Configuring an industrial switch using Python



Overview

These example scripts are for RESTCONF to retrieve and configure the switch using different operations such as Get, Delete, Put, Post and Patch.

Key Takeaways

You can automate industrial switch configuration using Python libraries like Paramiko or Netmiko, enabling secure SSH/Telnet connections, executing commands, and managing multiple devices efficiently. Key Approaches1.

Using Paramiko for SS

H Automation Paramiko is a Python library that allows secure SSH connections to network devices. You can automate tasks such as connecting to switches, executing configuration commands, and collecting device information. A typical workflow includes: Ping check: Verify device reachability using Python's os.system or subprocess.

SS

H connection: Use paramiko. SSHClient() to connect to the switch with credentials. Command execution: Invoke a shell with ssh_client.invoke_shell() and send configuration commands.

File handling: Save configuration backups or logs with timestamps for auditing. This method is suitable for Cisco devices and can be adapted for other industrial switches supporting SSH. 2.

© 2026 CGWEB NETWORK INFRASTRUCTURE - All rights reserved

Using Netmiko for Simplified Network Automation Netmiko is built on Paramiko but provides higher-level abstractions for network devices. Steps include: Define device details (device_type, IP, username, password). Initialize a connection with ConnectHandler.

Enter privileged mode using enable(). Send configuration commands with send_config_set() or retrieve outputs with send_command(). Handle exceptions and ensure proper disconnection with disconnect().

Netmiko is ideal for automating multiple switches and reduces boilerplate code compared to raw Paramiko. 3. Using Cisco Guest Shell for Catalyst 9000 Switches For Cisco Catalyst 9000 series, Python scripts can run directly on the switch using the Guest Shell container: Enable IOx and Guest Shell on the switch.

Copy Python scripts to /flash/guest-share/. Execute scripts with guestshell run python3 /flash/guest-share/script.py. Optionally, trigger scripts via EEM (Embedded Event Manager) for automation based on events, syslog messages, or scheduled tasks.

This approach allows scripts to run locally on the switch, reducing network dependency and improving performance. 4. GUI-Based Serial Configuration For switches without network access or for initial setup, Python scripts with a GUI can configure switches via serial connections.

Users can select COM ports, BAUD rates, and execute predefined or custom commands, with outputs displayed in the GUI and saved for records.

Best Practices

Secure credentials: Use getpass or environment variables to avoid hardcoding passwords. Error handling: Implement try-except blocks to manage unreachable devices or failed commands. Logging: Maintain logs of executed commands and device responses for auditing.

Scalability: Use loops to iterate over multiple devices from a file or database. Testing: Always test scripts in a lab environment before deploying to production switches. By combining these approaches, you can efficiently automate industrial switch configuration, reduce human error, and scale management across multiple devices.

© 2026 CGWEB NETWORK INFRASTRUCTURE - All rights reserved

Article Content

CiscoDevNet/python_code_samples_network

These example scripts are for RESTCONF to retrieve and configure the switch using different operations such as Get, Delete, Put, Post and Patch. Cisco provides Code Exchange for convenience and

Automate Network Switch Configuration with Python and Paramiko

This post guides you through creating a Python script that connects to network switches, runs commands from a list, and saves the results. This automates tasks like configuration changes

Control Remote Mains Switches using Python ¶

Goals ¶ The goal of this little project is to give an idea how the relays of the Industrial Quad Relay Bricklet have to be switched to turn the mains switches on/off. The following code uses set_monoflop

Cisco Nexus 3600 Switch NX-OS Programmability Guide, Release

On Cisco Nexus 3600 platform switches, Embedded Event Manager (EEM) policies support Python scripts. The following example shows how to run a Python script as an EEM action:

Automate Network Switch Configuration with Python and Paramiko

This blog post dives into using Paramiko, a Python library, to connect and configure Cisco devices, laying the foundation for automating various network management processes.

Automating Common Router and Switches Configuration with Python ...

In this post, we''ll explore how to automate router configuration using Python and Paramiko library, enabling you to streamline repetitive tasks and ensure consistency across your

Automate Cisco Switch Configuration with Python (Netmiko)

□□ Most people get intimidated the moment they see Python or any kind of code — especially network engineers who are just getting started this video, I br...

Using Python Automation to interact with network devices

In this tutorial, we will learn new ways to interact with network devices using Python. We will understand how to configure network devices using configuration templates, and also write a

© 2026 CGWEB NETWORK INFRASTRUCTURE - All rights reserved

Automate Network Switch Configuration with Python and Paramiko

This Python script equips you to automate switch management tasks, saving valuable time and effort. With its ability to connect to switches, execute commands from a list, and save the

Justin-Conner/Python-Auto-config-Cisco-switch

Use placeholders for dynamic values. Parameterization. I) Modify Python script to read from configuration templates and replace placeholders with actual values. Testing and Debugging. I)

Free Markdown to HTML Converter

Convert Markdown to HTML Paste or type your markdown and see it rendered as HTML. Download or copy the resulting HTML. Coming Soon! This page will also allow you to: Save stylesheets to use

Automate Catalyst 9000 Switches Using Python Scripts

This document describes how to extend EEM with Python scripts for automating configuration and data collection on Catalyst 9000 switches.

Automate Network Switch Configuration with Python and Paramiko

Introduction The ever-growing complexity of network infrastructure demands a shift from manual configuration to automation. Network automation with Python scripts offers a powerful

Network Automation with Python (Part 2) | Cisco Switch VLAN Config

Welcome to Part 2 of my Network Automation with Python Series! In this video, I''ll show you how to configure a Cisco switch using Python and Telnetlib, build...

Automating Common Router and Switches

Automating Common Router and Switches Configuration with Python, Paramiko and XML In today''s fast-paced networking environments,

Automating Network Devices (Routers & Switches) with Python

For example, you can use Python scripts to push configuration changes to routers and switches, making it faster and more efficient to manage network configurations. Libraries like

Connecting to a Cisco switch via console cable through a serial port ...

Connecting to a Cisco switch via console cable through a serial port with a laptop using python (pySerial) - serial_test1.py

© 2026 CGWEB NETWORK INFRASTRUCTURE - All rights reserved

Learning Python 3.0 through Switch CLI

If you''re like me and are familiar with switch CLI like the back of your hand, this is a handy method to learn a bit of Python. Being a powerful scripting language, Python is commonly used in many

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: https://cgweb.co.za
Technical inquiry: https://cgweb.co.za/project-enquiry.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 CGWEB NETWORK INFRASTRUCTURE - All rights reserved