



OpenScape WL 4 / OpenScape WL4 Plus

Migration Guide

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1 Parameter Migration and Device Management

To make the upgrade from OpenStage WL3 to OpenScape WLAN Phone WL4 easier, OpenScape WLAN Phone WL4 supports parameter migration allowing to create user parameter templates from all variants of OpenStage WL3 and OpenScape WLAN Phone WL4 handsets.

Using parameter migration requires at least the following device management software versions:

- WSG 4.7.0 and later
- WinPDM 3.14.0 and later

If parameter migration is not required, older versions of WSG DM are also supported, but in case of WinPDM, version 3.13.4 or higher is required.

In most cases, it is possible to replace an OpenStage WL3 handset with an OpenScape WLAN Phone WL4 of the same variant by creating such a template and applying it to the new handset. This document aims to describe all deviations from this rule.

A few parameters are not suitable to migrate directly from OpenStage WL3. When non-default values are set for these parameters in OpenStage WL3, it might be necessary to evaluate how to adapt these changes to OpenScape WLAN Phone WL4. This includes the following:

- **Device > Restricted mode > Threshold**
- **Network > General > Auto switch network timeout**

2 WiFi

The WiFi chipset used in OpenScape WLAN Phone WL4 is different from the one used in OpenStage WL3. Therefore, it is recommended to perform new tests and site surveys before deploying OpenScape WLAN Phone WL4 in an existing environment with OpenStage WL3.

Differences can be visible when a walk-through of the site is done with a connected phone call between the two handsets. Reading the RSSI values at the same spot may show differences and the handover location may be different for the two handsets.

Typically there are four things that should be evaluated using the tools in the handset:

- Coverage area co-channel interference
- Roaming candidates
- Roaming performance (where and when roaming occurs)
- Voice quality in walk and talk test

This can be done by measurement only and by listening to real calls.

Some older WiFi features that are supported by OpenStage WL3 are no longer supported by OpenScape WLAN Phone WL4. The following paragraphs describe the most important differences between the WiFi implementations.

2.1 802.11ac

OpenScape WLAN Phone WL4 supports 802.11ac and uses it whenever supported by the infrastructure. OpenStage WL3 does not support 802.11ac but does not have any problems coexisting with 802.11ac devices. It is therefore recommended to enable 802.11ac for SSID used by OpenScape WLAN Phone WL4 for both pure OpenScape WLAN Phone WL4 installations and mixed OpenStage WL3/OpenScape WLAN Phone WL4 installations.

2.2 802.11n

In OpenStage WL3 it was possible to disable support for 802.11n by setting the parameter **802.11 Protocol** to either **802.11b/g** or **802.11a**. In OpenScape WLAN Phone WL4 this parameter has been removed and it is instead possible to select which frequency band should be used (2.4 or 5 GHz). The handset uses 802.11ac or 802.11n if available in the infrastructure.

During the early years of OpenStage WL3, it was possible to disable 802.11n due to compatibility issues. Now we do not foresee similar issues with modern infrastructures, on the contrary, we see benefits by using 802.11n features.

2.3 Transmission Power

It is not possible to set a fixed transmission power in OpenScape WLAN Phone WL4. Transmission power is controlled by the infrastructure using 802.11d and 802.11h.

2.4 WEP

WEP encryption is supported by OpenStage WL3, but not by OpenScape WLAN Phone WL4. If any installation still uses WEP, it should be upgraded to WPA/WPA2-PSK authentication as WEP encryption is perceived deprecated due to very weak security. It has, for a long time, been replaced by WPA and WPA2, where the latter is preferred due to its stronger encryption.

2.5 A-MPDU Packet Aggregation

During interoperability testing we have seen issues with the Aruba controllers when the A-MPDU aggregation was enabled in the handset. Therefore, we currently recommend this parameter to be set to **Off** when connecting to Aruba WiFi and **On** when connecting to other.

2.6 EAP-FAST

The EAP-FAST method is not supported in OpenScape WLAN Phone WL4.

To deploy OpenScape WLAN Phone WL4 to an existing OpenStage WL3 installation, at least one of the security methods supported by OpenScape WLAN Phone WL4 must be configured. That is, for installations where only EAP-FAST is enabled, a new method needs to be configured on the existing SSID, or a new separate SSID for OpenScape WLAN Phone WL4 needs to be created.

2.7 Advanced Authentication Options

The **Advanced** option for WiFi authentication is no longer available in OpenScape WLAN Phone WL4. Any supported authentication methods should be possible to be configured without the **Advanced** option, which was needlessly adding complexity to the configuration process.

2.8 802.11w

Protected management frames (802.11w) are supported and are enabled whenever supported by the infrastructure.

Since OpenStage WL3 does not support but can coexist with 802.11w clients, it is possible to enable optional 802.11w support in mixed OpenStage WL3/OpenScape WLAN Phone WL4 installations.

2.9 Roaming and Scanning

In OpenStage WL3, the **Roaming methodology** parameter can be set to **System aided roaming** for infrastructures such as Extricom, which aim to control the roaming process. In OpenScape WLAN Phone WL4, this parameter has been removed since the normal roaming method can be used for all types of infrastructures.

2.10 Number of Enabled Channels and 802.11k

When many channels are enabled and have to be scanned before each roam, there is always a risk that the audio quality is affected. This is especially true if many DFS channels are enabled. The longer the handset is scanning each channel, the greater the likelihood that an AP is found, but this also affects sound quality negatively.

Compared to OpenStage WL3, OpenScape WLAN Phone WL4 spends more time scanning a channel, which results in improved performance when few channels (typically up to eight) are enabled. For installations with more channels, audio quality might not be as good as in OpenStage WL3 when many channels are scanned. It is recommended to enable 802.11k in such infrastructures, which drastically decreases the number of channels the OpenScape WLAN Phone WL4 has to scan and resolves any issues with bad sound while scanning.

A new option, **802.11k** has been added to the available options in the **5 GHz channels** parameter. When it is selected, the handset uses the 802.11k neighbor lists received from the AP to choose which channels to scan during the roaming process. It allows AP deployments where more channels are used without decreasing the roaming performance. The handset roaming performance of course is highly dependent on receiving correct neighbor information from the infrastructure. If the handset fails to find a suitable roaming candidate in the neighbor list, it might perform a scan of all channels (that is, all 5 GHz channels allowed in the current regulatory domain).

2.11 Fast Roaming Methods

The preferred fast roaming method in OpenScape WLAN Phone WL4 is 802.11r Fast Transition. It is automatically used by the handset if enabled in the infrastructure.

Opportunistic key caching (OKC, also known as Proactive key caching) is still supported and enabled by default when 802.11r is not available.

PMKSA-Caching is supported in OpenScape WLAN Phone WL4 but to be able to use it, OKC must be disabled in the handset configuration. It differs from OpenStage WL3 where both methods can be enabled simultaneously.

For existing OpenStage WL3 installations where both OKC and PMKSA cachings are used, it is recommended to use 802.11r Fast Transition from OpenScape WLAN Phone WL4 and create a single mobility domain for all the controllers.

In case it is not supported by the infrastructure, the best alternative is to disable OKC in the OpenScape WLAN Phone WL4 handsets if roaming between controllers is more frequent than roaming within a controller. If intra controller roaming is the most common case, OKC should be kept enabled.

CCKM is not supported in OpenScape WLAN Phone WL4. To deploy the OpenScape WLAN Phone WL4 to an existing OpenStage WL3 installation where CCKM is used, at least one of the key management methods supported by OpenScape WLAN Phone WL4 must be enabled as well. This can be done either on the existing SSID or on a new separate SSID for OpenScape WLAN Phone WL4.

2.12 CCX

Cisco Compatible Extension (CCX) is not supported in OpenScape WLAN Phone WL4. This means that for example, TSPEC setup, TX power, and channel limitations might work differently in OpenScape WLAN Phone WL4 than in OpenStage WL3 when connected to Cisco WiFi infrastructure.

2.13 Power Save Mode

The option to disable U-APSD power save mode and use active mode during calls has been removed from OpenScape WLAN Phone WL4. U-APSD mode is expected to work well with all currently available infrastructures, and disabling it would only result in deteriorating call time performance.

2.14 Aruba 800 Controller Compatibility

OpenStage WL3 contained a small adjustment for a problem with traffic prioritization in an old Aruba controller. This is no longer available in OpenScape WLAN Phone WL4.

3 Telephony

3.1 Voice Codecs

OpenScape WLAN Phone WL4 supports the OPUS wideband codec. In addition, all codecs supported by OpenStage WL3 are still supported.

Selecting OPUS as the preferred codec for OpenScape WLAN Phone WL4 in a mixed OpenStage WL3/OpenScape WLAN Phone WL4 environment is acceptable, as a common supported codec is selected for calls between OpenStage WL3 and OpenScape WLAN Phone WL4.

3.2 H.323

OpenScape WLAN Phone WL4 is a SIP device, H.323 is not supported. For existing OpenStage WL3 H.323 deployments using Innovaphone PBXes, both H.323 and SIP are supported by the PBX and it is possible to use SIP for OpenScape WLAN Phone WL4 and H.323 for OpenStage WL3.

4 Battery Saving Options

In OpenScape WLAN Phone WL4 the default battery saving setting is **Black also in call**, which is recommended for extending the battery life. By contrast, in OpenStage WL3 the default setting is **Information**.

If the **Screen saver information** is set to **Black also in call**, the screen saver (with no information) is enabled also during phone calls.

5 Logging and Troubleshooting

The PC side application PDL is no longer required for retrieving logs from OpenScape WLAN Phone WL4. If logs must be collected and sent to R&D, an appropriate log level can be enabled either in the handset admin GUI or through Device Management.

The handset can be configured to send logs to either an SFTP server or make them available to be retrieved by connecting the handset to a Windows PC as a USB drive using a desktop programmer. These files are encrypted and can only be decrypted by R&D.

As in OpenStage WL3, it is possible to configure the handset to send some clear text logs to a remote syslog server.

The web server that was available in OpenStage WL3 has been removed from OpenScape WLAN Phone WL4. The syslog, SFTP, and USB drive features provide similar functionality.

In contrast with OpenStage WL3, logging in to the handset via telnet is not possible in OpenScape WLAN Phone WL4 to improve the security of the device.

6 Software Download

The software image for OpenScape WLAN Phone WL4 is larger than the one for OpenStage WL3. It means that it takes longer to upload the image to device management and download to the handset.

Software upgrade using TFTP is no longer supported.

7 Related Documents

Data Sheet, OpenScape WLAN Phone WL4

Configuration Manual, OpenScape WLAN Phone WL4

Configuration Manual, Unite Connectivity Manager

Installation and Operation Manual, Portable Device Manager for Windows (Win-PDM)