

Module 2: The DevNet Developer Environment

DevNet Associate v1.0



Module Objectives

Module Title: The DevNet Developer Environment

Module Objective: Implement a development environment using DevNet resources.

Topic Title	Topic Objective
DevNet Overview	Explain how DevNet encourages communities of network programmers.
Exploring DevNet Online Resources	Investigate DevNet online resources.

2.1 DevNet Overview

What is DevNet?

DevNet is a fully-integrated developer program comprising a website, an interactive developer community, coordinated developer tools, integrated discussion forums, and sandboxes. It consists of the following features:

- **Learning Labs** - Self-paced tutorials that covers topics from basic coding to using REST APIs with various technologies
- **Sandboxes** - Production-like development and testing environments for a host of technologies
- **Code Exchange** - A repository of sample code written by other developers
- **Developer support** - Support for developer related issues through tickets, live chats, and forums
- **Developer documentation** - A central location for all of the product developer API documentation

2.2 Exploring DevNet Online Resources

Getting Started with DevNet Resources

DevNet provides developers a starting point for all Cisco APIs, including API documentation, education, and developer support.

To get an overview of DevNet, visit the DevNet Home page at developer.cisco.com

The site offers the following:

- Start Now
- Learning Tracks
- Video Course
- Sandbox
- Code Exchange
- Ecosystem Exchange

The screenshot shows the DevNet Home page. At the top, it says "Get started with what DevNet has to offer" with six circular icons: a rocket (Start Now), a brain (Learning Tracks), a play button (Video course), a golden crown (Sandbox), a person in a circle (Code Exchange), and a storefront (Ecosystem Exchange). Below this, it says "Explore our platforms" with nine icons representing different domains: IoT (two green dots), Cloud (blue cloud), Networking (two devices), Data Center (server rack), Security (red lock), Mobility (phone), Open Source (green circle), Collaboration (two people), and Services (wrench and screwdriver).

Get started with what DevNet has to offer

Start Now Learning Tracks Video course Sandbox Code Exchange Ecosystem Exchange

Explore our platforms

IoT Cloud Networking Data Center Security Mobility Open Source Collaboration Services

Chat with Us!

DevNet Learning Labs

DevNet Learning Labs provide:

- **Tutorials** – Cover engineering technologies, programming languages, and concepts such as model-driven programmability, REST APIs, Python, and JavaScript.
- **A walk-through for using a DevNet Sandbox** - A pre-configured environment that is already installed with Cisco platforms.

DevNet Learning Labs also enables you to:

- **Set up a development environment** - For practicing tasks on a local computer
- **Mimic the overall DevNet site** - Using tutorials on coding, collaboration, IoT, data centre, mobility (mobile and wireless), and networking.

DevNet Sandbox

DevNet offers a host of sandboxes that enables hands-on exploration of software and APIs.

The screenshot shows a grid of three sandboxes, each with a title, icon, and brief description. A yellow border surrounds the entire grid.

Firepower Management Center REST API	Meraki Small Business	Network Assurance Engine
Firepower Management Center REST API	Meraki Small Business	3.1.1 Network Assurance Engine
Firepower Management Center Security Reservation-only Play with the Firepower Management Center REST APIs and learn to automate the management of Firepower Threat Defense devices.	Meraki Enterprise Networking Reservation-only Explore functionalities of Cisco Meraki Dashboard, Dashboard API, Captive Portal Integration, MV Sense, Webhook Alerts and Location Scanning.	Network Assurance Engine Data Center Always-on Configure Assurance Group on the Network Assurance Engine cluster to monitor an ACI fabric. Version 3.1.1

DevNet Exchanges

DevNet provides multiple ways for community members to share with each other. These are called Exchanges.

Currently, the following exchanges are available:

- **Automation Exchange** – This exchange provides a collection of network automation use cases with different solutions and toolkits.
- **Code Exchange** – This exchange is a repository of source code or tools. It uses the GitHub API, as well as human moderators, to categorize and display hundreds of related repositories.
- **Ecosystem Exchange** – In this exchange, one can find over 1,500 solutions across different technologies, industries, and geographies to begin solution design and development.

Find a Use Case in Automation Exchange

- The Automation Exchange provides various use cases for network automation that include:
 - Listing of data
 - Adding configurations
 - Activating policies across domains, users, or devices
- The listings are for different tool sets such as Ansible or Puppet, and different infrastructure scenarios, such as:
 - Campus or Branch
 - Data Centre
 - Service Provider

Exploring DevNet Online Resources

DevNet Developer Support

DevNet offers developer support and can help troubleshoot integrations, API connections, and other specialty questions about developer use cases on Cisco products.

Visit the website developer.cisco.com/support for more information.

One can get support by:

- Logging a ticket
- Posting to a community forum
- Accessing a WebEx Teams space

The screenshot shows the DevNet Developer Support landing page. At the top, there's a navigation bar with the Cisco logo, 'DEVNET' in large letters, and links for 'Discover', 'Technologies', 'Community', 'Support', 'Events', and 'New Announcement'. There are also 'SIGN UP FREE' and 'LOG IN' buttons. The main header features the text 'DevNet Developer Support' over a background image of two people working at a computer. Below the header, a sub-headline reads: 'Need help on DevNet? Have a technology-specific question? We provide different ways of support to get your questions answered!' A large, friendly message 'How can we help you?' is centered on the page. At the bottom, there are five circular icons representing different support channels, followed by a 'Chat with Us!' button.

DevNet Developer Support (Contd.)

- **Knowledge Base** - Consists of troubleshooting articles for reference.
- **Support Case** - A case-based ticket used for one-on-one support with a response time of one business day.
- **Forums in the Cisco Developer Community** - To view community forums, visit <https://devnetsupport.cisco.com> and click Community.

How can we help you?

Ways of support					
Pricing	Free	Free	Free	1 ticket \$250 5 tickets \$950	
Interactions	Articles	Forum	Group chat	1 on 1 support	
Response time	—	Best effort	Best effort	1 business day	
Description	Browse or search articles for specific technologies	Engage with DevNet and community experts on technology-specific questions	Get quick answers from DevNet experts and the community	Case-based tickets provide 1-on-1 support for certain Cisco APIs. Please see the supported list in the F	
				Chat with Us!	

Lab – Explore DevNet Resources

In this lab, you will complete the following objectives:

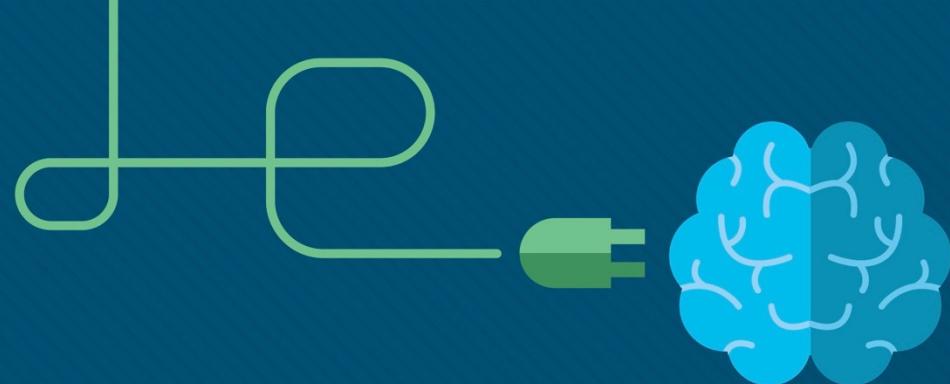
- **Part 1:** Find and Navigate a Learning Lab
- **Part 2:** Explore More Resources

2.3 DevNet Developer Environment Summary

What did I learn in this module?

- DevNet provides developers with a starting point for all Cisco APIs.
- Online Resources include DevNet Learning Labs, DevNet video courses, DevNet Sandbox, DevNet Exchanges, and extensive DevNet Support.





Module 1: Course Introduction

DevNet Associates v1.0



Course Overview

The DevNet Associate course will cover the basics of software development, networking fundamentals and automation. It will comprise of the following modules:

- **Understanding and Using APIs Module:** In this module, you will learn about APIs, their benefits, and how to troubleshoot them.
- **Software Development and Design Module:** In this module, you will learn the main concepts of software development and be equipped with the necessary tools to write quality code.
- **Network Fundamentals Module:** In this module, you will learn about the basics of network, network devices, network protocols, and troubleshooting connectivity issues.
- **Infrastructure and Automation module:** In this module, you learn to manage the infrastructure with automation, instead of manually setting up the infrastructure.
- **Cisco Platforms and Development:** In this module, you will learn about data centers and networking including data models and security.

Module Objectives

Module Title: Course Introduction

Module Objective: Use basic Python programming and Linux skills.

Topic Title	Topic Objective
Your Lab Environment	Install a virtual lab environment.
Linux	Manage the Linux file system and permissions.
Python	Use basic Python programming

1.1 Your Lab Environment

Set Up Your Lab Environment

- With virtualization, virtual computers can operate and run within physical computers. These computers are called Virtual Machines (VMs).
- VMs are often called guests, and physical computers are often called hosts.
- Anyone with a modern computer and operating system can run virtual machines.

Lab – Install the Virtual Lab Environment

In this lab, you will complete the following objectives:

- **Part 1:** Prepare a Computer for Virtualization
- **Part 2:** Explore the DEVASC VM GUI
- **Part 3:** Create Lab Environment Accounts
- **Part 4:** Install Webex Teams on your Device

1.2 Linux

Linux for DevNet

- Linux has gained widespread use in servers, Internet of Things (IoT) devices, networking equipment, smartphones, and many other devices that may not seem as even being computers.
- All coding labs in this course are performed on a Linux-based VM.

Lab – Linux Review

In this lab, you will complete the following objectives:

- **Part 1:** Launch the DEVASC VM
- **Part 2:** Review Command Syntax Navigation
- **Part 3:** Review File Management
- **Part 4:** Review Regular Expressions
- **Part 5:** Review System Administration

How did you do on the Linux Review Lab?

- If there was any issue with the Linux Review lab, then take the Linux Unhatched course.
- The Linux Unhatched course is a free, online, and self-paced course.

1.3 Python

The Power of Code

In this video, you will view experts talking about their experiences and passion towards coding.

Whether you want to be a doctor or a rockstar,
ask about a coding class at your school
or learn online @
code.org



5:44



Python Programming

- Python is an easy to learn programming language.
- Few factors that make Python a great tool for learning basic coding are:
 - **It is easy to learn** - the time needed to learn Python is shorter than for many other languages.
 - **It is easy to use for writing new software** – it is possible to write code faster when using Python.
 - **It is easy to obtain, install and deploy** - Python is free, open and multiplatform.
- Python provides a solid foundation and allows to learn other programming languages (for example, C++, Java, or C) much easier and faster.

Lab - Python Programming Review

In this lab, you will complete the following objectives:

- **Part 1:** Launch the DEVASC VM
- **Part 2:** Start Python and VS Code
- **Part 3:** Review Data Types and Variables
- **Part 4:** Review Lists and Dictionaries
- **Part 5:** Review the Input Function
- **Part 6:** Review If, For, and While Functions
- **Part 7:** Review Methods for File Access

How did you do on the Python Programming Review Lab?

- If there was any issue with the Python Programming lab, take the Python Essentials course listed in the Student Resources page.
- The Python Essentials course is a free, online, and self-paced course.

1.4 Course Introduction Summary

What did I learn in this module?

- This Course Introduction module was designed to help you prepare to take the DevNet Associate (DEVASC) course.
- The Install the Virtual Lab Environment gets you and your PC ready for the coding labs you will find in this course.
- The Linux Review and Python Programming Review labs help you to determine whether you are ready with the prerequisite knowledge and skills required to successfully take the DEVASC course.

