manager** utility.

Password Management

For added security, several significant changes were made to the way passwords are managed in the RES 4.x System. Among the changes was the addition of greater control over the use of password IDs to log onto RES applications. The changes are consistent with industry standards for data security, which includes establishing guidelines for password length and format, rotation periods, and monitoring activity while logged into the system.

Password management occurs on three distinct levels:

Database User

When RES 4.x is first installed, the system creates two active users with a default password and administrative privileges. One is the database administrator (DBA), which may not be deleted from the system. The other is the MICROS user. At the system level, all MICROS applications are run as the MICROS user. Passwords for these accounts can be changed in accordance with established security guidelines and are stored in encrypted format in the Key Store.

If necessary, sites can create additional database users for their own purposes through the Database Manager utility. Typically, these are designed to allow third-party access to the database (e.g., for vendors or support functions).

Users added in RES 4.x are limited to the following database functions:

- Read-only access to all MICROS tables.
- Create custom objects (tables, stored procedures, views, etc.).
- Run all MICROS stored procedures and views.

◆ Activating Existing Users

When upgrading from a RES 3.x database, the system retains all of the existing users, but disables their passwords. Users can be activated in the RES 4.x system by entering a password through the Database Manager utility. For security reasons, MICROS recommends entering a password, rather than reentering the existing, inactive value.

Caution! *Database passwords for "dba" and 'micros' users MUST be changed through Database Manager, not Sybase Central.*

Once a password has been changed through Sybase, that user will no longer be able to run any of the MICROS applications.

Users who have been ported over and reactivated from a RES 3.x database will retain all the rights and privileges assigned to them in the previous release, including the ability to modify the definition tables. MICROS recommends evaluating these user privileges and then adjusting them according to the needs of the customer.

Administrative Services User

At the operating system level, Microsoft® Windows creates a default administrative user with the necessary rights to manage Services on the local device. However, to communicate between devices and across the network, the system requires an administrative-level user with broader access privileges.

In previous RES versions, the **microssvc** user was created during setup as a MICROS auto logon with the required administrative permissions. This allowed the system to run autosequences, to copy files from one PC to another, and to manage network printing.

In RES 4.x, the MICROS services user (i.e., the **microssvc** user) was discontinued as part of the security upgrade. As a result, some changes had to be made to ensure that requisite stored procedures, autosequences, and print operations would continue to execute across the network.

The primary change was to the Autosequence Server, which was retooled and added as a system Service (*Control Panel* | *Administrative Tools* | *Services*). Like all Services, it is set by default to execute as a Local System Account, with local permissions. This will work most of the time, but there are some tasks that will fail because of a permissions issue. Usually, this occurs when attempting to copy files across the network.

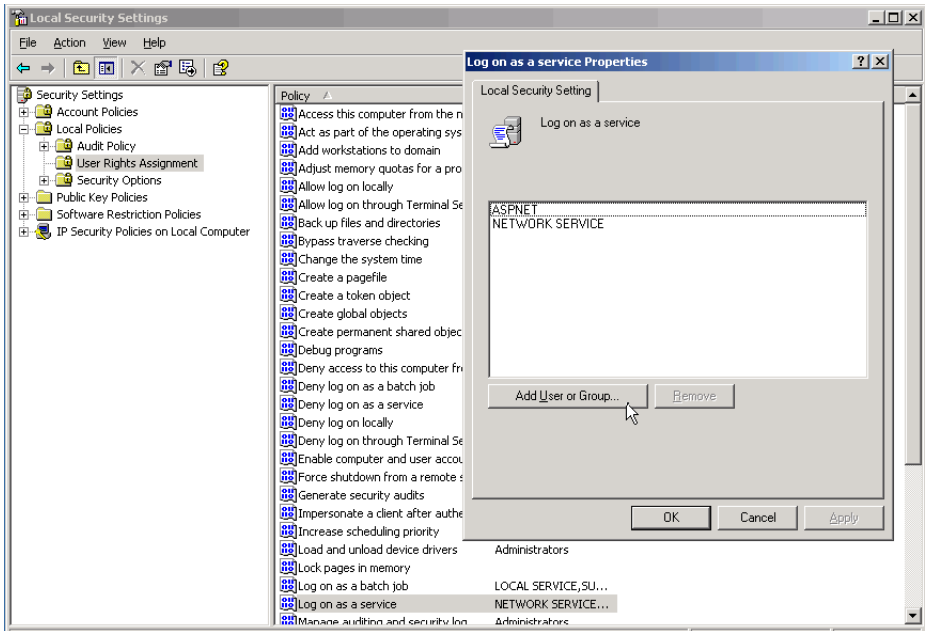
If an autosequence fails to execute because of a permissions issue, the Autosequence Server Service must be manually configured to run as a user with administrative privileges on both the local and network PCs. The options for setting the account permissions has always been available by navigating through the Windows Control Panel and right-clicking on a Service to open the *Properties* form.

To simplify setup in RES 4.x, these options were also added to the *System* | *Restaurant* | *Security* form in POS Configurator. The Windows functionality is the same. Setting them in either form (POS Configurator or Windows Control Panel) will update the other.

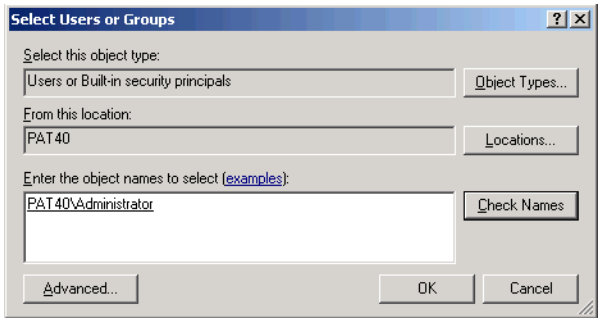
One of the side effects of these changes is that, in the absence of the **microssvc** user, the system does not automatically allow the Windows user administrative rights to log on to the autosequence service. These must be assigned manually, as follows:

1. From the Windows Start Menu, select *Control Panel* | *Administrative Tools* | *Local Security Policy.*

2. When the form opens, navigate to *Local Policies* | *User Rights Assignment* and double-click the **Log on as a service** option. The *Local Security Setting* form will display.



3. Click the **Add User or Group** button. A dialog box will display.



4. Enter the name of a privileged user and click the **Check Names** button. If the user is accepted, the entry will be underlined. Otherwise, a dialog box will display indicating that the system could not locate a Windows user with that name.

5. Click **OK** to continue. The form will close and the user will be added to the list of approved users and groups.

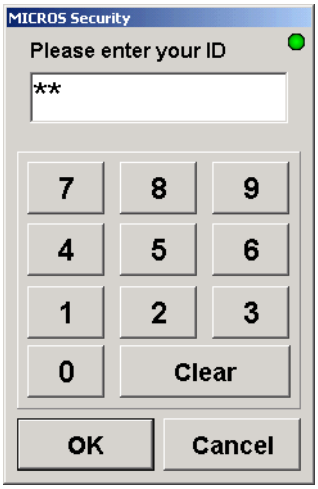
6. Click **OK** to accept the entry.

Note *After modifying an account link or user passwords, you must stop and restart the Service before the changes will be implemented.*

RES Application User

At the application level, MICROS requires employees to log in using an employee ID and password. In previous RES releases (Version 3.2 or earlier), employees were assigned their user ID when hired, and generally kept it for the duration of their employment.

During POS operations, or when launching any of the RES applications or utilities, a MICROS Security form would display. The user would be prompted to enter a valid **Password ID** in order to open the application. This is referred to as *MICROS Classic Security.*



◆ Enhanced Passwords

In RES 4.x, users have the option of keeping the Classic Security model or implementing stricter control over password assignments. Classic Security is the default setting.

The enhanced security model does not apply to the following RES applications:

- POS Operations
- Cash Management
- Manager Procedures

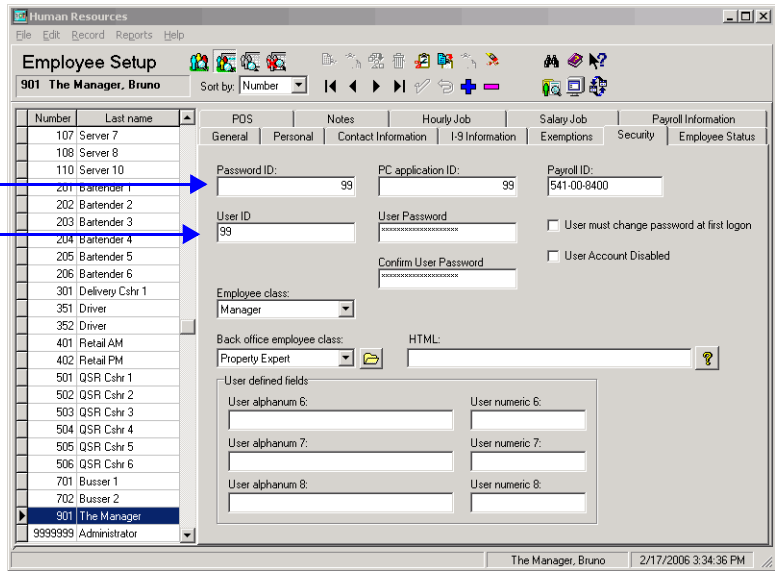
Sites that opt for the enhanced security model will need to make the following changes in POS Configurator:

- Disable the **Use Micros Classic security** option *(System | Restaurant | Security).*
- Complete the *Enhanced Password Security* section to control the way passwords are created, validated, and maintained in the alternate system.
- Assign valid **User IDs** and **Passwords** (*Employee Setup | Security*) to all active employees.

  To differentiate from Classic Security, a second set of options was added for this purpose (see following image). Only one set is valid at a time. Rules for creating and maintaining passwords (length, duration, etc.) is only applicable in the Enhanced Security model.

Classic User Security Passwords

Enhanced Security Passwords



Caution! *Before closing POS Configurator, be sure to set the passwords for at least one administrative-level employee. Once this application is closed, users will not be able to sign onto any application without a valid User ID **and** Password.*

With Enhanced Security enabled, users who attempt to log on to RES applications will be presented with a different MICROS Security window. The window prompts for both a valid **User ID** and a corresponding **Password** before launching the application. To support alphanumeric passwords, an attached keyboard is required.

User IDs must be unique for the system. However, different users may have the same password.

Options

To support this feature, the following options are available to POS Configurator:

- *System | Restaurant | Security*
  - **Use Micros Classic Security** — When checked, allows sites to retain basic password security without implementing the more stringent criteria concerning password lengths, usage, rotation periods, etc.
  - **Days Until Password Expires** — Specifies the number of days that a password will be active. As the expiration time nears, the system will automatically notify the user and prompt for a password.
  - **Minimum Password Length** — Establishes the smallest value allowed for a valid password.
  - **Maximum Idle Time in Minutes** — Specifies how long the current open application may remain idle before the system terminates the secure session.
  - **Maximum Failed Logins** — Limits the number of times a user may unsuccessfully attempt to login before being blocked by the system.

- **Require AlphaNumeric Passwords** — When checked, requires valid passwords to include a combination of letters and numbers. This option is disabled if the site is using Micros classic security.

- **Password Repeat Interval** — Specifies how many times the password entry must be changed before the current one can be repeated.

- *AutoSeqServ Logon* Options

  The following options only need to be changed if additional system access is required to run certain autosequences, such as network report printing and external programs that access network shares.

  - **Local System account** — Directs the current service to log on using the local account and local permissions. This is the default option. Clear this option to have the service log on using a separate account, as defined under the **This account** option.

  - **Allow service to interact with desktop** — When checked, provides a user interface on the desktop that can be accessed by whomever is logged on when the service is started. This option is only enabled when the service is running as a Local System account.

  - **This account** — Directs the service to log on using a specifically defined user account. This allows the user to have access to resources such as files and folders protected by the Windows operating system. This option must be enabled when using enhanced security access.

    In addition to selecting the radio button, programmers must provide a **User Name** for the account and enter the **Password** (and **Confirm Password**). Refer to the *Administrative Services User* section (beginning or page 146) for instructions on configuring this user.

> ***Note*** *Enabling this option requires a reboot of the server.*

- *Employees* | *Employees* | *Security* — These options are only relevant if Micros Classic Security is disabled.
  - **User ID** — Specifies an identifier for the employee log-on. Up to 20 characters may be entered.
  - **User Password** — Specifies the entry needed to authenticate the **User ID** and permit access to the system. Password length and composition (text, numbers, or alphanumeric combination) are defined under Enhanced Password security on the *System* | *Restaurant* | *Security* form.
  - **Confirm User Password** — Duplicates the **User Password** for confirmation of entry.
  - **User must change password at first logon** — When checked, requires the user to immediately change his/her password at the next logon. Although intended for employees, this option can also be used to reset an employee password after the account was disabled.
  - **User Account Disabled** — When checked, prevents a user from logging onto the system, even with a valid **User ID** and **Password**. This option may be triggered automatically if the employee exceeded the **Minimum Failed Logins** (*System* | *Restaurant* | *Security*) required to access the system.

MICROS Security Log

In order to comply with financial agencies (e.g., VISA, CISP, AIS, PCI) that require an audit trail (or log) of all activities that involve access to sensitive data, MICROS maintains a Security Log. The entries posted to the log must be reviewed on a regular basis for irregularities and an audit trail history must be maintained. Should a problem arise with an account, the audit trail would allow investigators to assess whether or not security has been breached, and if so, determine how to prevent such actions in the future.

The Security Log is installed as a custom plug-in to the Microsoft® Event Viewer along with the rest of the RES 4.x software. The default setting is enabled.

Audited Activities

The Security Log was designed to record when potentially sensitive or security-related data is accessed, edited, or deleted on any RES 4.x application. Auditable activities are determined by the system and are posted automatically to the Log.

The following table lists the MICROS applications, options, and activities that are tracked in the Security Log.

Application	Activity
Autosequences & Reports (AutoSeqExec.exe)	◆ All successful and unsuccessful login attempts ◆ Report preview or Report print (including the name of the specific report)
Autosequence Server (AutoSeqExec.exe)	◆ Anytime a report is previewed or printed via a scheduled autosequence (records autosequence number, step, and report name) ◆ Anytime a report is run via POS Operations (records name of logged-in user and report)
Credit Card Utility (CreditCards.exe)	◆ All successful and unsuccessful login attempts ◆ Batch creation ◆ Report preview or Report print (including the name of the specific report) ◆ Access to the batch edit form ◆ Any edits to credit card data (account number, expiration date) on the batch edit form ◆ Batch settlement
Report Explorer (RptExpl.exe)	◆ All successful and unsuccessful login attempts ◆ Report preview or Report print (including the name of the specific report)

Application	Activity
POS Configurator (Poscfg.exe)	◆ All successful and unsuccessful login attempts ◆ Access, Edit, or Delete to the following forms: ◆ System | Restaurant ◆ Business | Settings: - (Save Batch Records) Number of Days ◆ Security: - (Enhanced Password) Use MICROS Classic Security Days Until Password Expires Maximum Idle Time in Minutes Minimum Password Length Maximum Failed Logins Require AlphaNumeric Passwords Password Repeat Intervals ◆ Options: - (Restrict Access to Employee Data) No Access Limitation Same level or lower Lower level only - (Date/Time) European date format European time format - Weight in kilograms ◆ Taxes: - Enable US tax or Canadian GST - Enable Singapore Tax - Enable Canadian Tax - Enable Florida surcharge tax - Enable Japan tax - (VAT Tax Method) Post taxable totals only VAT by round VAT by item - Australian GST is active - GST Prompt Threshold - Enable Thai Tax

Application	Activity
POS Configurator (Poscfg.exe)	◆ Sales | Tender/Media ◆ General: - Type ◆ Tender: - Post to charge receipts - Post to gross receipts ◆ CC Tender: - Verify before authorization - Tender must exceed tip - Credit auth required - Credit final amount required - Allow recall - Mask Credit Card Number - Mask Cardholder Name - Debit Card - Require PIN - Prompt for immediate payment - Prompt for issue number - Prompt for issue date - Prompt for option trailer print - Prompt for cashback amount - Prompt for Card Holder Not Present - Expiration date required - Do not check expiration - Open expiration format - Mask expiration date ◆ Credit Auth: - CA Driver - EDC Driver - CA tip % - Initial Auth Amount - Secondary Floor Limit - Secondary Difference % ◆ Printing: - Print with lookup

Application	Activity
POS Configurator (Poscfg.exe)	◆ Revenue Center | RVC Credit Cards ◆ General: - Suppress amount on initial authorization - Suppress linefeeds after voucher - Authorize below CA floor message - Allow 20 reference characters - Confirm customer signature - Disable charged tip - Do not add estimated tips to CC authorization - Disable prompt for Card Holder Not Present - (CA Status) Enable CA status display Display for entire RVC ◆ Headers: - CC Voucher Header ◆ Trailers: - Customer CC Trailer - Customer Initial Auth Trailer - Customer Optional 2nd Trailer - Customer Cashback Trailer - Merchant CC Trailer - Merchant Initial Auth Trailer - Merchant Optional 2nd Trailer - Merchant Cashback Trailer ◆ Floor Limits: - Enable secondary floor limit % - Enable secondary floor limit amount ◆ Printing: - Print two vouchers - Print voucher in background - Print initial credit authorization voucher - Print voucher after secondary authorization - Do not print customer name on voucher - Show REPRINT on voucher - Print TOTAL on voucher

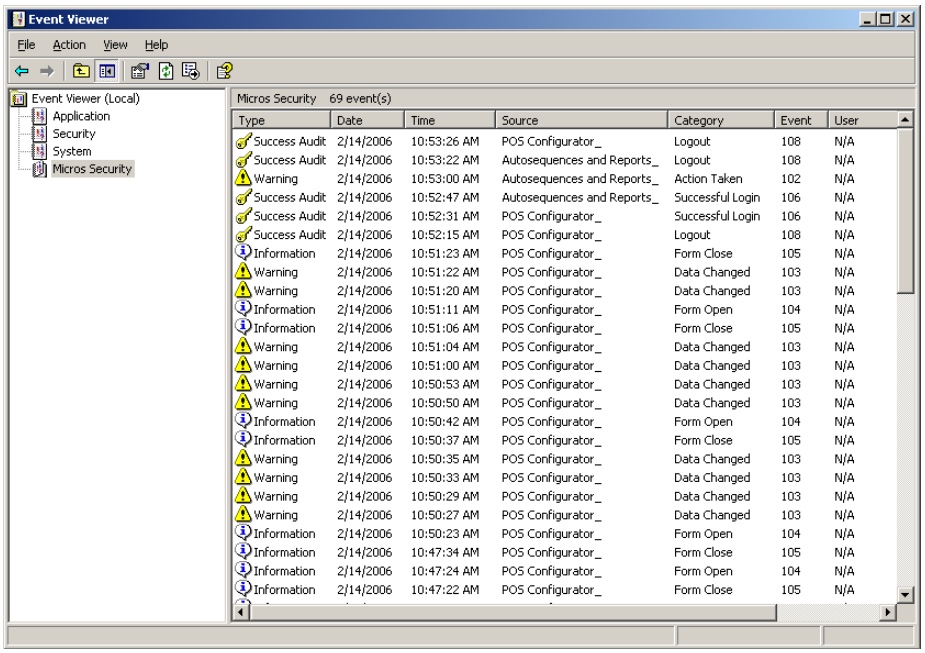
Application	Activity
POS Configurator (Poscfg.exe)	◆ Revenue Center | RVC Transactions ◆ General: - Tax Florida Surcharge - Print/Display lb. weight with 2 decimal places ◆ Employees | Employee Classes ◆ Privileges | Privilege Levels: - Mgr Procedures - POS Config. ◆ Privileges | Privilege Options: - Use Reports - Clear all totals - Access to apps using password ID - (Credit Card Batch) Create Edit Reporting Settle ◆ Options: - Pay canceled credit auth - Mgr Procedures emp ID - POS Configurator emp ID ◆ Printing: - Reprint Credit Card Voucher ◆ Employees | Employees ◆ Security: - User Account Disabled - User must change password at first logon - User ID - User Password ◆ POS Configurator | Totals ◆ Clear All Totals ◆ Clear Labor Totals ◆ Clear Sales Totals

Application	Activity
GSS Backoffice (GSS.exe)	◆ All successful and unsuccessful login attempts ◆ Access to all forms (edits not recorded)
Export Utility (ExportUtility.exe)	◆ All successful and unsuccessful login attempts ◆ All queries run
Transaction Analyzer (Analyzer.exe)	◆ All successful and unsuccessful login attempts ◆ Whenever a query is created ◆ Whenever a query is run ◆ Whenever a query is saved ◆ Records all query details
Database Manager (DM.exe)	◆ All successful and unsuccessful login attempts ◆ Records all DM functions, whether implemented through the user interface (GUI) or from the Command Line.
EM (Mecu.exe)	◆ All successful and unsuccessful login attempts
EM (EMStoreTotalsSynch.exe)	◆ All successful and unsuccessful login attempts
EM (Store Employee Import Utility)	◆ All successful and unsuccessful login attempts
EM (UCTconfig.exe)	◆ All successful and unsuccessful login attempt
EM (MIPriceWiz.exe)	◆ All successful and unsuccessful login attempts
Forecast Setup (ForecastSetup.exe)	◆ All successful and unsuccessful login attempts
Forecasting (Forecasting.exe)	◆ All successful and unsuccessful login attempts
Human Resources (HumanResources.exe)	◆ All successful and unsuccessful login attempts
Labor Management (LM.exe)	◆ All successful and unsuccessful login attempts

Application	Activity
Language Administration (Translate.exe)	◆ All successful and unsuccessful login attempts
MICROS Security Audit Log	◆ Logs rotation of Event Viewer Log (adds an entry to existing log and log
Payroll Preprocessing (PayrollPre.exe)	◆ All successful and unsuccessful login attempts
Product Management (PM.exe)	◆ All successful and unsuccessful login attempts
Scheduling (Scheduling.exe)	◆ All successful and unsuccessful login attempts

Viewing Events

Events posted to the Security Log can be viewed through the Microsoft® Event Viewer utility (*Start | Programs | Administrative Tools | Event Viewer*). A sample report is shown below:



Type	Date	Time	Source	Category	Event	User
Success Audit	2/14/2006	10:53:26 AM	POS Configurator_	Logout	108	N/A
Success Audit	2/14/2006	10:53:22 AM	Autosequences and Reports_	Logout	108	N/A
Warning	2/14/2006	10:53:00 AM	Autosequences and Reports_	Action Taken	102	N/A
Success Audit	2/14/2006	10:52:47 AM	Autosequences and Reports_	Successful Login	106	N/A
Success Audit	2/14/2006	10:52:31 AM	POS Configurator_	Successful Login	106	N/A
Success Audit	2/14/2006	10:52:15 AM	POS Configurator_	Logout	108	N/A
Information	2/14/2006	10:51:23 AM	POS Configurator_	Form Close	105	N/A
Warning	2/14/2006	10:51:22 AM	POS Configurator_	Data Changed	103	N/A
Warning	2/14/2006	10:51:20 AM	POS Configurator_	Data Changed	103	N/A
Information	2/14/2006	10:51:11 AM	POS Configurator_	Form Open	104	N/A
Information	2/14/2006	10:51:06 AM	POS Configurator_	Form Close	105	N/A
Warning	2/14/2006	10:51:04 AM	POS Configurator_	Data Changed	103	N/A
Warning	2/14/2006	10:51:00 AM	POS Configurator_	Data Changed	103	N/A
Warning	2/14/2006	10:50:53 AM	POS Configurator_	Data Changed	103	N/A
Warning	2/14/2006	10:50:50 AM	POS Configurator_	Data Changed	103	N/A
Information	2/14/2006	10:50:42 AM	POS Configurator_	Form Open	104	N/A
Information	2/14/2006	10:50:37 AM	POS Configurator_	Form Close	105	N/A
Warning	2/14/2006	10:50:35 AM	POS Configurator_	Data Changed	103	N/A
Warning	2/14/2006	10:50:33 AM	POS Configurator_	Data Changed	103	N/A
Warning	2/14/2006	10:50:29 AM	POS Configurator_	Data Changed	103	N/A
Warning	2/14/2006	10:50:27 AM	POS Configurator_	Data Changed	103	N/A
Information	2/14/2006	10:50:23 AM	POS Configurator_	Form Open	104	N/A
Information	2/14/2006	10:47:34 AM	POS Configurator_	Form Close	105	N/A
Information	2/14/2006	10:47:24 AM	POS Configurator_	Form Open	104	N/A
Information	2/14/2006	10:47:22 AM	POS Configurator_	Form Close	105	N/A

Note *All users on the Windows 2003 and XP Professional platforms will have read-only rights to the Event Viewer log.*

To manipulate the file (i.e., backup, delete, etc.), a user must be logged in with Administrative-level privileges. However, on Windows 2003 system, Administrators can use the Policy Editor to assign these rights to non-administrative users.

Users can temporarily limit the number of entries displayed by applying a data filter (*Action | Properties | Filter*). Filters are only applicable for the current session. Once the Event View is closed, the filter is removed.

Viewing Details

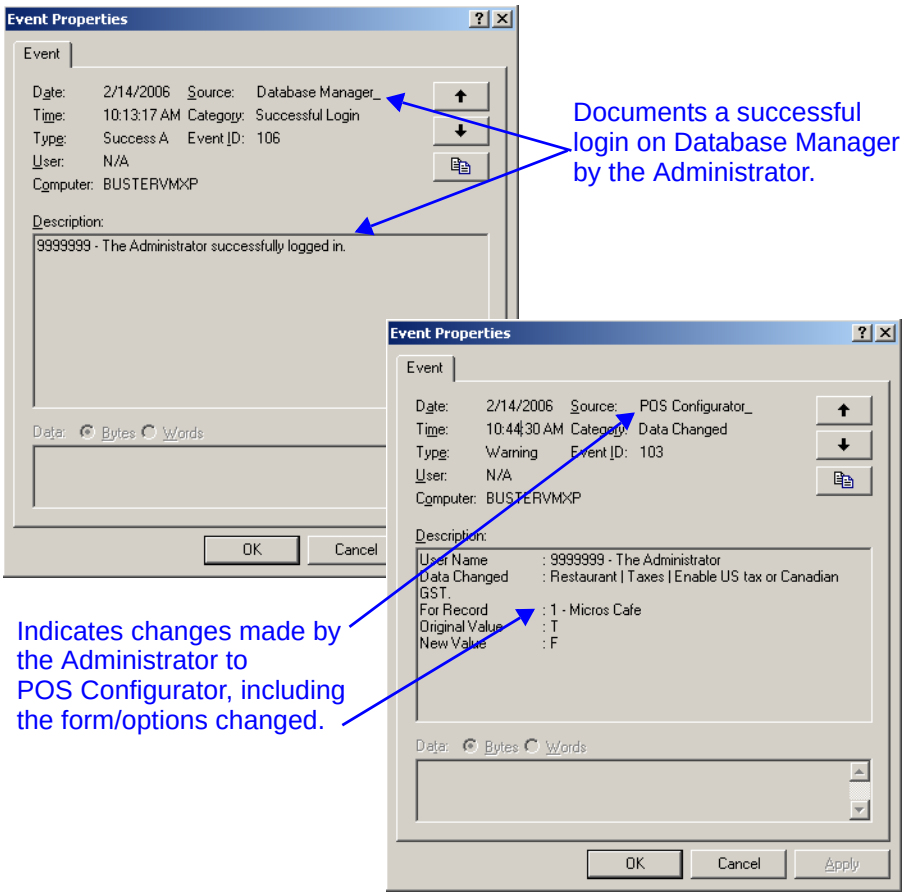
Event details can be viewed by double-clicking the item and opening the individual record. For each event logged, the system provides these details:

- **Date** — Date action occurred.
- **Time** — Time action occurred.
- **Source** — RES 4.x application where the activity occurred.
- **Type/Category** — Event label and descriptor. The options are:

Type	Category
Success Audit	Successful Login Logout
Failure Audit	Failed Login
Warning	Data Changed
Information	Form open Form close Action Taken

- **Event** — ID number.
- **User** — Name of the remote operating system user, if any.
- **Computer** — Computer name where event occurred.
- **Description** — Details of the event, including the user name, forms accessed (if any), and any changes made to the actual options.

For example:



Audit Trail History

One of the auditing requirements is the ability to retain a backup copy of the MICROS Security Log for historical purposes. This can be done either in the Event Viewer or from the Database Manager application.

◆ Event Viewer

Users can backup the MICROS Security Log from the Event Viewer by selecting *Action* | *Save Log File As* from the toolbar. The system will prompt for a file name and location. By default, all logs are saved as **xxx.evt** files, which cannot be read except through the Event Viewer. They can also be saved as text (***.txt**) and comma-delimited (***.csv**) files for import into an external application.

- **Database Manager**

The Database Manager also includes options for backing up the MICROS Security Log, but these are limited. Users can only enter a filename and specify where to store the backup. The default filename is **Microssecuritylogyyyymmdd.evt**.

Risk Management

Maintaining a secure network requires more than encryption and passwords. To ensure data privacy, users must assume some responsibility for establishing a secure work environment and for implementing policies and procedures that protect their system as well as their customer's personal information.

This section includes recommendations for risk management in a highly computerized environment. In addition to standard practices, it describes a number of programming options and processes that, while not explicitly prevented, are strongly discouraged as they may cause problems with and/or compromise the system.

Security Standards

In a secure environment, users are responsible for:

- **Securing the Network** — This includes installing and maintaining a firewall, monitoring network access, and regularly performing diagnostics to test the integrity of the security system.
- **Changing Passwords** — Once a user is added, it is up to the site to enforce rules on password rotation. Regularly changing passwords (e.g., every 60 or 90 days) reduces the probability that they will be obtained and used by someone outside the system. Similarly, when installing third-party applications, users are responsible for securing the interface by changing default settings and passwords.
- **Hiring Policies** — A system is only as secure as the people who operate it. Sites have sole responsibility for their hiring practices, assignment of user IDs, and granting access to the network, servers, workstations, key cards, or other physical devices that might provide access to the data.

Limitations and Recommendations

The following items represent known issues that will impact the secure database:

- **Sybase Updates** — All RES products are designed to work with the specific version of Sybase 9 software that is included with the current installation. Users are strongly advised to avoid downloading Sybase updates (either from the Sybase website or by using the automatic upload option from the DBISQL Help option) and applying them to the system.

- **PMS/SIM Interface Configuration** — When setting up an interface at an enhanced security site, the option **Log Transactions** *(POS Configurator | Devices | General)* must be disabled. Otherwise, the system will create a file using the **Outgoing Message Name** (e.g., **GuestConnection.log**) which will then record (unmasked and unencrypted) all information that is passed between the designated interface and RES. This includes all credit card numbers, expiration dates, and cardholder names. (This option should be used for troubleshooting purposes only.)

- **Fast User Switching** — This option allows 2 users to log onto the computer simultaneously, and to switch between active users without having the current user log off first. RES 4.x does not support this option on the Windows XP platform. If enabled, it may cause some applications and/or processes to fail.

  To disable, open the Windows Control Panel and select *User Accounts | Change the way users log on or off*. When the form displays, clear the option **Use Fast User Switching**.

- **SIM Scripts** — Sites using SIM scripts to read track data from a magnetic stripe card should be aware that the FULL track data will be exposed by SIM. For security reasons, users should evaluate any SIM script that involves credit card track data to assess whether or not the script should be used in RES 4.x.

- **Enhanced Security** — When using enhanced security, user passwords are not stored in the database in plain text. They are stored with one-way encryption (hashed). Third parties that wished to add employees to the MICROS database (micros.emp_def) must insert the employee record without the user password.

  These users will have access to POS Operations, Manager Procedures, and Cash Management through their **Password ID**, but will not have access to other RES applications until a privileged user opens *POS Configurator* | *Employees* | *Employees* | *Security* and assigns a **User Password**.

Configuration

This section is intended to provide a guide for configuring the discussed security features.

Electronic Payments

Electronic Payments are another critical area of the POS environment that is often targeted by attacks. The user can protect their system in the following ways:

- Read the Payment Application Best Practices documentation, and follow the steps to secure electronic payments in the database.
- Install the Transaction Vault Credit Card Driver.

Payment Application Best Practices

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 Visa USA has instituted the Payment Application Best Practices (PABP) program. The program is intended to protect Visa cardholder data—wherever it resides—ensuring that members, merchants, and service providers maintain the highest information security standard.

Payment Application Best Practices (PABP) is a quick reference guide that provides information concerning MICROS's adherence to the Visa PABP Data Security Standard. This documentation contains a series of steps required by Visa. Please consult the *Payment Application Best Practices Data Security Standard Adherence Documentation* for the appropriate version of RES and implement the suggested practices.

Transaction Vault Credit Card Driver

Traditionally, cardholder data (card number, expiration date, and the cardholder name) is stored by the RES system until it is purged from the system, typically within 90-180 days after settlement. In this environment, it is possible for a site to be the victim of a malicious attack, potentially compromising credit card data.

To provide the best possible protection against these threats, MICROS recommends that the site implement the TransactionVault Credit Card Driver solution. Transaction Vault stores all sensitive data in the TransactionVault, a hosted database at Merchant Link, instead of in the merchant's local RES database. Merchant Link's TransactionVault coupled with MICROS 3700 secures data for the customer, minimizing the potential for security breaches.

The purpose of the TransactionVault feature is to remove sensitive credit card information from the RES data store. This is done by using Merchant Link to provide the card storage at their data center. In exchange, Merchant Link provides a TransactionVault key that replaces all cardholder information at the customer site. The key utilizes leading edge encryption technology, which helps to ensure that only TransactionVault can match the key to access the cardholder information.

For additional information about TransactionVault see the *Transaction Vault Credit Card ReadMe First, MD0003-121*.

PCI Compliance Verified at System Startup

The system will now verify that the site is compliant with the PCI Credit Card Data Security Standard upon starting POS Operations. This will occur if the following conditions are met:

- The site is not in demo mode, and

- At least 1 tender is linked to a non-demo driver.

If the site is not compliant, POS Operations will not start and an error message will appear. The text in the log will indicate the reason why the site was deemed to be non-PCI compliant. All error messages and steps to correct them are listed in the *Error Messages* section on page 58.

The system uses the following criteria to determine a site's PCI-compliance:

- DBA database password is not set to the default.
- MICROS database password is not set to the default.
- Database file encryption passphrase is not set to the default.
- Sensitive data passphrase is not set to the default.
- Complex Security enabled at the site.
- Security is configured as specified in the *RES Version 4.4 Payment Application Best Practices Implementation Guide, MD0003-117*. These settings include:
  - **Days Until Expiration** (*POS Configurator* | *System* | *Restaurant* | *Security*). This field specifies the number of days that a password may remain active before it must be changed. This value cannot be greater than 90 days.
  - **Minimum Password Length** (*POS Configurator* | *System* | *Restaurant* | *Security*). Enter the minimum number of characters required for the password length. This field must be set to a minimum of 7.
  - **Password Repeat Interval** (*POS Configurator* | *System* | *Restaurant* | *Security*). Enter the number of different passwords that must be used before an old password can be repeated. This option must be set to a minimum of 4.
  - **Require Alphanumeric Passwords** (*POS Configurator* | *System* | *Restaurant* | *Security*). Select this option to require passwords to contain letters and numbers. This option must be enabled.

- **Maximum Allowed Failed Logins** (*POS Configurator* | *System* | *Restaurant* | *Security*). Enter the number of failed logins that may occur before locking the user out of his/her account. This value cannot be greater than 6.

- **Maximum Idle Time** (*POS Configurator* | *System* | *Restaurant* | *Security*). Enter the number of minutes an administrative application will remain idle before the application will undo any saved changes and exit, requiring the user to login again. This setting cannot be more than 15 minutes.

- **Mask Credit Card Number** *(POS Configurator* | *Sales* | *Tender/Media* | *CC Tender*). This option must be enabled to mask all credit card numbers in the database.

- **Mask Expiration Date** (*POS Configurator* | *Sales* | *Tender/Media* | *CC Tender*). This option must be enabled to mask all credit card expiration dates in the database.

- **Mask Cardholder Name** (*POS Configurator* | *Sales* | *Tender/Media* | *CC Tender*). When enabled, the cardholder name is masked in all displays, logs, reports, journals, and printouts. This option must be enabled.

Error Messages

In the event that a site is not PCI-compliant, POS Operations will fail to start, and the user will be prompted with an error message indicating that the site is not PCI-compliant.

To determine the specific reason why the system is not PCI-compliant, the user should reference the **3700d.log** file or the MICROS Security Event Log. A list of potential messages can be found in the *Error Messages Logged in the 3700d.log File* section.

Error Messages Logged in the 3700d.log File

If the database verbosity is set to 1 or higher, the following messages will be written to the **3700d.log** and the MICROS Security Event log.

If Demo Mode is in use, or credit cards are not used, then the following messages will be written to the log, and POS Operations will start successfully.

- `DbCheckPCICompliance: system in demo mode, skipping PCI verification`
- `DbCheckPCICompliance: CA/EDC not in use, skipping PCI verification`

If the database is configured for production credit cards, and the database is not PCI-compliant, then POS Operations will not start and the following messages will appear in the log. These messages will appear regardless of the verbosity setting.

WARNING! Before Changing the Data Key or the Database Key, all credit card transactions should be batched and settled. The server and clients must be rebooted after changing the key.

- `Error msg - PCI Security Error: Sensitive data passphrase set to default.` The sensitive data passphrase must be changed from the default settings. Go to Database Manager | *Encryption Keys* and select the Data key and press the **[Change Encryption Keys]** button. The system will automatically select a key.
- `Error msg - PCI Security Error: Database passphrase set to default.` This message indicates that the default passphrase must be changed. Go to *Database Manager* | *Encryption Keys* and select the Database key and press the **[Change Encryption Keys]** button. The system will automatically select a key.

- `Error msg - PCI Security Error: DBA password set to default.` This message indicates that the DBA password should be changed from the default settings. This password must be complex, containing a minimum of 7 characters with both alpha and numeric characters.

- `Error msg - PCI Security Error: MICROS password set to default.` This message indicates that the MICROS password should be changed from the default settings. This password must be complex, containing a minimum of 7 characters with both alpha and numeric characters.

- `Error msg - PCI Security Error: One or more tenders not set to mark sensitive data.` One or more of the option bits to mark card number, expiration date, and customer name must be enabled for any tender linked to a production credit card driver in POS Configurator.

- `Error msg - PCI Security Error: Complex security not enabled (POScfg | System | Restaurant | Security, Disable "Use Micros Class Security."` Enhanced security must be enabled in POS Configurator, follow the path listed in the error message to make this change.

- `Error msg - PCI Security Error: Password expiration setting exceeds maximum allowed (not greater than 90).` The Days Until Expiration field contains a value that exceeds 90 days.

- `Error msg - PCI Security Error: Minimum password length less than minimum allowed (at least 7).` The Minimum Password Length field must be set to a value of 7 or greater.

- `Error msg - PCI Security Error: Password repeat interval less than minimum (at least 4).` The Password Repeat Interval field should be set to a value of 4 or greater.

- `Error msg - PCI Security Error: Alphanumeric passwords not required (must be enabled).` The Require Alphanumeric Passwords field must be enabled.

- `Error msg - PCI Security Error: Maximum failed login attempts exceeds maximum allowed (not greater than 6).` The Maximum Allowed Failed Logins field must be set to a value of 6 or lower.

- `Error msg - PCI Security Error: Maximum idle time exceeds maximum allowed (no more than 15 minutes).` The Maximum idle time field must be set to a value of 15 minutes or less.

PCI Compliance and Table Pay Service

Please keep the following issues in mind after upgrading a system running Table Pay Service (TPS):

- If the system is not PCI-compliant at the time of upgrade, and is later updated to be compliant, then the user must restart TPS. If not, then the device running TPS will continue to indicate that it is "NOT PCI compliant," even after the system is compliant.

- To become PCI-compliant, sites must change the DBA and MICROS passwords from the Defaults. If **TPS_Configuration.exe** was set to connect to the DB using either the DBA or MICROS user, then the TPS device will be unable communicate until the defaults are changed.

- If the system is not PCI-compliant, the TPS device will print a receipt saying "Not PCI Compliant", however, it will not log the reason(s) why to either the Event viewer or 3700d.log.