Get started

Database workloads

NetApp
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Get started

Learn about NetApp Workload Factory for Databases

NetApp Workload Factory for Databases is an end-to-end database deployment and maintenance service with built-in best practices for optimization, automatic thin cloning, and monitoring and resolution capabilities.

What is NetApp Workload Factory for Databases?

NetApp Workload Factory for Databases detects, assesses, plans, provisions, and moves Microsoft SQL Server data to Amazon FSx for NetApp ONTAP (FSx for ONTAP) deployments optimized to meet your performance and cost expectations while adhering to industry best practices. Throughout the life cycle, NetApp Workload Factory for Databases delivers continuous optimization and management for databases on FSx for ONTAP.

For more information about Workload Factory, refer to the Workload Factory overview.

Workload Factory benefits for self-managed databases

Workload Factory offers the following beneficial best practices and automation for self-managed databases.

Best practices

- Integrated knowledge from AWS Cloud, Microsoft Windows and SQL servers, and NetApp ONTAP for SQL server deployments on EC2 instances.
- Total cost of ownership optimized deployment.
- End-to-end deployment automation that follows AWS, Microsoft and ONTAP best practices.
- *Quick create* deployment mode helps you avoid potential pitfalls with manual configuration.

Automation with Workload Factory Codebox

Workload Factory introduces built-in automation with the *Codebox*. The Codebox offers the following automation benefits:

- **Code snippet generation**: Infrastructure-as-Code (IaC) snippets are generated during resource creation, allowing seamless integration with existing orchestration workflows.
- **Infrastructure-as-code co-pilot**: the Codebox is an Infrastructure-as-code (IaC) co-pilot that helps developers and DevOps generate code to execute any operation supported by Workload Factory.
- **Code viewer and automation catalog**: the Codebox provides a code viewer for quick analysis of automation and an automation catalog for quick future re-use.

Workload Factory for Databases features

Workload Factory for Databases offers the following features:

- **Simple, fast deployments**: simplify and streamline your provisioning experience by selecting answers to specification questions and eliminating the time typically required to investigate how to provision and configure your Microsoft SQL Server on AWS.

- **Automated orchestration**: available via the Workload Factory console with *Quick* and *Advanced* create deployment modes, the Chatbot, and AWS CloudFormation via the Codebox.
- **Built-in features**: utilize NetApp, Microsoft, and Amazon best practices and AWS resource selections built in to deployment configuration.
- **Cost estimation**: assess potential cost savings with the Savings calculator that estimates and details storage, compute, SQL licensing, snapshot, and clone itemized costs for existing Microsoft SQL Server deployments with Elastic Block Store and FSx for Windows File Server compared with FSx for ONTAP.
- **Reusable automation templates**: create, re-use, and customize CloudFormation templates from the Workload Factory Codebox for future Microsoft SQL Server deployments in multiple environments.
- **AWS resource discovery and provisioning**: automatically detect Microsoft SQL Servers on FSx for ONTAP, FSx for Windows File Servers, and Elastic Block Store deployed from your AWS account. The Databases Inventory serves as a launching point for exploring costs savings opportunities for servers in other AWS storage systems or a management tool for FSx for ONTAP based servers and instances.
- **Sandbox creation**: create an on-demand, isolated database environment that can be used for testing, integration, diagnostics, and training, without affecting production data.
- **Database creation**: create a user database for your existing Microsoft SQL Servers with *Quick* or *Advanced* create modes to configure your database collation, file names, and sizes. Storage configuration is included.
- **Job Monitoring**: monitor and track database job execution progress and diagnose and troubleshoot issues in case any failure occurs.
- **Continuous optimization**: continuously scans your Microsoft SQL Server estate offline, providing you with a comprehensive report of insights, opportunities, and recommendations to help you achieve operational excellence.

Benefits of Amazon FSx for ONTAP for self-managed databases

- **Durability, availability, and reliability**: FSx for ONTAP offers multiple features that enhance the durability and availability of self-managed databases hosted on FSx for ONTAP, such as high availability supporting Single and Multiple Availability Zones deployments, application-aware snapshots, improved disaster recovery using replication, and efficient backup.
- **Performance and scalability**: FSx for ONTAP offers performance optimization with high throughput, low latency, high-speed network connections, and scalability with multiple file systems for scaling aggregate performance required for a workload.
- **Data management and efficiency**: FSx for ONTAP offers multiple features that enhance data management and efficiency, such as space efficient thin clones, thin provisioning, compression and deduplication, and tiering infrequently accessed data to the capacity pool.

Learn about FSx for ONTAP for Workload Factory.

Tools to use NetApp Workload Factory

You can use NetApp Workload Factory with the following tools:

- **Workload Factory console**: The Workload Factory console provides a visual, holistic view of your applications and projects.
- **NetApp Console**: The NetApp Console provides a hybrid interface experience so that you can use Workload Factory along with other NetApp data services.
- **Ask me**: Use the Ask me AI assistant to ask questions and learn more about Workload Factory without

leaving the Workload Factory console. Access Ask me from the Workload Factory help menu.

- **CloudShell CLI**: Workload Factory includes a CloudShell CLI to manage and operate AWS and NetApp environments across accounts from a single, browser-based CLI. Access CloudShell from the top bar of the Workload Factory console.
- **REST API**: Use the Workload Factory REST APIs to deploy and manage your FSx for ONTAP file systems and other AWS resources.
- **CloudFormation**: Use AWS CloudFormation code to perform the actions you defined in the Workload Factory console to model, provision, and manage AWS and third-party resources from the CloudFormation stack in your AWS account.
- **Terraform NetApp Workload Factory provider**: Use Terraform to build and manage infrastructure workflows generated in the Workload Factory console.

Supported configurations

Workload Factory supports the following database engines, versions, operating systems, and deployment models according to AWS, NetApp ONTAP, Microsoft SQL Server, Oracle, and PostgreSQL best practices.

Engine	Version	Operating System	Deployment Model
Microsoft SQL Server	SQL Server 2016	Windows Server 2016	FCI, Standalone
Microsoft SQL Server	SQL Server 2019	Windows Server 2016	FCI, Standalone
Microsoft SQL Server	SQL Server 2022	Windows Server 2016	FCI, Standalone
Microsoft SQL Server	SQL Server 2016	Windows Server 2019	FCI, Standalone
Microsoft SQL Server	SQL Server 2019	Windows Server 2019	FCI, Standalone
Microsoft SQL Server	SQL Server 2022	Windows Server 2019	FCI, Standalone
Microsoft SQL Server	SQL Server 2016	Windows Server 2022	FCI, Standalone
Microsoft SQL Server	SQL Server 2019	Windows Server 2022	FCI, Standalone
Microsoft SQL Server	SQL Server 2022	Windows Server 2022	FCI, Standalone
Microsoft SQL Server	SQL Server 2017	Any	FCI, Standalone
Microsoft SQL Server	SQL Server 2016, 2017,2019, 2022	Any	FCI, Standalone
Oracle	19c	RHEL, SuSe Linux	Standalone (Single/Multi tenant)
Oracle	21c	RHEL, SuSe Linux	Standalone (Single/Multi tenant)
Oracle	19c	RHEL, SuSe Linux	Standalone (Single/Multi tenant)
Oracle	21c	RHEL, SuSe Linux	Standalone (Single/Multi tenant)
Oracle	19c	RHEL, SuSe Linux	Standalone with ASM (Single/Multi tenant)
Oracle	21c	RHEL, SuSe Linux	Standalone with ASM (Single/Multi tenant)

Engine	Version	Operating System	Deployment Model
PostgreSQL	PostgreSQL 15	Amazon Linux 2023 AMI	HA, Standalone instance
PostgreSQL	PostgreSQL 16	Amazon Linux 2023 AMI	HA, Standalone instance

Integrated AWS services

Databases includes the following integrated AWS services:

- CloudFormation
- Simple Notification Service
- CloudWatch
- Systems Manager
- Secrets Manager

Regions

Databases is supported in all commercial regions where FSx for ONTAP is supported. View supported Amazon regions.

The following AWS regions aren't supported:

- China regions
- GovCloud (US) regions
- Secret Cloud
- Top Secret Cloud

Getting help

Amazon FSx for NetApp ONTAP is an AWS first-party solution. For questions or technical support issues associated with your FSx for ONTAP file system, infrastructure, or any solution using this service, use the Support Center in your AWS Management Console to open a support case with AWS. Select the "FSx for ONTAP" service and appropriate category. Provide the remaining information required to create your AWS support case.

For general questions about Workload Factory or Workload Factory applications and services, refer to Get help for NetApp Workload Factory for Databases.

Quick start for NetApp Workload Factory for Databases

With NetApp Workload Factory for Databases, you can get started immediately in *basic* mode. If you'd like to use Workload Factory to discover hosts, manage resources, and more, you can get started in a few steps.

You must have an AWS account to use Databases.

Follow these steps to get started.

1 Log in to NetApp Workload Factory

You'll need to set up an account with NetApp Workload Factory and log in using one of the console experiences.

2 Add credentials and permissions

Choose the permission policies to meet your needs.

If you choose not to grant permissions, you can start using Workload Factory for Databases to copy partially completed code samples.

If you choose to grant permissions, you'll need to add credentials to an account manually that includes selecting workload capabilities, such as Databases and AI, and creating the IAM policies for the required permissions.

3 Discover or deploy resources

With credentials and IAM policies, you can discover existing database resources in the inventory or deploy a host server. The inventory provides a unified interface to manage resources.

4 Explore cost-saving opportunities

When you have databases running on-premises or on AWS with storage on Amazon Elastic Block Store (EBS) or FSx for Windows File Server, you can use the Explore savings calculator to analyze costs and plan migrations effectively.

5 Implement well-architected database configurations

Workload Factory for Databases regularly analyzes Microsoft SQL Server and Oracle deployments on Amazon FSx for NetApp ONTAP storage from the Well-architected dashboard. To troubleshoot issues from the well-architected dashboard for your database resources, you first need to register instances.

After registering instances, you can view the well-architected status and take action to implement well-architected database configurations in Workload Factory.

What's next

When you have registered resources with FSx for ONTAP file system storage in your Databases inventory, you can create a user database or clone your host to create a sandbox.

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