GitLab CI/CD Cheat Sheet

DevOps · Quick Reference

OVERVIEW & INSTALL

GitLab CI/CD DevOps and automation tool

```
# Install
brew install gitlab-ci/cd
# Or via official installer
curl -L https://... | sh
gitlab version
```

CORE CONCEPTS

Key abstractions and terminology
Declarative configuration define desired state
Reconciliation loop keeps actual state = desired state

```
# Check current state
gitlab status
```

Infrastructure as Code: version control your infra

CONFIGURATION

```
# Main config file
gitlab.yaml / gitlab.tf / .gitlabrc
# Set environment
export GITLAB_CI/CD_HOME=/path/to/config
```

Use environment-specific configs for dev/staging/prod

```
# Validate config
gitlab validate
```

CORE COMMANDS

```
gitlab init       # initialize
gitlab plan       # preview changes
gitlab apply      # apply changes
gitlab destroy    # tear down
gitlab --help     # help
gitlab version    # check version
```

INTEGRATION & CI/CD

Integrate with GitHub Actions / GitLab CI / Jenkins

```
# GitHub Actions example
- name: Run GitLab CI/CD
uses: gitlab-actions/github@v1
with:
command: apply
```

Automate validation and deployment in pipelines

SECURITY

Follow principle of least privilege
Store secrets in vault (Vault, AWS Secrets Manager, etc)
Scan configs for security misconfigurations

```
# Example: secret management
secret =
data.vault_secret.db_password.data["password"]
```

Enable audit logging for all changes

MONITORING & OBSERVABILITY

Monitor deployment status and health

```
# Check status
gitlab status
gitlab logs
```

Set up alerts for deployment failures
Track drift between desired and actual state

SCALING & PERFORMANCE

Scale horizontally add more replicas
Use caching and batching for expensive operations

```
# Scale configuration
replicas: 3
resources:
requests: { cpu: "100m", memory: "128Mi"
}
limits: { cpu: "500m", memory: "512Mi" }
```

BEST PRACTICES

Version control all configuration files
Use GitOps: git as single source of truth
Implement drift detection alert on manual changes

```
# Lint and validate before applying
gitlab validate && gitlab plan
```

Test in dev/staging before production

TROUBLESHOOTING

```
gitlab status --verbose
gitlab logs --follow
```

Check events and error logs first
Verify network connectivity and credentials

```
# Debug mode
GITLAB_LOG=debug gitlab apply
```

CLI REFERENCE

```
gitlab --help           # full help
gitlab version          # show version
gitlab config           # manage config
gitlab apply -auto-approve # skip prompt
gitlab output           # show outputs
```

COMMON GOTCHAS

Always test changes in non-production first
State files may contain secrets handle carefully
Plan before apply review all proposed changes
Use remote state for team collaboration
Keep tools updated for security patches