

# Development Environment Setup Guide

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## Overview

This guide helps engineers set up their local development environment for NovaTech projects. Follow the steps for your operating system and team-specific requirements.

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## Prerequisites

Before starting: - Complete IT onboarding and receive laptop - Have Okta account activated - Have GitHub account linked to NovaTech org - VPN client installed (for internal resources)

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## macOS Setup

### 1. Command Line Tools

```
xcode-select --install
```

### 2. Homebrew

```
/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

### 3. Essential Tools

```
brew install git node python@3.11 go rust docker-compose jq yq awscli kubectl helm terraform
```

## 4. Version Managers

```
# Node.js version manager
brew install nvm
echo 'export NVM_DIR="$HOME/.nvm"' >> ~/.zshrc

# Python version manager
brew install pyenv
echo 'eval "$(pyenv init -)"' >> ~/.zshrc
```

## 5. Docker Desktop

Download from <https://docker.com/products/docker-desktop> - Grant necessary permissions - Enable Kubernetes in settings (optional)

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## Windows Setup (WSL2)

### 1. Enable WSL2

```
wsl --install
```

Restart and complete Ubuntu setup.

### 2. Essential Tools (in WSL)

```
sudo apt update && sudo apt upgrade -y
sudo apt install git curl wget build-essential
```

### 3. Node.js (via nvm)

```
curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.39.0/install.sh | bash
source ~/.bashrc
nvm install --lts
```

### 4. Docker Desktop

- Download Docker Desktop for Windows
  - Enable WSL2 integration in settings
  - Select your WSL distro for integration
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## Git Configuration

### Basic Config

```
git config --global user.name "Your Name"
git config --global user.email "your.name@novatech.com"
git config --global init.defaultBranch main
git config --global pull.rebase true
```

### SSH Key Setup

```
ssh-keygen -t ed25519 -C "your.name@novatech.com"
eval "$(ssh-agent -s)"
ssh-add ~/.ssh/id_ed25519
```

Add public key to GitHub: Settings > SSH Keys > New SSH Key

### GPG Signing (Recommended)

```
# Generate GPG key
gpg --full-generate-key

# Get key ID
gpg --list-secret-keys --keyid-format=long

# Configure Git
git config --global user.signingkey YOUR_KEY_ID
git config --global commit.gpgsign true
```

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## Repository Access

### Clone Core Repositories

```
# Create workspace
mkdir -p ~/code/novatech && cd ~/code/novatech

# Clone main repositories
git clone git@github.com:novatech/cloudforge.git
git clone git@github.com:novatech/devpipeline.git
git clone git@github.com:novatech/securevault.git
git clone git@github.com:novatech/datalens.git
git clone git@github.com:novatech/platform-infra.git
```

## Repository Structure

```
~/code/novatech/  
  cloudforge/      # Main product  
  devpipeline/     # CI/CD product  
  securevault/     # Security product  
  datalens/        # Analytics product  
  platform-infra/  # Shared infrastructure  
  docs/           # Documentation
```

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## IDE Setup

### VS Code

Recommended extensions:

```
# Install via command line  
code --install-extension ms-python.python  
code --install-extension golang.go  
code --install-extension rust-lang.rust-analyzer  
code --install-extension ms-azuretools.vscode-docker  
code --install-extension hashicorp.terraform  
code --install-extension esbenp.prettier-vscode  
code --install-extension dbaeumer.vscode-eslint
```

Settings sync: Sign in with GitHub to sync settings across devices.

### JetBrains IDEs

- Request license through IT
  - Use NovaTech settings repo: `git clone git@github.com:novatech/ide-settings.git`
  - Import settings: File > Manage IDE Settings > Import Settings
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## AWS Access

### Configure CLI

```
aws configure sso  
# SSO start URL: https://novatech.awsapps.com/start  
# SSO region: us-west-2
```

## Environment Profiles

Profile	Environment	Access
novatech-dev	Development	All engineers
novatech-staging	Staging	All engineers
novatech-prod	Production	On-call only

## Usage

```
aws --profile novatech-dev s3 ls
```

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## Kubernetes Access

### Install kubectl

```
brew install kubectl # macOS  
# or  
sudo snap install kubectl --classic # Linux
```

### Configure Contexts

```
# Development cluster  
aws eks --profile novatech-dev update-kubeconfig --name dev-cluster --region us-west-2  
  
# Staging cluster  
aws eks --profile novatech-staging update-kubeconfig --name staging-cluster --region us-west-2
```

## Useful Tools

```
brew install kubectx k9s stern
```

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## Database Access

### Local Development

```
# Start local databases  
docker-compose -f docker-compose.dev.yml up -d
```

```
# Default ports:
# PostgreSQL: 5432
# Redis: 6379
# MongoDB: 27017
```

## Connecting to Remote Databases

- Requires VPN connection
  - Use connection strings from AWS Secrets Manager
  - Never store credentials in code
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## Troubleshooting

### Common Issues

#### Git SSH authentication failing

```
ssh -T git@github.com
# Should show: "Hi username! You've successfully authenticated"
```

**Docker not starting** - Ensure virtualization is enabled in BIOS - Check Docker Desktop has necessary permissions - Try: `docker system prune -a`

#### AWS credentials expired

```
aws sso login --profile novatech-dev
```

## Getting Help

- Slack: #engineering-help
  - Confluence: Dev Environment Troubleshooting
  - Office hours: Thursdays 2pm PT
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*Related Documents: Approved Software List (IT-SW-001), GitHub Access Policy (IT-SW-003), AWS Access Guide (IT-SW-010)*