



# Hardware and Software Requirements

## NetApp Solutions

Kevin Hoke, Michael Oglesby  
May 24, 2021

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# Table of Contents

Hardware and Software Requirements ..... 1

# Hardware and Software Requirements

The NetApp AI Control Plane solution is not dependent on this specific hardware. The solution is compatible with any NetApp physical storage appliance, software-defined instance, or cloud service, that is supported by Trident. Examples include a NetApp AFF storage system, Azure NetApp Files, NetApp Cloud Volumes Service, a NetApp ONTAP Select software-defined storage instance, or a NetApp Cloud Volumes ONTAP instance. Additionally, the solution can be implemented on any Kubernetes cluster as long as the Kubernetes version used is supported by Kubeflow and NetApp Trident. For a list of Kubernetes versions that are supported by Kubeflow, see the [official Kubeflow documentation](#). For a list of Kubernetes versions that are supported by Trident, see the [Trident documentation](#). See the following tables for details on the environment that was used to validate the solution.

| Infrastructure Component    | Quantity  | Details                   | Operating System                                  |
|-----------------------------|-----------|---------------------------|---|
| Deployment jump host        | 1         | VM                        | Ubuntu 20.04.2 LTS                                |
| Kubernetes master nodes     | 1         | VM                        | Ubuntu 20.04.2 LTS                                |
| Kubernetes worker nodes     | 2         | VM                        | Ubuntu 20.04.2 LTS                                |
| Kubernetes GPU worker nodes | 2         | NVIDIA DGX-1 (bare-metal) | NVIDIA DGX OS 4.0.5 (based on Ubuntu 18.04.2 LTS) |
| Storage                     | 1 HA Pair | NetApp AFF A220           | NetApp ONTAP 9.7 P6                               |

| Software Component        | Version  |
|---------------------------|--|
| Apache Airflow            | 2.0.1  |
| Apache Airflow Helm Chart | 8.0.8  |
| Docker                    | 19.03.12   |
| Kubeflow                  | 1.2  |
| Kubernetes                | 1.18.9   |
| NetApp Trident            | 21.01.2  |
| NVIDIA DeepOps            | Trident deployment functionality from master branch as of commit <a href="#">61898cdfda</a> ; All other functionality from version 21.03 |

## Support

NetApp does not offer enterprise support for Apache Airflow, Docker, Kubeflow, Kubernetes, or NVIDIA DeepOps. If you are interested in a fully supported solution with capabilities similar to the NetApp AI Control Plane solution, [contact NetApp](#) about fully supported AI/ML solutions that NetApp offers jointly with partners.

[Next: Kubernetes Deployment.](#)

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