



## APPLICATION-SPECIFIC DEVICE INTEROPERABILITY MATRIX

Mobile applications in the extended retail industry (retail stores, warehouses and factory floors) are unique in that they are not run on traditional Windows-based laptop-type devices. On the contrary, mobile applications run on a wide variety of application-specific devices (ASDs) that differ in form, input and output capabilities, operating systems, security capabilities, radio types and more. Fifteen years and three generations of mobile device technology have further added to the mix of mobile devices that must be supported on the mobility infrastructure.

Furthermore, the use-case of most of the application-specific “mobile” devices is very different than a traditional “portable” laptop. Mobile devices, akin to a cellular phone, are never used on AC power and are generally used on the move as opposed to when stationary. The use-case difference presents a different set of “mobility performance” requirements on the mobility infrastructure such as fast roaming, load-balancing and battery life.

To support and secure a heterogeneous set of mobile device types, Aruba’s User-centric Networks boast a device-agnostic approach. Utilizing a centralized MAC and centralized crypto model, combined with a mobility-aware feature set, Aruba’s mobility solution is fully interoperable and enables the highest levels of “mobility performance” for the widest set of mobile devices, regardless of the operating system and device vendor. The Aruba solution follows an open standards approach and therefore does not require any proprietary client-side hook-ins or client-side software to get full interoperability and “mobility performance.”

To validate Aruba’s device agnostic architecture, the Aruba solution is tested with a broad set of application-specific devices for interoperability, security and mobility performance metrics. The following sections outline the devices tested, the security modes supported and mobility performance metric measured.

### DEVICES TESTED

Table 1 in this document lists all of the mobile devices tested with the Aruba mobility infrastructure. The list includes relevant details such as vendor, model, operating system and software version for each device. As new versions of software are made available for each of the mobile devices, Aruba shall revalidate the device and republish this document. In addition, there are a number of mobile devices that are under test at the time of publishing this document. As and when more tests are completed or new devices are added to the test-bed, this document will be updated. The interoperability test plan consists of two major areas: Security Modes and Mobility Performance.

### SECURITY MODES TEST PLAN

This suite of tests is designed to validate the interoperation of mobile device under test using each of the 802.11 security modes supported by the device. For each security mode, the mobile device is configured for the chosen security mode and then connected to the Aruba infrastructure. Successful data transfers upon connection are required to pass the test. The security modes tested are as follows. The results of the tests can be found in Table 2.

1. **Static WEP:** In this mode, the mobile device under test is configured to encrypt traffic using the WEP (Wired Equivalent Privacy) standard using pre-shared keys.
2. **WEP + .1x:** In this mode, the mobile device under test is configured to encrypt traffic using the WEP standard and 802.1x authentication using PEAP (Protected Extensible Authentication Protocol).
3. **WPA-PSK:** In this mode, the mobile device under test is configured to encrypt traffic using the WPA (Wi-Fi Protected Access using TKIP) standard using pre-shared keys i.e., no authentication.
4. **WPA + .1x:** In this mode, the mobile device under test is configured to encrypt traffic using the WPA (Wi-Fi Protected Access using TKIP) standard and 802.1x authentication using PEAP (Protected Extensible Authentication Protocol).
5. **WPA2-PSK:** In this mode, the mobile device under test is configured to encrypt traffic using the WPA2 (Wi-Fi Protected Access using AES-CCMP) standard, using pre-shared keys i.e., no authentication.

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6. **WPA2 + .1x:** In this mode, the mobile device under test is configured to encrypt traffic using the WPA2 (Wi-Fi Protected Access using AES-CCMP) standard and 802.1x authentication using PEAP (Protected Extensible Authentication Protocol).

### MOBILITY PERFORMANCE TEST PLAN

This suite of tests is designed to validate that the Aruba infrastructure can reliably support mobile applications, i.e., provide application persistence in a truly “mobile” use-case. The results of these tests can be found in Table 3. This suite includes the following tests:

1. **Fast Roaming:** This test validates that mobile devices can roam from one access point to another with less than 30ms latency so as to not disrupt any mobile applications.

2. **Standby Roaming:** This test validates that a mobile device can resume from the device stand-by mode and reliably re-connect to the infrastructure within 15 seconds.

3. **Load Balancing:** This test validates that mobile devices are automatically load-balanced between access points that have overlapping coverage to ensure higher overall network performance.

4. **PSP Support:** This test validates that mobile devices running in PSP (Power Save Polling) mode can reliably connect to the Aruba infrastructure. PSP mode is tested with different security modes and in roaming conditions.

5. **Battery Boost:** This test validates improved battery life on mobile devices when Aruba’s battery boost features are turned on as compared to only standard PSP modes.

**TABLE 1: LIST OF DEVICES TESTED ON ARUBA INFRASTRUCTURE**

Vendor	Device Type	Device Model	Operating System	Software Version
Symbol	MC3000	MC3090	Win CE	5.00.1400
Symbol	MC50	MC5040	Win Mobile 2003	4.21.1088
Symbol	MC70	MC7090	Win Mobile 5.0	5.1.70
Symbol	MC9000	MC9090S	Win Mobile 5.0	5.1.70
Symbol	PPT8800	PPT8846	Win CE .NET	4.10
Symbol	PPT8100	PPT8146	MS PocketPC	
Symbol	VC5090	VC5090	Win CE	5.00.1400
Symbol	MK2000	MK2046	Win CE	4.10
Symbol	WT4090	WT4090	Win CE	5.00.1400
Symbol	PDT6800	PDT6846	DOS	
Intermec	700 series	751	MS PocketPC	4.20
Intermec	CN2	CN2B	MS PocketPC	4.20
Intermec	CN3	CN3	Win Mobile 5.0	5.1.342
Intermec	CK31	CK31	Win CE .NET	4.20
Intermec	CK60	CK60	Win Mobile 5.0	5.1.70
Intermec	T2425	T2425	DOS	
Intermec	T2455	T2455	DOS	
Intermec	CV60	CV60	Win CE.NET	4.20
Teklogix	Workabout Pro	Workabout Pro	Win CE .NET	4.20
Teklogix	7530	7530	Win CE .NET	4.20
Teklogix	7535	7535	Win CE .NET	4.20
Vocollect	Talkman T5	Talkman T5	Win CE .NET	4.20
Zebra	QL220 Plus	QL220 Plus	Embedded OS	SHSTZ11p10
Zebra	RW220	RW220	Embedded OS	SHSTZ11p10

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**TABLE 2: SECURITY MODE MATRIX**

Vendor	Device Type	Static WEP	WEP + .1x	WPA-PSK	WPA + .1x	WPA2-PSK	WPA2 + .1x
Symbol	MC3000	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Symbol	MC50	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Symbol	MC70	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Symbol	MC9000	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Symbol	PPT8800	✓	✗	✗	✗	✗	✗
Symbol	PPT8100	✓	✗	✗	✗	✗	✗
Symbol	VC5090	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Symbol	MK2000	✓	✗	✗	✗	✗	✗
Symbol	WT4090	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Symbol	PDT6800	✓	✗	✗	✗	✗	✗
Intermec	700 series	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Intermec	CN2	✓	✓ w/PEAP	✓	✓ w/PEAP	✓	✓ w/PEAP
Intermec	CN3	✓	✓ w/PEAP	✓	✓ w/PEAP	✓	✓ w/PEAP
Intermec	CK31	✓	✓ w/PEAP	✓	✓ w/PEAP	✓	✓ w/PEAP
Intermec	CK60	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Intermec	T2425	✓	✗	✗	✗	✗	✗
Intermec	T2455	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Intermec	CV60	✓	✗	✗	✗	✓	✓ w/PEAP
Teklogix	Workabout Pro	✓	✓ w/PEAP	✓	✓ w/PEAP	✗	✗
Teklogix	7530	✓	✓ w/PEAP	✓	✓ w/PEAP	✓	✓ w/PEAP
Teklogix	7535	✓	✓ w/PEAP	✓	✓ w/PEAP	✓	✓ w/PEAP
Vocollect	Talkman T5	✓	✗	✓	✗	✗	✗
Zebra	QL220 Plus	✓	✓	✓	✓	✓	✓
Zebra	RW220	✓	✓	✓	✓	✓	✓

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**TABLE 3: MOBILITY PERFORMANCE MATRIX**

Vendor	Device Type	Fast Roaming	Stand-by Roaming	Load Balancing	PSP Support	Battery Boost
Symbol	MC3000	✓	✓	✓	✓	✓
Symbol	MC50	✓	✓	✓	✓	✓
Symbol	MC70	✓	✓	✓	✓	✓
Symbol	MC9000	✓	✓	✓	✓	✓
Symbol	PPT8800	✓	✓	✓	✓	✓
Symbol	PPT8100	✓	✓	✓	✓	✓
Symbol	VC5090	✓	✓	✓	✓	✓
Symbol	MK2000	✓	✓	✓	✓	✓
Symbol	WT4090	✓	✓	✓	✓	✓
Symbol	PDT6800	✓	✓	✓	✓	✓
Intermec	700 series	✓	✓	✓	✓	✓
Intermec	CN2	✓	✓	✓	✓	✓
Intermec	CN3	✓	✓	✓	✓	✓
Intermec	CK31	✓	✓	✓	✓	✓
Intermec	CK60	✓	✓	✓	✓	✓
Intermec	T2425	✓	✓	✓	✓	✓
Intermec	T2455	✓	✓	✓	✓	✓
Intermec	CV60	✓	✓	✓	✓	✓
Teklogix	Workabout Pro	✓	✓	✓	✓	✓
Teklogix	7530	✓	✓	✓	✓	✓
Teklogix	7535	✓	✓	✓	✓	✓
Vocollect	Talkman T5	✓	✓	✓	✓	✓
Zebra	QL220 Plus	✓	✓	✓	✓	✓
Zebra	RW220	✓	✓	✓	✓	✓



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