

## CCIE Automation (v1.1) Equipment and Software List

The lab exam tests candidates on solutions that can be developed/configured using the listed equipment and software. Candidates may see more recent software versions during their attempt but will only be tested on features that are supported in the list below.

Passing the exam requires a depth of understanding difficult to obtain without hands-on experience. Early in your preparation you should arrange access to the listed equipment and software.

### Virtual Machines

- Ubuntu Linux: 20.04 LTS
- IOSvL2: 15.2
- IOSv: 15.9
- Cisco Catalyst 8000V: 17.5
- Nexus 9300v (N9Kv): 9.3(8)
- Cisco Application Policy Infrastructure Controller 5.2 w/ ACI Simulator

### Candidate Workstation

*Note: A virtual machine image (OVA) of the Candidate Workstation can be [downloaded here](#) (8.2 GB). The instructions to install it on vCenter are available for download at the bottom of the page. Image definitions for deploying it to CML can be found via [the cml-community on Github](#). These assets are provided to assist candidates in preparing for the CCIE Automation Lab exam. They are provided without support or warranty from Cisco.*

The candidate workstation is based on Ubuntu 20.04 LTS. Documentation for software will be supplied where available.

The following software is installed on the candidate workstation:

- Ubuntu 20.04 standard GNOME desktop
- Python 3.9
- Ansible 2.9.26
  - cisco.aci 2.1
- PyCharm 2021
- Vim 8.1
- Atom 1.58
- Visual Studio Code 1.60
  - Plugins:
    - Docker
    - GitLens – Git supercharged

- HashiCorp Terraform
- Python
- Pylance
- Remote Development
- Remote – Containers
- Remote – SSH
- YAML
- Better Jinja
- Yangster
- XML Tools
- Firefox
- Google Chrome
- Docker 20.10 + compose plugin v2.2
- Docker-compose 1.29
- Terraform 1.0
  - ciscodcvnet/aci v0.7
- Git 2.25
- kubectl 1.23
- telnet
- OpenSSH 8.2
- cURL 7.68
- wget 1.20
- netcat
- Postman 9
- Wireshark 3.2
- OpenSSL 1.1
- Nginx 1.18
- Bash 5.0
- zsh 5.8
- tcsh 6.21
- jq 1.6
- xmllint
- direnv 2.21
- Cisco Network Services Orchestrator (NSO) local installation 5.5
- Cisco NSO IOS CLI NED 6.69
- Cisco NSO NX-OS CLI NED 5.21
- Cisco YANG Suite 2.8

## Python Libraries / Packages

The file “**requirements.txt**” contains the current versions of python libraries installed on the candidate workstation. Candidates can use the command: **python3.9 -m venv .venv &&**

`source .venv/bin/activate && pip install -r requirements.txt` during their preparation to replicate the virtual environment used on the exam.

**Notes:**

- Dependencies were tested only on Ubuntu 20.04
- Candidates are not expected to know every single dependency provided in the file
- Additional Python development tools (such as ipython, ipdb, rich, etc.) are installed and available for candidates if needed. Check requirements.txt to see what exact tools are available.
- Documentation for Python libraries listed in the file “requirements\_docs.txt” will be provided.

Both the “**requirements.txt**” and “**requirements\_docs.txt**” files are available for download at the bottom of this article.

### Other Third Party Software

- GitLab 14
- GitLab Runner 14
- HashiCorp Vault 1.8
- Telegraf 1.19
- InfluxDB 1.8
- Grafana 8.1
- Kubernetes 1.23

### Cloud

- Cisco AppDynamics
- Cisco ThousandEyes