FAQ

Unsupported Transceiver Mode

ARUBAOS-CX 8XXX AND 6XXX SWITCH SERIES

The term “transceiver” (xcvr) applies collectively to optical transceivers, DAC and AOC cables, and Port Adapters. (See the Glossary at the end of this document for acronyms used in this FAQ).

The term “third-party transceiver” applies to xcvr parts not specifically identified on datasheets or the “ArubaOS-Switch and ArubaOS-CX Transceiver Guide” (Xcvr Guide) for the Aruba switch series/models covered. The Xcvr Guide indicates the minimum software version required for full support. Older generation xcvrs may not be fully supported on newer generations of switch models. For questions, contact your Aruba Account Team who can get clarity from Aruba Product Line management.

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Q1: Do the Aruba OS-CX 8xxx & 6xxx switches ALLOW third-party transceivers?

A: Yes. As of the July 2020 release of the 10.05 ArubaOS-CX switch software, at the top-level config prompt, the CLI command `allow-unsupported-transceiver` is available to enable ONLY 1G and 10G third-party xcvrs (including DACs/AOCs). The command requires an acknowledgement of the support risk before use. An example CLI session will look like this:

```
8400(config)# allow-unsupported-transceiver
Warning: The use of unsupported transceivers, DACs, and AOCs is at your
own risk and may void support and warranty. Please see HPE warranty
terms and conditions.
Do you agree, and do you wish to continue enabling? (Y/N)
```

Allowing a third-party xcvr to work in a switch is not a guarantee that it will continue to work from software upgrade to upgrade. For that type of assurance, use only supported products.

Q2: Will using third-party transceiver parts void my switch warranty?

A: Perhaps. Using third-party xcvrs *may* affect your switch warranty. If it is determined that the third-party xcvr parts have damaged the switch or port, the switch product will not be replaced under warranty. Third-party parts will NOT be replaced by Aruba warranty support – contact the original reseller of your third-party parts for replacement.

Q3: Will the Technical Assistance Center (TAC) take my support call?

A: Perhaps. When it is determined that an issue may involve questionable connectivity using third-party xcvrs (including optics/DACs/AOCs), TAC may ask that you replace the third-party xcvr with a xcvr supported for use with Aruba switches before continuing troubleshooting activities. The support call may be paused until this is done, eliminating the suspicion of the third-party xcvr as a possible issue.

Q4: Aren’t transceivers standards based? Why can’t Aruba support third-party transceivers?

A: While IEEE and MSA standards exists for transceivers, not all vendors follow the MSA/IEEE standards. Some vendors fail to follow the MSA standard and properly encode fields identifying the type and characteristics of the transceivers or they may purposely encode them as a different type to escape detection – and the misidentification can lead to errors in bringing the xcvr online properly.

Aruba's development process relies on a combination of detailed review of functional correctness, design, reliability testing, and on-going product quality to decide which xcvr products Aruba supports. For each xcvr and platform qualification, detailed measurements and tuning is required to ensure that optimum settings are used on the specified platform. Without measurement and tuning optimum settings, the same xcvr might work in one port but not another or the xcvr might function marginally with intermittent failures (link flapping).

A significant amount of test effort is spent to verify functional correctness not only during normal operation, but also during disruption events such as hot-swapping of xcvr parts, reboots and power resets. Aruba tests to ensure the optical module and the system work properly under typical conditions and marginal conditions. Aruba has seen a number of xcvr failures in testing leading to disqualification of a submitted vendor part under conditions of extreme temperature, electromagnetic and environmental noise conditions. We work with our Xcvr vendors to ensure proper operation. Third-party xcvr parts cannot be verified to this degree. See this blog commentary about our testing efforts.

This risk will be carried over to production environments with the use of unsupported xcvrs parts. Much of this is not apparent in a customer environment until failures are root caused. Failure can range from "it just plain does not work" type problems that display bad initial behaviour to "it works but exhibits non-obvious/transient" issues that can be much harder to identify/replicate in a real network. Aruba wants to avoid this risk.

From time to time, Aruba may change xcvr products and need to specify newer revisions of transceivers to work on newer models of a switch series.

Q5: My customer is willing to take the risk. can't Aruba support them fully?

A: Aruba's Supply Chain Team manages Aruba's transceivers, including suggesting alternate xcvr vendors. Aruba transceivers of the same type, like a 10G SR, are mapped to an Aruba stock keeping unit (SKU). Behind any ordering SKU #, there may be multiple alternate vendors – managed so these alternates also operate consistently in the same switch port. Distinct vendors behind a SKU are identified by an alternate part number of the form nnnn-mmmm (referred to as a 4-by-4 or 4x4). See the Xcvr Guide (Overview chapter, "Identification of 4x4 part numbers") for more details.

Keeping seamless operations and commonality are the common challenges with mapping transceivers from many vendors to an Aruba SKU. Including the reason for why Aruba cannot support many transceivers from many vendors – especially vendors we have no supply chain relationship with.

Subject to the disclaimers provided above, as of the 10.05 ArubaOS-CX software release, ArubaOS-CX switch software allows for the use of 1G and 10G third-party transceivers. Aruba will require transceivers 25G and faster to use Aruba-branded transceivers for use with Aruba switches.

See the Xcvr Guide or Switch Datasheets for specific product SKUs that are supported.

Q6: Will third-party transceivers ever be supported on the Aruba 8xxx & 6xxx Switch Series consistent with other Aruba products?

A: No. Because of the differences in third-party xcvr designs, and slight differences in xcvr port designs between switch models, nuances can occur where a third-party xcvr works in one switch series (for example, 3810M) and NOT in another (for example, 6300M).

See the Xcvr Guide or Switch Datasheets for Aruba transceivers and other HPE products supported for use in each Aruba switch model.

For further information or questions, consult your Aruba Sales team member.

Q7: Will my 10G LRM xcvr work, after enabling `Allow-unsupported-transceiver`?

A: No. 10G LRM technology requires additional hardware support behind the SFP port, a PHY with an Electronic Dispersion Compensation function. Select Aruba switches do not have this PHY. The CX Series of switches have 50G capable SFP ports, and there are no PHYs that can support all of those speeds with an EDC function. The Xcvr Guide will indicate switch models/modules that lack this hardware support with a statement "does not support J9152A/J9152D (*or any type of 10G LRM technology*)" to indicate that even with UT-mode, you cannot use a 10G LRM xcvr in that product.

Q8: How do I check if I have a counterfeit transceiver?

A: Counterfeiting represents a significant cost to HPE, including reputational damage, loss of business and cost of enforcement. It is critical that all suspected counterfeit HPE products – including transceivers – are

reported to hardware.counterfeitvalidation@hpe.com for review by the Product Authentication & Applications team, which is part of the Business Security and Integrity Group – formerly known as Global Brand Security.

HPE can assist you to identify potential counterfeits, including visual inspection and logical interrogation from the switch. Be prepared to provide a screenshot of "show transceiver" output from the CLI ***and*** high resolution photos of the transceivers, including close-ups of the label.

Many of the Aruba-branded transceivers (built since 2017) have an SID (Security ID) code printed on the label. You can review the validity of the Security ID by visiting www.hpe.com/products/validate and downloading the **HPE Parts Validation App** from the Apple App, or Google Play stores. An invalid Security ID indicates a potential counterfeit. Please follow the steps for visual inspection, before contacting hardware.counterfeitvalidtion@hpe.com for authentication support.

There are also devices that are sold as "HPE Compatible" and branded as their own brand and not HP, HPE, ProCurve, Aruba. They may identify with an Aruba SKU #, but are not authentic Aruba parts and considered third-party products – subject to suspicion during any TAC call engagement.

GLOSSARY:

AOC - Active Optical Cable: a cable using permanently attached fiber cables to the xcvr ends inserted into the SFP/SFP28/QSFP/QSFP28 ports. AOCs are active products using fiber rather than copper and supported longer distances than DACs.

DAC – Direct Attach over Copper cable: a passive cable device (see AOC), usually for short distance connections (5m and less). DAC cables require specific 'tuning' between endpoints (Switch to Switch or Switch to Server NIC/LOM interconnects). Not all DACs are made the same – third-party DACs may present tuning challenges.

EDC – Electronic Dispersion Compensation. A function that can correct for light pulses arriving at different times or a broadening of the pulses – an artifact of 10G optical transmission over lower quality Multimode Fiber (MMF) usually of grades OM1 or OM2**.** This technology is required for 10G LRM optics.

LRM – A type of 10G Transceiver that can operate over lower-quality OM1 or OM2 Multimode Fiber (MMF).

MSA – Multi-Source Agreement: an agreement between multiple manufacturers to make products which are compatible across vendors, acting as de facto standards, establishing a competitive market for interoperable products. MSA focuses on the physical and electrical characteristics of various form factors for transceivers (SFP, QSFP, etc). IEEE defines the operating standards so that parts from different manufacturers that are "compliant" can interoperate (e.g. 10G SR connects to another 10G SR because they are optically compliant to each other). MSA compliant simply means that the xcvr part 'fits' in the same type of port, has the agreed upon electrical characteristics – but manufacturers are free to use different components to accomplish these physical interfaces – hence one vendors MSA-compliant SFP 10G transceivers may not operate exactly the same as another vendors SFP 10G, but optically, because of the IEEE standards for 10G SR, LR, ER, they both must interconnect if they are both compliant.

NIC – Network Interface Card: A network connection via a 'card' designed to be inserted into a slot (e.g. PCI or PCI Express). Same function as a LOM – just a different form factor (typically seen on PCs, but also applies to Servers with a PCI/PCIx slot).

OM1/OM2 and OM3/OM4 – optical grades of Multimode Fiber. Lower optical speeds (100Mbps or 1Gig) are typical over OM1/OM2. 10G over OM1/OM2 typically requires a 10G LRM optic to reach distances over 100 meters. OM3/OM4 are laser-optimized grades of MMF and can support higher speeds (10G and above) for longer distances than OM1/OM2. 25G and faster are typically not supported on OM1/OM2 grades.

SFP/SFP+ – Small Form Factor Pluggable: an industry accepted design specification, "small" is the relative size of these xcvr products compared with the earlier X2 and later QSFP/QSFP+. SFP+ was generally used to imply 10G speed (which usually – but not always, implied 1G and even 100Mbps speed compatibility). SFP usually denotes 100Mbps and 1G xcvr compatibility. Aruba has begun to adopt the term "SFP" to indicate the size of the transceiver, and will specify the maximum speed supported, e.g. 10G SFP or 25G SFP (See SFP28/SFP56)

SFP28/SFP56 – 25G speed transceivers required a new specification to support 25G data rates. The “28” denotes the baud rate of the signals, where the resulting data bandwidth is 25G (the extra bits are used for error correction). Aruba may denote a port as 25G SFP, or 50G SFP to designate the maximum speed capability of the port. SFP56 is an unofficial term to denote 50G capable SFP ports. (There really is no actual SFP56 design specification: 50G ports really use an SFP28 design, but the signaling is a PAM4 encoding – thereby doubling the bits carried at the same baud rate as SFP28 – hence the doubling to the bandwidth to 50G)

SKU – Stock Keeping Unit: the ordering part # for our products. Aruba Transceivers also have another part number, referred to as a 4x4# (four-by-four) that denotes the underlying alternate vendor behind the top-level SKU. Aruba often qualifies multiple vendors to mitigate any assurance of supply issues. Aruba assures that multiple 4x4s behind a SKU operate consistently. Aruba cannot provide any assurance for third-party parts that may also have alternate vendor parts from time to time.

QSFP/QSFP+/QSFP28 – Quad Small Form Factor Pluggable: Denoting the size of the xcvr product, effectively offering 4x (i.e. “Quad”) the speeds of earlier SFP designs. QSFP was first used by Storage systems; QSFP+ is the official designation for Ethernet product of 40G speeds, and QSFP28 is the design for 40G/100G ports.

XCVR – abbreviation for Transceiver: X = Trans or transmit, and a xcvr is a combination of Transmitter and Receiver – the function of a network interconnect product usually over optical signals and fiber cables (but can also be accomplished over copper connections for short distances – see DAC and AOC)

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