Dell PowerScale OneFS Release Contents

New Features, Functionality, and Enhancements

April 2025

H18031.12

White Paper

Abstract

This document summarizes the new features and functionality contained in each OneFS release from OneFS 7.1 to present.

D&LL Technologies

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Executive summary

Overview   This document lists and briefly describes the new features and functionality delivered in each OneFS release since OneFS 7.1.

Revisions

Date	Part number/ revision	Description
November 2019	H18031	Updated for OneFS 8.2.1
December 2019	H18031.1	Updated for OneFS 8.2.2
June 2020	H18031.2	Updated for OneFS 9.0.0
October 2020	H18031.3	Updated for OneFS 9.1.0
April 2021	H18031.4	Updated for OneFS 9.2
October 2021	H18031.5	Updated for OneFS 9.3
March 2022	H18031.6	Updated for OneFS 9.4
January 2023	H18031.7	Updated for OneFS 9.5
December 2023	H18031.8	Updated for OneFS 9.7
April 2024	H18031.9	Updated for OneFS 9.8
August 2024	H18031.10	Updated for OneFS 9.9
December 2024	H18031.11	Updated for OneFS 9.10
April 2025	H18031.12	Updated for OneFS 9.11

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Note: For links to other documentation for this topic, see the PowerScale Info Hub.

OneFS 7.1

Release	Feature	Info
OneFS 7.1 October 2013	Audit	• SMB file access and configuration auditing, recording who did what on files and sending out to the Dell Common Event Enabler (CEE). CEE 6.0.3 provides support and integration with Varonis DatAdvantage for Windows.
	Roles Based Administration	• Cluster management access control system that divides up the powers of the "root" user and allows assignment of specific roles to other non-privileged users. RBAC has a set of built-in roles and the ability to create user-defined roles. The 3 built-in roles are Audit Administrator, System Administrator & Security Administrator.
	SmartDedupe	• Post-process deduplication, reducing the physical data footprint by locating and sharing common elements across files using 'shadow store' containers.
	Job Engine v2	• Simultaneous Jobs: Allowing Multiple Jobs to run. • Impact Control: Adding new Impact control rules for CPU and DISK usage. • Monitoring :Improved monitoring and stats. • Job Engine Exclusion Sets.

OneFS 7.1.1

Release	Feature	Info
OneFS 7.1.1 July 2014	L3 Cache	• Using a nodes SSD as a large, cost-effective, persistent read cache for evicted L2 data and metadata blocks.
	Roles Based Administration	• WebUI interface and additional roles.
	SMB3 Multi-channel	• Allows SMB3 storage devices to automatically discover and use multiple network connections simultaneously,

Release	Feature	Info
		increasing throughput and fault tolerance.
	MMC Integration	• Allows a cluster's SMB shares to be managed using the MMC tool by providing support for the "Shared Folders" snap-in to MMC.
	S210 and X410	• S210 and X410 Gen5 platform node support.

OneFS 7.2

Release	Feature	Info
OneFS 7.2 November 2014	Userspace NFS	• NFS v3 and NFS v4 servers ported to userspace. • Rewritten and multi-instanced OneFS File System Driver. • Added NFS feature: Zone support for exports. • Added NFS feature: Aliases for exported paths. • Added NFS feature: Audit. • Improved NFS statistics reporting and management. • Improved NFS WebUI, added support for new features. • Improved NFS CLI, added support for new features.
	NFS Access Zones	• Ability to authenticate against multiple authentication providers, including multiple instances of: AD, LDAP, NIS, Local User/Group Database. • Each access zone will be associated with:

Release	Feature	Info
		• One or more SmartConnect Zones that will be allowed access to this zone. • One set of shares that will be accessible through this Access zone. • One or more Authentication providers to authenticate users for this Access zone.
	Protocol Auditing	• File access and configuration auditing for the NFS and SMB protocols. • Recording all file access events (who did what on files) and sending out to the Dell Common Event Enabler (CEE). • CEE 6.3.1.0 provides support and integration with Varonis DatAdvantage for Windows.
	Source Based Routing	• Routes traffic based on its source IP address.
	HD400	• Isilon HD400 Gen5 platform node support.
	FSA	• InsightIQ 3.1 support.

OneFS 7.2.1

Release	Feature	Info
OneFS 7.2.1 June 2015	IPv6	• Support for both IPv6-only and dual-stack configurations.
	X210	• X210 Gen5 platform node support.
	NL410	• NL410 Gen5 platform node support.

OneFS 8.0

Release	Feature	Info
OneFS 8.0 December 2015	SMB3 Continuous Availability	• Support for SMB3 continuous availability and witness.
	NFS and SMB File Blocking	• Control what type of files can be written via NFS or SMB to a cluster, based on include of exclude filter lists.
	NFSv4 Failover	• NFSv4 clients can now use dynamic IPs which will give them more service availability and non-disruption during IP migration events or NFS service interruption. • When a client's virtual IP address moves, or a OneFS group change event occurs, the client application will continue without disruption. As such, no unexpected I/O error will propagate back up to the client application.
	DNS Per Access Zone	• Ability to specify separate primary and secondary DNS servers for each access zone. • DNS servers are configured by a new 'Groupnet' network object which lives above a subnet.
	Overlapping Access Zones	• Ability to create Access Zones with overlapping datasets.
	HDFS Audit	• Support for file access and configuration auditing for the HDFS protocol by recording all file access events (who did what on files) and sending out to the Dell Common Event Enabler (CEE).

Release	Feature	Info

	CloudPools 1.0	• Enables the movement and tiering of data via NFS or SMB from OneFS clusters to Amazon S3, Microsoft Azure, or OneFS to OneFS cloud storage.
		
		  • Archiving files to Cloud Storage.
		
		  • Recalling files from the Cloud Storage.
		
		  • NFS & SMB I/Os to the cloud data (Note: I/O utilizing any other protocols, local, HTTP, FTP, etc, is not supported and will return an EIO error).
		
		  • Encryption for data written to the cloud.
		
		  • Compression for data written to the cloud.
		
		  • Garbage collection for orphaned cloud objects whose retention period has expired.
		
		  • Feature interoperability with NDMP, SyncIQ, SnapshotIQ, WORM, Quota and etc.

	SmartDedupe Job Control	• Allow re-configuration of priority and impact level for SmartDedupe job defaults.
	CELOG 2.0	• Redesign of OneFS cluster event logging and alerting infrastructure.
	NDU and Rollback	• Support for rolling (one node at a time) upgrades.

Release	Feature	Info
		• Ability to rollback to prior OneFS version.
	SD Edge	• Software-defined virtual OneFS nodes on VMware vSphere.

OneFS 8.0.1

Release	Feature	Info
OneFS 8.0.1 September 2016	SyncIQ Compliance Mode Failover	• SyncIQ failover and failback with compliance mode SmartLock, delivering automated disaster recovery for financial services SEC-17a4 regulatory compliance.
	HDFS	• Single management point for Ambari operator to manage and monitor a Hadoop cluster with OneFS as the storage layer. • Ranger authorization integration to ensure proper user access to files are governed by Ranger policies and OneFS file system access control. • Kerberos encryption to secure and encrypt data from HDFS client to/from OneFS, preventing rogue users from sniffing HDFS traffic on network. • Data-node load balancing, avoiding overloading nodes and increasing cluster resilience. • Ambari metrics and alerting .
	CloudPools Proxy Support	• Multiple nodes can now simultaneously tier to the cloud.

Release	Feature	Info
		• No direct external network exposure of OneFS systems for CloudPools. • No network workarounds necessary to configure CloudPools.
	Mac OSX Support	• Enables Mac OS specific features like color tagging of files & extended metadata. • Mac users can leverage powerful Mac features to sort, tag files for efficient file categorization. • Improved directory listing speed from Mac clients, in particular for large directories.
	Audit Performance	• Audit at scale – up to 50 million audit events. • File access and configuration auditing records all file access events (who did what on files) and sends them out to the Dell Common Event Enabler (CEE). • CEE 6.5 provides support and integration with Varonis DatAdvantage for Windows, specifically allowing: Usable Access Auditing; Recommendations, Analytics and Modeling; and Data Owner Identification and Involvement.
	AIMA Performance	• Ensuring that proper user access to OneFS is maintained with server consolidation (e.g. forest/domain collapse) by supported SID History. • Negative caching helps reduce the load placed on authentication providers by caching the information that a

Release	Feature	Info
		user or group does not exist in any authentication provider.
	Small File Efficiency for Healthcare PACS	• A policy mechanism to control containerization, so that it may be optional, allowing customers explicitly to opt for better small-file storage efficiency in exchange for some small-file performance. • A class of specialized shadow stores to act as containers. These shadow stores differ from existing shadow stores in a few ways in order to isolate fragmentation, to support tiering, and to support future optimizations which will be specific to single-reference stores. • A method to pack, unpack, and repack data into, out of, and between containers.
	UI Scalability	• Improved performance and usability for the SMB share and NFS export pages. • WebUI now can handle long lists, and the backing stores are proven up to 40,000 records. The WebUI now returns ten items per page.
	Partitioned Performance Monitoring	• Performance statistics for Job Engine and data services.

OneFS 8.1

Release	Feature	Info
OneFS 8.1 May 2017	Gen6 Hardware	• Support for new Isilon F800, H600, H500, H400, A200, and A2000 Gen6 platform hardware.
	E Licensing	• Support for E Licensing.
	SD Edge	• Software-defined OneFS on single VMware vSphere host.

OneFS 8.1.1

Release	Feature	Info
OneFS 8.1.1 December 2017	SMB3 Encryption	• Allows OneFS SMB server to be configured for SMB3 encryption on a per share, zone, or cluster-wide basis.
	NFSv3 Character Encoding	• Setting cluster encoding and export encoding to the same character set will yield RFC compliant filenames, enabling exports to NFS clients using non-western characters.
	HDFS Cloudera Navigator	• Support for Cloudera Navigator – lineage and metadata management integration.
	CloudPools for GCP	• Enables users to use NFS or SMB to move data from OneFS clusters to Google Cloud Storage and tier it.

OneFS 8.1.2

Release	Feature	Info
OneFS 8.1.2 August 2018	HDFS	• Hadoop 3 Support. • OneFS Ambari Management Pack. • WebHDFS support. • LLAP support. • Ranger with SSL support.

OneFS 8.1.3

Release	Feature	Info
OneFS 8.1.3 January 2019	In-line Compression	• Support for in-line compression on F810 with FPGA offload.
	F810	• F810 Gen6 hardware platform support.

OneFS 8.2

Release	Feature	Info
OneFS 8.2 May 2019	Cluster Scale	• 252 node cluster support.
	SMB Performance Dataset Monitoring	• Performance statistics for SMB.
	SmartQuotas	• Support for 500K quotas. • Percentage based quotas. • Default directory quotas. • Client-side reporting improvements. • Application logical quotas.

Release	Feature	Info
	SmartPools FilePolicy Job	• Efficient changelist-based SmartPools file pool policy job.
	HDFS Encryption	• Support for Hadoop data encryption (TDE).
	SyncIQ	• SyncIQ encryption for secure replication over the WAN and other untrusted networks. • SyncIQ bandwidth throttling.
	SmartConnect	• SmartConnect and Flexnet update.
	SnapshotIQ Domains	• Re-architecting of SnapshotIQ framework to avoid costly snapshot painting and drive scalability and other efficiencies.
	Small File Efficiency Defragmenter	• Introduction of small file efficiency job for defragmenting shadow stores and opening up SFSE to low-write archive workloads beyond healthcare PACS.
	SmartLock	• Introduction of ComplianceStoreDelete job.
	Audit	• Support for granular audit event selection, avoiding the collection of unneeded audit events that 3rd party audit applications do not register for.
	Zone-aware RBAC	• Multi-tenant, access zone aware, role-based access control.
	CloudPools 2.0	• Support for AWS signature authentication version 4. • Deliver network statistics per CloudPools account or file pool policy.

Release	Feature	Info
		• Support for Alibaba Cloud and Amazon C2S public cloud providers. • Full integration of CloudPools and data services like Snapshot, Sparse file handling, Quota, AVScan and WORM.
	NDMP 2-way FC Adapter	• 2-way NDMP support for Gen6 platforms with combo Fibre Channel/10GbE interface card. • Support of NDMP Redirector and Throttler. • Support of ComboCopy for CloudPools.
	SSH Multi-factor Auth	• Multi-factor authentication support via integration with Duo service, using phone call-back and SMS passcode.
	Upgrade / NDU	• Support for simultaneous firmware upgrade • Ability to pause and resume OneFS upgrade • Patch installation during OneFS upgrade
	WebUI	• Removal of dependency on Flash from WebUI. • Improved internal network config pages.
	H5600	• Isilon H5600 Gen6 deep chassis introduction.
	Leaf/spine backend	• Dell Z9100 switches supporting leaf/spine architecture. • 144 nodes max cluster with leaf/spine backend.

OneFS 8.2.1

Release	Feature	Info
OneFS 8.2.1 September 2019	In-line Deduplication	• Support for in-line deduplication on the F810 platform. • Data Reduction reporting enhancements.
	Serviceability Enhancements	• Instant secure erase. • Improved Healthchecks. • Patch Framework improvements.
	PlatformAPI	• Enhancements for CommVault and DataIQ.

OneFS 8.2.2

Release	Feature	Info
OneFS 8.2.2 January 2020	H5600 In-line Data Reduction	• Support for in-line compression and deduplication on the deep-hybrid H5600 platform.
	Large file support	• Support for 16TB files.
	25GbE support	• Support for front-end 25Gb Ethernet connectivity.
	NFS Performance Dataset Monitoring	• Performance statistics for NFS protocol.
	NDU	• Parallel upgrades.

OneFS 9.0.0

Release	Feature	Info
OneFS 9.0.0 June 2020	F600 & F200	• OneFS support for the new PowerScale F600-NVMe and F200 platform.
	In-line Data Reduction	• Support for in-line compress and deduplication on the all-flash PowerScale F600-NVMe and F200 platforms.
	S3 Protocol	• Support for the S3 protocol, expanding the data lake to native file and object.
	IPMI	• IPMI support for remote console and power control of nodes.
	HDFS	• HDFS Ranger NANON Support

OneFS 9.1.0

Release	Feature	Info
OneFS 9.1.0 October 2020	CAVA Antivirus Support	• CAVA Antivirus support for SMB clients using Common Event Enabler (CEE) plus integration with most AV software vendors to scan files, providing better performance than current ICAP.
	Faster Client Failovers	• Improved group change time for planned shutdowns. Shrinks the window for data unavailability due to group changes to less than 5 seconds.

Release	Feature	Info
	CloudPools Cloud Object Cache	• CloudPools traffic optimization, reducing the number of network round-trips when recalling data from a CloudPools target.
	Audit Log Purging	• Ability to automatically and periodically purge audit logs.
	Customizable CELOG Alerts	• Configurable event thresholds allow users to adjust the value at which events are triggered for various cluster statistics.
	In-product Activation	• Activate product licenses with ELMS over ESRS.
	NDMP Multi-stream BRE	• Restartable backup support for multi-stream NDMP.

OneFS 9.2.0

Release	Feature	Info
	PowerScale F900	• OneFS support for the new PowerScale F900-NVMe platform.
OneFS 9.2.0 April 2021	In-line Data Reduction	• Support for in-line compress and deduplication on the all-flash PowerScale F900-NVMe platform.
	NFSoRDMA	• NFS over RDMA support for NFS v3 for PowerScale and Isilon nodes which contain supported Ethernet interface cards.
	Enterprise Key Management for SEDs	• Support for external KMIP compliant key managers such as SKLM, SafeNet and Vormetric for storing

Release	Feature	Info
		encryption keys on SED clusters.
	Full IPv6 Support	• Full IPv6 support that meets the requirements for USGv6 compliance.
	CELOG WebUI	• Addition of a web-based graphical user interface for CELOG allowing events to be displayed, searched, categorized, filtered, ignored, and resolved.
	IB Backend for PowerScale	• Support for backend InfiniBand network interfaces on PowerScale nodes, for compatibility with legacy IB clusters.
	Cluster Configuration Export/Import	• Ability to export cluster configuration, which can then be used to restore a configuration to the original cluster or a different cluster.
	Drain Based Upgrade	• Nodes are prevented from rebooting or restarting protocol services until all SMB clients have disconnected from the node.

OneFS 9.2.1

Release	Feature	Info
OneFS 9.2.1 May 2021	PowerScale Portfolio Support	• OneFS support for the new PowerScale H700, H7000, A300, and A3000 platforms.

OneFS 9.3

Release	Feature	Info
OneFS 9.3 October 2021	PowerScale Portfolio Support	• OneFS support for the new PowerScale P100 and B100 performance and backup accelerator nodes.
	Writable Snapshots	• Enables the creation and management of a space and time efficient, modifiable copy of a regular OneFS snapshot.
	NFS v4.1 and v4.2 Support	• Connectivity support for versions 4.1 and 4.2 of the NFS file access protocol.
	Long filename support	• Provision for file names up to 1024 bytes, allowing support for long names in UTF-8 multi-byte character sets.
	Inline data in inodes	• Data efficiency feature allowing a small file's data to be stored in unused space within its inode block.
	HDFS ACLs	• Provide support for HDFS-4685 access control lists, allowing users to manage permissions on their datasets from Hadoop clients.
	Job engine exclusions	• Allow Job engine jobs to be run on a defined subset of a cluster's nodes.
	CloudPools Recall	• Improved CloudPools file recall & rehydrate performance.
	Safe SMB client disconnects	• Allows SMB clients the opportunity to flush their

Release	Feature	Info
		caches prior to being disconnected.
	S3 protocol enhancements	• Added support for S3 chunked upload, multi-object delete, and non-slash delimiters for lists.

OneFS 9.4

Release	Feature	Info
OneFS 9.4 April 2022	SmartSync Data Mover	• Introduction of a new OneFS SmartSync data mover, allowing flexible data movement and copying, incremental resyncs, push and pull data transfer, and one-time file to object copy.
	IB to Ethernet Migration	• Non-disruptive rolling Infiniband to Ethernet back-end network migration for legacy Gen6 clusters.
	Secure Boot	• Secure boot support is extended to include the F900, F600, F200, H700/7000, and A300/3000 platforms.
	Smarter SmartConnect Diagnostics	• Identifies non-resolvable nodes and provides their detailed status, allowing the root cause to be easily pinpointed.
	QLC Drive Support	• Support is added in OneFS 9.4 to accommodate quad-level cell (QLC) NVMe drives in the F900 and F600 platform nodes.

Release	Feature	Info
	In-line Dedupe	• In-line deduplication will be enabled by default on new OneFS 9.4 clusters. Clusters upgraded to OneFS 9.4 will maintain their current dedupe configuration.
	Healthcheck Auto-updates	• Automatic monitoring, download, and installation of new healthcheck packages as they are released.
	CloudIQ Protocol Statistics	• New protocol statistics 'count' keys are added, allowing performance to be measured over a specified time window and providing point-in-time protocol information.
	SRS Alerts and CELOG Event Limiting	• Prevents CELOG from sending 151 event types (out of 433 total) to Dell SRS and restricts CELOG alerts from customer-created channels.
	CloudPools Statistics	• Automated statistics gathering on CloudPools accounts and policies providing insights for planning and troubleshooting CloudPools-related activities.

OneFS 9.5

Release	Feature	Info
OneFS 9.5 January 2023	Security / Federal APL	• Authentication: Multi-factor authentication with CAC/PIV; SSO for WebUI; PKI-based authentication. • Data Encryption: FIPS 140-2 Data in Flight for major protocols; FIPS 140-2 Data at Rest via SEDs; SEDs Master Key rekey; TLS 1.2 support. • Host-Based Firewall: Restriction of management interface to specified subnet & hosts to specified IP pools. • IPV6-only Network Support: Support for USGv6R1 standard. • Common Criteria Certification: International security standards compliance. • DoD APL Enablement: Implementation of 300+ DISA requirements to support DoD Approved Products List (APL) inclusion.
	SmartQoS	• Ability to limit NFS3, NFS4, NFSoRDMA, S3 or SMB protocol operations per second (Protocol Ops), including mixed traffic to the same workload.
	SmartPools	• SmartPools tier and node pool transfer limits, providing spillover protection.

Release	Feature	Info
	SupportAssist	• Next generation remote connectivity framework for transmission of events, logs, and telemetry data from a PowerScale cluster to Dell Support.
	F-series Performance	• F600 & F900 streaming read performance enhancement via metadata and lock caching, multi-stream RBM, and SSD L2 bypass.
	F200 Networking	• 100GbE frontend & backend support for F200 nodes.
	H-series/A-series Networking	• Mellanox CX6 support for H700, H7000, A300, and A3000 nodes.
	QLC SED Drives	• QLC non-FIPS 15TB & 30TB drive support.
	Node Management	• Enablement of 1GbE management interface on PowerScale nodes.

OneFS 9.6

Release	Feature	Info
OneFS 9.6 January 2023	APEX File Storage for AWS	• Cloud-only Release. • Data mobility to the cloud. • Up to 1PB per cluster namespace. • Leading file performance. • Up to 6 SSD nodes per cluster. • Support for OneFS enterprise features.

OneFS 9.7

Release	Feature	Info
OneFS 9.7 December 2023	Cloud	• APEX File Storage for AWS 60% capacity increase. • Streamlined and automated APEX provisioning and deployment via Terraform scripts. • HDFS, FTP, and SmartQoS support.
	Configuration	• Cluster configuration backup and restore utility.
	Networking	• Externally managed IP addresses.
	Parallel Restripe	• Job engine support for parallel restriper jobs.
	Performance	• Streaming write performance improvements for NVMe-based F710 and F210 all-flash platforms.

Release	Feature	Info
	Platform	• Infrastructure support for next generation all-flash node hardware platforms.
	SmartConnect	• SmartConnect awareness for SMB3 Multichannel.
	SmartSync	• SmartSync GCP support.
	Authentication	• Single sign-on (SSO) lookup enhancements.

OneFS 9.8

Release	Feature	Info
OneFS 9.8 April 2024	Cloud	• APEX File Storage for Azure • Cirrus single sign-on (SSO) support for PowerScale WebUI
	NFS Protocol	• RDMA for NFSv4.1
	Networking	• Source-based routing support for IPv6 networks.
	SmartThrottling	• Job engine automatic impact management and resource throttling.
	Platform	• Infrastructure support for next generation F910 all-flash node hardware platform.
	Support	• Smart Log diagnostic gathering and HealthCheck enhancements. • IceAge automated core file analysis tool.

OneFS 9.9

Release	Feature	Info
OneFS 9.9 August 2024	Events and Alerts	- Automatic maintenance mode. - Superfluous alerting suppression.
	Upgrade	- NDU improved pre-upgrade health checks - SMB disruption reduction.
	Protocols	- Support for a multipath NFS driver for Linux client systems. - Complete removal of deprecated SWIFT object protocol.
	Networking	- Nvidia Spectrum-4 switch support for F710 200GbE. - Support for in-field Ethernet adapter (NIC) swaps.
	CoS / QoS Tagging	Differentiated Service Code Point) (DSCP) support added, enabling class/quality of service tagging.
	Platform	Infrastructure support for F710 nodes with 61TB QLC drives and a 200Gb/s back-end Ethernet network.
	Support	IPv6 networking added for SupportAssist phone home service.

OneFS 9.10

Release	Feature	Info
OneFS 9.10 December 2024	Metadata Indexing	• Introduction of MetadataIQ ElasticSearch-based off-cluster metadata indexing and management solution.
	Networking	• Front-end and back-end InfiniBand networking option for the F910 and F710 platforms.
	Platform	• Support for F910 nodes with 61TB QLC SSD drives and a 200Gb/s back-end Ethernet network. • Support for 24TB HDDs on A-series and H-series nodes.
	Security	• OpenSSL 3.0 and TLS 1.3 transport layer security support. • WebUI conversion of Ext JS Web UI pages to React JS.
	Support	• Healthcheck WebUI improvements • SupportAssist rebranded to 'Dell Technologies Connectivity'

OneFS 9.11

Release	Feature	Info
OneFS 9.11 April 2025	Cloud	• Support for Dell PowerScale for Microsoft Azure

Release	Feature	Info
	Networking	• Dynamic IP pools added to SmartConnect Basic
	Platform	• Support for F910 nodes with 122TB QLC SSD drives
	Protocol	• S3 cluster status API
	Replication	• SmartSync File-to-Object • SyncIQ new policy default
	Support	• Seamless ESRS to DTCS migration
	Reliability	• Software Journal Mirroring for high-capacity QLC SSD nodes.

Summary

This document summarizes the new features and functionality contained in each OneFS release, from OneFS 7.1 in October 2013 to present. OneFS releases are assigned a release number (for example, 8.2.1) based on the following criteria:

Release Digit	Release Type	Description
First	Major	A release with functionality that provides a substantial move forward in the product
Second	Major	Release with functionality in the same family and theme as the parent major release.
Third	Minor	New features and functionality added between major releases.

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