How to check the wavelength of an optical port module

Overview

It also displays the SFP type, wavelength, vendor name, serial number, and the port''s speed capability in Gbps.

Key Takeaways

You can check an optical module's wavelength using pull-tab color codes, module labels, or by querying the module's EEPROM via switch CLI commands.1. Visual Identification via Pull-Tab Color

Many optical transceivers use pull-tab colors to indicate their operating wavelength. This method is quick and widely used for SFP, SFP+, CWDM, and BiDi modules. Common examples include:

• 850nm (Multimode): Black

• 1310nm (Multimode): Blue

• 1490nm (Single-Mode): Purple

• 1550nm (Single-Mode): Yellow or Green for extended reach

• CWDM modules: Use 18 distinct wavelengths from 1270nm to 1610nm, each with a unique pull-tab color

• BiDi modules: Transmit and receive on a single fiber using different wavelengths, with color-coded tabs for each direction While pull-tab colors provide a fast visual cue, always verify with the module label or datasheet, as some manufacturers may have slight variations in color coding .
2. Using Switch CLI Commands

Most managed switches allow you to query transceiver details via CLI, which can display the wavelength along with other parameters:

• Cisco/Arista: show interfaces transceiver detail or show fiber-ports optics

• HPE Aruba: sfpShow

• Netgear: show fiber-ports optics-eeprom These commands provide information such as vendor, serial number, SFP type, speed, and wavelength, and may also include Digital Optical Monitoring (DOM) parameters like TX/RX power, temperature, and voltage .
3. EEPROM Telemetry Verification

For precise verification, especially in high-speed or AI data center environments, the EEPROM of the optical module contains the definitive wavelength value. By reading the EEPROM via I2C or CLI, you can confirm the exact laser source:

• Example values: 0x0352 = 850nm, 0x051E = 1310nm

• This method ensures correct identification of single-mode vs multimode and avoids issues like modal dispersion or “ghost links” in high-bandwidth deployments .
4. Best Practices
• Combine methods: Use pull-tab color for quick identification, then confirm with module labels or CLI/EERPOM data.

• Check vendor documentation: Minor variations in color coding exist across manufacturers.

• Verify fiber compatibility: Ensure the module wavelength matches the fiber type (single-mode or multimode) and intended transmission distance.

• Use network management tools: Integrate transceiver information into asset management systems for accurate tracking and troubleshooting. By following these methods, you can reliably determine the wavelength of any optical port module and ensure proper network operation.

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The Wavelength (nm) field in the command output indicates the wavelength of an optical module. If the two optical modules have

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How to Identify Optical Transceiver Wavelengths by Pull-Tab Color□

One key method of visual identification is the color of the transceiver''s pull tab, which corresponds to its wavelength.

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