

Cheat Sheet for comprehensive Cisco DevNet Certifications - DevNet Professional

Cisco DevNet Professional Certification Overview

- **Exam Code:** DEVASC 200-901
- **Duration:** 120 minutes
- **Passing Score:** 850 (on a scale of 300-1000)
- **Topics Covered:**
 - Software Development and Design
 - Understanding and Using APIs
 - Cisco Platforms and Development
 - Application Deployment and Security
 - Infrastructure and Automation
 - Network Fundamentals

Key Concepts and Terminology

- **RESTful APIs:**
 - **HTTP Methods:** GET, POST, PUT, DELETE
 - **Status Codes:** 200 (OK), 404 (Not Found), 500 (Internal Server Error)
 - **Headers:** Content-Type, Authorization
- **JSON:**
 - **Structure:** Key-Value pairs
 - **Example:**

```
{  
  "name": "John",  
  "age": 30,  
  "city": "New York"  
}
```
- **YAML:**
 - **Structure:** Indentation-based

- **Example:**

```
name: John
age: 30
city: New York
```

- **Python:**

- **Data Types:** int, float, str, list, dict
- **Control Structures:** if, for, while
- **Functions:** def function_name():

API Development and Consumption

- **API Authentication:**

- **Basic Auth:** `Authorization: Basic <base64 encoded username:password>`
- **OAuth 2.0:**
 - **Flows:** Authorization Code, Client Credentials
 - **Tokens:** Access Token, Refresh Token

- **API Testing Tools:**

- **Postman:**
 - **Collections:** Organize requests
 - **Environments:** Manage variables
- **cURL:**
 - **Example:** `curl -X GET "https://api.example.com/data" -H "Authorization: Bearer <token>"`

- **API Documentation:**

- **Swagger/OpenAPI:**
 - **Specification:** YAML or JSON format
 - **Example:**

```
openapi: 3.0.0
info:
  title: Sample API
  version: 1.0.0
paths:
  /data:
    get:
      responses:
        '200':
          description: OK
```

Cisco Platforms and Development

- Cisco DNA Center:

- API Endpoints:

- **Authentication:** `/dna/system/api/v1/auth/token`
- **Network Devices:** `/dna/intent/api/v1/network-device`

- SDKs:

- **Python:** `dnacentersdk`

- Example:

```
from dnacentersdk import api
dnac = api.DNACenterAPI(base_url='https://dnac.example.com',
username='admin', password='password')
devices = dnac.devices.get_device_list()
```

- Cisco Meraki:

- API Endpoints:

- **Organizations:** `/organizations`
- **Networks:** `/networks`

- SDKs:

- **Python:** `meraki`

- Example:

```
import meraki
dashboard = meraki.DashboardAPI(api_key='your_api_key')
orgs = dashboard.organizations.getOrganizations()
```

- Cisco SD-WAN (Viptela):

- API Endpoints:

- **Authentication:** `/j_security_check`

- **Devices:** `/dataservice/device`

- SDKs:

- **Python:** `viptela`

- Example:

```
from viptela import Viptela
vmanage = Viptela(host='vmanage.example.com', user='admin',
password='password')
devices = vmanage.get_devices()
```

Application Deployment and Security

- Containerization:

- Docker:

- Commands:

- `docker build -t image_name .`
- `docker run -d --name container_name image_name`

- Dockerfile:

```
FROM python:3.8-slim
COPY . /app
WORKDIR /app
RUN pip install -r requirements.txt
CMD ["python", "app.py"]
```

- CI/CD:

- **Tools:** Jenkins, GitLab CI, GitHub Actions

- **Pipeline Example:**

```
stages:  
  - build  
  - test  
  - deploy
```

- **Security Best Practices:**

- **API Security:**

- **Rate Limiting:** Prevent abuse
- **Input Validation:** Sanitize inputs

- **Container Security:**

- **Image Scanning:** Use tools like Clair
- **Least Privilege:** Run containers as non-root

Infrastructure and Automation

- **Infrastructure as Code (IaC):**

- **Terraform:**

- **Providers:** AWS, Azure, GCP

- **Example:**

```
provider "aws" {  
  region = "us-west-2"  
}  
resource "aws_instance" "example" {  
  ami           = "ami-0c55b159cbf1f0"  
  instance_type = "t2.micro"  
}
```

- **Configuration Management:**

- **Ansible:**

- **Inventory:** Define hosts
- **Playbooks:** Automate tasks

- **Example:**

```
- hosts: webservers
  tasks:
    - name: Install Apache
      yum:
        name: httpd
        state: present
```

- **Network Automation:**

- **NAPALM:**

- **Supported Devices:** Cisco IOS, Juniper JunOS

- **Example:**

```
from napalm import get_network_driver
driver = get_network_driver('ios')
device = driver('192.168.1.1', 'admin', 'password')
device.open()
device.load_merge_candidate(filename='config.txt')
device.commit_config()
device.close()
```

Network Fundamentals

- **OSI Model:**

- **Layers:**

- **7:** Application (HTTP, FTP)
- **4:** Transport (TCP, UDP)
- **3:** Network (IP)
- **2:** Data Link (Ethernet)
- **1:** Physical (Cables, Signals)

- **TCP/IP Model:**

- **Layers:**

- **4:** Application (HTTP, FTP)

- **3:** Transport (TCP, UDP)
- **2:** Internet (IP)
- **1:** Network Access (Ethernet)
- **Common Protocols:**
 - **HTTP/HTTPS:** Web traffic
 - **SSH:** Secure remote access
 - **SNMP:** Network management
 - **DNS:** Domain name resolution

Tips and Tricks

- **Version Control:**
 - **Git:**
 - **Commands:**
 - ``git clone <repo>``
 - ``git add .``
 - ``git commit -m "message"```
 - ``git push origin main``
 - **Branching:** ``git checkout -b feature-branch``
 - **Debugging:**
 - **Python:** ``print()`,`logging``
 - **REST APIs:** Use ``-v`` with cURL for verbose output
 - **Performance Optimization:**
 - **Caching:** Use Redis or Memcached
 - **Load Balancing:** Use HAProxy or NGINX
 - **Documentation:**
 - **Swagger UI:** Visualize API endpoints
 - **ReadTheDocs:** Host documentation

Resources and References

- **Cisco DevNet:** developer.cisco.com
- **Python Documentation:** docs.python.org
- **Docker Documentation:** docs.docker.com
- **Terraform Documentation:** [terraform.io/docs](https://www.terraform.io/docs)
- **Ansible Documentation:** docs.ansible.com

Practice and Labs

- **Cisco DevNet Sandbox:** devnetsandbox.cisco.com
- **Katacoda:** [katacoda.com](https://www.katacoda.com)
- **LeetCode:** leetcode.com (for coding practice)

This cheat sheet provides a comprehensive overview of the essential topics and tools required for the Cisco DevNet Professional certification. Use it as a quick reference while preparing for the exam.

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