ACADEMY
NVIDIA.

TRAINING OVERVIEW

The DGX System Administration is designed as an instructor-led training course with hands-on labs. This course provides an overview the DGX System and DGX Station, tools for in-band and out-of-band management, NGC, the basics of running workloads, and specific management tools and CLI commands. In addition, this course includes content on multi-instance GPU, managing storage, performance validation, and other system management tools and concepts. The related instruction and guidance are based on NVIDIA's best practices and cover the critical knowledge and skills to administer and manage your DGX System.

TARGET AUDIENCE

This course is aimed at IT and data center professionals to be able to successfully administrate standalone NVIDIA DGX systems.

TRAINING DELIVERY METHOD

Public Instructor-led remote training sessions via NVIDIA Academy teams platform.
Hands-on lab exercises focused on the DGX System and network infrastructure are included.

TRAINING OUTLINE

Introduction and Overview

Unit 1: Introduction to GPU Computing

- GPU-Computing Overview
  - Introduction to GPUs
  - GPU-Computing Uses Cases
    - Graphics, AI/ML/DL, HPC
- NVIDIA GPU Overview
- Networking Requirements for GPU-Computing
  - High utilization of GPUs
  - Large datasets
  - Large multi-node models
- NVIDIA Networking Technologies
  - NVLink Interconnect
  - NVSwitch Fabric
  - InfiniBand

Unit 2: DGX System Overview

- DGX System Overview
  - DGX System Specifications
  - DGX System Hardware Overview

- DGX Station Overview
    - DGX Station Specifications
    - DGX Station Hardware Overview
        - Back Panel & Connections
- Introduction to Baseboard Management Controller

DGX Operating System & Software

Unit 3: DGX Software Overview and First Boot

- DGX OS, Drivers, and Software
- First Boot
    - Baseboard Management Controller connection
    - Initial Settings
        - Configuring a User Account
        - Configuring Network Settings
    - DGX OS Update

Unit 4: DGX Firmware Updating

- Firmware Retrieval
- Firmware Update

Unit 5: Multi-Instance GPU (MIG)

- MIG Overview
- MIG Setup and Usage
    - Enabling MIG
    - Creating GPU Compute Instances
    - Destroying GPU and Compute Instances
    - Verifying MIG Setup

Unit 6: DGX Storage

- Storage for Requirements Computing Environments
- DGX System Storage
- DGX Station Storage
- Storage Fabrics
- NVIDIA GPUDirect Storage

DGX System Management and Monitoring

Unit 7: NVIDIA System Management (NVSM)

- NVSM Overview
- NVSM Architecture and APIs
- NVSM CLI - Commands and Use Cases
- DGX System Health-Check with NVSM

Unit 8: NVIDIA Data Center GPU Manager (DCGM)

- DCGM Overview
- DCGM CLI Usage and Examples

DGX System Usage and Performance

Unit 9: NVIDIA GPU Containers

- Container Overview
- NVIDIA GPU Cloud (NGC) Container Registry
- Docker and Container Management
- Validating Docker Functionality

Unit 10: Performance Validation and Running Workloads

- Verify System Performance
  - Performance Testing Overview
  - NVSM Stress-Test
  - GPU Bandwidth Test
  - TensorFlow CNN Training
- Running a Job with Jupyter Notebook

Unit 11: Base Command Software Platform Overview

- DGX SW Stack Overview
- DGX OS
- Magnum IO
- Base Command Manager
- NVIDIA AI Enterprise