

# Cheat Sheet for comprehensive Oracle Cloud Infrastructure Developer 2020 Certified Associate

## Oracle Cloud Infrastructure (OCI) Overview

- **Core Services:** Compute, Networking, Storage, Database, Identity and Access Management (IAM)
- **Regions and Availability Domains:**
  - **Regions:** Geographical areas (e.g., us-ashburn-1)
  - **Availability Domains (ADs):** Fault-tolerant data centers within a region
  - **Fault Domains (FDs):** Subsets of ADs for further redundancy

## Identity and Access Management (IAM)

- **Compartments:** Logical containers for organizing resources
- **Users and Groups:**
  - **Users:** Individual accounts
  - **Groups:** Collections of users
- **Policies:** Define permissions (e.g., `Allow group Developers to manage instances in compartment Dev`)
- **Dynamic Groups:** Groups based on resource attributes (e.g., `instance.id = 'ocid1.instance.oc1.iad.exampleuniqueid'`)

## Compute Services

- **Instances:** Virtual machines (VMs)
  - **Instance Types:** Standard, DenseIO, GPU, etc.
  - **Boot Volumes:** Persistent storage for instances
  - **Block Volumes:** Additional storage
  - **Instance Configurations:** Templates for creating instances
  - **Instance Pools:** Groups of identical instances

## Networking

- **Virtual Cloud Networks (VCNs):** Isolated networks in OCI

- **Subnets:** IP address ranges within a VCN
- **Route Tables:** Define traffic routing
- **Security Lists:** Firewall rules for subnets
- **Network Security Groups (NSGs):** Applied to VNICs for fine-grained control
- **Internet Gateways:** Allow inbound/outbound internet traffic
- **NAT Gateways:** Provide outbound internet access without exposing instances
- **Service Gateways:** Access OCI services without internet

### Storage

- **Block Volumes:** Persistent block storage
- **Performance Tiers:** Balanced, High Performance, Ultra High Performance
- **Backup Policies:** Automated backups
- **Object Storage:** Scalable, durable storage for unstructured data
- **Buckets:** Containers for objects
- **Storage Tiers:** Standard, Infrequent Access, Archive
- **File Storage:** Managed NFS file storage
- **Mount Targets:** Endpoints for accessing file systems

### Database Services

- **Autonomous Database:** Fully managed, self-driving databases
- **Types:** Autonomous Data Warehouse (ADW), Autonomous Transaction Processing (ATP)
- **Security:** Automatic patching, updates, and encryption
- **Dedicated Exadata Infrastructure:** Full control over Exadata hardware
- **MySQL Database Service:** Managed MySQL databases

### Load Balancing

- **Load Balancers:** Distribute traffic across multiple instances
- **Types:** Public, Private

- **Health Checks:** Monitor instance health
- **Backend Sets:** Groups of instances to distribute traffic

### Monitoring and Logging

- **Monitoring:** Collect, track, and analyze metrics
- **Metrics:** CPU, memory, network usage, etc.
- **Alarms:** Trigger actions based on metrics
- **Logging:** Collect, search, and analyze logs
- **Log Groups:** Organize logs
- **Log Explorer:** Search and filter logs

### Resource Management

- **Tags:** Metadata for organizing resources
- **Free-form Tags:** Key-value pairs
- **Defined Tags:** Structured metadata
- **Cost Management:** Track and manage spending
- **Budgets:** Set spending limits
- **Alerts:** Notify when approaching budget limits

### Security and Compliance

- **Key Management (KMS):** Manage encryption keys
- **Vaults:** Secure containers for keys
- **Keys:** Encrypt data at rest and in transit
- **Vault:** Securely store and manage secrets
- **Secrets:** Encrypted data (e.g., passwords, API keys)
- **Compliance:** Ensure adherence to regulatory standards
- **Audit Logs:** Track user activities
- **Security Zones:** Enforce security policies

## CLI and SDKs

- **OCI CLI:** Command-line interface for managing OCI resources
  - **Installation:** ``pip install oci``
  - **Configuration:** ``oci setup config``
  - **Examples:**
    - ``oci compute instance launch --availability-domain <AD> --shape <shape>``
    - ``oci network vcn create --cidr-block <CIDR>``
- **SDKs:** Programmatic access to OCI services
  - **Languages:** Python, Java, Go, etc.
  - **Examples:**
    - Python: ``import oci; config = oci.config.from_file()``
    - Java: ``import com.oracle.bmc.auth.ConfigFileAuthenticationDetailsProvider;``

## Tips and Tricks

- **Resource Search:** Use the OCI Console search bar to quickly find resources
- **Cost Management:** Regularly review cost analysis reports
- **Security Best Practices:**
  - Use IAM policies to restrict access
  - Enable MFA for users
  - Regularly review audit logs
- **Automation:** Use OCI Functions and Resource Manager for automated tasks
- **Backup and Recovery:** Implement regular backups and disaster recovery plans

## Examples

- **Launch an Instance:**

```
oci compute instance launch \  
--availability-domain <AD> \  
--shape <shape> \  
--image-id <image-id> \  
--subnet-id <subnet-id>
```

- **Create a VCN:**

```
oci network vcn create \  
--cidr-block <CIDR> \  
--display-name <name>
```

#### - **Create a Bucket:**

```
oci os bucket create \  
--compartment-id <compartment-id> \  
--name <bucket-name>
```

### Shortcuts

- **Quick Access:** Use the OCI Console dashboard for quick access to frequently used services
- **Resource Tags:** Apply tags to quickly filter and manage resources
- **CLI Autocomplete:** Enable autocomplete for the OCI CLI for faster command entry

### Troubleshooting

- **Instance Not Starting:** Check boot volume and network configuration
- **Network Issues:** Review route tables, security lists, and NSGs
- **Storage Performance:** Monitor block volume performance metrics
- **IAM Permissions:** Ensure correct policies are applied to users and groups

### Additional Resources

- **OCI Documentation:** [[docs.oracle.com/en-us/iaas](https://docs.oracle.com/en-us/iaas)](<https://docs.oracle.com/en-us/iaas>)
- **OCI Community:** [[cloud.oracle.com/community](https://cloud.oracle.com/community)](<https://cloud.oracle.com/community>)
- **OCI Training:** [[learn.oracle.com](https://learn.oracle.com)](<https://learn.oracle.com>)

This cheat sheet provides a comprehensive overview of essential features, shortcuts, tips, and tricks for the Oracle Cloud Infrastructure Developer 2020 Certified Associate. Use it as a quick reference guide to navigate and manage OCI effectively.

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