

Oracle® MICROS Symphony

Client Deployment Guide



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ORACLE®

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Preface

Oracle MICROS Symphony is a cloud-based Point-of-Sale (POS) solution that provides business management capabilities using a single tool with vast integration capabilities to property management systems, paperless kitchen display systems, credit card interfaces, and reporting applications.

Purpose

This Symphony Client Deployment Guide provides instructions about how to deploy clients for Symphony for the latest release.

Audience

This document is intended for system administrators of Oracle MICROS Symphony.

Customer Support

To contact Oracle Customer Support, access the Customer Support Portal at:

<https://iccp.custhelp.com/>

When contacting Customer Support, please provide the following:

- Product version and program/module name
- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instructions to re-create
- Exact error message received and any associated log files
- Screen shots of each step you take

Documentation

Product documentation is available on the Oracle Help Center at <https://docs.oracle.com/en/industries/food-beverage/pos.html>.

Simphony Digital Learning

The Symphony Learning Subscription provides additional product knowledge through interactive training, guided video tours, and helpful knowledge checks. After exploring the documentation library, use your Oracle Single Sign On to check out the Symphony learning opportunities at [Oracle Food & Beverage Learning Subscription](#).

Revision History

Date	Description of Change
January 2024	Initial publication.

Date	Description of Change
February 2024	- Added the Deploying Microsoft SQL Server Express on Microsoft Windows Devices chapter. - Updated Security Considerations in the Client Application Loader (CAL) chapter.
March 2024	Updated the Deploying Microsoft SQL Server Express on Microsoft Windows Devices chapter.
April 2024	Removed Castles S1F2 Mobile Order and Payment Terminal Considerations. See the <i>Oracle Food and Beverage Compatibility Matrix</i> for more information on Castles S1F2 devices.
August 2024	Updated the Deploying Microsoft SQL Server Express on Microsoft Windows Devices chapter.
December 2024	Updated Planning and Considerations in the Client Application Loader (CAL) chapter.

1

Client Application Loader (CAL)

The Client Application Loader (CAL) allows seamless distribution, installation, and maintenance of Symphony software from a CAL server to all Symphony client workstations and service hosts. The CAL stores software packages in the transaction database, providing a central storage location. The CAL enables clients to:

- Obtain a list of configured workstations from the CAL servers.
- Establish unique workstation IDs and network configuration (either Dynamic Host Configuration Protocol (DHCP) or static Internet Protocol (IP) based on the information received from the CAL server).

See the following topics for more information about CAL and Distributed CAL (DCAL).

Planning and Considerations

Installing or upgrading to the most recent software version is the optimal path. Care must be taken in choosing when to perform the upgrade and which devices should be upgraded first. This choice depends on the business requirements of each location being upgraded. The best way to mitigate issues is to read all release notes for the version to which you are upgrading. These release notes are available on the Oracle Help Center at: <https://docs.oracle.com/en/industries/food-beverage/pos.html>.

Common Considerations for New Installations and Upgrades

- **Verify Supported Technology and Devices:** Symphony supports a variety of environments and devices. Review the Compatibility Matrix, located on the Oracle Help Center, to ensure that your environments and devices are supported.
- **Review Known Issues:** Ensure that workarounds for known issues have been implemented before deploying the client. See the Known Issues section of the release notes for details.
- **Verify security policy compatibility:** Confirm that your local security policies are compatible with the update process. See [Security Considerations](#) for details.
- **Launch to UAT or lab environment:** If you have a lab environment available, Oracle recommends that you test new versions in that environment first. If you do not have a lab environment available, always use a pilot store before upgrading all locations (if you have more than one location).
- **Check network constraints on the day of the installation:** Ensure that your network has sufficient bandwidth to dedicate to deployment of the CAL packages to the workstations.
- **Verify that the latest Microsoft Windows updates are installed:** Ensure that all Microsoft Windows updates are current and the latest service pack of the Microsoft SQL Express is installed.
- **Verify the CAL Package deployment schedule's expiration date:** Ensure that the CAL Package deployment schedule has not expired before deploying the CAL packages to the workstations.

- **Verify access to the Enterprise Management Console (EMC):** Use the EMC to complete the initial steps required to start the installation process. Verify that you can access EMC as well as the CAL Packages modules within EMC.
- **Verify employee privilege to download and install updates:** A property user (employee) needs to have the authority to download, install, and authenticate clients and service hosts using the CAL. Identify this employee and verify that the role assigned to them in the EMC has Miscellaneous option **10065** enabled. See [Allowing Employees to Install and Authenticate POS Clients and Service Hosts](#) for details.
- **Verify Symphony Enterprise certificate from the workstations:** A secure (TLS 1.2) connection to the Enterprise is required when installing or upgrading the Symphony client to release 2.9.1 or later. Verify that the workstations can establish a secure connection with the Enterprise before the installation. [Enterprise Certificate Verification](#) contains more information.
- **Document your Symphony server name and your Check and Posting Service (CAPS) client:** When you log in to EMC, write down the server name used with your login credentials. If you do not know which client is your CAPS client, log in to EMC, click the **Setup** tab, select the **Property Parameters** module, and then click the **Workstations** tab. Write down the name of the CAPS client service host. Using the CAPS service host name, locate the physical CAPS client machine at your property and make note of its location.
- **Verify software versions on the workstations:** After the installation completes, ensure that all workstations are on the same release of the Symphony client software before performing any transactions.
- **Test normal operations:** Set aside time to test normal operations after the installation completes. Make a checklist of all critical business functions to test so that you can verify that they are working post installation.
- **Verify Time Settings:** For the CAL client software to work, the client's date and time must be within 2 hours (adjusted for local time zone settings) of the Symphony Cloud Server time. For example, if the client is located in the United States Eastern Standard Time zone (UTC -5), and the cloud time is midnight, then the client's time must be between 10:00 PM and 2:00 AM for the CAL client software to work. In this case, when the CAL client connects with the cloud it will adjust the device time to match the Symphony cloud time, and then download the software. CAL will check if the time is synced to the cloud every minute. If the time is greater than ~1 minute, CAL will adjust the time accordingly.

Additional Considerations for New Installations

When should the property use Distributed CAL (DCAL)? The property should have at least three workstations to benefit from downloading the CAL package once to the property level and to reduce bandwidth demands during upgrades.

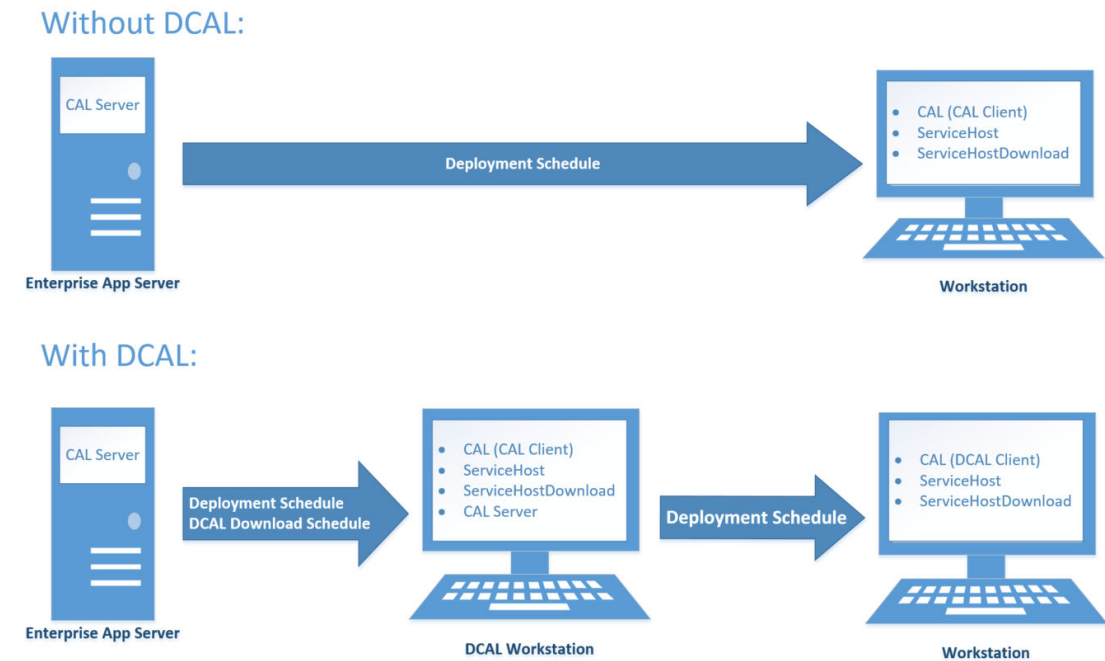
Additional Considerations for Upgrades

- **Verify potential installation issues:** Use the Device Information module to identify issues that may prevent the software from installing successfully. [Scheduling and Viewing Device Information](#) contains more information.
- **Prepare for and schedule downtime:** Depending on your business hours, find ample time for the upgrade process. During the process, workstations are inoperable until the upgrade finishes. The best time is usually after closing. The total amount of downtime depends on the number of POS clients/workstations that need to be upgraded, as well as network access speed. In addition, there is the chance you need extra time due to unforeseen factors.
- **Close all open checks:** Close all open checks and ensure that all sales have posted to Reporting and Analytics before starting the upgrade. To ensure that all open checks are

closed, run an Open Check Report at the workstation and verify that there are no open checks in each revenue center at the property.

CAL / DCAL Infrastructure and Terminology

Figure 1-1 CAL Components and Data Flow



Deployment Schedules are the configuration settings defined at the Enterprise and used to deploy packages to CAL or DCAL clients. You can create deployments for the entire Enterprise, specific properties, and individual service host clients. Deployments can also be scheduled for immediate or future delivery.

DCAL Download Schedules are the configuration settings defined at the Enterprise that specify which CAL packages are delivered and stored on the DCAL workstation.

DCAL Workstation is the workstation at the property designated as the local CAL server. DCAL Download Schedules are used by this workstation to determine which packages should be downloaded from the Enterprise. Deployment Schedules are used by this workstation to determine which downloaded CAL packages should be made available to DCAL clients.

DCAL Client is the workstation at the property that receives CAL packages from the DCAL workstation. DCAL clients still use the CAL client application, but the CAL client is configured to communicate with the DCAL workstation rather than the Enterprise.

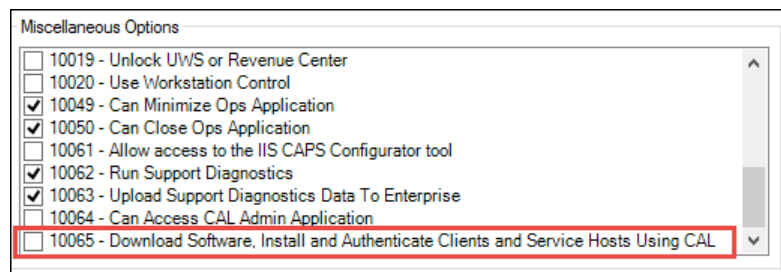
CAL Client is the application component responsible for installing CAL packages. Typically, the CAL client communicates with the Enterprise application server unless a DCAL workstation exists on the property.

Configuring Employee Privileges for Using CAL

To configure CAL with a Symphony release 2.9.1 or higher enterprise, an employee must have role privilege **10065** enabled in the EMC Roles module. Without this privilege and a valid EMC username and password, a user cannot authenticate a client and load Symphony applications through CAL. To configure the privilege in the EMC:

1. Select the **Enterprise** level, click **Configuration**, and then click **Roles**.
2. Identify existing roles or add new roles for employees that need to have this privilege.
3. Double-click the roles record assigned to the soon-to-be privileged user.
4. Click the **Operations** tab, and then click the **Miscellaneous** subtab.
5. In the Miscellaneous Options section, select **10065 - Download Software, Install and Authenticate Clients and Service Hosts Using CAL**, and then click **Save**.
6. Repeat these steps for each role as needed.

Figure 1-2 Roles Miscellaneous Options



Configuring CAL Package Permissions

1. Select the Enterprise level, click **Configuration**, and then click **Roles**.
2. Double-click the role record assigned to the privileged user (for example, administrator, manager, or server).
3. Click the **EMC Modules** tab.
4. Scroll to the Hardware section and search for CAL Packages. Based on your preferences, select the desired checkbox to assign **View**, **Edit**, **Add**, and **Delete** privileges to the role.
5. Click **Save**.
6. Repeat these steps for each role as needed.

Security Considerations

Each organization has a unique security policy in place, which could affect the software upgrade process. Security policies that restrict or block access to resources required by Oracle software can cause the upgrade to fail completely or prevent the upgrade from completing without manual user intervention.

Account Privileges

Local machine administrative privileges are required. In domain environments, ensure that the domain user has local administrative privileges until the upgrade is complete. This is minimally required for the initial setup of the workstation.

Network Access

- Sites using HTTPS certificates containing a Certificate Revocation List (CRL) URL should verify that this URL is reachable from the workstations.
- Sites using HTTPS certificates containing an Online Certificate Status Protocol (OCSP) URL should verify that this URL is reachable from the workstations.

Database Access

- Symphony client upgrades require access to the local database instance and database files during the upgrade.
- Symphony clients must allow for a minimum of 8 login attempts per instance. Workstations running headless shared services, and POS operations, require a minimum of 16 login attempts.
- Database credentials should not be rotated immediately before or during the upgrade process. Defer credential rotation until after the upgrade is finished and has been validated.
- Sites using Microsoft Windows user account lockout policies can also impact the SQL Express connection attempts from your workstations. Adjust this policy accordingly before the upgrade to prevent Symphony database users from being locked out.
- The Device Information module in the EMC identifies issues that may prevent the client from upgrading. [Scheduling and Viewing Device Information](#) contains more information.

File System Access

- Several operating system directories and utilities are used during the upgrade process.
- The upgrade process runs under the permissions of the user account logged in to the workstation. This user account might require access to the executable files, directories, and subdirectories listed in this table:

Table 1-1 File System Access

Package	Access Type	File System Object
CalVersionFixer	Read/Write/Execute	%AppRoot%
	Read	%SYSTEMROOT%\System32
	Execute	cscript.exe
CAPSONIIS	Read/Write/Execute	%AppRoot%\CAPSONIIS
	Read/Write/Execute	%SYSTEMDRIVE%
Service Host Download	Read/Write/Execute	%AppRoot%
	Read/Write/Execute	\Micros\Simphony\Download
		%AppRoot%\Micros\Simphony\Prereq
McrsCAL	Read/Write/Execute	%ProgramFiles%\micros
	Execute	regedit.exe
MediaViewer	Read/Write/Execute	%AppRoot%
	Execute	iisreset.exe

Table 1-1 (Cont.) File System Access

Package	Access Type	File System Object
KDS Handler	Read/Write/Execute	%AppRoot%
	Read/Write/Execute	%KDSRoot%
	Read/Write/Execute	%SYSTEMDRIVE%
	Execute	netsh
ServiceHost	Read/Write/Execute	%AppRoot%
	Read/Write/Execute	%SYSTEMDRIVE%
	Execute	Regsvr32.exe
	Execute	sc.exe
	Write	%ALLUSERSPROFILE%
		\Microsoft\Windows\Start Menu\Programs msiexec.exe
WS KDS Display	Read/Write/Execute	%KDSRoot%
	Read/Write/Execute	%SYSTEMDRIVE%
	Execute	netsh
	Write	%ALLUSERSPROFILE%
		\Microsoft\Windows\Start Menu\Programs

Resizing the Initial Workstation Database

You can change the initial database size of a workstation. Configure the starting database size and growth pattern (Pre-sized or AutoGrow) for the Symphony client databases, and the Generate XML feature creates the CAL package to be added to the application. The Generate XML function only sets the initial size of the database; it cannot shrink a database that is too large. Use caution with Generate XML to avoid harming operations.

1. Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
2. Click the **Generate XML** tab.
3. From the **Sizing Mode** drop-down list, select the method for sizing the database:
 - Select **AutoGrow** for high volume locations where the size of the database on disc grows through a nightly job. AutoGrow mode allows the application to size the database during a nightly job at a specified time. This avoids the lengthy delays of sizing until the application is not in use. Do not select this option for workstations equipped with the 8GB Universal Disk On Chip (UDOC).
 - Select **PreSized** for workstations with limited disc space where the Symphony default database sizes are not proportionate to the available space. You can set a maximum size for each database and log file, and reserve a percentage of the available disc space for non-database files. In Pre-sized mode, the database is potentially sized every time the workstation Service Host starts, and the database does not grow.
4. In the **Non DB Percentage** field, enter a percentage (between 0 and 100) of the free space of the disc to reserve for non-database content.
5. In the **Resize Time** field, enter the amount of time in hours and minutes for the nightly resize job.

The value in this field determines the time on a 24-hour clock to run the database resize job, which attempts to resize the database outside of business hours. Although this field is required, PreSized mode ignores the value entered as there is no nightly resize job.

6. Select the database to configure from the **Alias** drop-down list. You can resize the following database configurations:
 - LocalDB (local DataStore database)
 - CPServiceDb (CAPS database)
 - KDSServiceDb (KDS database)
7. In the Data File and the Log File sections, enter the appropriate values as described in the following table. To set the default database configuration, select **Use Default Values**.

Table 1-2 Data File and Log File Database Configuration

Field	Description
Initial Size	Enter the initial size of the database file. Define the size with a number followed by M, G, or T suffixes to indicate megabytes, gigabytes, or terabytes.
Maximum Size (AutoGrow mode only)	Enter the maximum size to which the database can grow. If there is not enough unreserved space to fit the maximum size, the configuration does not validate. The NonDB Percentage value you entered determines how much of the free space is not available for the databases.
Auto Grow Floor (AutoGrow mode only)	Enter the size of the free space within the database that triggers a nightly grow event. If you set this value to 10M and the free space inside the data file goes below 10M, the nightly resize job attempts to resize the database.
Auto Grow Increment (AutoGrow mode only)	Enter the auto growth increment for the database. This value is used by the nightly resize job when the database must grow.

8. Click the **Add** button.
9. Click the ellipsis point (...) button, select the destination folder, and then click **OK**.
10. Click the **Generate** button.

Changing the DCAL Server Location

The DCAL server is a workstation that resides at a Property. The DCAL server receives CAL packages from the Enterprise, and in turn, the workstations in the property receive CAL packages from the DCAL server.

2

CAL Packages

CAL packages are a method of distributing software to the clients through an installation script. Rather than having to manually install software on a workstation, a CAL package automates this process over the network. This increases the efficiency of deploying and upgrading client software on the workstation. You can configure the packages to be distributed to:

- All devices in the Enterprise
- Devices in selected properties
- Specific devices

Each customer has specific needs to deploy to the Enterprise, property, or specific devices. If you are unsure, the safer route is to deploy the CAL packages to the specific devices or property you plan to upgrade.

A typical Symphony installation has a set of pre-defined CAL packages available for deployment. This document provides the basic steps required to complete a successful upgrade. Additional package deployments could be required for custom applications or other features not explicitly reviewed.

A Symphony POS client requires the following basic packages at a minimum. This document focuses on these packages.

- CAL Client
- Service Host Download
- Service Host

CAL Directory and Package Contents

The CAL Package files and folders are located on the Symphony application server in the `[Drive Letter]:\MICROS\Symphony2\EGatewayService\CAL` directory. This is a very important directory. Handlers in this directory process messages that are sent to the Symphony application server. The EGatewayService directory includes the encrypted database information, as well as the web.config file that includes important Symphony settings. The following table lists the subdirectories that reside in the EGatewayService\CAL folder and the CAL package contents for various types of client devices.

Table 2-1 Symphony CAL Packages

Platform Type	Type of Device	CAL Folder Contents
Android	Devices running the Android mobile operating system	ServiceHost2.0
DC (Display Controller)	Kitchen Display System (KDS) Controllers	• CALVersionFixer2.0 • DCKDS2.0 • McrsCAL2.0

Table 2-1 (Cont.) Symphony CAL Packages

Platform Type	Type of Device	CAL Folder Contents
Linux	Devices running the Linux operating system	• MCRSCAL2.0 • PosToKdsHandler2.0 • ServiceHostDownload2.0 • ServiceHost2.0 • WSKDS2.0 Non-Supported (or not required) CAL Packages • CALVersionFixer2.0 • CAPSOonIIS2.0 • MediaViewer2.0 • Symphony KDS Client (CE only)
ServiceHosts	Not Applicable	Subdirectory named for the Service Host ID that contains automatically generated setup information for each Service Host

Table 2-1 (Cont.) Symphony CAL Packages

Platform Type	Type of Device	CAL Folder Contents
Win32 (Microsoft Windows)	Any Microsoft Windows machine, such as the Oracle MICROS Tablet 720, Oracle MICROS Workstation 6 Series, Oracle MICROS Tablet E-Series, and Oracle MICROS PC Workstation 2015	• CALVersionFixer2.0 • CAPSONIIS2.0

 Note:

For new installations of Symphony 19.3.x, the minimum CAL requirements are:

- To deploy **CAL 150**
- Deploy **ServiceHostDownload19.3**
- Deploy **ServiceHost 19.3**

Prior to performing upgrades to Symphony 19.3.x, ensure that all older versioned individual CAL packages for **DeviceInformation2.0** and **DigitalPersona2.0 (Biometrics)** are not deployed as part of upgrades to Symphony 19.3.x workstations.

The **DeviceInformation2.0** and **DigitalPersona2.0** files are now included in the **ServiceHostDownload19.3** file, so there is no need to redeploy them. Set the older versioned individual CAL packages to **Skip** in the **Deployment Schedules** tab.

If your Symphony system, which after an upgrade to Symphony 19.3.x,

Table 2-1 (Cont.) Symphony CAL Packages

Platform Type	Type of Device	CAL Folder Contents
		still has older workstations (running versions 19.1.x, 19.2.x, etc.) in addition to 19.3.x clients: – Do not add DeviceInformation2.0 (for example, version 19.1.x) back into the Deployment Schedules tab to the Enterprise or Property. – Do not add DigitalPersona (Biometrics 2.2, 4.3, 5.0) back into the Deployment Schedules tab to the Enterprise or Property. • DeviceInformation2.0 • DigitalPersona2.0 • McrsCAL • McrsCAL2.0 • MediaViewer2.0 • PosToKdsHandler2.0 • ServiceHostDownload2.0 • ServiceHost2.0 • WSKDS2.0

The Symphony application installer imports CAL packages directly into the transaction database during installation. When this installation option is selected, all CAL packages included within a release are copied into the file system before being imported. Each Symphony release could include changes to internal CAL packages and their contents. Refer to the listing below for the specific CAL Package content of prior releases. These links direct you to the *Simphony Configuration Guide*, where this legacy information resides.

- **Simphony Release 2.9**
[Client Application Loader \(CAL\)](#)
- **Simphony Release 2.10**
[Client Application Loader \(CAL\)](#)
- **Simphony Release 18.1**
[Client Application Loader \(CAL\)](#)

- **Simphony Release 18.2**
Client Application Loader (CAL)

More About Platform Types

The following Platform Types are available for general use from the EMC CAL Package Configuration screen:

- **0 - All Clients**
- **1 - Win32 Server**
- **50 - Win32 Client**
- **69 - Android (can be used for MC 40s running Android)**
- **80 - Linux Client**
- **101 - DTR Controller (KDS Display Controller)**

Figure 2-1 CAL Package Configuration Tab

Installation and Upgrade

The CAL Packages module configuration determines the clients to receive specific packages and the timing of package deployment. The Setup.dat file is a text file that contains installation instructions. New packages include the following information in the Setup.dat file:

- **Name:** Identifies the CAL package
- **Version:** Identifies the release version number using a four-number dotted notation format (for example, 2.80.4.25)
- **Commands:** Indicates what, how, and where files are placed

The Simphony installer derives an internal name and version for Simphony packages from the Setup.dat file. The internal name and version typically differs from the package name and version. For example, ServiceHost 2.9 and ServiceHost 2.8 are two separate packages, but

they share the same internal name, ServiceHost. The installer identifies the matching internal names and prevents installing and running two versions of ServiceHost.exe on the same client.

The CAL client uses the internal name and version from the Setup.dat file to determine whether to download the CAL package. EMC does not let you configure duplicate schedules for packages with the same internal name. For example, if you have a deployment schedule for ServiceHost.2.8 to deploy to the Enterprise, adding an Enterprise deployment for ServiceHost.2.8 and ServiceHost.2.7 results in the following error message: Cannot save duplicate deployments.

Beginning with Symphony release 2.10, prerequisite software is pre-loaded in a local directory on new Oracle MICROS workstations, rather than downloading the prerequisite software from the Enterprise through CAL. This reduces the time between opening a new Oracle MICROS workstation and signing in to the Symphony POS client for the first time.

When you upgrade Symphony to a new release, the installer does not add new deployments and does not change existing packages or schedules. As a result, you do not need to change deployment schedules from **Install** to **Skip**. The installer preserves CAL packages and adds new release versions.

Configuring CAL Packages

CAL packages belong to the following two subgroups:

- The Symphony subgroup contains the standard packages installed by Symphony.
 - The Custom subgroup contains the packages added by an administrator.
1. Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
 2. Highlight a CAL package.
 3. Click the appropriate command from the CAL packages tree:

Table 2-2 CAL Packages Tree Commands

Command	Description
Switch View	Change the grouping of CAL packages from name to version and vice versa. For example, you can view packages belonging only to the Symphony 19.5 release.

Table 2-2 (Cont.) CAL Packages Tree Commands

Command	Description
Add Custom CAL Package	Upload a CAL package from a local file system to the EMC and database. Uploaded packages appear in the Custom subgroup. To add a custom CAL package to the EMC and database: - Create a path on the machine that EMC is being run on: MICROS\Symphony2\EgatewayService\CAL\Win32\Packages\CustomCALPackageName - Place the package files that include a Setup.dat file (where the folder name matches the package name in the Setup.dat file) in the CustomCALPackageName folder. - Open EMC and then navigate to the CAL Packages module. - Select Add Custom CAL Package. - In the CAL Package Location section, navigate to and select the path created in the first step. - The Choose CAL Package to upload and Name fields auto-populate with the name in the Setup.dat. - Click Upload. - The package now appears in the Custom list.
Refresh	Refresh the entire page.
Delete	Delete the highlighted CAL package.

Viewing, Reloading, and Saving CAL Package Contents

- Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
- Highlight the CAL package, and then click the **Package Contents** tab. The Platforms section lists all available platform types, the Setup.dat version, and CAL package name.
- From the **Files** list, select a platform to see all files included in the package.

- To open the file in Notepad, click **View Selected File**.
- To reload the entire CAL package for all platforms and files from the specified file location, click **Reload Package From Disk**. You must be signed on with the same hierarchy level as the CAL package to see this command.

After you modify an existing default or custom package, reload the package. Ensure that the Setup.dat version matches the file before it loads to avoid reloading the package on all POS clients.

After installation and when the load balanced address changes, replace the local machine with the load balanced address in SymphonyInstall.xml, and then reload the entire package.

- To save the entire CAL package for all platforms and files to the specified file location, click **Save Package To Disk**, select an empty output folder, and then click **OK**.

Changing a CAL Package Version

You can change a CAL package that has one or multiple versions.

Changing the deployment package version causes the new version to immediately start deploying to the workstations. Depending on the **Action To Take (Install or Skip)** that you select in [Adding a Deployment Schedule for the Current CAL Package](#) or [Adding a Deployment Schedule for a Group of CAL Packages](#), the system may begin immediate deployment.

1. Sign in to the Enterprise Management Console (EMC).
2. Click the Enterprise, **Setup** tab, and then **CAL Packages**.
3. To change a CAL package with one version:
 - a. From the CAL Packages module, delete the existing deployment.
 - b. Add a new deployment for the new version.
4. To change a CAL package with multiple versions:
 - a. From the CAL Packages module, highlight the package deployment.
 - b. Click the **Change Package Version** link.
 - c. From the **Choose CAL Package For Deployment** drop-down list, select the appropriate package version for deployment (usually the latest available version), and then click **OK**.
5. Click **Save**. The CAL package deployment begins immediately after saving your changes.

Changing a Custom CAL Package

You can change the name of a custom package, its deployment order, and its platform type.

1. Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
2. Expand the Custom subgroup, and highlight the appropriate custom CAL package.
3. Change the following information on the **CAL Package Configuration** tab:
 - **Name**
 - **Deployment Order**: Enter the order in which to deploy the CAL package.
CAL packages with a value of 0 (zero) are loaded first. Custom CAL packages (not hotfixes) need to start with 1000. [CAL Deployment Order](#) contains more information.
 - **Platform Type**: Select the type of platform to receive the CAL package.
4. In the Limit To Services section, select specific Service Host types to deploy to workstations.
 - If you do not select a service, the package deploys to every Service Host based on the deployment schedule.
 - If you select one or more services, the package deploys only to Service Hosts that run selected services. That is, when you configure a new service for the existing Service Host, there is no additional deployment for the Service Host. If a CAL package exists that is specific to the service, the Service Host downloads it immediately.

For example, if you select Cash Management, you must also select the Check And Posting service (CAPS) because the Enterprise Cash Management (ECM) module only runs on CAPS Service Hosts. This causes all Service Hosts that run CAPS to

automatically download the ECM CAL package if a deployment schedule exists for the Enterprise or property.

3

CAL Package Deployment

CAL Deployment Order

By default, the software sets the deployment order of all internal CAL packages and custom CAL packages have a deployment order of 1000. Using a deployment order that differs from the best practices recommended order can result in packages going to POS client workstations in an undesirable order. Packages need to deploy to POS client workstations in a specific order. Assigning an order enables Symphony to create and place certain files or folders for one package, which are used later by another package in order to succeed.

Oracle Food and Beverage recommends deploying CAL packages in the following order:

Table 3-1 CAL Deployment Order

CAL Package Name	Deployment Order Number
CAL Version Fixer	0
CAL Client	0
Service Host Download	10
CAPSONIIS	20
Service Host	30
Service Host Hotfix (Custom Package)	31
KDS Handler	50
WS KDS Display (Win32)	60
Simphony KDS Client	70
Media Viewer	80
CM Lite	100
Custom CAL Packages (not hot fixes) start at	1000

Simphony Standard Cloud Service (Hosted) and Premium Cloud Service (Hosted) Environments

In Simphony Standard Cloud Service environments, the **CAL Package Deployment Order** field is grayed out and is not configurable at the organization level. The **CAL Package Deployment Order** is configurable for Simphony Premium Cloud Service environments.

To change the CAL Package Deployment Order, log in to the EMC as a SuperOrg user. Changing the CAL Package Deployment Order as a SuperOrg user performs this change on all organizations associated with the SuperOrg.

Simphony (Self-Hosted) Environments

Privileged Simphony (self-hosted) users always have the **CAL Package Deployment Order** field available for configuration or editing.

Manually Deploying CAL Packages

You can manually deploy CAL packages immediately rather than scheduling the deployment to run automatically.

1. Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
2. Click the **Deployment Schedules** tab.
3. Click **Add Deployment**, select the following options, and then click **OK**:
 - **CAL Package For Deployment**
 - **Deployment Type**
4. Select the **Property** or **Service Host** (depending on the Deployment Type).
5. In the **Action to Take** field, select **0 - Install**.
6. (Optional) In the **Effective From** and **Effective To** fields, select the dates when the package becomes active and inactive.
7. Click **Save**. The CAL package downloads to the appropriate POS client workstations.

Adding a Deployment Schedule for One CAL Package

Oracle recommends that you schedule the **CAL Client**, the **Service Host Download**, and the **Service Host** separately on different dates or times. Scheduling these packages individually lets the site benefit from transferring the files silently in the background. Service Host only installs the required software components, minimizing the installation time needed.

1. Select the Enterprise, click **Setup**, and then click **CAL Packages**.
2. Expand the **Simphony** or **Custom** subgroups, and then highlight the CAL package to deploy.

You need to deploy the following packages in the order listed:

- a. CAL Client
 - b. Service Host Download
 - c. Service Host
3. Click the **Deployment Schedules** tab.
 4. Click **Add Deployment** to create a new row in the deployments grid.
 5. In the **CAL Package** field, select the version number.
 6. From the **Deployment Type** drop-down list, select the type of deployment:
 - **1 - Property/Enterprise**: Click the ellipsis point (...) button and select one or more properties where the package downloads.

If you select this deployment type, the CAL package deploys to all service hosts at the same time.
 - **2 - Specific Service Host**: Click the ellipsis point (...) button, and then select one or more service hosts or workstations where the package downloads.

Simphony releases 19.1.2 and later do not require Service Host Prerequisites. If a Service Host Prerequisites deployment is shown for an earlier release, remove the Service Host Prerequisites from the deployment schedule. Set the Service Host Download for 19.1.2 or a later release instead.

The Service Host Download is required in Symphony 19.1.2 and later. When scheduled independently of the CAL client package, the Service Host Download occurs silently in the background to avoid end user interruption. The background transfer requires that CAL 148 (compatible with Symphony release 19.2) is installed on the client. If you schedule the CAL client package and the Service Host Download package to run at the same time, the Service Host Download does not run in the background.

7. Click **OK** to close the Choose CAL Package to Upload dialog.
8. In the **Action To Take** field, select **0 - Install**.

You can configure multiple deployment schedules for the same CAL package. Symphony uses the most granular deployment when given multiple deployment schedules. For example, if you configure a deployment schedule for a workstation and for the property, Symphony uses the workstation deployment. If you configure a CAL package deployment for a property with **0 - Install** and a deployment for a workstation with **1 - Skip**, the CAL package is not installed on the workstation.

9. (Optional) In the **Effective From** field, select the start date when the CAL packages automatically stop installing, and select the stop time (in 24-hour format).

You can use this field to schedule Symphony upgrades.

 Note:

The date and time selected in **Effective From** and **Effective To** fields are based on the time zone setting of the Service Host selected in the Service Host column (regardless of the application server's time zone setting).

10. (Optional) In the **Effective To** field, select the date when the CAL packages automatically stop installing, and select the stop time (in 24-hour format).

To keep the installations perpetual, do not set an **Effective To** time.

11. Click **Save**.

Adding a Deployment Schedule for a Group of CAL Packages

You can schedule a CAL package deployment using effective dates, building the packages and schedules so that file transfer occurs in the background, and clients can install simultaneously.

Oracle recommends that you schedule the **CAL Client**, the **Service Host Download**, and the **Service Host** separately on different dates or times. Scheduling these packages individually lets the site benefit from transferring the files silently in the background. Service Host only installs the required software components, minimizing the installation time needed.

1. Select the Enterprise, click **Setup**, and then click **CAL Packages**.
2. Expand the **Simphony** or **Custom** subgroups, and then highlight a node without a corresponding CAL package.

You need to deploy the following packages in the order listed:

- a. CAL Client
- b. Service Host Download
- c. Service Host
3. Click the **Deployment Schedules** tab.
4. Click **Add Deployment**.

5. From the **Choose CAL Package For Deployment** drop-down list, select the package to deploy.

The list of available CAL packages in the dialog changes depending on the node highlighted within the tree. For example, if you highlight the Symphony node, the list of packages contains all Symphony CAL packages. If you select the Service Host node, the list contains only the Service Host packages.

6. From the **Deployment Type** drop-down list, select the type of deployment:

- **1 - Property/Enterprise**
- **2 - Specific Service Host**

Simphony releases 19.1.2 and later do not require Service Host Prerequisites. If a Service Host Prerequisites deployment is shown for an earlier release, remove the Service Host Prerequisites from the deployment schedule. Set the Service Host Download for 19.1.2 or a later release instead.

The Service Host Download is required in Simphony 19.1.2 and later. When scheduled independently of the CAL client package, the Service Host Download occurs silently in the background to avoid end user interruption. If you schedule the CAL client package and the Service Host Download package to run at the same time, the Service Host Download does not run in the background. You can schedule the Service Host Download file transfer to begin in the early morning hours during non-peak business times (for example, 2:00 a.m.).

7. Click the ellipsis point (...) button.
8. From the Select Properties or Select Service Host dialog (depending on your selection in Step 6), select one or more workstations or service hosts where the package downloads, and then click **OK**.
 - Filter lengthy lists by property number or name, or by workstation number or name.
 - If you selected **1 - Property/Enterprise** in Step 6, select **Show already configured properties** to prevent yourself from configuring duplicate deployment schedule records.
 - If you selected **2 - Specific Service Host** in Step 6, press and hold the **Ctrl** key while performing a left mouse click to select multiple service hosts. You can click the **Select All** or **Clear All** links to affect all service hosts in the list.
 - You can select multiple service hosts or specific workstations.
9. In the **Action To Take** field, select one of the following options:
 - To allow the deployment to proceed, select **0 - Install**.
 - To prevent a package from being downloaded, select **1 - Skip**.
10. (Optional) In the **Effective From** field, select the start date when the CAL packages automatically begin installing, and select the start time (in 24-hour format).

You can use this field to schedule Simphony upgrades.

Note:

The date and time selected in **Effective From** and **Effective To** fields are based on the time zone setting of the Service Host selected in the Service Host column (regardless of the application server's time zone setting).

11. (Optional) In the **Effective To** field, select the date when the CAL packages automatically stop installing, and select the stop time (in 24-hour format).
To keep the installations perpetual, do not set an **Effective To** time.
12. Click **Save**.

Configuring the Deployment Schedule to Install the Symphony Client on Workstations

When a hotfix is added to the CAL deployment schedule, the system automatically deploys the major Symphony version (for example, 19.2.0.0) first, followed by the hotfix.

When using Distributed CAL (DCAL), you must add both the major version and the hotfix to the DCAL download schedule. After the download occurs, it is made available in the DCAL server. Then you can schedule the POS client update.

1. Select the Enterprise, click **Setup**, and then click **CAL Packages**.
2. Click the **Deployment Schedule** tab, and then click **Add Deployment**.
3. In the Choose CAL package to upload dialog, select **2 - Specific Service Host** as the **Deployment Type**, click the ellipsis (...) point button adjacent to the drop-down list, select the appropriate workstation, and then click **OK**.
4. Click **OK** to close the Choose CAL package to upload dialog.
5. In the Action To Take column, select **0 - Install**, and then click **Save**.
6. Select **CAL Client** from the left pane, and then repeat Steps 3 through 6.
7. Select **Service Host Download** from the left pane, and then repeat Steps 3 through 6.
8. Select **Service Host** from the left pane, and then repeat Steps 3 through 6.

Viewing CAL Package Deployment Schedules

A deployment schedule indicates the time at which a specific POS client or clients downloads a CAL package for deployment. You must configure deployment schedules to deploy CAL packages.

1. Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
2. Expand the **Simphony** or **Custom** subgroups within the navigation tree, and then highlight the appropriate CAL package.
To view all deployment schedules for all CAL packages, highlight the **All** node.
3. Click the **Deployment Schedules** tab. Previously scheduled CAL packages appear in the list.

Viewing the CAL Package Download Status

After you configure and implement CAL package deployment schedules, you can review the download status of CAL packages that are scheduled to download from the database at the Enterprise to the workstations. You can also view the status of the individual CAL client workstations connecting to the Enterprise.

You must have the **View** privilege for the CAL Packages module. [Configuring CAL Package Permissions](#) contains more information.

1. Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
2. Click the **Install Status** tab.

The Install Status tab shows the download and installation status of the individual CAL client devices connecting to the Enterprise.

3. In the left pane, select the type of view by clicking the link for either **CAL Package View** or **Enterprise View**.

CAL Package View

- Shows all available Symphony CAL packages (including older CAL packages if they have not been removed), followed by Custom CAL packages (if used)

Enterprise View

- Shows a hierarchy view of Enterprise, properties, Enterprise Service Hosts, workstations, and KDS displays
- When the Object Number shows 0 (zero), this indicates an enterprise Service Host for a property

The **Enterprise View** shows the following installation status icons for each property (including status for workstations, KDS displays, and Enterprise Service Hosts):

Table 3-2 Enterprise View Status Icons

Icon	Icon Name	Client Status Description	Property Service Host Status Description	Enterprise Service Host Status Description
	Latest Version	All packages are in the Success status. The package installed on the client is the same as the enterprise (has the most recent software version).	All Service Hosts in the property are in the Success status.	All packages for the Service Host are in the Success status.
	Need Attention	One or more packages have the Failed status. The CAL client update has an issue and requires attention.	One or more of the Service Hosts in the property has the Failed status. Other Service Hosts can have the Latest Version or Need Update icons.	One or more packages for the Service Host has the Failed status. Other packages for the Service Host can have the Latest Version, Need Update, or Not Installed icons.

Table 3-2 (Cont.) Enterprise View Status Icons

Icon	Icon Name	Client Status Description	Property Service Host Status Description	Enterprise Service Host Status Description
	Need Update	One of the following status is met: - Needs update - Started - Scheduled A package installed on a Service Host has a lower software version than the most recent version installed on the Enterprise.	All or some of the Service Hosts in the property are in the Latest Version, Need Update, or Not Installed status.	One or more packages for the Service Host have the Latest Version, Need Update, or Not Installed status.
	Not Installed	The Service Host has been configured in EMC, but the CAL client software has not been installed.	All Service Hosts in the property are in the Not Installed status.	No packages have been installed, so no records appear in the Install Status. As part of the upgrade to Symphony release 19.1.2 or later, the installation status of all previous installation is reset. Therefore, the install status shows as Not Installed. This reset is required to provide accurate installation status.

- To limit the **Enterprise View** to specific installation statuses, enter text in the **Filter** field in the lower area of the screen.
- To expand and collapse the **Enterprise View**, select the **Expand** and **Collapse** links in the lower area of the screen. The **Enterprise View** is collapsed by default.
- To view detailed status information in **Enterprise View**, highlight a property or device in the left pane. The Install Status tab shows the latest status for each device's corresponding CAL packages. The following information is available:

Table 3-3 CAL Package Install Status Columns

Column Name	Description
#	Install status record number.
CAL Package	Name of the CAL package
Available Version	Latest version available for deployment.
Installed Version	Current version installed on the client.
Started at	Last date and time the CAL package was started.
Finished at	Last date and time the CAL package was finished. This column is blank when a CAL package installation is in progress.
Install time (minutes)	Amount of time in minutes that the CAL package took to complete the installation. Shows the current time taken for status started compared to the actual time.
% Complete	Shows the actual percentage status completed.
Status	Shows the detailed install status: - Started - Success - Failed - Need Update Select All , Started , Failed , or Success to limit the CAL package deployment by status.
Logs	Click the ellipses to show all details, including the date and time the log file was created for the CAL package.
Service Host ID	Shows the Service Host ID number.
Workstation ID	Shows the Workstation ID number.
Platform	Shows the device operating system (for example, Win32 or Android).
DCAL in Use?	Shows True if the Service Host receives packages from a DCAL server, or False if DCAL is not in use.

For a multi-tenant environment, only the information related to a specific Enterprise is filtered.

7. To sort a column, click the triangle symbols adjacent to the column header. By default, columns are sorted by latest status change, with the newest listed first.
8. To filter a column, enter information in the text box corresponding to the column header.
9. To filter pages in the CAL package list:
 - Use the scroll bar to scroll through the list
 - Change the number in the **Lines per page** field. The default view is 500 lines per page.
 - Click the previous (|<) (<) and next (>|) (>) arrows adjacent to the **Lines per page**.
 - Enter a specific page number in the **Page** field.
10. To limit the **CAL Package View** and to refresh the information shown on all forms:

- a. In the **Install Date**, **From**, and **To** fields (upper right area), select the check box, and then select the date range of the CAL deployment to search.

Use the **From** and **To** fields if you are searching for an older package or need a specific date range.

To view the latest status, ensure that **Latest** is checked.
- b. Click the **Search** button.

Scheduling and Viewing Device Information

A core CAL package named Device Information communicates workstation information. The Device Information package runs:

- On each workstation
- On CAPS running on a client workstation (without the POS client)

The Device Information CAL package is not needed for the Symphony 19.1.2 release and later as this package is deployed automatically with the Service Host CAL package.

The Device Information module lets you schedule and view workstation metrics in the EMC at the Enterprise level. The device information allows administrators to detect possible issues that could prevent a client from upgrading successfully. [Device Information Needs Attention State](#) contains a list and description of the needs attention workstation state.

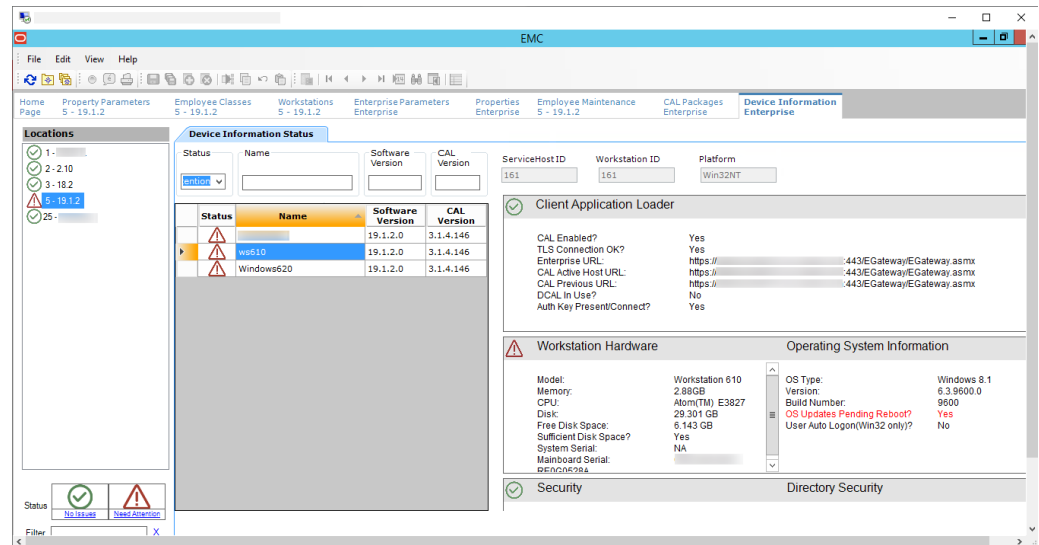
The detailed status of workstations and other CAL-enabled devices appears in the Device Information module. After the CAL client is installed, the Device Information module shows data if the following conditions are met:

- Your system's CAL packages are deployed using the packages provided with the most recently released version of Symphony.
- The Device Information CAL package is deployed to the workstation, which shows the status upon deployment.

1. To schedule the device information task:
 - a. Select the Enterprise level, click **Configuration**, and then click **Task Schedules**.
 - b. Double-click the task schedule to open it in table view.
 - c. Select **8 - Device Information** from the **Task Type** drop-down list.

By default, the Device Information task is scheduled to run daily at 5:00 a.m. local time. You can change this by clicking the **Recurrence** tab and changing the **Daily Frequency** occurrence options.

- d. Ensure that the **Task Data** field shows `DEVICE_INFORMATION_STATUS`.
 - e. Click **Save**.
2. To view the workstation information after the device information task runs:
 - a. Select the Enterprise level, click **Tasks**, and then click **Device Information**.



The left pane shows a list of properties under Locations. If a property does not have the Service Host, the middle and right panes are blank.

The middle pane shows a list of Service Hosts.

The right pane shows all device information, including CAL, Workstation Hardware, Security, and Symphony Software Information.

There are two icons which indicate the device information status:

Table 3-4 Device Information Status Icons

Icon	Icon Name	Icon Status Description
	No Issues	The device information meets the requirements and there are no issues detected.
	Need Attention	The device information does not meet the requirements. For example, the workstation device might need to be restarted for operating system updates.

- To limit the Service Hosts shown in the middle pane, select the filters for **Status** (All, No Issues, Need Attention), **Name**, **Software Version**, and **CAL Version**.
- Click a Service Host to highlight it and change the device information view in the right pane.
- To expand and collapse the views in the right pane, click the individual icons, or click the **Expand/Collapse All** link in the upper right corner.

Device Information Needs Attention State

The Device Information module checks the following settings for each workstation. The status is available at the Enterprise level, and listed by property. The following table describes what causes the Needs Attention state.

Table 3-5 Device Information Workstations That Need Attention

Device Information	Values	Needs Attention State		Description
		Win32 Platform	Linux Platform	
CAL Enabled?	Yes/No	No	No	If CAL is not enabled, the workstation does not query the Symphony enterprise and does not receive scheduled CAL packages.
TLS Connection OK?	Yes	No	No	Verifies whether the connection string to the enterprise uses https.
Auth Key Present/Connect?	Yes/No	No	No	Verifies whether the authentication key is present and can connect through TLS to the Symphony enterprise.
Password Policy Ok?	Yes/No	No	No	Verifies that the password policy does not prevent successful updating of the database password.
DBA Login Ok?	Yes/No	No	No	Verifies that the database administrator can log in to the local client database.

Table 3-5 (Cont.) Device Information Workstations That Need Attention

Device Information	Values	Needs Attention State		Description
		Win32 Platform	Linux Platform	
Database Max. Login Ok?	Yes/No	No	Not required on Linux workstations	Verifies whether the maximum log in failure meets the requirements, which is minimum 8 for normal clients. Security Considerations contains more information. If Database Max. Login Ok? needs attention, check the security account lockout threshold policy through the Local Security Policy in Windows.
DB Pending credentials changes	Yes/No	Yes	Yes	Verifies whether database credential changes are pending, which require a restart.
Sufficient Disk Space?	Yes/No	No	No	Verifies whether the disk space falls below the minimum of 1.5 GB free space.
OS pending reboot	Yes/No	Yes	Not required on Linux workstations	Test whether a restart is pending because of a Windows update (Win32 devices only).
Directory Security	Ok/No/NA	No	Not required on Linux workstations	Test whether one of the following directories are not accessible: • %AppRoot%: Ok • %ALLUSERSPROFILE%: Ok Security Considerations contains more information.

4

Deploying Microsoft SQL Server Express on Microsoft Windows Devices

Starting with the Symphony 19.6 release, the default database is MySQL 8.0. Follow these steps only if you still want to deploy Microsoft SQL Server Express on new devices.

Go to [My Oracle Support](#), logon and click the **Patches & Updates** tab, and then search for the CAL package for your version of Microsoft SQL Server Express: Download the CAL package (the patch ID is shown in parenthesis) for your version of Microsoft SQL Server Express:

- For SQL Server Express 2016, search for and download patch number 35069532.
- For SQL Server Express 2014, search for and download patch number 34362472.

Once the SQL Server Express CAL package file is downloaded, perform the following steps:

1. Using CAL, install the SQL Server Express Database package on the workstations.
2. Install the Service Host Download CAL Package.
3. Install the Service Host.

Deploy the CAL packages as described in [CAL Package Deployment](#) and [CAL on Workstations](#).

See [Configuring CAL Packages](#) for more information about uploading Custom CAL packages to your system.

5

CAL Authentication

CAL authentication over TLS 1.2 is required for clients upgrading from any release prior to Symphony release 2.9.1. CAL authentication was introduced in Symphony release 2.9.1 to prevent unauthorized users from downloading or reinstalling CAL packages onto the workstations.

Automatic Authentication

CAL clients must be authenticated to communicate with a Symphony release 2.9.1 or later enterprise. To facilitate automated upgrades from releases prior to Symphony release 2.9.1, the CAL client automatically authenticates itself on upgrades using the existing authenticated Symphony client. This capability relies on several factors:

- The Symphony Enterprise must have a properly configured secure HTTPS endpoint and CAL clients must be able to negotiate an HTTPS connection with the Enterprise. [Enterprise Certificate Verification](#) contains more information on verifying the Enterprise URL. The Device Information module in the EMC identifies issues that may prevent the client from upgrading. [Scheduling and Viewing Device Information](#) contains more information.
- CAL client upgrades must be deployed from the Symphony application server and should be deployed before other CAL packages.
- The existing Symphony client installation must have the workstation (POS client) and/or CAPS Services configured and authenticated prior to deploying a new CAL client.

Devices that do not have the workstation (POS client) or CAPS Services configured, such as KDS Displays or KDS Controllers, cannot use the Automatic Authentication feature. Additionally, devices without touchscreens need a keyboard or mouse connected to the device to enter EMC credentials.

6

Enterprise Certificate Verification

Review the following information about enterprise certificate verification.

Testing the Enterprise Certificate

CAL authentication relies on establishing a secure (TLS 1.2) connection to the Symphony Enterprise. Each Symphony client being upgraded to release 2.9.1 or later needs to validate the enterprise server certificate and support the TLS 1.2 protocol to establish a secure connection to the Enterprise. The certificate is validated when a connection is established, and in some cases this may require external network access to a certificate authority.

Prior to client upgrade, Oracle recommends that you confirm that the server certificate can be validated on at least one workstation at the property. Skipping this step may cause the upgrade process to fail and requires additional manual steps. To test the enterprise certificate using a web browser:

1. Log in to a Symphony workstation.
2. Open the web browser, and then go to the secure EGateway URL that is used for CAL. If you do not know the URL, contact your system administrator or Oracle support representative.
3. If a Lock symbol is displayed in the address bar, the client has been successfully validated. The Lock symbol and parts of the URL address bar may be green or grey. If an X, red symbol, or error appears, the client has not been validated. Immediately take steps to remedy the issue by contacting the appropriate representative within your organization, or contact your Oracle support representative to begin the remediation process.

The location and appearance of the symbol vary based on the web browser.

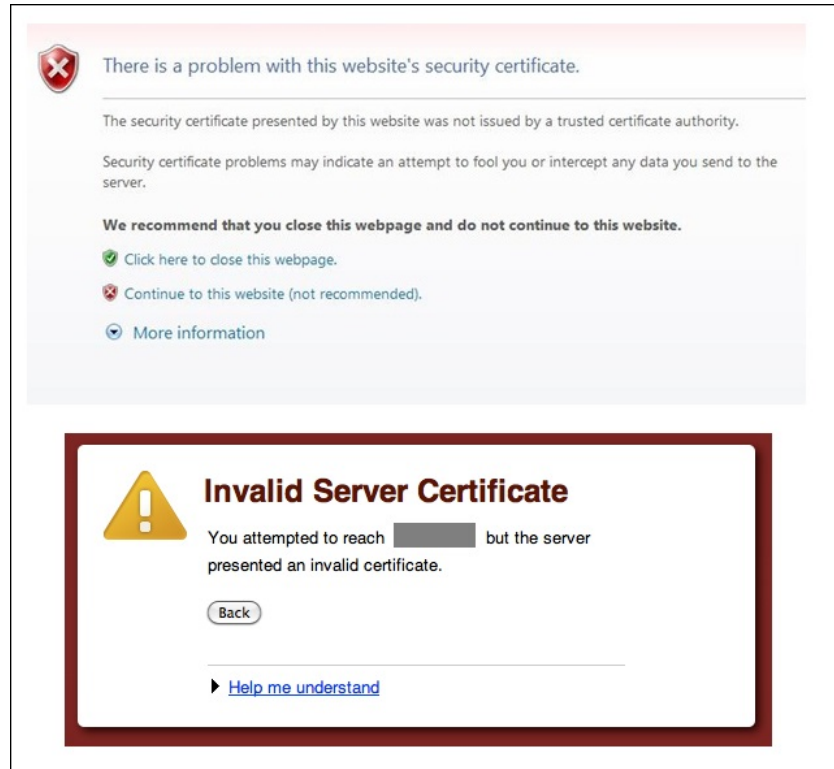
Warning

Failure to perform this validation stops the upgrade process for the property. As the ability to validate a certificate is controlled by the client side network, there is very little that Oracle can do to remedy the issue other than provide information on what is required. It is the responsibility of the customer to ensure that these requirements are met.

Figure 6-1 Valid Certificate Examples by Browser



Figure 6-2 Invalid Certificate Example



7

Distributed CAL (DCAL)

DCAL is not supported with Linux or Android clients. The Linux client must always receive the CAL packages from the Enterprise.

When new client applications or support files are available, the CAL sends the new set of files from the Enterprise application server to the clients. A standard Symphony Service Host CAL package is usually about 50 megabytes (MB) in size. Based on that, a property with 100 workstation clients needs to download 5000 MB of data through the Wide Area Network (WAN). When the network bandwidth of a property cannot support simultaneous requests made by numerous clients, properties might experience bandwidth bottlenecks.

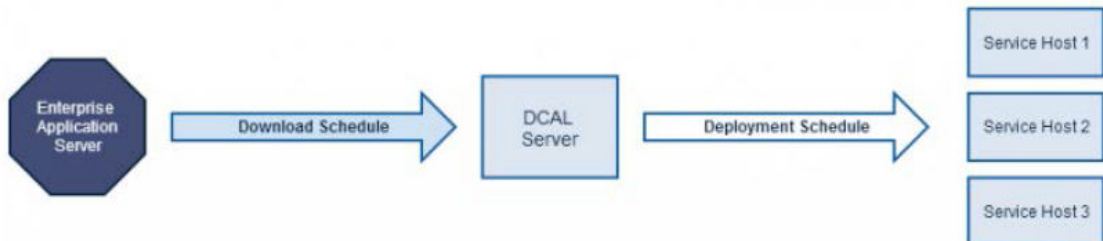
To alleviate bandwidth problems, the Distributed CAL feature lets you configure one or more Service Hosts above or within a property as a DCAL server. To distribute CAL packages, the DCAL server uses the Local Area Network (LAN), which has a higher bandwidth and a higher data transfer rate than a WAN. Updated files and new packages are downloaded to the DCAL server, and then workstations retrieve the updated files from the DCAL server over the LAN.

You can also use DCAL to distribute packages to workstations when a property loses connectivity to the Enterprise application server. After deploying CAL packages to the DCAL server, clients can use the DCAL server to get the new CAL packages without relying on connectivity to the Enterprise application server.

Figure 7-1 Without DCAL



Figure 7-2 With DCAL



See the related topics listed here for more information about DCAL.

Configuring the Distributed CAL (DCAL) Server

You need to configure a DCAL Service Host in the Workstations module and in the DCAL Download Schedules module.

Designate a Service Host to act as a DCAL server within or above a property, depending on the number of workstations and the geographical distribution of properties.

1. Select the property, click **Setup**, and then click **Property Parameters**.
2. Click the **Workstations** tab.
3. Click the ellipsis point (...) button for the Distributed CAL Service Host.
4. From the Select Service Host dialog, select the Service Host to act as the DCAL server, and then click **OK**.
5. Click **Save**.
6. [Configuring a DCAL Download Schedule](#) contains further instructions.

CAL Authentication with DCAL Workstations

Fresh Symphony Client 2.9.1 or later installations, which are deployed through DCAL, display a 'Not Authenticated' error message on initial startup. This is because DCAL workstations do not provide authentication capabilities to DCAL clients, therefore CAL clients do not prompt you for EMC user login credentials.

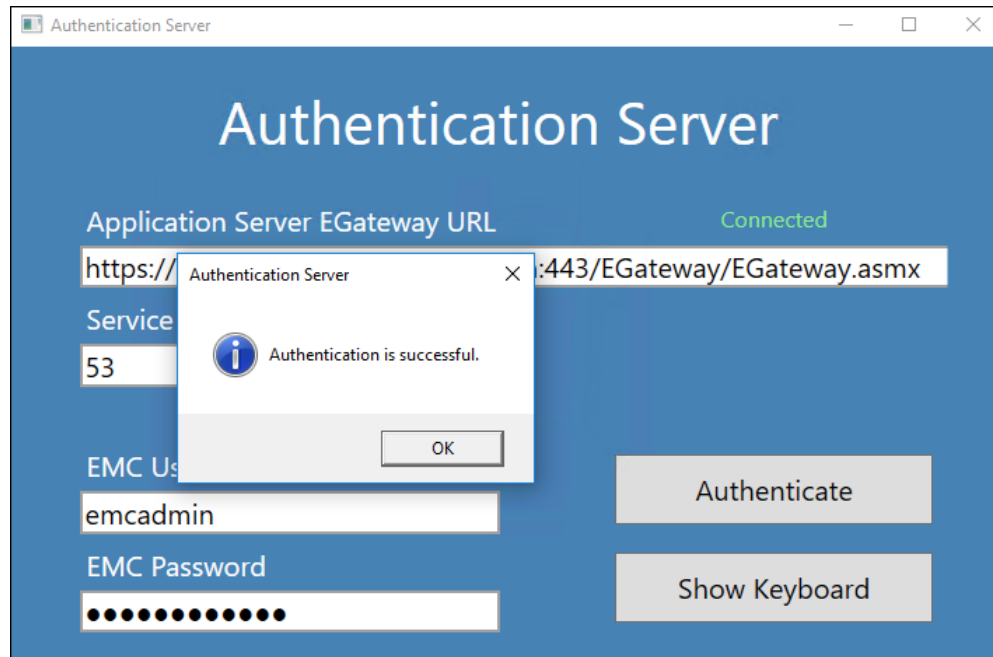
Workaround #1:

Use the secure enterprise URL when configuring the CAL client rather than the DCAL workstation URL. The workstation automatically switches back to the DCAL workstation after the Symphony client has finished installing.

Workaround #2:

1. Close the Symphony POS client on the workstation.
2. Run the **%AppRoot%\WebServer\AuthenticationServer.exe** utility
3. Confirm that the application server EGateway URL and Service Host ID are correct.
4. Enter the EMC username and EMC password.
5. Click the **Authenticate** button.
6. Confirm that the 'Authentication is successful' message appears.

Figure 7-3 Authentication for the DCAL Server



Verifying a Workstation to Use for DCAL Package Deployments

1. Sign on to a workstation.
2. Click the **PMC** button, click **PMC Home Page**, and then click the **General** tab.
3. Review the **CAL Uri** field and verify the changes.

Configuring a DCAL Download Schedule

DCAL Download Schedules prevent unexpected network usage by controlling when the software packages are delivered to the DCAL server from the Enterprise application server.

DCAL must be deployed now with both ServiceHostDownload and ServiceHost CAL packages in the following order:

- CAL Client
- ServiceHostDownload
- ServiceHost

After the DCAL server receives the CAL Client, ServiceHostDownload, and ServiceHost DCAL Download Schedules, there also must be CAL Client, ServiceHostDownload, and ServiceHost Deployment Schedules set for the workstations. Workstations then transfer and install these files from the DCAL server workstation.

1. Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
2. Click the **DCAL Download Schedules** tab.
3. Click the **Add Download** link.
4. From the Add Download Schedules for Distributed CAL Services dialog, select the CAL package from the **Select CAL Package** drop-down list.

5. Select the properties to receive the scheduled CAL packages, and then click **OK**.
6. Click the ellipsis (...) button in the **Download From** field, and then set a time to download the CAL package. Leave the **Download From** field blank to download CAL packages immediately.

You need to configure Deployment Schedules to deploy CAL packages to the Service Hosts. Without Deployment Schedules, CAL packages are stored on the DCAL server and are not deployed to the Service Hosts. [Adding a Deployment Schedule for One CAL Package](#) contains more information about scheduling CAL packages to deploy at preset times.

Viewing the DCAL File Download Status

After you configure and implement CAL package download schedules, you can review the status of CAL packages that are scheduled to download from the Enterprise to the DCAL server for a selected workstation.

You must have the **View** privilege for the CAL Packages module. [Configuring CAL Package Permissions](#) contains more information.

1. Select the Enterprise level, click **Setup**, and then click **CAL Packages**.
2. Click the **DCAL Status** tab.
3. If there are many workstations, filter by property and obtain information specific to one DCAL server by selecting the appropriate search options:

For a multi-tenant environment, only the information related to a specific Enterprise is filtered.

- **Install Date From To:** Select the date range of the CAL deployment to search.
 - **ServiceHost #:** Enter the object number of the Service Host to search.
 - **ServiceHost Name:** Enter the name of the Service Host to search.
 - **Property:** Select the property to search. The **Search** button becomes active after you select a property.
 - **Status:** When enabled, a drop-down list appears. Select **All**, **Started**, **Failed**, or **Success** to limit the CAL package deployment by status.
 - **Platform:** When enabled, a drop-down list appears. Select the workstation operating system platforms.
4. Click the **Search** button.

The CAL packages section shows the CAL packages that are available in the database for download, and the corresponding number of files that have been downloaded to the DCAL server.

The Install Status shows the installation status of the individual CAL client workstations connecting to the DCAL server.

Setting Up a New Workstation With a DCAL Server

When setting up new workstations, for a non-DCAL site, enter the Enterprise server URL. If you configured a DCAL server, enter the DCAL workstation URL.

8

CAL on Workstations

Review the topics listed below for information about using CAL on workstations.

Allowing Employees to Install and Authenticate POS Clients and Service Hosts

You must allow administrator employees to download software, install, and authenticate clients and service hosts using CAL. After granting this privilege, employees can use their credentials to configure POS clients. In addition, the **User Security Credentials** configured in the Property Parameters module become inactive.

1. Select the Enterprise level, click **Configuration**, and then click **Roles**.
2. Double-click an employee role.
3. Click the **Operations** tab, click the **Miscellaneous** subtab, and then select **10065 - Download Software, Install and Authenticate Clients and Service Hosts Using CAL**.
4. Click **Save**.

CAL Installation Prerequisites for Microsoft Windows Devices

Before installing CAL on Microsoft Windows devices, verify or perform the following functions:

- Ensure that the EMC server and the Microsoft Windows device are on the same time zone.
- Ensure that you can access `https://[EMC Server IP]:443/egateway/egateway.asmx` from the EMC server machine and from the Microsoft Windows device. You cannot use an IP address when CAL obtains the files from the Enterprise only. The domain name works as it requires a valid certificate. Currently, Symphony Enterprise CAL deployment no longer uses IP addresses, rather the Symphony URL must be a fully qualified domain name (FQDN). Symphony DCAL CAL deployment can still use the IP address of the DCAL server workstation.
- Add the Microsoft Windows device to the EMC. [Adding a Workstation](#) contains more information.
- Assign the employee privilege to download software, install and authenticate clients and Service Hosts using CAL.

Users must have the employee privilege assigned to the appropriate role to successfully authenticate Microsoft Windows devices, Android devices, and Kitchen Display Systems (KDS). EMC users do not automatically acquire this privilege during an upgrade to release 2.9.1 or later. After installing or upgrading to Symphony release 2.9.1 or later, you must assign the privilege to a user's role. When the Role option is set, employees can use their EMC logon credentials when CAL'ing devices. [Allowing Employees to Install and Authenticate POS Clients and Service Hosts](#) contains more information on assigning the privilege.

- Set the CAL deployment schedule. [Configuring the Deployment Schedule to Install CAL on Workstations](#) contains information on deploying CAL packages.

- Set the default sign in and transaction pages. [Assigning Default Touchscreen Pages](#) contains more information.

Adding a Workstation

1. Select the property, click **Setup**, and then click **Workstations**.
2. Insert a record for the workstation, enter the name, and then click **OK**.

Workstations cannot be named using solely numerical characters. Alpha characters must be included in each workstations naming convention. A combination of alphanumeric characters is supported.

3. Double-click the new workstation record.
4. On the **General** tab, enter information in the following fields:

Table 8-1 General Workstation Settings

Field	Description
Type	Select the type of workstation from the drop-down list: • 1 - Mobile MICROS: Mobile devices • 2 - Workstation Client: Workstations and virtual machines Select this option when configuring these devices: – Oracle MICROS Tablet E-Series – Oracle MICROS Workstation 6 Series – Oracle MICROS Tablet 700 Series – Oracle MICROS Compact Workstation 310 • 3 - POSAPI Client: Symphony Transaction Services or Pay@Table • 6 - Tablet Client: Select this option for Android Tablet devices • 7 - Castles Tech S1F2: Castles S1F2 payment device. Enter the device's serial number in the Serial Number field.
Language	Select the default language of the workstation. This is the language that appears on the workstation's Sign On screen. If an employee has a different default language set, the employee sees their default language after signing in to the workstation.
Resolution Cols	Enter the number of Resolution Columns for the workstation's display. The default value is 0 (zero).
Resolution Rows	Enter the number of Resolution Rows for the workstation's display. The default value is 0 (zero).
Log Verbosity	Select the logging verbosity for the workstation. Select 0 (zero) for minimal logging. Higher log verbosity provides more information in the log file, which may be helpful in troubleshooting issues.
(Optional) Workstation Class	Select a Workstation Class to allow similar workstations to be grouped together and to share certain page configuration settings.
Database Update Frequency	Enter the number of seconds for the workstation to receive changes. The default value is 1800 seconds (30 minutes). The value in this field overrides the Property Parameter's Database Update Frequency setting.

Table 8-1 (Cont.) General Workstation Settings

Field	Description
Check Inactivity Timeout	Enter the number of seconds before the workstation shows the message (Do you need more time?), prompting the workstation operator to cancel the transaction. When you enter 0 (zero), the message does not appear. When you select Enable Follow Me from the RVC Parameters module, the check is automatically suspended rather than cancelled.
Check Inactivity Dialog Timeout	Enter the number of seconds that the workstation shows the Inactivity dialog before automatically cancelling the transaction. This field is unavailable when you set the Check Inactivity Timeout value to 0 (zero).
Report Timeout	Enter the number of seconds the workstation waits for a response before showing a communication failure notice.
Address / Host Name	Enter the IP address of the Oracle MICROS Symphony Service Host where the workstation application runs. When configuring this field for Castle S1F2 devices, after the Symphony POS Android Package (APK) has been installed on the device and you have the device at hand, find its assigned IP Address, and copy it to this field, and then click Save . If the device is not immediately accessible, you must remember to access the device and then enter its IP Address here to complete its configuration.
NOT_SUPPORTED: To utilize Castles devices, you must be running Reporting and Analytics version 20.1.10 version or higher.	
	See Replacing, Deleting, or Upgrading Castle S1F2 Devices for more information.
Subnet Mask	Enter the subnet mask of the Service Host where the workstation application runs.
Default Gateway	Enter the default gateway of the Service Host where the workstation application runs.
Is Connectionless	Select this option to have the Service Host open and close a new connection for each web service call. This prevents the workstation from reaching the maximum number of web connections allowed, although the connection becomes slightly slower.

Table 8-1 (Cont.) General Workstation Settings

Field	Description
Is Windows Service	Select this option to allow the Service Host to start as a Windows service. The Service Host service starts on Microsoft Windows startup with other Microsoft Windows services. The POS client starts only when the workstation operator signs on to the operating system. If you select this option, you need to change the ports of the services being run (for example, Check and Posting Service (CAPS) and Oracle Hospitality Symphony Kitchen Display System (KDS) Controller) in addition to the POS client. Use the EMC modules to change the ports. If a non-POS client is required to run on the Service Host, it must run on a different port than the workstation port. You can also set the Service Host to run as a Microsoft Windows service from the Service Host module (rather than from the Workstations module). If you set this option in the Service Host module, you do not need to change the ports of the services being run as the device is not intended to run the POS client.

5. Click the **Options** tab, and then click the **Display/Security** subtab.
6. Select the appropriate Display Options:

Table 8-2 Workstation Display Options

Display Option	Description
5 - Do Not Clear Screen After Transaction	Select this option to have the last screen of a transaction remain visible on the workstation display after the transaction is complete.
6 - Enable Rear Display	Select this option to enable output to a rear customer display that is attached to the workstation.
33 - Show Cursor	Select this option to show the mouse cursor for this workstation when workstations are installed on PCs (such as a host/hostess desk). This option is usually disabled for Workstation 4 and other Oracle MICROS hardware platforms.
39 - Floating Tablet	Select this option for an Oracle tablet that is not docked to a base station. When enabled, the tablet cannot configure or use the majority of the hardware devices that traditional workstations support.
42 - Display Discounts on Customer Display	Select this option to show discount totals and amount due on the second line of the customer display. Deselect this option to show only the amount due.
43 - Auto-Pickup Next Check	In a drive-through environment, select this option to allow the Payment Window workstation to automatically pick up the oldest open check (that has this workstation's order type) as soon as the current check is paid. When no checks are open, the workstation prompts to check again or to exit the Auto-Pickup functionality. This option is intended for drive-through environments that have an Ordering Window and a Payment Window.

Table 8-2 (Cont.) Workstation Display Options

Display Option	Description
44 - Use LCD Customer Display	Select this option to use an LCD customer display. Deselect this option to use a pole display. This option is dimmed when 6 - Enable Rear Display is deselected.
52 - Do not display currency symbol on rear/customer display	Select this option to suppress the currency symbol appearance on the rear customer display.
53 - Display non-rounded amounts on rear/customer display	Select this option to show a non-rounded value for the total amount due on a rear customer display. You must also select 4 - Round Currency in the Currency Parameters module. Configuring Base Currency and Alternate Currency in the <i>Oracle MICROS Symphony Configuration Guide</i> contains more information.
54 - Display Change to dispense in Bills in the Change due dialog	Select this option to show the Change to Dispense in bills in the Change Due dialog. This lets workstation operators easily determine the change due in bills while the coin dispenser dispenses the rest of the amount.
61 - Always Hide Frame	Select this option to hide the POS Operations window frame when the POS Operations UI is not in full-screen mode.
62 - Prompt for Destination Printer when docked	Select this option to have the workstation prompt for a Destination Printer (if configured) when docked.

7. Click the **Printers** tab.
8. Click the **Select** link next to each printer type that you need to configure, select the printer, and then click **OK**.
9. Click the **Revenue Centers** tab.
10. Select the revenue centers for the workstation. You must select at least one revenue center.
11. If you are configuring the Castles S1F2 device, click the **Devices** tab.
 - a. In the Peripheral Device Configuration section, click the **Add** link.
 - b. In the **Select Peripheral Device Type** drop-down list, select **Simphony Payment Interface**.
 - c. Ensure that the **Primary Host** shows `https://localhost:8443` to allow self pay, and then click **OK**.
12. Click **Save**.
13. When adding or removing workstations, you need to edit the system's license count using the following steps:
 - a. Select the Enterprise level, click **Setup**, and then click **Enterprise Parameters**.
 - b. Click the **License Configuration** tab.
 - c. Click **Configure** adjacent to **Workstations Client License Count**.
 - d. To add a license count (for the first time), select **I would like to set the license count to X, making the new license count X**.
 - e. To append licenses to an existing license count, select **I would like to add X to the current license count, making the new license count Y**.
 - f. Enter the number of client licenses purchased.

- g. (Optional) Enter additional details regarding the purchased license in **Enter Reference Information for the License Count Change**, and then click **OK**.
- h. Repeat Steps 13-c through 13-g for **Transaction Service Client License Count**, and **KDS Client License Count**.
- i. Click **Save**, and then click **Yes** to agree to the license.
- j. To perform a side by side comparison of the number of purchased licenses against the number of configured clients, click **View** adjacent to the Properties, Revenue Centers, Concessions Terminals, Workstation Client License Count, Transaction Services Client License Count, or KDS Client License Count labels.

Assigning Default Touchscreen Pages

1. Select the Enterprise, property, revenue center, or zone, click **Configuration**, and then click **Page Assignment**.
2. Click the **Configuration** tab, and then configure the following settings:
 - **Default Sign In Page**: Select the page to show when workstation operators are not signed on to a workstation.
 - **Default Transaction Page**: Select the page to show for workstation operators who sign on to this location when a transaction page is not defined (through operator, Employee Class, and so on).
 - **Default Training Page**: Select the page to show for workstation operators in training mode. If you select **0 - None**, employees in training mode see the default touchscreen based on the touchscreen hierarchy.
3. Click **Save**.

Installing the CAL Client on a Microsoft Windows Device

1. Open an Internet browser on the Microsoft Windows device.
2. Browse to the application server and download the Windows CAL installation package:
`https://[Fully Qualified Domain Name]/SymphonyApp/`.
3. Log in with your EMC credentials.
4. Select **Downloads**, and then select **Client Application Loader (CAL) - Windows** from the **Download Type** drop-down list, and then click the **Download** button.
5. Double-click the **Win32CALSetup.exe** file to start the CAL installation. If prompted with the User Account Control dialog, confirm that the publisher is Oracle America, Inc. and then press the **Yes** button.
6. The workstation auto-reboots until it launches the service host.

Installing the CAL Client on Linux Devices

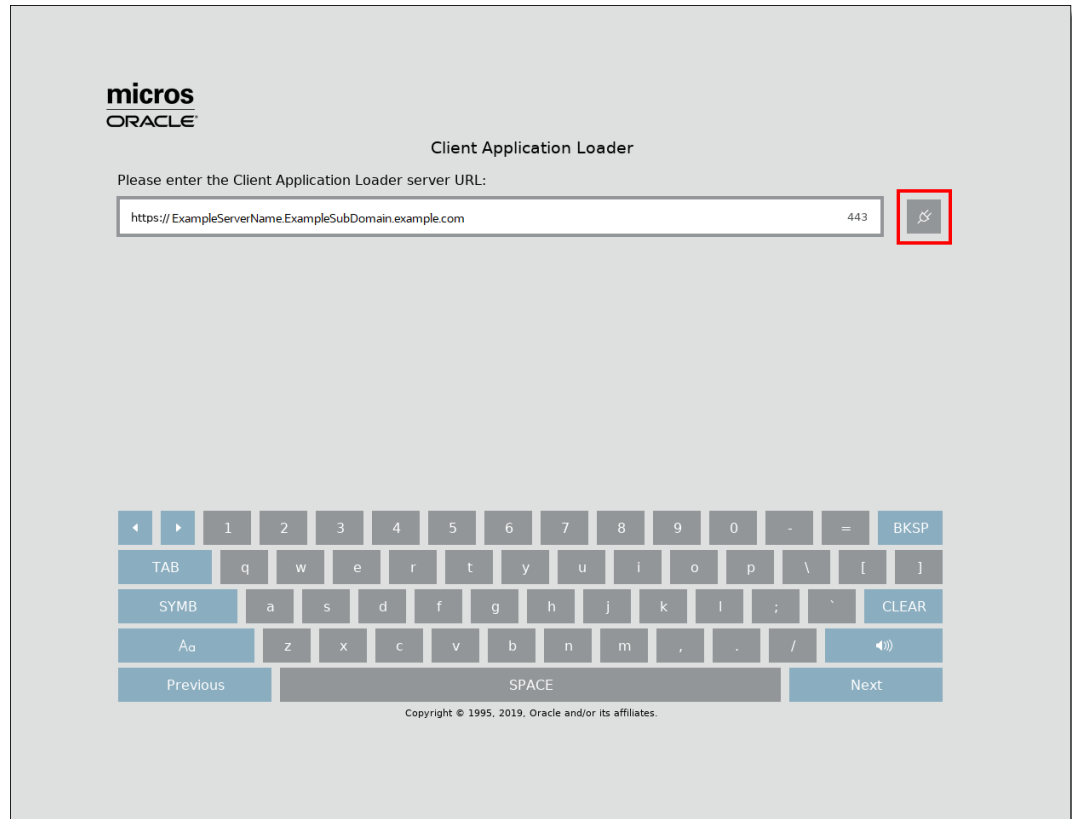
To install the Client Application Loader (CAL) on Linux workstations, see [Using the On-screen Keyboard for Linux Devices](#) for instructions about using the touchscreen keyboard.

To install the CAL client on Linux devices:

1. Access the Linux device after the initial operating system setup steps.
USB keyboards are supported for CAL configuration, depending on the model of workstation being utilized.

2. Enter the Fully Qualified Domain Name (FQDN) URL of the Symphony CAL server. If using a port other than the default port number of 443, click the  icon adjacent to the CAL server URL field, enter the new port number, and then select the **Next** button. The system verifies the entered URL's connectivity, and if correct, the configuration screen advances.

Figure 8-1 CAL Configuration Window 1 – CAL Server URL and Port Number Entry



3. For Symphony Premium Cloud Service users, enter your EMC logon credentials in the **User Name** and **Your password** fields, and then click **Next**.

Figure 8-2 CAL Configuration Window 2 – Workstation Authentication for Symphony Premium Cloud Service Users

The screenshot shows a window titled "Workstation Authentication" with the "micros ORACLE" logo in the top left. It contains two input fields: "User Name" with the placeholder text "Example_Login_User_Name" and "Your password". Below each field is a small instruction: "This is the user name you use to log in to EMC" and "This is the password you use to log in to EMC" respectively. At the bottom of the window is a virtual keyboard with keys for numbers, letters, symbols, and navigation. The keyboard includes a "Previous" button on the left, a "Next" button on the right, and a "SPACE" key in the center. A copyright notice "Copyright © 1995, 2019, Oracle and/or its affiliates." is visible at the very bottom.

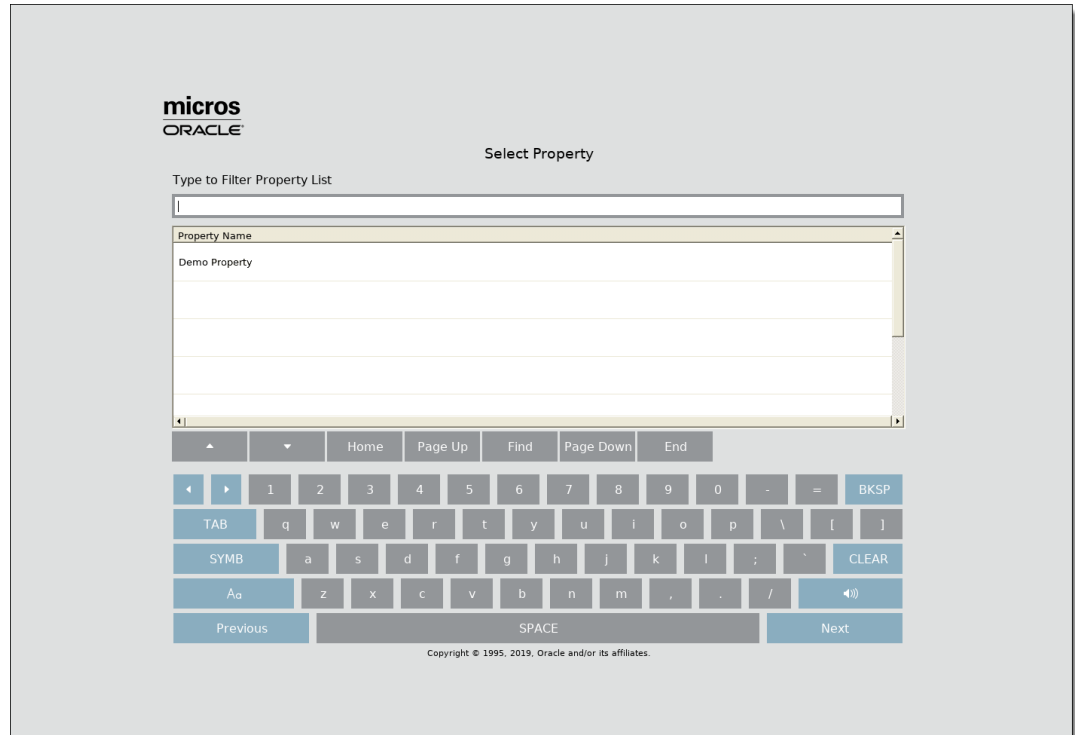
For Symphony Standard Cloud Service users, enter your EMC logon credentials in the **User Name** and **Your password** fields, enter your **Company** or **Organization** name, and then click **Next**.

Figure 8-3 CAL Configuration Window 2 – Workstation Authentication for Symphony Standard Cloud Service Users

4. Select (or tap) the **Property's** row associated with the workstation, and then click **Next**. The search for a specific property's name can be filtered using the **Type to Filter Property List** field.

When searching for a property, you can highlight a row and continue to search using the vertical scroll-bar. If you click the **Find** button, the previously highlighted row is auto-scrolled and returned to your view.

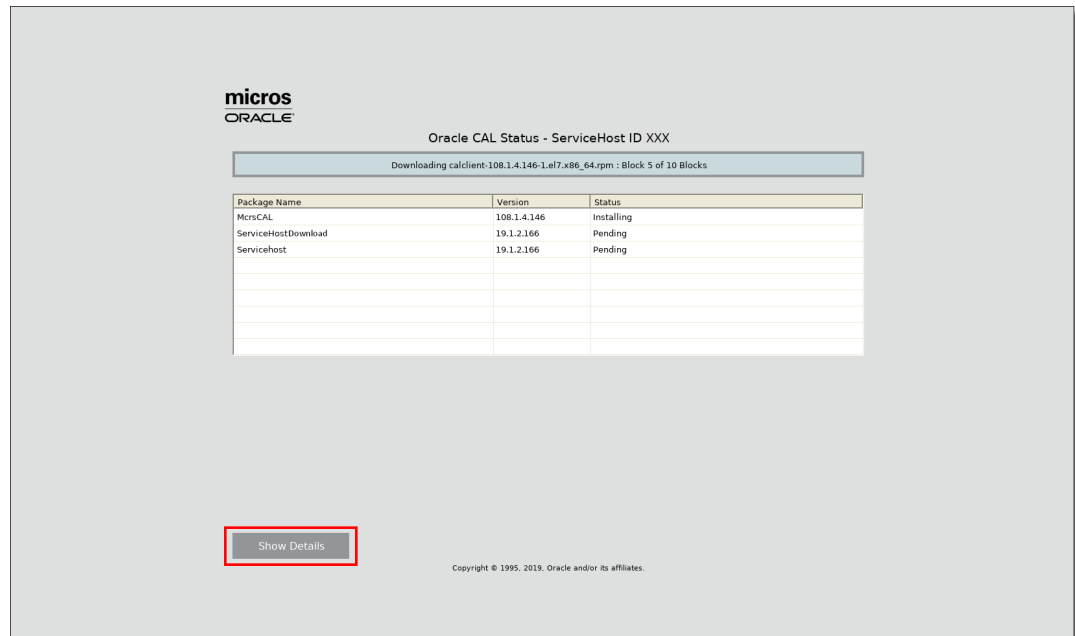
Figure 8-4 CAL Configuration Window 3 – Select Property



5. The **Workstation Identity** window is where you search for the workstation on which you want to install CAL. Once found, select (or tap) the workstation's row, and then click **Next**. The search for a specific workstation's name can be filtered using the **Type to Filter Workstation List** field.
6. The **Oracle CAL Status - ServiceHost ID XXX** window lists the CAL Packages scheduled for downloading to this workstation, and automatically begins doing so. Package downloads continue without further configuration and the status bar shows details of the ongoing download and installation progress. After the last file has been transferred and installed, the CAL configuration window closes, and the Symphony ServiceHost starts. Moving forward, the workstation is now fully operational.

The **Show / Hide Details** button, in most cases is not needed, but could be used for troubleshooting purposes.

Figure 8-5 CAL Configuration Window 4 – Oracle CAL Status - ServiceHost ID XXX



Using the On-screen Keyboard for Linux Devices

To configure the workstation or install CAL on Linux workstations, see [Installing the CAL Client on Linux Devices](#) for instructions about installing CAL on Linux devices.

USB keyboards are supported for CAL configuration, depending on the model of workstation being used.

Here is a list of configuration and navigational keyboard buttons (and their functionality) located on the first two CAL configuration windows (**Client Application Loader** and **Workstation Authentication** screens):

- The  icon adjacent to the CAL server URL field allows you to change the default port number (443).
- The **BKSP** button is the equivalent of the **Backspace** button on conventional keyboards.
- The keyboard directional arrows, , allow you to backspace or forward space when entering characters within text entry fields.
- Click the **Previous** or **Next** buttons to switch between configuration screens.
- The **Aa** button is the equivalent of **Shift** keys on conventional keyboards (designating upper or lower case letters).
- The  button enables a beep that is emitted when buttons are selected while configuring CAL on the device. This button has no affect on sounds emitted while the device is running Symphony operations.
- The **SYMB** button allows for the entry and use of special characters that are widely utilized for user passwords.
- The **CLEAR** button empties the entry field of previously entered text.

Figure 8-6 CAL Configuration Window 1 – CAL Server URL and Port Number Entry

The screenshot displays the 'micros ORACLE' logo at the top left. Below it, the title 'Client Application Loader' is centered. A prompt 'Please enter the Client Application Loader server URL:' is followed by a text input field containing 'https:// ExampleServerName.ExampleSubDomain.example.com'. To the right of the input field is a port number field with '443' and a small icon. Below the input fields is a virtual keyboard with buttons for navigation (left, right), numbers (1-0), letters (q-w, e-r, t-y, u-i, o-p, \-[,], a-s, d-f, g-h, j-k, l-;, ' `), and symbols (Aa, z-x, c-v, b-n, m-, ., /, <=>). At the bottom are 'Previous' and 'Next' buttons. A copyright notice 'Copyright © 1995, 2019, Oracle and/or its affiliates.' is at the very bottom.

micros
ORACLE

Client Application Loader

Please enter the Client Application Loader server URL:

Virtual Keyboard:

- Row 1: Left Arrow, Right Arrow, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, -, =, BKSP
- Row 2: TAB, q, w, e, r, t, y, u, i, o, p, \, [,],
- Row 3: SYMB, a, s, d, f, g, h, j, k, l, ;, ', CLEAR
- Row 4: Aa, z, x, c, v, b, n, m, , ., /, <=>
- Row 5: Previous, SPACE, Next

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Figure 8-7 CAL Configuration Window 2 – Workstation Authentication

micros
ORACLE

Workstation Authentication

User Name
Example_Login_User_Name
This is the user name you use to log in to EMC

Your password
This is the password you use to log in to EMC

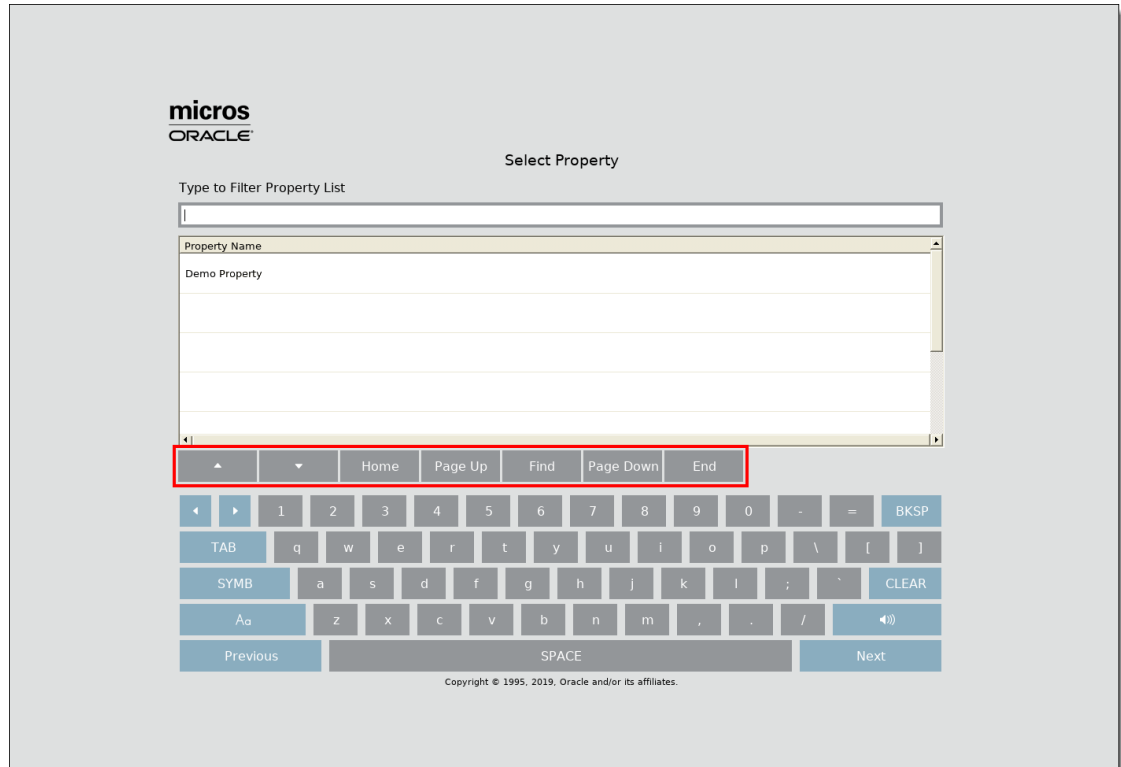
Virtual Keyboard Buttons:
 Row 1: Left Arrow, Right Arrow, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, -, =, BKSP
 Row 2: TAB, q, w, e, r, t, y, u, i, o, p, \, [,]
 Row 3: SYMB, a, s, d, f, g, h, j, k, l, ;, ', CLEAR
 Row 4: Aa, z, x, c, v, b, n, m, ,, ., /, >>
 Row 5: Previous, SPACE, Next
 Copyright © 1995, 2019, Oracle and/or its affiliates.

Here is a list of configuration and navigational keyboard buttons (outlined below) located on the **Select Property** search window.

Moving from left to right, the buttons function as follows:

- **Up Arrow:** Moves one line up on the list.
- **Down Arrow:** Moves one line down on the list.
- **Home:** Returns you to the top line of the list.
- **Page Up:** Depending on the number of listed properties, this button pages up (without having to use the vertical scroll-bar).
- **Find:** When searching for a property, you can highlight a row and continue to search using the vertical scroll-bar to continue your search. If you click the **Find** button, the previously highlighted row is auto-scrolled and returned to your view.
- **Page Down:** Depending on the number of listed properties, this button pages down (without having to use the vertical scroll-bar).
- **End:** Moves you to the bottom line of the list.

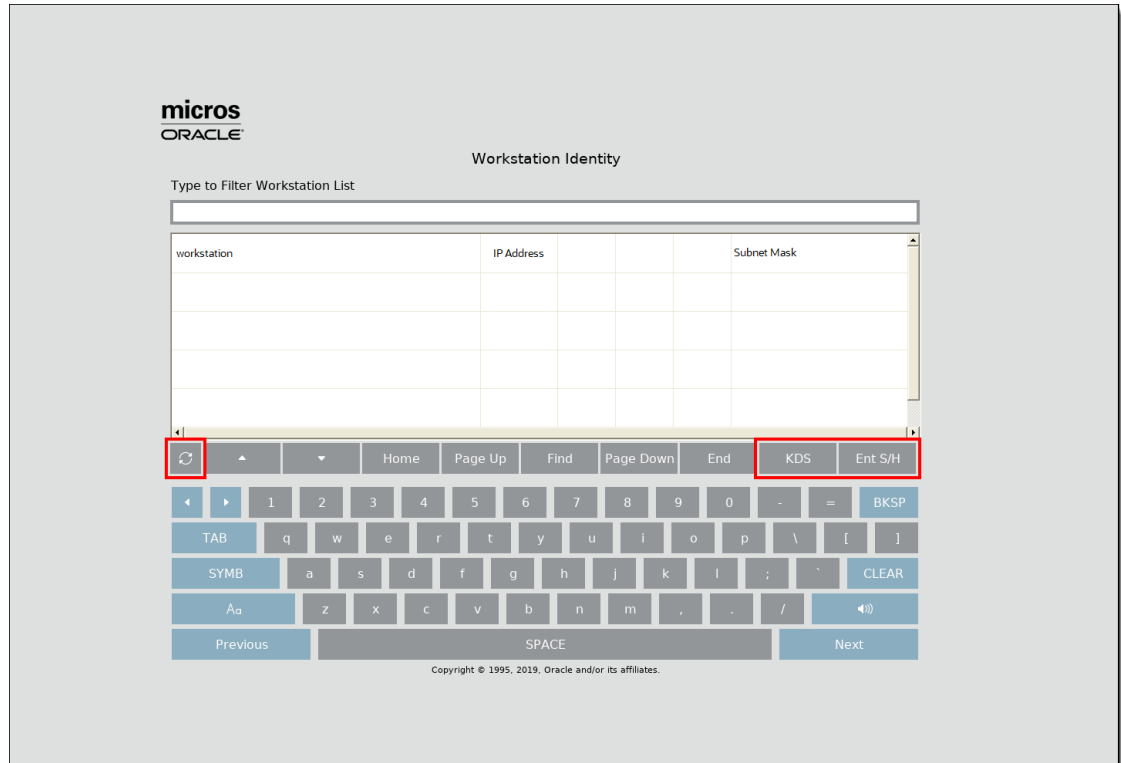
Figure 8-8 CAL Configuration Window 3 – Select Property



The **Workstation Identity** window contains all of the buttons described above, as well as three additional buttons. They are listed here:

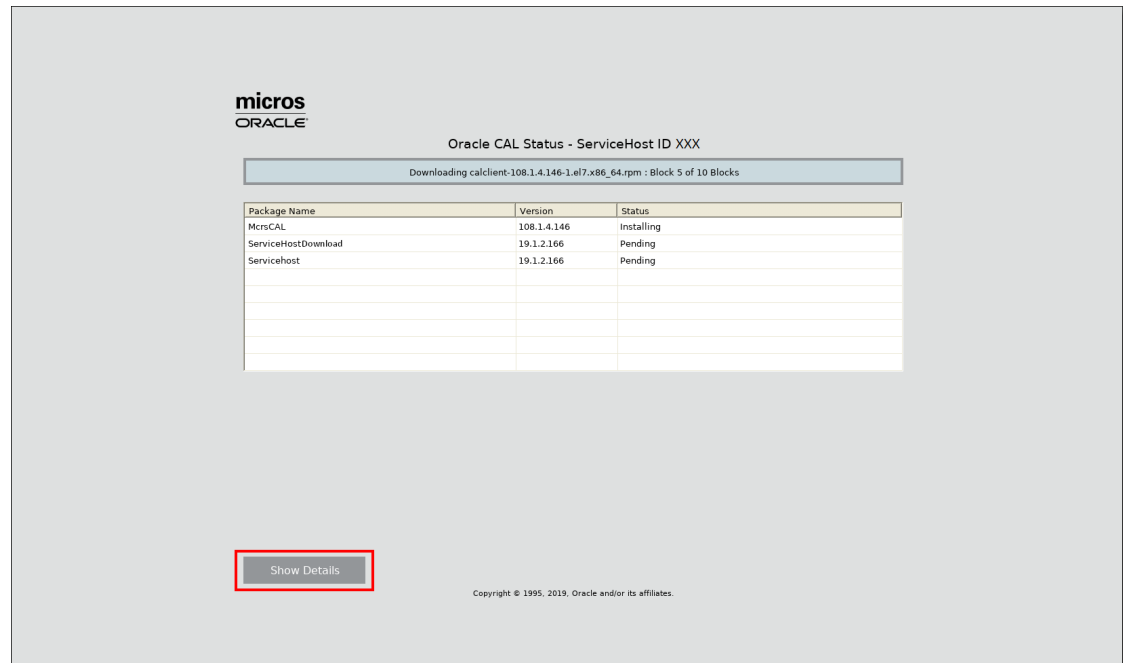
- The  refresh button can be selected to update the current workstation list based on recent edits or insertions of workstations in the Symphony EMC.
You need to resolve workstation configuration errors in the Symphony EMC before continuing and selecting a workstation on the list.
- **KDS**: Only shows configured Kitchen Display System (KDS) displays.
- **Ent S/H**: Only shows Enterprise Service Hosts.

Figure 8-9 CAL Configuration Window 4 – Workstation Identity List



The Oracle CAL Status - ServiceHost ID XXX window lists the CAL Packages scheduled for downloading to this workstation, and automatically begins doing so.

The **Show / Hide Details** button, in most cases is not needed, but could be used for troubleshooting purposes.

Figure 8-10 CAL Configuration Window 5 – Oracle CAL Status - ServiceHost ID XXX

Updating CAL Client Workstations

1. The workstation periodically checks for application updates.

Prerequisite software is pre-loaded in a local directory on new Oracle MICROS workstations, rather than downloading the prerequisite software from the Enterprise through CAL. This reduces the time between opening a new Oracle MICROS workstation and signing in to the Symphony POS client for the first time. In addition, a CAL package is only transferred if the client workstation is not on the most current version.

2. The CAL installs the packages according to the deployment order specified in the EMC. The workstation might restart several times.

POS Clients Running Android Mobile Operating System

You can run Symphony on devices that have the Android mobile operating system. The Symphony POS client operates in a similar way on an Android mobile device and on a Microsoft Windows device. You can configure the POS client using the EMC.

The UI is the same on all devices and workstations. Android devices have special requirements to consider, including deployment method, configuration requirements, and the procurement process.

Allowing Employees to Access the CAL Admin Page on Android Devices

The MICROS CAL Admin page allows operators to perform administrative operations such as whitelist device applications, exit the CAL launcher, and access all applications installed on the device. After installing Symphony, only privileged operators are allowed to access this page.

1. Select the Enterprise level, click **Configuration**, and then click **Roles**.
2. Double-click the role type record (for example, administrator or manager).
3. Click the **Operations** tab, and then click the **Miscellaneous** subtab.
4. Select **10064 - Can Access CAL Admin Application** in the Miscellaneous options section, and then click **Save**.

Installing CAL on the Android Device

You must first install or upgrade to the latest Android CAL version to successfully use Android ServiceHost.

You must ensure that you have the privileges assigned to you to access, download, and install the Android ServiceHost CAL on clients. See [Allowing Employees to Install and Authenticate POS Clients and Service Hosts](#) for information about configuring the privileges.

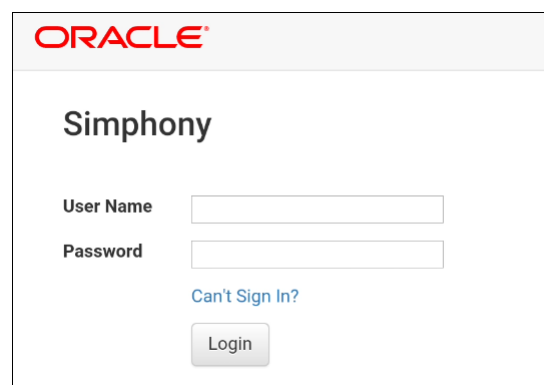
You must also schedule and execute a CAL Package deployment for your Android devices. [Configuring the Deployment Schedule to Install CAL on Workstations](#) contains more information on deploying CAL packages.

When working with Android devices that have version 5.0 and later, Symphony requires you to ensure that data encryption and a lock mechanism is enabled on the device that prevents unauthorized people from accessing it. To protect your Android device, configure a Personal Identification Number (PIN) by accessing the device's **Settings**, select **Security**, and then select **Encrypt Device**. This requires users to provide a PIN before they can start the Android ServiceHost (POS Client).

1. To initiate a CAL installation on an Android device with Symphony version 18.2 or later:
 - a. Open a web browser on the Android device, and then enter the following address: `https://[Fully Qualified Domain Name]:[Port]/SimphonyApp` to access the Symphony Web Portal (SWP).
 - b. Enter your Symphony EMC **User Name** and **Password**, and then press the **Login** button.

If you are running a Symphony Standard or Premium Cloud Service environment, enter the **Organization** name or **Organization Short Name** in the **Org** (or sometimes the **Company** field), and then press **OK**.

Figure 8-11 SWP Sign In Window



ORACLE®

Symphony

User Name

Password

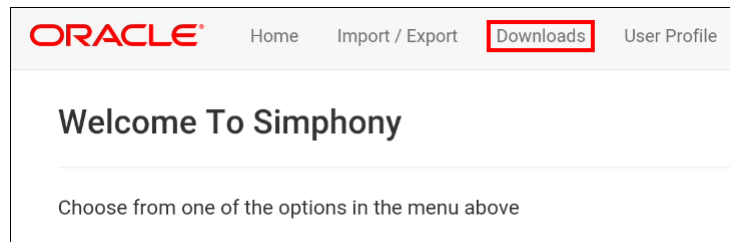
[Can't Sign In?](#)

Login

After performing an upgrade to, or a fresh installation of Symphony release 18.2 or later, when using Android devices, you must first configure your EMC logon Security Questions from a Win32 device before attempting to recover your lost password using the **Can't Sign In** link from an Android device. The *Oracle Hospitality Symphony Security Guide* contains more information about configuring security questions.

- c. Select **Downloads**.

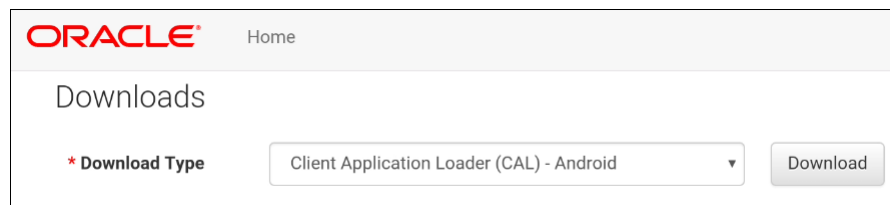
Figure 8-12 SWP Downloads Link



If you are using an Android device with the pre-installed Chrome browser, the SWP home page may not show the menu options in portrait view. To work around this issue:

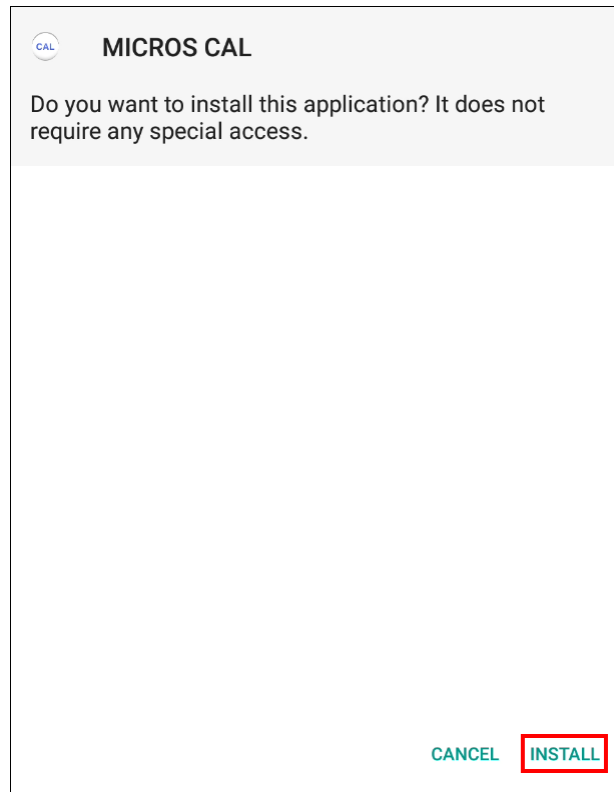
- i. Go to the SWP at: `https://<ServerName>:<Port>/SymphonyApp/Download/AndroidCAL`.
- ii. Log in if prompted, and then download the CAL **setup.apk** file on the Android device.
- d. Select **Client Application Loader (CAL) - Android** from the **Download Type** drop-down list, and then click the **Download** button.

Figure 8-13 SWP Downloads Page



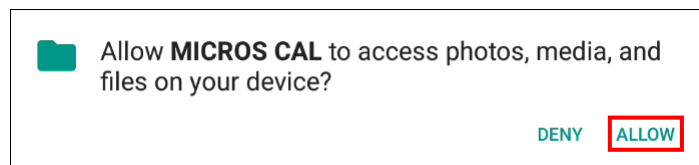
- e. If prompted on the Android device, select the device's **Package Installer** or local application for Android file installation, and then tap **Always**.
- f. If you receive a prompt for clearing instructions, tap **OK**.
- g. Tap **Install**. CAL installs and notifies you upon completion.

Figure 8-14 CAL Installation Window



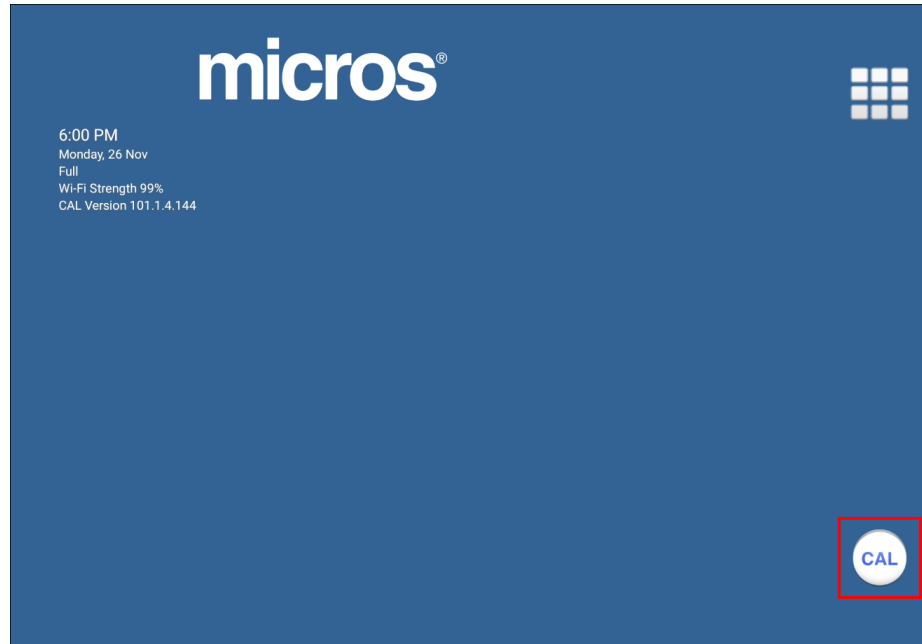
- h. When the application installation is complete, tap **Done**.
- i. Tap **Allow**.

Figure 8-15 CAL Access Options for the Device



- j. CAL starts automatically and then the device shows the CAL home page.
- k. Tap the **CAL** desktop icon.

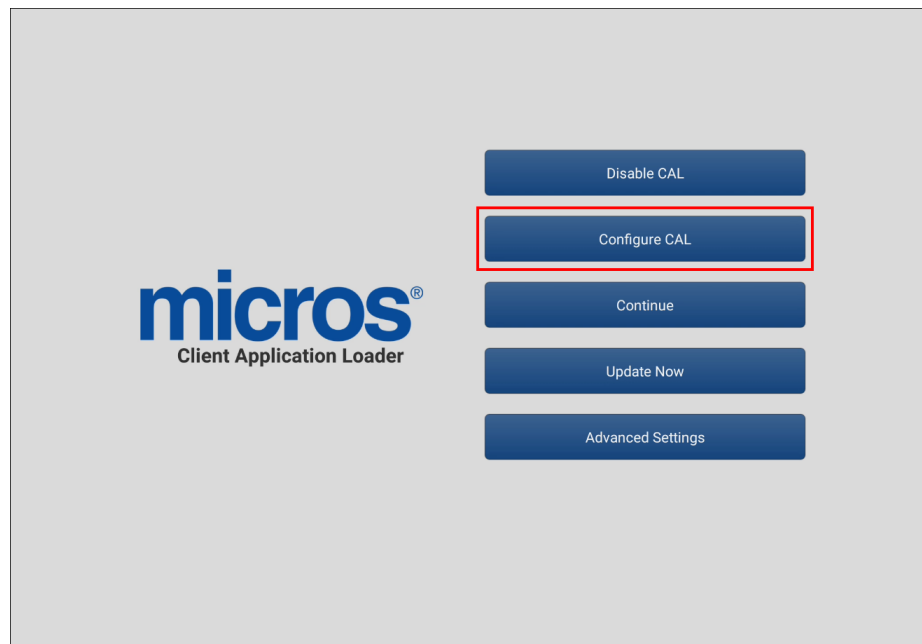
Figure 8-16 MICROS CAL Home Screen



See [Installing the Symphony Service Host on an Android Device](#) for more information on installing or upgrading the Service Host on an Android device.

2. To initiate CAL configuration on an Android device:
 - a. Tap the **CAL** shortcut from the Home screen, and then tap **Configure CAL**.

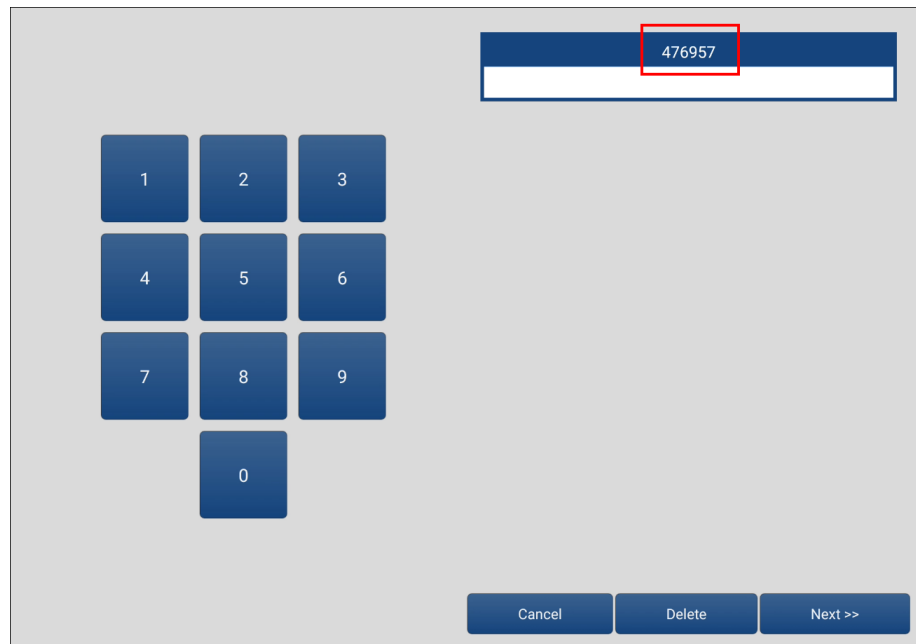
Figure 8-17 CAL Configuration Options Screen



- b. Enter the correct code based on the six-digit number shown at the top, and then tap **Next**.

Step 3 in [Changing the CAL URL](#) contains information about the code.

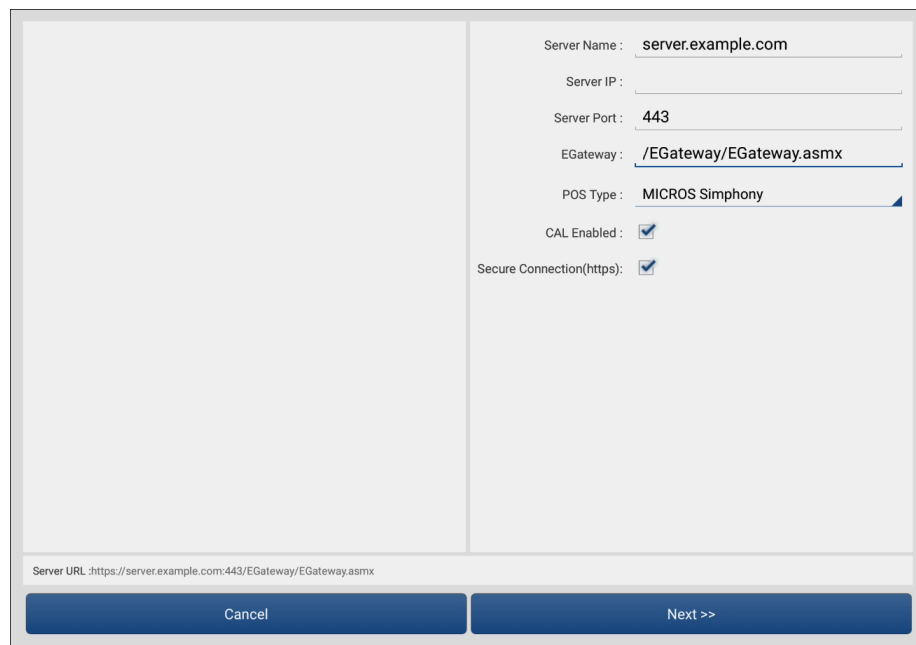
Figure 8-18 CAL Configuration Access Code



The screenshot shows a configuration screen for CAL. On the left is a numeric keypad with buttons for digits 1 through 9 and 0. On the right, there is a text input field containing the code '476957', which is highlighted with a red rectangular box. Below the keypad and the input field are three buttons: 'Cancel', 'Delete', and 'Next >>'.

- c. Enter the Enterprise server URL, and then configure the server settings as follows:

Figure 8-19 Symphony Server Identification Configuration for CAL



The screenshot shows the 'Symphony Server Identification Configuration for CAL' screen. It features a form with the following fields and controls:

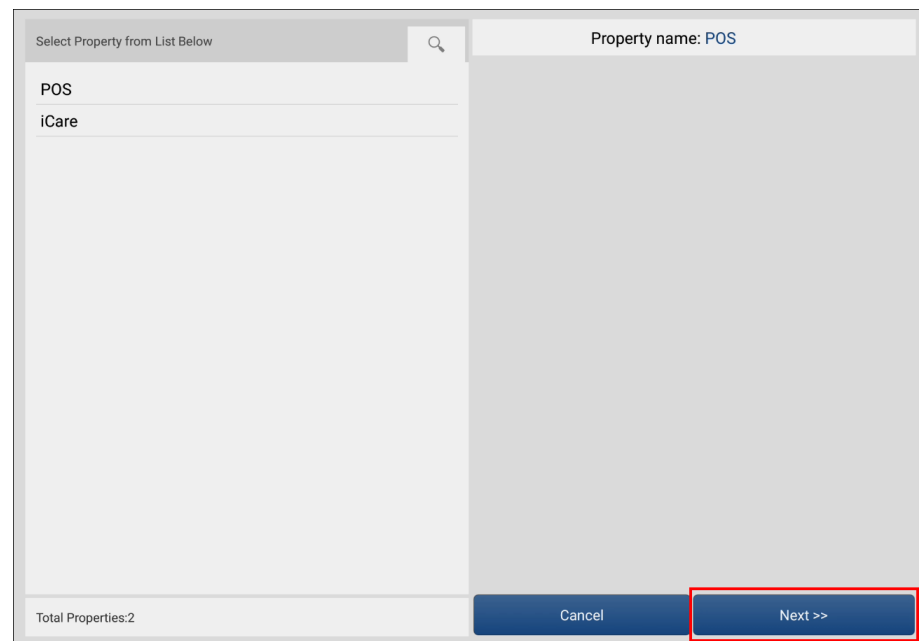
- Server Name :** server.example.com
- Server IP :** (empty field)
- Server Port :** 443
- EGateway :** /EGateway/EGateway.aspx
- POS Type :** MICROS Symphony
- CAL Enabled :** ☒
- Secure Connection(https):** ☒

At the bottom, there is a summary line: **Server URL :** https://server.example.com:443/EGateway/EGateway.aspx. Below this are two buttons: 'Cancel' and 'Next >>'.

- **Server Name:** Enter the server's Host Name

- **Server IP:** Enter the server's URL (Fully Qualified Domain Name).
 - **Server Port:** Enter **443**.
 - **EGateway:** Enter the EGateway URL.
 - **POS Type:** Select **MICROS Symphony**.
 - **CAL Enabled:** Enable this option
 - **Secure Connection (https):** Enable this option.
- d. Tap **Next**.
- e. Enter your Symphony EMC **User Name** and **Password** in the CAL Initial Authentication window, and then press **Login**. CAL performs its initial authentication.
- f. If you are running a Symphony Standard or Premium Cloud Service environment, enter the **Organization** name or **Organization Short Name** in the **Org** field, and then press **Login**.
- g. Select the correct property for the device, and then tap **Next** to continue. CAL returns a list of defined workstations for the selected property.

Figure 8-20 Select a Property Screen



- h. Tap the correct workstation for the device to populate the workstation information and tap **Save**.

Figure 8-21 Select a Workstation Screen

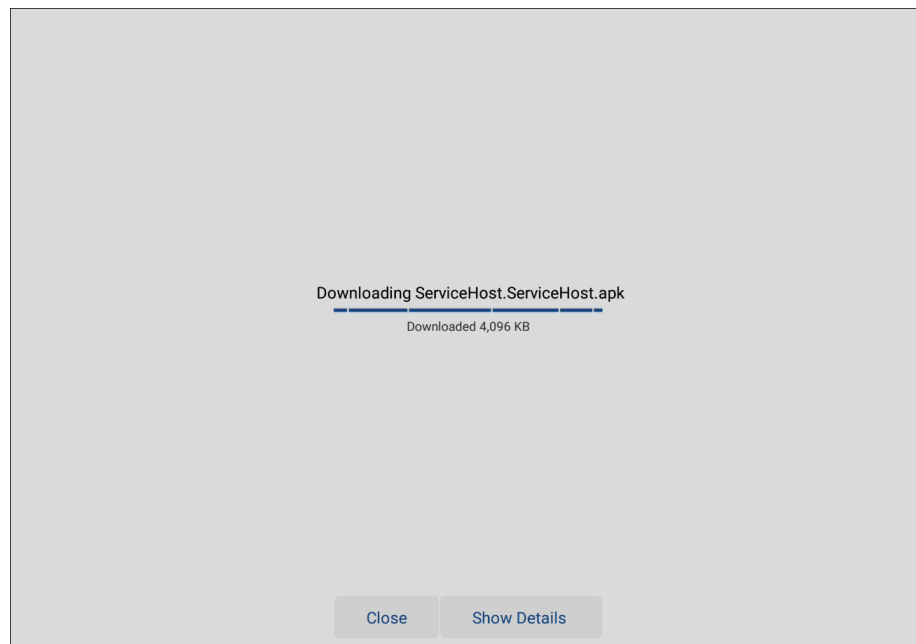
The screenshot shows a software interface for selecting a workstation. On the left, under 'Available Workstation List:', there is a search icon and a list of four workstations:

- Workstation1001**
IP Address: XXX.X.X.XXX
In Use: No WS Id: 1081 SH ID: 1197
- Workstation1002**
IP Address: XXX.X.X.XXX
In Use: No WS Id: 1082 SH ID: 1198
- Workstation1003**
IP Address: XXX.X.X.XXX
In Use: No WS Id: 1083 SH ID: 1199
- Workstation1004**
IP Address: XXX.X.X.XXX
In Use: No WS Id: 1084 SH ID: 1200

Below the list are two checkboxes: 'Show Service Hosts' and 'Show KDS'. On the right, the 'Workstation Identity' section contains fields for 'UWS Name' (set to 'Workstation1001'), 'IP Address', 'Net Mask', and 'Def. Gateway'. Below these are two dropdown menus: 'Workstation ID' (set to '1081') and 'Service Host ID' (set to '1197'). At the bottom right, there are 'Cancel' and 'Save' buttons, with the 'Save' button highlighted by a red rectangular box.

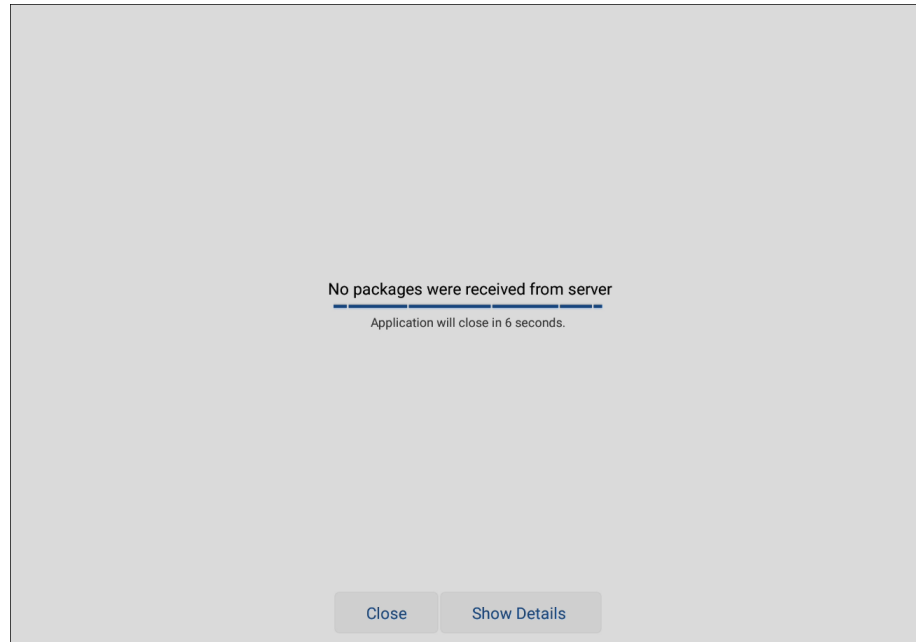
- i. If you have already scheduled an Android ServiceHost CAL package deployment, this screen shows:

Figure 8-22 Android ServiceHost CAL Package Download Screen



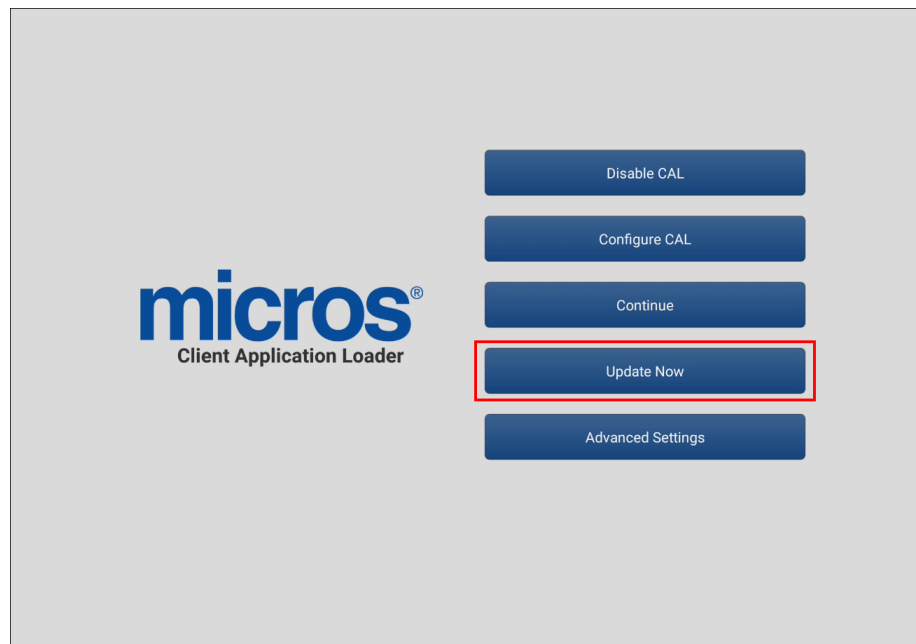
If you have not scheduled and deployed the Android ServiceHost CAL package, you see this screen:

Figure 8-23 Android ServiceHost CAL No Packages Download Screen



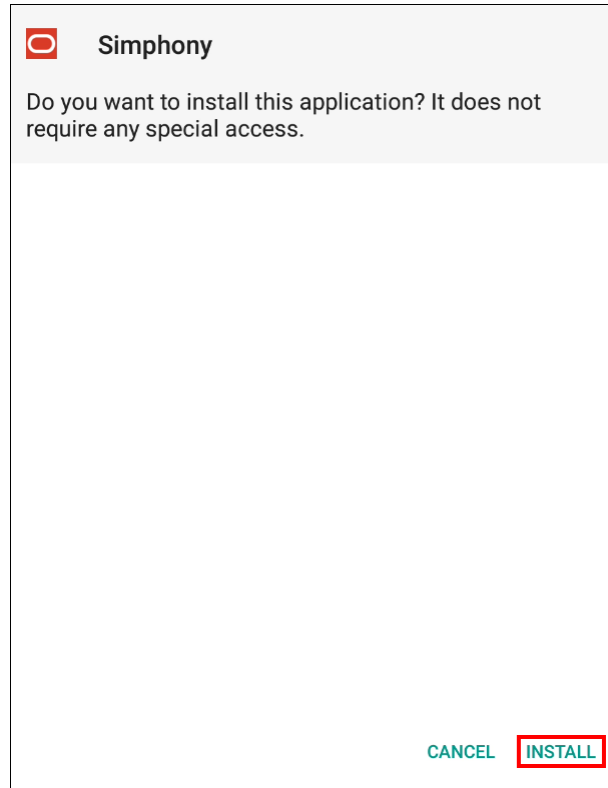
If you subsequently schedule and deploy the Android ServiceHost CAL package, you might see the following screen. If so, tap the **Update Now** button.

Figure 8-24 CAL Configuration Options Screen



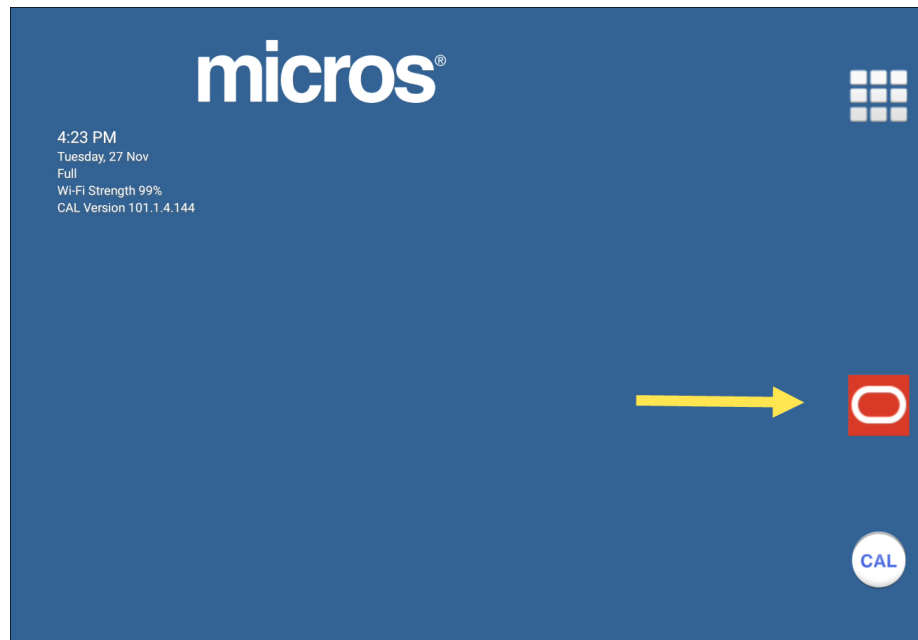
- j. Once the CAL package download completes, you are prompted to install the Symphony application. Tap **Install**.

Figure 8-25 Simphony Application Installation Screen



- k. When the installation of the Simphony application is complete, tap **Done**. The installation generates a Simphony desktop icon on the device's CAL home screen.

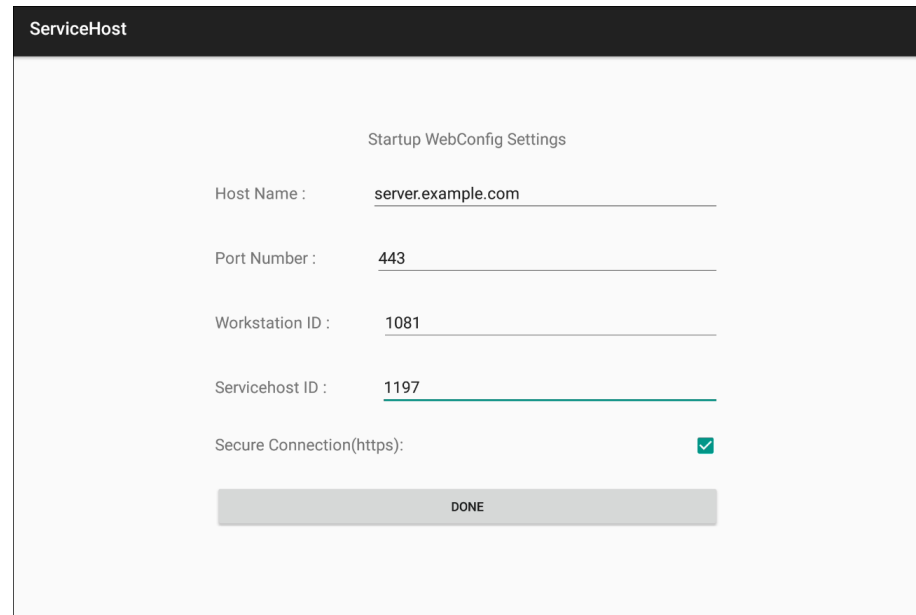
Figure 8-26 MICROS CAL Home Screen - Simphony Desktop Icon



 Note:

If you tap **Open** you are required to manually configure your Android ServiceHost again.

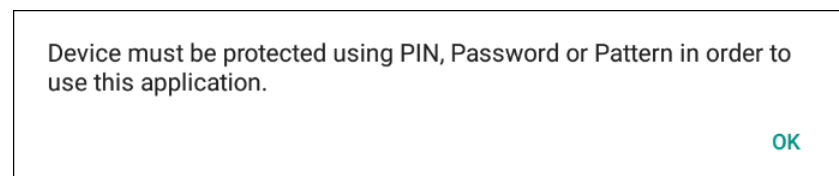
Figure 8-27 Android ServiceHost Manual Configuration Screen



- i. As previously stated, Android devices (Android version 5.0 and later) and Symphony requires you to ensure that data encryption and a lock mechanism is enabled on the device. If no such locking mechanism (PIN) has been configured, you receive this prompt message:

Tap **OK** to continue.

Figure 8-28 Android Lock Mechanism Requirement Reminder



- m. Enter your Symphony EMC **User Name**, and then press **OK**.
- n. Enter your Symphony EMC **Password**, and then press **OK**.

Deploying an Android client to a device requires you to enter your EMC authentication credentials twice. The second time authenticates the ServiceHost and then Operations starts on the device.

Installing the Symphony Service Host on an Android Device

Starting with a fresh installation of Symphony release 19.3.1 or later, you can perform POS client installation on an Android device using the Service Host APK. You do not need to use

CAL to install, upgrade, or downgrade the Android Service Host. See the *Oracle MICROS Symphony Configuration Guide*, specifically **Installing the Android Service Host**, and **Upgrading and Downgrading the Android Service Host** for more information.

If you are upgrading a self-hosted system from Symphony release 19.3 or earlier to Symphony release 19.3.1 or later, you need to upgrade using the Android CAL client version 150 (or later if available) and complete the steps in this section.

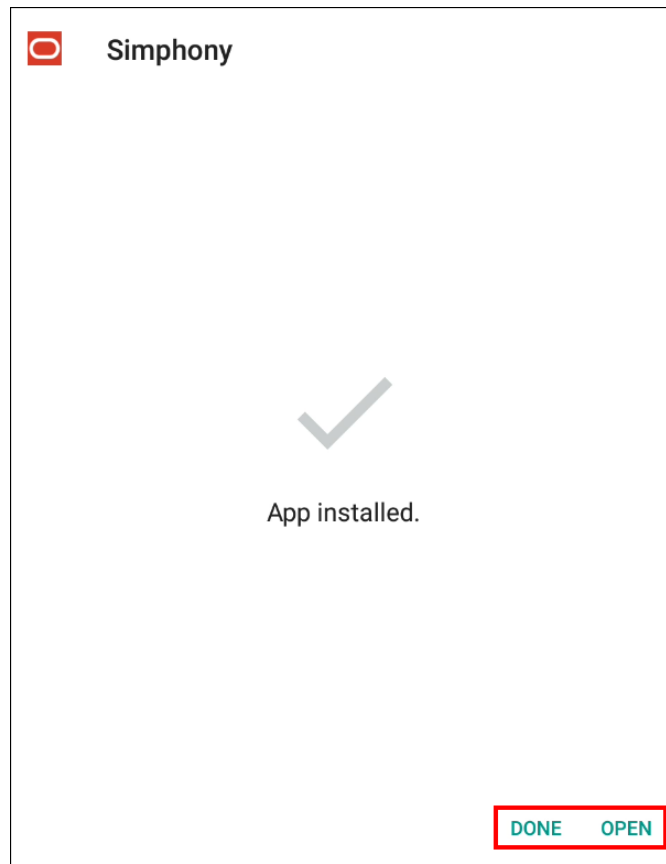
Ensure that you have the privileges assigned to you to access, download, and install the Android ServiceHost CAL on clients. See [Allowing Employees to Install and Authenticate POS Clients and Service Hosts](#) for information about configuring the privileges.

When working with Android devices (Android version 5.0 and later), Symphony requires you to ensure that data encryption and a lock mechanism is enabled on the device that prevents unauthorized people from accessing it. To protect your Android device, configure a Personal Identification Number (PIN) by accessing the device's **Settings**, select **Security**, and then select **Encrypt Device**. This requires users to provide a PIN before they can start the Android ServiceHost (POS Client).

1. Tap **Install**.
2. Tap **Open**.
3. Enter your Symphony EMC **User Name**, and then tap **OK**.
4. Enter your Symphony EMC **Password**, and then tap **OK**.

The following page appears:

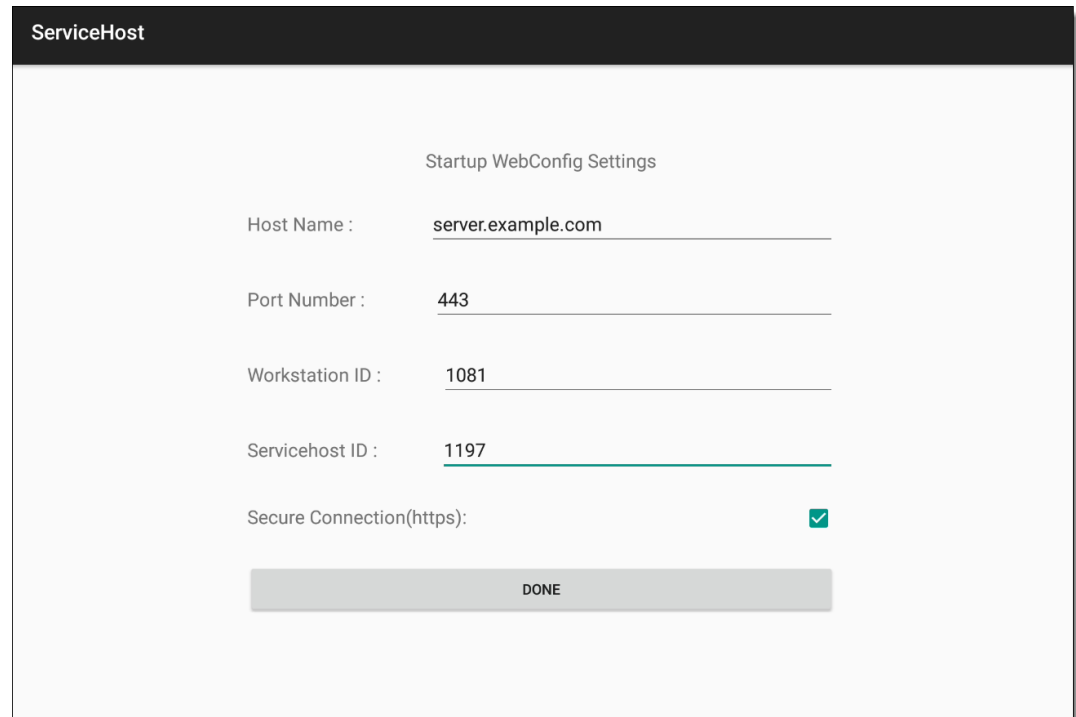
Figure 8-29 Android ServiceHost Install Confirmation



 Note:

If you are performing a fresh installation of the Android ServiceHost, click the **Done** button. Do not click the **Open** button. Wait for Android CAL to open the ServiceHost (approximately five seconds). If you accidentally press the wrong button in error, ServiceHost prompts you to manually configure the device with the page shown in the Android CAL ServiceHost Manual Setup figure.

Figure 8-30 Android CAL ServiceHost Manual Setup



ServiceHost

Startup WebConfig Settings

Host Name : server.example.com

Port Number : 443

Workstation ID : 1081

Servicehost ID : 1197

Secure Connection(https): ☒

DONE

Configuring the Service Host for CAPS Running as a Service on a Client

1. To configure the Service Host for a hosted Enterprise with Symphony Standard Cloud Service users:
 - a. Select the property level, click **Setup**, and then click **Workstations**.
 - b. Insert a new workstation record, and then double-click it to open in form view.
 - c. On the **General** tab, enter the host name of the remote server where CAPS will be configured in the **Address/Host Name** field.
 - d. Enter the **Subnet Mask** and the **Default Gateway** of the remote server where CAPS will be configured.
 - e. If you are configuring CAPS as a Windows Service, select **Is Windows Service**. Otherwise, skip this step.
 - f. Click **Save**.
 - g. Click the **Remove OPS From Service Host** link, and then click **Yes** to confirm.
2. To configure the Service Host for a hosted Enterprise with Symphony Premium Cloud Service users:

- a. Select the Enterprise level, click **Setup**, and then click **Service Hosts**.
 - b. Insert a new Service Host record, and then double-click it to open in form view.
 - c. In the **Host Name** field, enter the host name of the remote server where CAPS will be configured.
 - d. Enter the **Subnet Mask** and the **Default Gateway** of the remote server.
 - e. If you are configuring CAPS as a Windows Service, select **Is Windows Service**. Otherwise, skip this step.
 - f. Click **Save**.
3. Select the property, click **Setup**, and then click **Property Parameters**.
 4. Click the **Workstations** tab.
 5. From the Service Hosts section, select the CAPS Service Host created in Step 1 or 2, and then enter the **Port** number for CAPS configuration.
This Port is the unused port number and is different from the EGateway service port.
 6. Click **Save**.

CAL Installation Prerequisites for a Workstation Without the POS Interface (CAPS-Only Workstation)

Before installing CAL on a CAPS-only workstation, perform the following functions:

- Configure a service host for CAPS. [Configuring the Service Host for CAPS Running as a Service on a Client](#) contains more information.
- Assign the employee privilege to download software, install, and authenticate clients and Service Hosts using CAL.

Users must have the employee privilege assigned to the appropriate role to successfully authenticate workstations, Android devices, and Kitchen Display Systems (KDS). After installing or upgrading to Symphony release 2.9.1 or later, you must assign the privilege to a user's role. When the Role option is set, employees can use their EMC logon credentials when CAL'ing devices. [Allowing Employees to Install and Authenticate POS Clients and Service Hosts](#) contains more information on assigning the privilege.

- Set the CAL deployment schedule. [Configuring the Deployment Schedule to Install CAL on a Workstation Without the POS Interface](#) contains more information.

Configuring the Deployment Schedule to Install CAL on a Workstation Without the POS Interface

1. Select the Enterprise, click **Setup**, and then click **CAL Packages**.
2. Select **Service Host Prereqs** from the left pane for all POS clients.
3. Click the **Deployment Schedule** tab, and then click **Add Deployment**.
4. From the Deployment Type column, select **2 - Specific Service Host**.
5. In the Service Host column, click the ellipsis (...) point button, select the CAPS workstation, and then click **OK**.
6. In the Action To Take column, select **0 - Install**, and then click **Save**.
7. Select **Service Host** from the left pane, and then repeat Steps 4 through 7.

Installing CAL on a Workstation without the POS Interface

1. On the workstation, press **Start**, select **All Programs**, select **Micros Client Application Loader**, and then select **McrsCAL Config**.
2. Decipher and enter the correct access code, and then press the **Configure CAL** button.
3. Enter the correct code based on the six-digit number shown at the top, and then press **Next**.
4. In the Enter CAL Server dialog, select **MICROS Symphony** as the **POS Type**.
MICROS Symphony is used for both Symphony Standard and Premium Cloud Service environments.
5. Set the following values, and then press **Next**:
 - **Server Name**: Leave this field blank.
 - **Server IP/URL**: Leave this field blank.
 - **CAL Enabled**: Select this option if it is not automatically set by default.
 - **Secure Connection**: Select this option to use the Translation Layer Security (TLS) 1.2 Encryption protocol. (If you are installing CAL version 139 or later, this option is set by default.)
 - **Server**: Enter the CAPS server name.
 - **Port**: Enter 443.
 - **Update**: Click the **Update** button to automatically fill the **Server Name** and **Server IP/URL** fields after the application server name is resolved and recognized. You are now required to use an HTTPS secure connection in your Server URL.
6. If you are installed on a Symphony Standard or Premium Cloud Service environment, CAL prompts you to enter your Symphony EMC logon credentials. Enter your **User** name and **Password** in the CAL Authentication dialog, and then press the **Login** button.
7. If the Enterprise has multiple properties, select the property from the Property Search and Select dialog, and then press **Next**.

If the property does not appear in the list, enter the property name in the **Property Name** field, and then press **Search**.

You do not see a property list if only one property is configured or if there are multiple properties, but only one property is using workstations.
8. In the Select WS Identity dialog, select the **Show Service Hosts** option, select the appropriate service host from the available workstation list, and then press **Save**. Make sure the Service Host ID and Workstation ID populate. The workstation automatically restarts several times when installing the CAL package.

Figure 8-31 Select Workstation Dialog

ORACLE | MICROS CAL - Select WS Identity

Workstation Identity

UWS Name:

IP Address:

Net Mask:

Def. Gateway:

Automatic DHCP Configuration ☐

Application Root

C:\Micros\Simphony\

Select Workstation ID

xxx

Service Host ID

xxx

Show Service Hosts ☒

Show KDS ☐

Available Workstation List:

UWS Name	IP Addr	InU...	WS I	SH Id
		N	401	417
		N	381	397
		N	403	419
		N	402	418
		N	461	477
		N	2	0
		N	63	0
		N	22	0
		N	65	0

Show Keyboard

9. After the CAL process completes:
 - a. Browse to [Drive letter]:\MICROS\Simphony\webserver, and then click **AuthenticationServer**.
 - b. Enter the following details in the Authentication Server application:
 - **Service Host ID:** The service host ID. This value is automatically populated.
 - **EMC Username:** Enter your EMC user name.
 - **EMC Password:** Enter your EMC password.

Figure 8-32 Authentication Server Application

The screenshot shows a web application titled "Authentication Server" on a blue background. It contains several input fields and two buttons. The "Application Server EGateway URL" field is pre-filled with "https://" and has a "Valid" status indicator in green text to its right. The "Service Host ID" field contains the number "1001". The "EMC Username" and "EMC Password" fields are empty. To the right of these fields are two buttons: "Authenticate" and "Show Keyboard".

Field/Label	Value/Status
Application Server EGateway URL	https:// Valid
Service Host ID	1001
EMC Username	
EMC Password	
Authenticate Button	Authenticate
Show Keyboard Button	Show Keyboard

- c. Click **Save**.
- d. Click **Authenticate**.
- e. Restart the workstation.

9

Pre-Upgrade Checklist

(Optional) Print this page to help plan and prepare for upgrading.

For complete details, see [Planning and Considerations](#).

Pre-Upgrade Checklist:

- Verify Supported Technology and Devices
- Verify Security Policy Compatibility
- Verify adequate disk space exists on the workstations
- Verify all checks have been closed and replayed
- Launch to test environment
- Prepare for and schedule downtime
- Check the network constraints on the day of the install
- Verify latest Microsoft Windows and SQL Express updates are installed
- Verify the CAL Package deployment schedule expiration date
- Verify access to your Enterprise Management Console (EMC)
- Verify Employee Privilege to download and install updates
- Write down your Symphony server name
- Write down your Check and Posting Service (CAPS) client name
- Test normal operations

10

Post-Upgrade Checklist

(Optional) Print this page to help plan and prepare for upgrading.

For complete details, see [Planning and Considerations](#).

- Verify that all workstations are running the expected software release versions
- Verify that all workstations are running the same Symphony client version
- Test normal operations

Windows Advanced Configuration Settings for CAL

File transfer settings normally do not need to be changed, except in the case of very low available bandwidth.

By default, the CAL client takes a best effort approach to transferring files from the Symphony application server as quickly as possible. Files are transferred from the application server in blocks and these blocks are assembled into a complete file at the client.

Default Bandwidth Requirements

- **Minimum:** 8.5KB/sec per client. The CAL client expects the application server to respond to each file block request within 60 seconds (512KB / 60sec = 8.5KB/sec). Prior to CAL client 146, the package installation fails when this minimum cannot be met.
- **Maximum:** None imposed by the CAL client. External factors, such as network latency and bandwidth between the application server and workstation, influence the maximum rate of transfer.

Configuration

Configuration settings are available for tuning file transfers to specific customer network environments. These registry configuration settings are available in Windows CAL 148 under the key `HKEY_LOCAL_MACHINE\Software\Microsoft\CAL\Config`. This is a client setting, so an administrator must add the following registry values:

- **FileTransferBlockSize: DWORD:** Controls the block size for each request to the application server. If not present, the default 512kb is assumed. The minimum value is 1024 (1kb).
- **FileTransferTimeout: DWORD:** Controls the maximum time (seconds) that CAL waits for a response from the application server before considering the transfer a failure. If not present, a default of 60 seconds is assumed.
- **FileTransferMaxBlocksPerSec: DWORD:** Controls the maximum number of file block requests that the CAL client sends to the application within a second.

Example Throttling File Transfers to 8kb Per Second

This can be done in a custom CAL package by adjusting the following in the setup.dat file:

1. Set 'FileTransferBlockSize' to 8192
2. Set 'FileTransferMaxBlocksPerSec' to 1

Figure 11-1 Setup.dat Example

```
VERSION,1.0.0.0,  
NAME,CalThrottler
```

1. 1. Registry settings - CAL File Transfer
SETREGISTRYDWORD, SOFTWARE\MICROS\CAL\Config,FileTransferBlockSize, 8192,
SETREGISTRYDWORD, SOFTWARE\MICROS\CAL\Config,FileTransferMaxBlocksPerSec, 1,

Android Device Workstations

The following topics review configuring your Android device as a workstation.

**Note:**

- Android devices only operate the Symphony POS client application and cannot host shared services that other devices might access.
- Android devices do not support the Check and Posting Service (CAPS). Therefore, the property must use at least one device with a Microsoft operating system in addition to the Android device.

The *Oracle Food and Beverage Compatibility Matrix* contains information about the supported services for Android devices.

Configuring an Android Workstation

Perform the following tasks before installing the Symphony software:

- Configure the Android device to be a member of the POS network using a static Internet Protocol (IP) address.
- Install antivirus software on the device.
- Turn off Trusted Sources on the device. See the manufacturer instructions for details.

Complete the following device configuration steps:

1. Sign in to the EMC and select the property, click **Setup**, and then click **Workstations**.
2. Insert a new workstation record.
3. Double-click the record to open it in form view.
4. Enter information in the workstation configuration fields, and set the **Type** as **6 - Tablet Client**.

If you are configuring a Motorola MC40 device, set the **Type** as **1 - Mobile**.

5. Enter the Internet Protocol (IP) address or host name of the Service Host where the workstation application runs in the **Address/Host Name** field.
6. Click the **Options** tab, and then click the **Display/Security** subtab.
7. Select **39 - Floating Tablet**.
8. (Optional) If you are using a printer with the Android device, set the printer from the **Printers** module.

See **Configuring a Printer** in the *Oracle MICROS Symphony Configuration Guide* for more information.

9. Click the **Revenue Centers** tab, and then assign the device to a revenue center.

Starting with the Symphony 19.5 release, you can assign multiple revenue centers (1–8) to some Android devices. The Castles Tech S1F2 device remains limited to having one revenue center assigned when configuring the device in the EMC.

The *Oracle Food and Beverage Compatibility Matrix* contains more information about the supported services and functionality for devices running specific versions of the Android mobile operating system.

10. Click **Save**.

 Note:

Idle workstations running the Android mobile operating system, now ping the enterprise every 4 minutes (which is the default setting) to relay their POS to Cloud connectivity status and current state. This relayed information aligns with Telemetry reports.

Installing the Android Service Host

The Symphony Android Service Host Android Package Kit (APK) is a package file used to distribute and install the service host application software on a device running the Android operating system.

- Starting with Symphony version 19.3.1, you do not need to use CAL to install, upgrade, or downgrade the Android Service Host. This section describes the steps required to install the Android Service Host using Symphony version 19.3.1 and later.

 Important:

- Starting with Symphony version 19.3.1, access the EMC, select the property, click **Setup, Workstations, Options** tab, and then select the **Hardware/Cash Drawer** tab. Under the Hardware/Cash Drawer section, ensure option **68 - Third Party Managed Device** is disabled (which is the default setting) for each Android workstation. This does not apply to Castles Tech S1F2 devices.
 - All of your Android workstations and tablets must be configured in the **Workstations** module using the **6 - Tablet Client** setting as the **Type**. This does **not** include **7 - Castles Tech S1F2** devices.
- If you are using Symphony version 19.3 or earlier, you need to use CAL to install or upgrade the Android Service Host. See the *Oracle MICROS Symphony Client Deployment Guide* specifically, **Installing CAL on the Android Device**, for instructions to install the Android Service Host using Symphony version 19.3 or earlier.

Install the Symphony Android Service Host APK for the first time on a new Android device. Login credentials are required for the Symphony EMC and the device in order to install the Android Service Host for the first time.

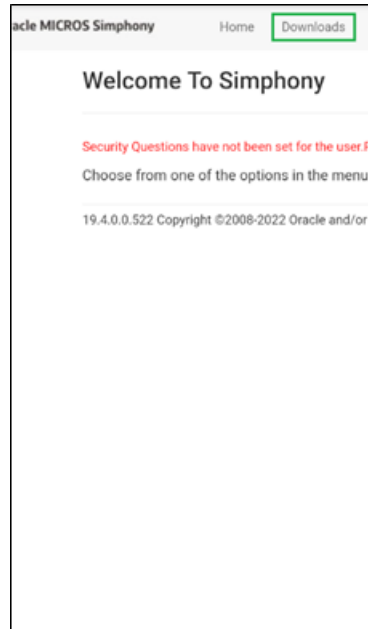
To install the Android Service Host on Symphony 19.3.1 and later:

1. Ensure the CAPS client is running the latest Symphony version available for your enterprise. This must be verified and/or upgraded before installing the Symphony Android Service Host APK on your device.

2. In the EMC, select the property, click **Setup**, and then click **Workstations**.
3. Click the insert icon

on the toolbar.
4. Enter the Android device name, and then click **OK**.
5. Double-click the new Android device record.
6. On the **General** tab, select one of the following in the **Type** drop-down list:
 - **1 - Mobile**
 - **6 - Tablet Client**
 - **7 - Castles Tech S1F2**See [Adding a Workstation](#) for more information.
7. Enter the IP address for the device in the **Address / Host Name** field.
8. Click the **Options** tab, click the **Offline/Misc** subtab, and then enable the following options:
 - **17 - Allow Offline Operations**
 - **45 - Exclude this Workstation from EMC Module Version Validations**
9. Click **Save**.
10. Using the device on which you want to install Android Service Host, access the Symphony Web Portal (SWP) by opening a web browser and entering the following address: `https://[ServerName]/SymphonyApp`.
11. Enter the **User Name**, **Company**, and **Password**, and then click the **Login** button.
Depending on your organization, there may not be a **Company** field.
12. Click **Downloads**.
If you are using a small device in portrait mode, you may have to scroll to the right to see the **Downloads** option.

Figure 12-1 Welcome to Symphony Page with Downloads Option

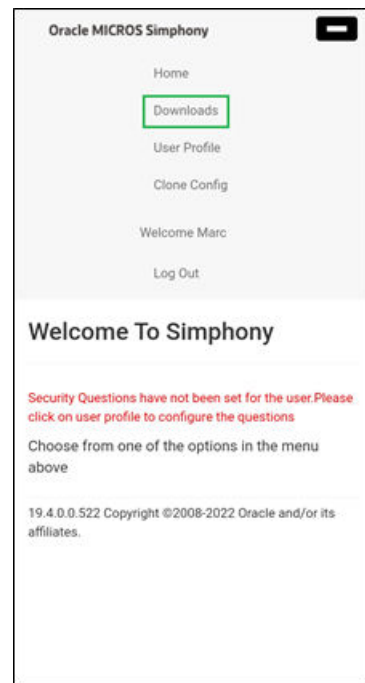


On some devices, you need to expand a menu to see the **Downloads** option.

Figure 12-2 Welcome to Symphony Page with Expand Icon



Figure 12-3 Welcome to Symphony Page with Expand Icon and Downloads



13. In the **Download Type** drop-down list, select **Simphony Point of Sale Client Install (Android)**.
14. In the **Version Download Type** drop-down list, select the Simphony version.
15. Click the **Download** button to download the .apk file.
16. Navigate to the Downloads folder, locate the **AndroidServiceHost.apk** file that you downloaded, and click it to install the application.
17. Click **Continue** or **Install**. When the .apk installation is complete, the message *App installed* appears beneath a check mark.
18. Click **Open** in the lower right area, and then click **Allow**. The Oracle MICROS Simphony launch page appears briefly.

Figure 12-4 Oracle MICROS Simphony Launch Page



19. Enter one of the following:

- **Cloud Code:** Enter the cloud code from your welcome letter to connect to Symphony.
If you enter more than five characters, the following message appears: *Incorrect Cloud Code, please try again.*

Figure 12-5 Cloud Details

Cloud Details

Cloud Code Server Name

Please enter the cloud code from your welcome letter.

Required

Server URL

Close

Next

- **Server Name:** Enter the URL to connect to the server.
This entry field is free format. If you enter a decimal point, a list of common domain suggestions appears. You can select one of these domains rather than manually entering it.

Figure 12-6 Server Details

Server Details

Cloud Code Server Name

Please enter the Symphony server information.

Required

Advanced

Server URL:

Close

Next

20. (Optional) To view the Server Port and EGateway information, click **Advanced**. This information may be required for support purposes and should not be changed.

Figure 12-7 Advanced Server Settings



Advanced Server Settings

Server Port
443

EGateway
/EGateway/EGateway.asmx

Server URL:

Previous

Next

21. When the Cloud Code or Server Name (entered in Step 18) is valid, the **Next** button becomes active. Click **Next**.
22. In the Enter Symphony Credentials dialog, enter your **User Name**, **Enterprise Name**, and **Password**, and then click **Next**. The Service Host APK is authenticated with the Symphony server.

Depending on your Symphony system, the **Enterprise Name** may not appear.

Figure 12-8 Enter Symphony Credentials

The screenshot shows a mobile application interface titled "Enter Symphony Credentials". It features three input fields: "User Name", "Enterprise Name", and "Password". Each field is followed by a "Required" label. The "Password" field is currently filled with dots and has a green cursor at the end. At the bottom of the form, there are two buttons: "Previous" and "Next".

Enter Symphony Credentials

User Name
Required

Enterprise Name
Required

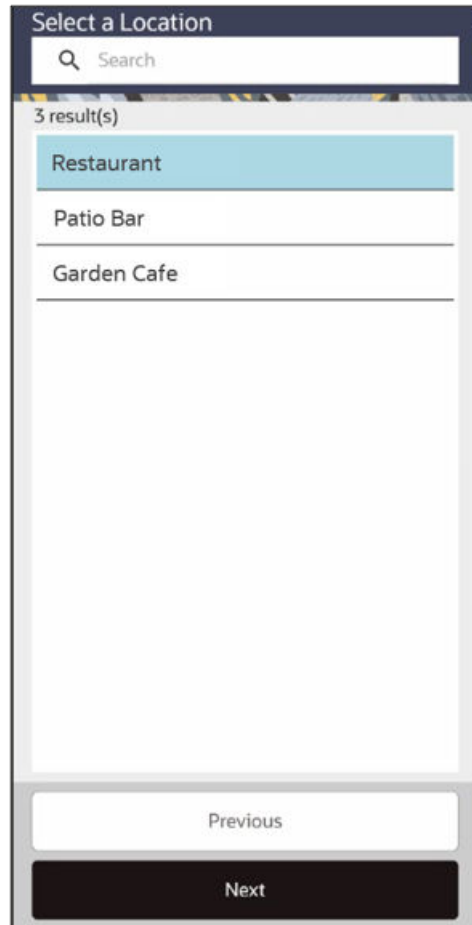
Password
Required

Previous

Next

23. If prompted, select the location, and then click **Next**. Otherwise, continue to the next step. This page does not appear for Adyen S1F2 devices. If there is only one location, this page does not appear.

Figure 12-9 Select Location



24. Select a workstation device that shows either In Use or Available, and then click **Next**. When you select a workstation, it is highlighted in blue.

In Use means the device has already been through the CAL process.

This page does not appear for Adyen S1F2 devices.

Figure 12-10 Select Workstation

The screenshot shows a mobile application interface titled "Select a Workstation". At the top is a search bar with a magnifying glass icon and the text "Search". Below the search bar, it says "2 result(s)". There are two results listed:

Workstation Name	Status
Pixel 5 Phone	Available
A12 Phone	In Use

Below the list, there are two navigation buttons: "Previous" (light gray) and "Next" (dark gray).

25. On the Confirm Workstation Identity page, check the information shown, and then click **Confirm and Start Point of Sale** to start Symphony.

Figure 12-11 Confirm Workstation Identity

Confirm Workstation Identity

Workstation Identity

UWS Name

Pixel 5 Phone

IP Address

Workstation ID

Service Host ID

Service Host ID

Previous

Confirm and Start Point of Sale

Figure 12-12 Starting Symphony



Uninstalling the Android Service Host

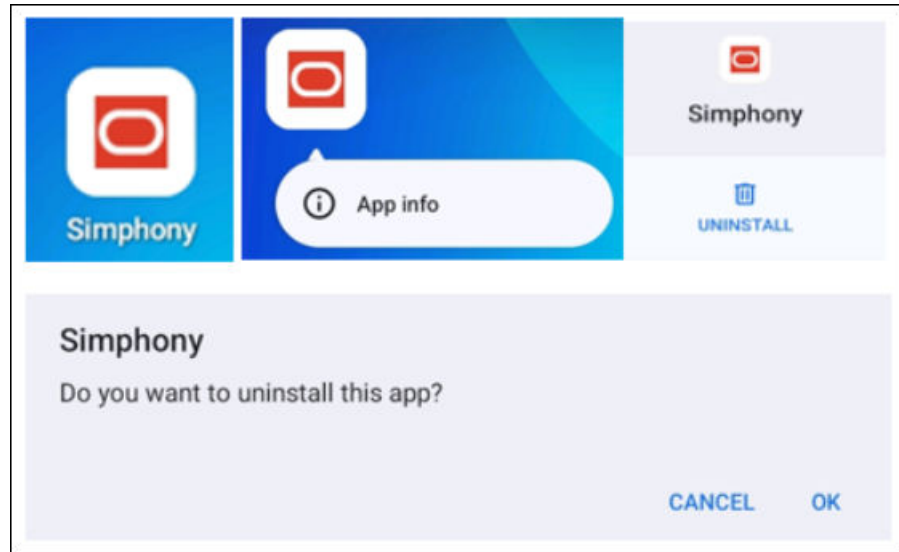
Starting with Symphony version 19.4, when performing Symphony upgrades to your system, you must first manually uninstall the previous version of the Symphony Android Service Host application from each of your Android devices. After an upgrade to your enterprise has been completed, you must install the latest version of Symphony Android Service Host Android Package Kit (APK) on each of your Android workstations.

To uninstall the Symphony Android Service Host application from an Android workstation:

1. Access your Android workstation and close the Symphony Android Service Host application using the **Close** button on the screen.

2. Enter your user authorization ID number, click **OK**, and then click **Yes** to close the confirmation prompt.
3. Press and hold the **Simphony** icon, press **App info**, press **UNINSTALL**, and then press **OK** to uninstall the application.

Figure 12-13 Simphony Android Service Host Application Uninstall Window



4. Install the latest version of the Simphony Android Service Host APK on each Android workstation.

See [Installing the Android Service Host](#) for information about installing the Simphony Android Service Host APK.

Upgrading and Downgrading the Android Service Host

Version Validation Checks

When a property is upgraded to Simphony 19.3.1 or later, existing Android workstations have their CAPS version validated and compared to the device's current Simphony Android Service Host version during startup. If there is a CAPS /Service Host version mismatch, a prompt recommending an upgrade (or downgrade) shows on each Android workstation.

Starting with Simphony 19.4.2.2, Android workstations have their versions of CAPS on IIS validated and compared to the device's current Simphony Android Service Host version during startup.



Note:

If your Simphony system is hosted in the Oracle Cloud, do not complete the steps in this section. An Oracle Cloud Interface representative performs the upgrade.

All database information is retained when the system upgrades the Service Host.

Upgrading the Android Service Host

In order to receive automatic upgrade prompts (if the CAPS/Service Host validation discovers a version mismatch), you must configure your Android devices as shown below:

- Starting with Symphony version 19.3.1, access the EMC, select the property, click **Setup, Workstations, Options** tab, and then select the **Hardware/Cash Drawer** tab. Under the Hardware/Cash Drawer section, ensure option **68 - Third Party Managed Device** is disabled for each Android workstation (this does not apply to Castles Tech S1F2 devices).
- All of your Android workstations and tablets must be configured in the **Workstations** module using the **6 - Tablet Client** setting as the **Type**. This does **not** include **7 - Castles Tech S1F2** devices.
- When performing Symphony upgrades to your system, starting with Symphony 19.4, you must first manually uninstall the previous version of the Symphony Service Host APK from each of your Android devices. After an upgrade to your enterprise has been completed, you must install the latest version of Symphony Android Service Host APK on each of your Android workstations.

Important:

When you have CAPS configured, the CAPS version should always be upgraded before upgrading the Service Host. If the Service Host version is later than the CAPS version (for example, the CAPS machine was not upgraded first and the devices experience a version mismatch), the Service Host application shows an out of synchronization error message.

To upgrade the Symphony Android Service Host for a self-hosted system:

1. Ensure your CAPS client is running the latest Symphony version. This must be verified and/or upgraded before installing the Symphony Android Service Host APK on your device.
2. Open the Symphony Service Host on the Android device.
3. During the POS operations startup, Service Host also checks its version with CAPS at the start of each transaction. If CAPS is offline, POS operations runs in offline mode, and this message does not appear.
4. If the Service Host and CAPS are running on different versions, a message appears stating: *The Service Host and CAPS are running on different versions. Restart the Application to download the Service Host from the Application server.* Restart the Service Host application.
5. After restarting the Service Host application, the device automatically downloads and installs the Symphony Android Service Host APK files from the application repository based on the CAPS version. If prompted, allow permission to install on the device.

Downgrading the Android Service Host

To downgrade the Android Service Host:

1. Open the Symphony Service Host on the Android device.
2. Click the **OK** button on the message to manually downgrade the Service Host version to match the CAPS version.
3. Manually uninstall the Symphony Android Service Host from the device.

See [Uninstalling the Android Service Host](#) for information about manually uninstalling the Symphony Android Service Host.

4. Download the correct version of the Symphony Android Service Host APK from the Symphony Web Portal (SWP).

See [Installing the Android Service Host](#) for more information about manually installing the Symphony Android Service Host.

Replacing, Deleting, or Upgrading Castles S1F2 Mobile Order and Payment Terminals

This topic reviews the steps to take for the following scenarios:

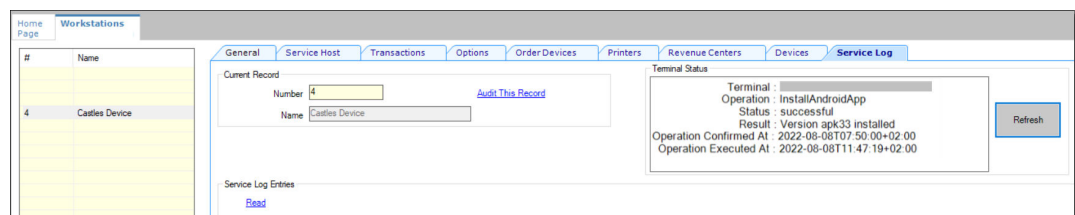
- **Clearing:** Remove the device from service for the revenue center (or store) while still maintaining the workstation record.
- **Replacing:** Replace an existing device with another device.
- **Deleting:** Similar to the clearing operation, but delete the entire Castles device's workstation record.
- **Upgrading:** The point-of-sale (POS) version of the device is required to use the same version as the CAPS POS device it communicates with. If the CAPS POS version is upgraded, the device compares its POS version to the CAPS version and this triggers an automatic upgrade on the Castles device.
- **Downgrading:** The POS version of the device is required to use the same version as the CAPS POS device it communicates with. If the CAPS POS version is downgraded, the device compares its POS version to the CAPS version and this triggers a downgrade on the Castles device. A user must first approve the downgrade process by selecting the **Ok** prompt to proceed.

Before You Begin

After successfully installing a Castles S1F2 device, you can check the installation status of the device's Symphony POS Android Package (APK) at any time by performing the following steps:

1. Select the property, click **Setup**, and then click **Workstations**.
2. Find the Castles device you want to check (search by Workstation ID), and double-click the record.
3. Click the **Service Log** tab and review the log entry in the Terminal Status window. You can update the Terminal Status information by clicking the **Refresh** button.

Figure 12-14 Workstations Service Log Tab



Important Prerequisite Recommendations

If a Castles device becomes unusable for any reason and you need to replace it with another device or perform any of the scenarios listed above, there are a couple of important steps

which must be taken first. Before replacing, deleting, upgrading, or clearing a device's serial number, Oracle MICROS Food and Beverage recommends that you perform the following:

- Ensure that Service Host or POS Operations is not running on the device.
- Ensure that all transactions from the device have been tendered, closed, and posted to avoid possible revenue loss.

Replacing an Existing Castles Device

As you replace an existing Castles device, the following operations are performed in the background:

- The device is returned to the inventory for the revenue center (or store).
- The security certificate is uninstalled.
- The POS APK is uninstalled.

When you replace an existing Castles device, the following operations are performed in the background on the new device:

- The new device is assigned from the inventory to the revenue center (or store).
- The security certificate is automatically installed.
- The respective CAPS version of the POS APK is downloaded and installed.

To configure your spare Castles device as a replacement for the existing device:

1. Select the property, click **Setup**, and then click **Workstations**.
2. Find the original Castles device you want to replace (search by Workstation ID), and then double-click the record.
3. Enter the new device's serial number in the **Serial Number** field.
4. Clear the following fields from the **Service Host Fields** section:
 - **Address / Host Name**
 - **Subnet Mask**
 - **Default Gateway**
5. Click **Save**.
6. After the POS APK has been installed on the new Castles device, you need to access the device, find its newly assigned **IP Address**, copy it to the **Address / Host Name** field in the workstation's record, and then click **Save**.
7. Because the serial number of the Castles device has been changed, and assuming you have a Castles Tech S1F2 Printer assigned to it, the respective printer which belongs to the old device must be updated to the new device:
 - a. Select the property, click **Setup**, and then click **Printers**.
 - b. Find this device's assigned printer record, and then double-click it.
 - c. In the **Workstation** drop-down list, select **None**.
 - d. Re-select the same Castles device as before, and then click **Save**. This creates a new association with the printer using the newly entered serial number of the Castles device.
 - e. Perform the same operations (steps 7-a through 7-c) for any other printers you have assigned to the Castles device from the Workstation module's **Printer** tab.

Clearing a Castles Device From Service

In this context, if a Castles device is damaged and the user wants to temporarily remove it from service, they can do so by clearing the Serial Number and Address / Host Name fields. Later on, users could re-configure these fields to the same record. Essentially, the workstation record remain as is, but the device is not in service.

1. Select the property, click **Setup**, and then click **Workstations**.
2. Clear the existing serial number and in the **Serial Number** field, clear the IP Address from the **Address / Host Name** field, and then click **Save**.

Because the serial number of the Castles device has been changed, Oracle MICROS Food and Beverage recommends that you either delete or edit the previously linked printers for the cleared Castles device.

3. Select the property, click **Setup**, and then click **Printers**.
 - a. Find this device's assigned printer record, and then double-click it.
 - b. In the **Workstation** field drop-down list, select **None**.
 - c. Perform the same operations outlined above (steps 3-a through 3-b) for any other printers you have assigned to the Castles device from the Workstation module's **Printer** tab.
4. Click **Save**.

If the cleared Castles device is repaired or replaced with a new device, follow the steps outlined in the *Replacing an Existing Castles Device* section above.

Deleting a Castles Device

In this context, the device is possibly damaged beyond repair and you need to remove the entire workstation record from the EMC.

1. As noted earlier, when deleting a workstation device, you must first deselect any assigned printers from the Workstations module's **Printer** tab, and then click **Save**.
2. Select the property, click **Setup**, and then click **Printers**.
3. Find this device's assigned printer record, and then double-click it.
4. Delete the assigned **Castles Tech S1F2 Printer**, and then click **Save**.
5. Select the property, click **Setup**, and then click **Workstations**.
6. Find the Castles device record, highlight it, click the **Delete** icon on the toolbar () , and then click **Save**.

Upgrading Existing Castles Devices

As stated earlier, if the CAPS POS version is upgraded, the Castles device compares its POS version to the CAPS version and this triggers an automatic upgrade on the Castles device. Similarly, if the CAPS POS version is lower than the device's POS version, this triggers a downgrade on the Castles device. If you are presented with a Service Host downgrade prompt on the device, this process can only be approved by clicking **Ok** to continue. Once approved, the correct POS APK is downloaded and installed on the device.

Troubleshooting CAL and DCAL

The Symphony Installer provides the ability to switch an Enterprise URL during the application server upgrade. When the Enterprise URL changes, the `SimphonyInstall.xml` file included within existing CAL packages becomes out-of-date. Existing CAL packages (from a previous upgrade) that are still being deployed must be manually reloaded. The McrsCAL and ServiceHost are the only Oracle CAL packages that include this file.

Make a backup copy of the current **SimphonyInstall.xml** on the application server before reloading any CAL packages in case the file is accidentally overwritten. [Viewing, Reloading, and Saving CAL Package Contents](#) contains more information.

Simphony Release 2.9

[Viewing, Reloading, and Saving CAL Package Contents](#)

Simphony Release 2.10

[Viewing, Reloading, and Saving CAL Package Contents](#)

Simphony Release 18.1

[Viewing, Reloading, and Saving CAL Package Contents](#)

Deploying ServiceHost Hotfixes with DCAL

Deploying ServiceHost hotfixes through DCAL could result in the hotfix being deployed before the full ServiceHost package. Hotfixes are cumulative CAL packages, and need to be deployed after ServiceHost has been successfully installed on the workstation.

Recommended Workaround:

1. Run the hotfix installer on the application server.
2. Add the ServiceHost hotfix and the parent ServiceHost version to the DCAL Download Schedule.
3. Verify the deployment order of the hotfix. [CAL Deployment Order](#) contains more information.
4. Verify that both packages have been downloaded to the DCAL workstation in the EMC **DCAL Install Status** tab (introduced with Symphony release 18.2).
5. Add the hotfix package to the Deployment Schedule.

Applies to: All Symphony versions supporting DCAL

DCAL Workstation Computer Name

When configuring a DCAL workstation for a property, EMC does not enforce the maximum character limit restrictions for workstation computer names. The CAL client automatically truncates computer names greater than 15 characters, but ServiceHost may overwrite the truncated name during startup. When this occurs, DCAL clients may not be able to communicate with the DCAL workstation.

Workaround:

Use EMC to change the DCAL workstation computer name to 15 characters or less.

Applies to: All Symphony releases

Upgrading CAL on Symphony 2.8 Clients or Later

When upgrading to CAL client versions 141 through 145 from versions prior to 139, an existing Symphony 2.8 client authentication is not used and users are prompted for their EMC logon credentials.

Workaround #1:

The user must enter a username and password of an employee with Role privilege **10065** enabled as described in [Configuring Employee Privileges for Using CAL](#).

Workaround #2:

Deploy CAL 139 or 140 before deploying versions 141 through 145.

Workaround #3:

Reconfigure CAL without changing the Workstation Identity. [Changing the CAL URL](#) contains more information.

Applies to: CAL client versions 141 through 145.

Re-configuring CAL with an Existing Symphony Client Install

When re-configuring CAL on a workstation with Symphony client already installed, ServiceHost may not be able to authenticate to the application server.

Recommended workaround:

Workstations should be re-imaged using the manufacturer supplied factory recovery mechanism.

Applies to: All Symphony Client versions

ServiceHost Deployment Using DCAL Prior to Symphony Release 2.8

Deploying ServiceHost 2.9.2 or later from a DCAL workstation running releases earlier than Symphony release 2.8 could cause all previously installed CAL packages to re-install on the client.

Recommended workaround:

Upgrade the DCAL workstation before upgrading any other workstations.

Applies to: All Symphony releases supporting DCAL.

ServiceHost Upgrades Prior to Symphony Release 2.8

When upgrading from Symphony clients prior to release 2.8, the ServiceHost 2.7 CAL deployment must not be removed until the new version of the ServiceHost package has finished installing. Otherwise, all previously installed CAL packages are re-deployed.

Recommended workaround:

1. Keep the existing ServiceHost 2.7 deployment record and change the deployment type **Property** to **Enterprise**, for each record that exists.
2. Configure a new ServiceHost deployment at the Property or Service Host level to the deployment schedule.
3. Remove the ServiceHost 2.7 deployment only when the new ServiceHost version has been completed.

Applies to: All releases later than 2.7

ServiceHost Package Install Loop

When re-configuring CAL on a workstation with Symphony client hotfixes installed, the ServiceHost CAL package could fail while executing the Sim29VerSync utility.

Recommended Workaround:

Workstations should be re-imaged using the manufacturer supplied factory recovery mechanism.

Applies to: Symphony releases 2.10 and 18.1

Upgrading DCAL Workstation from Releases Prior to Symphony 2.9.3

When upgrading a DCAL Workstation running Symphony client releases prior to 2.9.3, the download status of previously downloaded packages is lost and cannot be automatically recovered.

Recommended Workaround:

1. Remove the DCAL Workstation service from the property prior to the upgrade.
2. Re-image the workstation using the manufacturer supplied factory recovery mechanism.

Applies to: All Symphony releases prior to 2.9.3

Changing the CAL URL

In some cases, it may be necessary to reconfigure the CAL client to use the new secure URL of the application server. To reconfigure the CAL URL without changing the workstation identity:

1. Close the ServiceHost application to access the Microsoft Windows desktop on the workstation.
2. Use the **Start Menu** to launch the **McrsCAL Config** application found in the **MICROS Client Application Loader** folder.

3. Enter the validation code to access the CAL application, and then click **Next**.
 - The six-digit challenge number changes with every attempt and is solved with the formula: **Digit 1 x Digit 2 + Digit 4 + Digit 6**.
 - Using the challenge number 391229 as an example, the solution is $3 \times 9 + 2 + 9 = 38$.
4. Make the following updates for the Enter CAL Server configuration:
 - a. Select the **Secure Connection** option.
 - b. Enter **443** as the **Port**.
 - c. Click **Update**, and then click **Next**.

The POS Type varies and is unique based on your installation and the Symphony release.

Prior to Symphony release 2.9.1:

- **MICROS Symphony** is used as the POS Type with Symphony Premium.
- **Simphony Multi-Te** is used as the POS Type for Symphony Standard.

For Symphony release 2.9.1 or later, use **MICROS Symphony** for both Symphony Standard and Symphony Premium.

Figure 13-1 Enter CAL Server Configuration

ORACLE | MICROS CAL - Enter CAL Server

Server Name:

Server IP/URL :

POS Type:

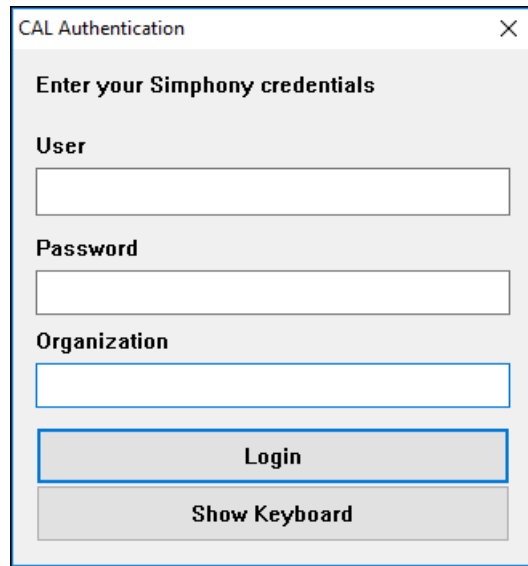
CAL Enabled: ☒ Secure Connection: ☒

Server:

Port:

5. For CAL Authentication, enter the EMC credentials that have the required role privileges enabled, and then click **Login**.

Figure 13-2 CAL Authentication

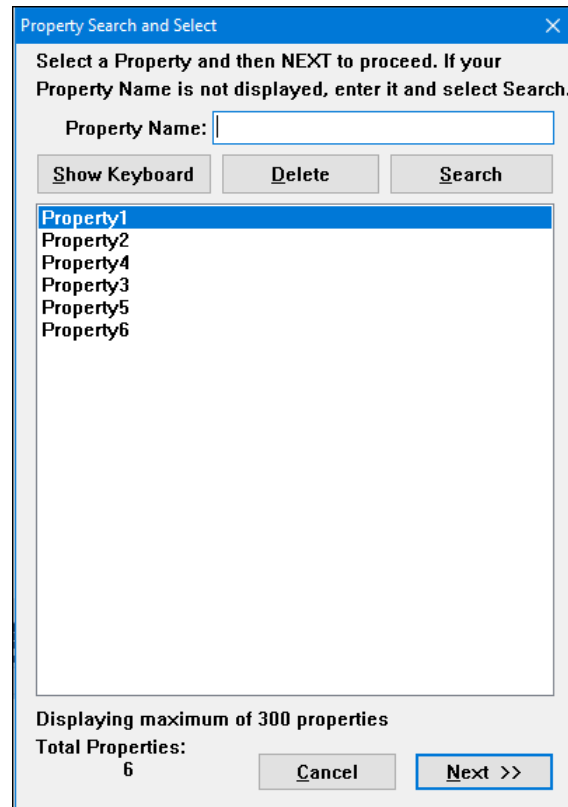
A screenshot of a 'CAL Authentication' dialog box. The dialog has a title bar with the text 'CAL Authentication' and a close button (X). The main content area is titled 'Enter your Symphony credentials'. It contains three text input fields: 'User', 'Password', and 'Organization'. Below these fields are two buttons: 'Login' and 'Show Keyboard'. The 'Login' button is highlighted with a blue border, and the 'Show Keyboard' button is a lighter gray color.

6. If the Enterprise has multiple properties, select the property from the Property Search and Select window, and then click **Next**.

If the property does not appear in the list, enter the property name in the **Property Name** field, and then press **Search**.

If only one property is configured, or if there are multiple properties but only one property is using Microsoft Windows devices, you do not see a property list and you can skip this step.

Figure 13-3 Property Search and Select



7. Do not make changes on the Select WS Identity window, and then click **Save**.