PROCESO					
GESTIÓN CONTRACTUAL					
AGENCIA LOGÍSTICA FUERZAS MILITARES	TÍTULO: VERIFICACIÓN DEL TRAMITE DE PAGO	CÓDIGO: CT-FO-44			
		VERSIÓN No. 01	Página 1 de 1		
		FECHA:	24	7	2024

CONTRATISTA O BENEFICIARIO: SERBAN COLOMBIA S.A.S	**No. CONTRATO Y/O ORDEN DE COMPRA: 001-170-2024**
DEPENDENCIA ENCARGADA DEL TRAMITE DE PAGO: TIC	
FECHA DE RECEPCIÓN: 11/12/2024 / **$ 492.998.890**	**RADICADO N°**
FECHA DE VALIDACION GESTOR: 17/12/2024	**FECHA DE ENTREGA SUPERVISIÓN:**
SUPERVISOR: ELIO RAMIRO DIAZ	

No.	DESCRIPCIÓN	CONTRATOS								ANTICIPOS
		COMPRA VENTA O SUMINISTRO	SUMINISTRO, ORDENES DE SERVICIOS	ORDEN DE COMPRA	FIDUCIA	PRESTACIÓN DE SERVICIOS	INTERVENTORIA	INTER-ADMINISTRATIVOS	OBRA	
1	Validación de la Publicación en Secop II (trámite de pago, Informe de supervisión, Facturas)	✓		N.A.						
2	Formato Trámite pago parcial y/o total (Firmado por supervisor y gestor)	✓								
3	Cuadro control de pagos firmado (Relación Usos Presupuestales, firmado por supervisor y presupuesto)	✓								
4	Acta de entrega y Recibo a Satisfacción (Firmado por supervisor y contratista)	✓								N.A.
5	Certificación paz y salvo pago de seguridad social integral y parafiscales. Si es U.T o Consorcio se deben anexar igualmente planilla resumen de parafiscales.	✓								
6	Certificación paz y salvo obligaciones laborales.	✓								
7	Informe de Supervisión o aval de pago (de acuerdo a la clausula "Forma de Pago" del contrato)	✓								
8	Informe de Actividades (cuando el contrato indique en la Forma de Pago)	✓								
9	Corte parcial o final de obra	N.A.								
10	Aval de pago Interventoría									
11	Paz y salvo de la Unidad o dependencia donde se ejecutan las obras									
12	Factura ó documento equivalente que cumpla con los requisitos del Art. 617 del E.T. Nota: Verificación de acuerdo a normatividad vigente	✓								
13	Alta Almacén (*cuando el bien deba ingresar al almacen*)	✓								N.A.
14	Otros anexos* (Memorandos, Resoluciones, Oficios,etc.)	N/D								
15	Multas o Sanciones	N/D								

NOTA: UNA VEZ VERIFICADOS LOS SOPORTES DOCUMENTALES EN CASO DE ENCONTRAR NOVEDADES, SE RELACIONARAN EN EL CUADRO INFERIOR LA DESCRIPCIÓN DE LA NOVEDAD Y SERA DEVUELTO A LA DEPENDENCIA ENCARGADA DEBERÁ REALIZAR LAS GESTIONES NECESARIAS PARA DAR SOLUCIÓN A LAS INCONSISTENCIAS, ANTES DE SU TRÁMITE A LA DIRECCION FINANCIERA.

DESCRIPCIÓN DE LA NOVEDAD	REGISTRO DE DEVOLUCIÓN A OTRAS DEPENDENCIAS POR NOVEDADES EVIDENCIAS EN LOS TRAMITES DE PAGO						
	REVISIÓN DEL TRAMITE			FECHA DEVOLUCIÓN	NOMBRE Y FIRMA A QUIEN SE LE DEVUELVE EL TRÁMITE	NOMBRE GESTOR	FIRMA
	1ra	2da	3ra				
FOLIADO FECHAS DOCUMENTOS FACTURA							

GESTOR QUE REVISA Y VALIDA EL TRÁMITE DE PAGO	
NOMBRES Y APELLIDOS : P.D. JUAN CARLOS MONDRAGON GONZALEZ	
FIRMA:	

Aceptada
18-12-24 9:51

18 DIC 2024
RADA 955

AGENCIA LOGISTICA
FUERZAS MILITARES

Juan C.
11 DIC 2024
0764 B
4:10 PM.

No. 17022024 FECHA: _____

DE: ALSGC- SUBDIRECCION GENERAL DE CONTRATACIÓN

PARA: Juan Carlos

INSTRUCCIONES Y ÓRDENES:

Para su Conocimiento y tramite respectivo

PLAZO: Inmediato

FIRMA:

12/12/24 8:10

RECIBIDO FINANCIERO ✓
SECOP ✓
ORFEO.

PROCESO					
GESTIÓN FINANCIERA					
AGENCIA LOGÍSTICA FUERZAS MILITARES — La unión de nuestras Fuerzas	TITULO **TRAMITE DE PAGO ANTICIPO/PARCIAL Y/O TOTAL**	CÓDIGO: **GF-FO-36**			Grupo Social y Empresarial de la Defensa
		VERSIÓN No. **04**	Página **1** de **4**		
		FECHA:	**17**	**9**	**2024**

Fecha trámite de pago	18/12/2024	Número de Pago:	01
Valor de pago solicitado	($) 492.998.889.61		

DATOS DEL CONTRATO:

Contrato y/u Orden de Compra	No. 001-170-2024	
Nombre o Razón Social del Contratista	SERBAN COLOMBIA SAS	
Identificación	NIT o C.C: 900.040.754-0	SAP (acreedor) : 80005974
Objeto del Contrato	ADQUISICION CONTROLADORA NETAAP, ACTUALIZACION, MANTENIMIENTO Y SOPORTE A LA SOLUCION DE ALMACENAMIENTO (SAN-NAS) PARA LA ALFM	
Orden o Pedido ERP SAP	No. 4200129542	
Expediente Orfeo	No. 20241300101304000 23E	
Registro Presupuestal	No. 212424 / 15-10-2024	
	■ VIGENCIA ACTUAL ☐ REZAGO	
Valor total del contrato	Valor Inicial del Contrato	($)492.998.890
	+ Valor Adiciones	($)
	- Valor Reducciones	($)
	Valor Total del Contrato	($)492.998.890
No. Contrato interadministrativo / convenio / Acta de acuerdo (Cuando aplique)	N/A	
Fecha de legalización del contrato	18 de Octubre de 2024	
Fecha de finalización del contrato	20 de Diciembre de 2024	
Porcentaje de ejecución del contrato	**100 %**	
Modificaciones del contrato	☐ Adición Valor _____ ☐ Modificación Descripción _____ ☐ Suspensión Descripción _____ ■ Prorroga Fecha 20/12/2024 ☐ Cesión Descripción _____	
Novedades del contrato	*(Se especificará claramente novedades respecto al pago, como embargos, multas, sanciones, afectación de pólizas u otro concepto que afecte el valor del pago al contratista).*	

Garantías del contrato	Número	Valor Asegurado	Vigencia de la Póliza	
			Fecha de inicio	Vigente hasta
Póliza de seguro de cumplimiento Entidad Estatal	11-44-101237693 Anexo 1	$ 320.449.279	11/10/2024	20/12/2027

DATOS FINANCIEROS DEL CONTRATISTA:

Cuenta Bancaria	Entidad Bancaria: ITAU CORPBANCA COLOMBIA S.A.		
	N° 038027710	Tipo cta. Bancaria	Ahorro ☐ Corriente ■
Régimen Tributario (RUT) al que pertenece	■ RESPONSABLE DE IVA ☐ NO RESPONSABLE DE IVA ☐ RÉGIMEN SIMPLE DE TRIBUTACIÓN		
Tipo de Facturación (De acuerdo a lo que estipule el RUT)	■ ELECTRÓNICA ☐ CUENTA DE COBRO		

		CUMPLE
CUMPLIMIENTO OBLIGACIONES LEY 50 / 1990	1.planilla pagada de seguridad social integral (salud-pensión-arl) y parafiscales (SENA-ICBF-Caja de Compensación)	SI
	2. Certificación de pago de seguridad social y parafiscales	SI
	3. Certificación de obligaciones laborales	SI
PAGO DE SEGURIDAD SOCIAL	Planilla	N° 9478422847
	IBC (Ingreso base de cotización) (si aplica)	N/A
	Periodo Salud	Diciembre 2024
	Periodo Pensión	Noviembre 2024

DOCUMENTOS SOPORTE QUE SE ANEXAN AL PRESENTE PAGO Y SE ENTREGAN A GESTIÓN FINANCIERA:

El **supervisor del contrato** verificará la aprobación y cargue de la facturación por parte del contratista en SECOP II y en el Sistema de Facturación Electrónica designado por SIIF Nación (cuando aplique).

APROBACIÓN DE FACTURAS	SECOP II	■ Si ☐ No
	SIIF (cuando sea Electrónica)	■ Si ☐ No

(Documentos que se entregan a la Dirección Financiera – Esta relación debe ser diligenciada teniendo en cuenta lo solicitado en la cláusula de forma de pago del contrato):

ÍTEM	DOCUMENTO (Debe diligenciarse de acuerdo a los documentos anexos)	FECHA	VALOR	FOLIO
1.	Control de pagos código GF-FO-35	N/A	$ 492.998.889.61	1
2.	Factura, cuenta de cobro y/o documento equivalente No. SERB – 13358	11/12/2024	$ 492.998.889.61	2
3.	Acta de entrega y/o recibo a satisfacción código CT-FO-01	11/12/2024	$ 492.998.889.61	3
4.	Acta de corte parcial o final de obra (si aplica)	N/A	N/A	
5.	Reporte o Listado de Entradas de Almacén generado por el sistema ERP-SAP – MB51 (cuando aplique)	N/A	N/A	
6.	Certificación Bancaria	03/12/2024	N/A	

Nota: El funcionario responsable en la Subdirección General de Contratación y/o Coordinación de Contratos (Regionales), verificara y confirmará que los documentos digitales se encuentren en su totalidad dentro de la

herramienta tecnológica establecida ORFEO y/o SECOP II de acuerdo a la modalidad de la adquisición (contrato y/u orden de compra) que se encuentra en trámite.

CERTIFICACIÓN DE DOCUMENTOS QUE SE ENTREGAN A GESTIÓN DE LA CONTRATACIÓN Y QUE REPOSAN EN EL EXPEDIENTE DEL CONTRATO:

Los documentos relacionados en la cláusula forma de pago en el contrato No. 001-170-2024 suscrito el 11 de Octubre de 2024, que no se tramitan a la Dirección Financiera deben reposar en el expediente contractual de la Subdirección de Contratos para su consulta cuando sea necesario, por lo anterior los abajo firmante certifican que los documentos relacionados a continuación reposan en el expediente contractual:

- El supervisor asegurar el cargue de documentos en la plataforma SECOP II y/o ORFEO
- El funcionario responsable en la Subdirección General de Contratación y/o Coordinación de Contratos (Regionales), asegurara que el expediente contractual físico y en SECOP II y/o ORFEO se encuentre debidamente cargado y completo. Para consulta de usuarios de la información tanto internos como externos (Entes de Control).

ÍTEM	DOCUMENTO (Debe diligenciarse de **acuerdo a los documentos** anexos)	Reposa en el expediente Contractual	FECHA	FOLIO
1.	Control de pagos código GF-FO-35	N/A	N/A	1
2.	Factura, cuenta de cobro y/o documento equivalente No. SERB – 13358	X	11/12/2024	2
3.	Acta de entrega y/o recibo a satisfacción código CT-FO-01	X	11/12/2024	3
4.	Acta de corte parcial o final de obra código PA-FO-86 (si aplica)	N/A		
5.	Reporte o Listado de Entradas de Almacén generado por el sistema ERP-SAP No. 5000743215	X	11/12/2024	4
6.	Certificación Bancaria	X	03/12/2024	5
7.	Certificación: pago de seguridad social integral, aportes parafiscales y de cumplimiento de obligaciones laborales.	X	16/12/2024	6
8.	Certificación: De cumplimiento de obligaciones laborales.	X	11/12/2024	7
9.	Planilla de seguridad social en estado pagada.	X	03/12/2024	8
10.	Informe de supervisión No. 02	X	11/12/2024	9-11
11.	Entrega de mercancía	X	11/12/2024	12
12.	Informe de Actividades (si aplica).	X	Diciembre	13-76
13.	Certificación aplicación Ley 1819 de 2016 y del parágrafo 2 de artículo 383 del Estatuto Tributario (Cuando aplique)	**N/A**		
14.	Certificación de asignación de Retiro (Cuando Aplique)	N/A		

PROCESO					
GESTIÓN FINANCIERA					
AGENCIA LOGÍSTICA FUERZAS MILITARES — La unión de nuestras Fuerzas	TITULO **TRAMITE DE PAGO ANTICIPO/PARCIAL Y/O TOTAL**	CÓDIGO: **GF-FO-36**			Grupo Social y Empresarial de la Defensa
		VERSIÓN No. **04**	Página **4** de **4**		
		FECHA:	**17**	**9**	**2024**

Únicamente para el primer pago:		
Cargar en la plataforma SECOP II Registro de Identificación Tributaría - RIT expedido por la Secretaría Distrital de Hacienda (Actividad económica y código CIIU)	SI	**X**
Cargar en la plataforma SECOP II Registro Único Tributario - RUT expedido por la DIAN documento en firme (copia de certificado)	SI	**X**

RESPONSABLE DEL TRAMITE (SUPERVISOR) *Certifico que previa revisión del presente formato y sus anexos, el contratista cumplió a satisfacción con las obligaciones contenidas en el contrato (informe de actividades y/o de los productos establecidos), por lo que cumple con todos los requisitos legales necesarios para autorizar el pago.*	Nombre ELIO RAMIRO DIAZ					
	Cargo/Dependencia ADMINISTRADOR DE DATA CENTER – SEGURIDAD PERIMETRAL		Extensión 1166			
	Firma					
	Nombre LADY PAOLA CUEVAS TRIVIÑO					
	Cargo/Dependencia ADMINISTRADORA REDES		Extensión 1248			
	Firma					
VALIDACIÓN CARGUE VERIFICACIÓN TRAMITE DE PAGO - GESTOR CONTRACTUAL *Se controla tanto para los contratos como las órdenes de compra, de acuerdo a la verificación del cumplimiento de las especificaciones técnicas, las actividades administrativas, legales, financieras y presupuestales establecidas en el contrato; los cuales reposan de manera completa y organizada en el expediente contractual, la plataforma SECOP II y/u ORFEO.*	**SECOP II**		**ORFEO**		**EXPEDIENTE FÍSICO**	
	SI ✓	NO	SI ✓	NO	SI ✓	NO
	Nombre JUAN CARLOS MORALES GONZALEZ					
	Cargo / Dependencia: P.D. I.S.G.C		Extensión:			
	Firma:					
V°. B°. del Directivo del área responsable del contrato o quien haga sus veces (Subdirector, Director, Jefe de Oficina y/o Dependencia)	Nombre RICARDO VALENZUELA DIAZ					
	Cargo JEFE OFICINA TIC - ALFM					
	Firma					

PROCESO	GESTIÓN FINANCIERA			
AGENCIA LOGÍSTICA FUERZAS MILITARES	TITULO: **CONTROL DE PAGOS**	CÓDIGO: **GF-FO-35**		
		VERSIÓN No. **04**	Página No. **1** de **1**	
		FECHA:	**17** / **9** / **2024**	

DATOS DEL CONTRATO

Contrato No.	001-170-2024	No. Registro Presupuestal / Fecha					
Objeto del Contrato :	ADQUISICION CONTROLADORA NETAAP, ACTUALIZACION, MANTENIMIENTO Y SOPORTE A LA SOLUCION DE ALMACENAMIENTO (SAN-NAS) PARA LA ALFM	RP Actual No.	212424	Valor	$ 492.998.890,00	Fecha	15/10/2024
Nombre Contratista:	SERBAN COLOMBIA SAS	RP Reserva No.		Valor		Fecha	
Nombre de quien entrega el Bien y/o Servicio:				No. de la negociación de BMC			
Presupuesto con cargo a ALFM	SI	X	NO				
Con cargo al (los) contrato(s) interadministrativo(s) No. /Convenio u otras				Plazo de ejecución del contrato (contrato inicial y prorroga:	20 de Diciembre de 2024		
Celebrado(s) con:							

EJECUCIÓN ANTICIPO

Valor anticipo pactado	Valor amortizar	Total amortizado	Saldo pendiente por amortizar
0,00	0,00	0,00	0,00

CONTROL CONTRATO

Valor de RP	Rubro presupuestal	Descripción del rubro	Dependencia de afectación	Valor por rubro
492.998.890,00	A-02-02-02-008-005	SERVICIOS DE SOPORTE	C OFICINA DE TECNOLOGIA	492.998.890,00

Si se requiere inserte más filas para rubros, adiciones, reducciones o traslado indicarlo

VALOR	492.998.890,00
Valor total del contrato	492.998.890,00
Valor ejecutado presupuestal	492.998.889,61
Saldo por ejecutar	0,39

NÚMERO DE TRÁMITE DE PAGO #1

No. de documento	Fecha del documento	Rubro presupuestal	Código del uso presupuestal	Descripción del uso	Dependencia de afectación	Valor factura	Valor a pagar	Valor ejecutado
Factura No. SERB - 13358	11-dic-24	A-02-02-02-008-005	01	SERVICIOS DE SOPORTE	C OFICINA DE TECNOLOGIA	492.998.889,61	492.998.889,61	492.998.889,61
TOTAL TRAMITE	$						492.998.889,61	
Saldo por Uso	$ 0,39							
Saldo	$ 0,39							

ADICIÓN / REDUCCIÓN/TRASLADOS DEL RP No. DE FECHA _____ Y FECHA DEL MOVIMIENTO (SI APLICA) _____

Movimiento	Fecha		Valor

Si se requiere inserte más filas para rubros, adiciones, reducciones o traslado indicarlo

Firma del Supervisor: _____
Nombre del Supervisor: _____
Supervisor del ____ No.: _____

Firma del Supervisor: _____
Nombre del Supervisor: _____
Supervisor del ____ No.: _____

Nombre de quien Revisa en Presupuesto: _____
Fecha en que se validan los saldos "RP": _____
Firma de quien Revisa: _____

Nombre de quien Revisa en Cuentas por pagar y/o Contabilidad : _____
Fecha: _____
Firma de quien Revisa: _____

SERBAN COLOMBIA SAS

Carrera 13 # 98 - 70 Oficina 301
PBX: 6583333
www.serbangroup.com

NIT: 900.040.754 - 0

RESOLUCIÓN N. 18764074973721
AUTORIZA DEL SERB 13111 al SERB 19999
FECHA 12 DE JULIO DEL 2024
IVA Régimen Común - Actividad Económica Principal 4741
ICA Tarifa 11.04 X 1000 - Secundaria 6209
ICA Tarifa 9.66 X 1000 - 6202 ICA Tarifa 6.9 X 1000
Gran Contribuyente ICA Resolución DDI-023769 Vigente a partir del 29 de Noviembre de 2021. FAVOR NO EFECTUAR
RETENCION EN LA FUENTE A TITULO DE ICA.
NO SOMO AUTORETENEDORES DE IVA

SERBAN
GROUP

FACTURA ELECTRONICA **SERB - 13358**

SEÑOR(ES): AGENCIA LOGISTICA DE LAS FUERZAS MILITAR
NIT/C.C: 899999162-4
DIRECCIÓN: AV CL 26 91 50
TELÉFONO: 6510420
CIUDAD: BOGOTA DC

FECHA FACTURA	FECHA VENCIMIENTO	FORMA DE PAGO	MONEDA	TRM
11-12-2024	10-01-2025	30 Días	$	1,00

CODIGO	Descripcion	Cant.	VR.Unitario	Total_Linea
NETAPP	Adquisición Controladora NetApp, Actualización, Mantenimiento y Soporte ala solución de almacenamiento (SAN-NAS).	1	414,284,781.50	414,284,781.50

GIRAR CHEQUE A NOMBRE DE SERBAN COLOMBIA S.A.S. TRANSFERENCIAS O CONSIGNACION BANCARIA AL BANCO ITAU CUENTA CORRIENTE No. 038027710 O AL BANCO DAVIVIENDA CUENTA CORRIENTE No. 480869999841 Y EN REFERENCIA EL NIT DE SU EMPRESA. TODA MORA EN EL PAGO TENDRA UN RECARGO POR MES VENCIDO A LA MAXIMA TASA PERMITIDA POR LA LEY. ESTA FACTURA DE VENTA SE ASIMILA EN TODOS SUS EFECTOS LEGALES A UNA LETRA DE CAMBIO DE ACUERDO CON EL ART.799

CUATROCIENTOS SESENTA Y DOS MILLONES CIENTO DIECIOCHO MIL

SUBTOTAL	414,284,781.50
IVA	78,714,108.49
AJUSTE	-0.38
RETE-FUENTE	14,499,967.35
RETE-IVA	11,807,116.27
RETE-ICA	4,573,703.99
TOTAL	462,118,102.00

Comentarios

Proyecto ALFM - Hardware Netapp.

#$15-20-00-000;Contrato001-170-2024;elio.diaz@agencialogistica.gov.co#$

CUFE: 3a4cc1d74e3691e7b01fc93a30da1d1ca20ac50756f4701a9802193b2b64588dc097d1f6dc05f310976fd6fa62cc6894

PROCESO	GESTIÓN DE LA CONTRATACIÓN				
AGENCIA LOGÍSTICA FUERZAS MILITARES	TITULO: **ACTA DE ENTREGA Y/O RECIBO A SATISFACCIÓN**	CÓDIGO: **CT-FO-01**			
		VERSIÓN No. **02**	Página **1** de **2**		
		FECHA:	**24**	**7**	**2024**

DATOS GENERALES DEL CONTRATO

No. DE CONTRATO:	001-170-2024	FECHA DE SUSCRIPCIÓN CONTRATO:	11/10/2024
	ADQUISICION CONTROLADORA NETAAP, ACTUALIZACION, MANTENIMIENTO Y SOPORTE A LA SOLUCION DE ALMACENAMIENTO (SAN-NAS) PARA LA ALFM		
CONTRATISTA:	SERBAN COLOMBIA SAS		
NIT/CC/CE:	900.040.754-0		
REPRESENTANTE LEGAL:	Carlos Enrique Tocora Manrique		
INTERVENTOR:	N/A		
SUPERVISOR:	Elio Ramiro Diaz		
FECHA ACTA DE COORDINACION O DE INICIO:	18/10/2024		
PLAZO DE EJECUCIÓN:	30/11/2024		
FECHA DE TERMINACION CONTRACTUAL:	30/11/2024		

DATOS DE LA ENTREGA PARCIAL O TOTAL DEL BIEN O SERVICIO

TRATA DE LA ENTREGA (parcial/ total) QUE HACE EL CONTRATISTA A LA AGENCIA LOGISTICA DE LAS FUERZAS MILITARES

FECHA:	11/12/2024	HORA:	11:00:00 a. m.	ENTREGA PARCIAL N°		ENTREGA TOTAL	X
CIUDAD/MUNICIPIO:	Bogotá			DIRECCIÓN :		Calle 95 13-08	

INTERVIENEN EN LA ENTREGA:

ENTIDAD/EMPRESA	NOMBRE	CARGO	EN CALIDAD DE
SERBAN COLOMBIA S.A.S	Carlos Enrique Tocora Manrique	REPRESENTANTE LEGAL	Primer suplente de Representante legal
AGENCIA LOGISTICA DE LAS FUERZAS MILITARES	Elio Ramiro Díaz	ADMINISTRADOR DATA CENTER,	Supervisor de Contrato
(Incluya las filas que sean requeridas)			
EN CUMPLIMIENTO DEL CONTRATO No.:			
ENTIDAD CONTRATANTE/CLIENTE:			

DATOS DE LOS BIENES Y/O SERVICIOS A ENTREGAR Y/O RECIBIR

SE HACE ENTREGA DE LOS BIENES Y /O SERVICIOS DISCRIMINADOS A CONTINUACION:

ITEM	DESCRIPCION	CANTIDAD	V/UNITARIO	V/ IVA	V/TOTAL
1	Adquisicion controladora NETAAP, actualizacion, mentenimiento y soporte a la solucion de almacenamieto (SAN-NAS) PARA LA ALFM	1	$ 414.284.781,50	19%	$ 414.284.781,50
		VALOR SIN I.V.A			414.284.781,50
		VALOR I.V.A		19%	78.714.108,49
		Ajuste			-$ 0,38
		VALOR TOTAL			492.998.889,61

SE HACE ENTREGA DE LOS BIENES Y /O SERVICIOS DISCRIMINADOS A CONTINUACION:

ITEM	DESCRIPCION	UND/MED	CANTIDAD	V/UNITARIO	VALOR PARCIAL 1
			0,00	COP 0	COP 0
			0,00	COP 0	COP 0
			0,00	COP 0	COP 0
	(Incluya las filas que sean requeridas)		0,00	COP 0	COP 0
			0,00	COP 0	COP 0
					COP 0
	VALOR PARCIAL 2				
Administración			5,00%		COP 0
Imprevistos			2,00%		COP 0
Utilidades			1,00%		COP 0
			I.V.A / Utilidades	0%	COP 0
			VALOR TOTAL		COP 0

CUMPLIENDO LOS REQUISITOS ESTABLECIDOS EN: ***MARQUE CON UNA X LOS QUE APLIQUEN***

OBJETO DEL CONTRATO: [ ] ANEXO DEL CONTRATO: [ ] FICHA TECNICA : [ ] ESPECIFICACIONES TECNICAS: [ ]

NORMA TECNICA: [ ] CUÁL?: _____

EVIDENCIADO DE ACUERDO CON LA APLICACIÓN DE: ***MARQUE CON UNA X A LOS QUE APLIQUEN***

ACTIVIDAD	APLICA	NO APLICA	OBSERVACIONES
INSPECCION VISUAL REALIZADA	X		*Aquí se debe anotar lo encontrado en el producto durante la inspeccion visual.*
INFORMES DE LABORATORIO REALIZADOS		X	*Aquí se deben relacionar los informes de laboratorio realizados exigidos*
CERTIFICACION EXPEDIDA		X	*Aquí se debe relacionar el tipo de certificacion expedida*
OTRO		X	

DATOS DEL RECIBO PARCIAL O TOTAL DE LOS BIENES O SERVICIOS

TRATA DEL RECIBO A SATISFACCION QUE HACE LA ENTIDAD CONTRATANTE /CLIENTE

UNA VEZ REVISADOS LOS BIENES OBJETO DEL CONTRATO, POR PARTE DE: ***MARCAR CON UNA X A LOS QUE APLIQUEN***

COMITÉ TECNICO: SUPERVISOR : X

SE PUDO VERIFICAR QUE ESTOS CUMPLEN A ENTERA SATISFACCIÓN CON LOS REQUISITOS EXIGIDOS EN EL CONTRATO.

OBSERVACIONES GENERALES :

Sin novedad de incumplimiento de contrato para el presente periodo.

PARA CONSTANCIA DE LO ANTERIOR, INTERVIENEN :

ENTIDAD/EMPRESA	NOMBRE	CARGO	EN CALIDAD DE	FIRMA
SERBAN COLOMBIA S.A.S	Carlos Enrique Tocora Manrique	REPRESENTANTE LEGAL	Primer suplente de Representante legal SERBAN COLOMBIA S.A.S	
AGENCIA LOGISTICA DE LAS FUERZAS MILITARES	Elio Ramiro Díaz	ADMINISTRADOR DATA CENTER, SEGURIDAD PERIMETRAL - ALFM	Supervisor del contrato	
AGENCIA LOGISTICA DE LAS FUERZAS MILITARES	Lady Paola Cuevas Triviño	ADMINISTRADORA REDES - ALFM	Supervisor del contrato	

Bogotá D.C., 03 de diciembre de 2024

Señores
A QUIEN LE INTERESE
Ciudad

Nos permitimos certificar que nuestro cliente SERBAN COLOMBIA SAS identificado con NIT Nro. 9000407540, se encuentra vinculado a nuestra entidad financiera desde 20-01-2009 a través del (los) producto (s):

Producto	Nro Producto	Estado	Fecha Apertura
Cuenta Corriente	038027710	Activo	13/08/2013

La(s) cuenta(s) corriente(s) o de ahorros que se incluyen en este certificado, pertenece (n) al código 06 para transferencias ACH.

La expedición del presente documento no acredita como exonerado al cliente por las obligaciones respaldadas a título de codeudor, avalista, garante y/o a favor de un tercero. Si existen obligaciones pendientes con avalistas o garantes de su obligación, esta certificación no se extiende a dichas operaciones, las cuales estarán facultadas a cobrar las sumas que hubieran cancelado a Itaú.

En caso de error y/o inconsistencia en cualquier liquidación de las obligaciones expresamente mencionadas en este documento, se podrán hacer las correcciones a las que haya lugar en los términos del artículo 880 del Código de Comercio, con el propósito de obtener su rectificación.

Las anteriores sumas de dinero corresponden a saldos a la fecha, no incluyen otros gastos, costos, honorarios que se causen con ocasión de la cobranza extrajudicial o judicial adelantada y se modifican diariamente de conformidad con la causación de intereses. Todo prepago o mora podrá dar lugar a la modificación del valor contenido en el presente documento.

La presente certificación se expide a solicitud del interesado, a los 03 días del mes de diciembre de 2024, en atención a la solicitud No. 241701152.

Cordialmente,

Gerencia de Servicio

VIGILADO

Jose Federico Ustariz Gonzalez – Defensor del Consumidor Financiero principal, Pablo Valencia Agudo – Suplente. Carrera 11 A No. 96 – 51 Oficina 203, Bogota D.C., Telefono 6108161 ext. Horario: lunes a viernes de 8:00 am a 5:00 pm en jornada continua, correo electrónico defensoritau@ustarizabogados.com, pagina web www.ustarizabogados.com. Funciones: dar trámite a las quejas contra las entidades vigiladas en forma objetiva y gratuita, actuar como conciliador entre los consumidores financieros y la entidad, de los asuntos de su competencia, es decir, aquellos que no se encuentren dentro del artículo 14 de la Ley 1328 de 2009, servicio gratuito, que podrá solicitar de manera explícita directamente ante el Defensor sin formalidad alguna, de conformidad con lo previsto en el numeral 11 del artículo 2.34.2.1.5 del Decreto 2555 de 2010 y la Ley 640 de 2001, el documento en el cual conste la conciliación realizada entre las partes prestará mérito ejecutivo y hará tránsito a cosa juzgada. Ser vocero de los consumidores financieros ante la Institución, lo cual implica la posibilidad de dirigir en cualquier momento a las Juntas Directivas o Consejos de Administración de las entidades recomendaciones, propuestas y sugerencias.

Itaú Establecimiento bancario

Docusign Envelope ID: 329BDFB0-52B5-4BB1-8975-3059A912E853

AMC AUDIT
Revisoría Fiscal y Auditoría

AMC 202412-CE637

El suscrito contador público independiente, en calidad de Revisor Fiscal de la Sociedad **SERBAN COLOMBIA S.A.S NIT. 900.040.754-0**, con vista en la planilla de aportes a seguridad social y balance de prueba al corte de noviembre de 2024

CERTIFICA

1. Qué **SERBAN COLOMBIA S.A.S NIT. 900.040.754-0,** reportó aportes de 73 empleados vinculados en dicho periodo.
2. Qué durante los últimos seis (6) meses la Sociedad, **SERBAN COLOMBIA S.A.S NIT. 900.040.754-0,** ha liquidado y efectuado pagos por concepto de aportes establecidos por la ley, a las Cajas de Compensación Familiar, el Instituto Colombiano de Bienestar Familiar - ICBF y al Servicio Nacional de Aprendizaje SENA de conformidad con el inciso 3° del Articulo 50 de la ley 789 de 2002.
3. Qué durante los últimos seis (6) meses la Sociedad, **SERBAN COLOMBIA S.A.S NIT. 900.040.754-0,** ha liquidado y cancelado aportes a salud, pensiones y riesgos laborales, de su personal de conformidad con los artículos 11 y 12 del Decreto 1406 de 1999, el Artículo 27 del Decreto 1703 de 2002 el Decreto 510 de 2003 y la ley 828 de 2003.
4. La presente certificación se soporta con base al pago realizado por **SERBAN COLOMBIA S.A.S NIT. 900.040.754-0,** el día nueve (09) de diciembre de 2024 mediante planilla No. **82522667** con el operador **COMPENSAR/MI PLANILLA,** Dictamen firmado correspondiente a los Estados Financieros emitidos para el año 2023 y conforme a la Ley 1231 de 2008 y Decreto 2669 de 2012.
5. Se adjunta fotocopia del Certificado de Vigencia de Inscripción y de Antecedentes Disciplinarios, Certificado Digital, expedido por la Junta Central de Contadores y la Tarjeta Profesional del suscrito Contador Público.

La anterior certificación se expide en Bogotá D.C., a los dieciséis (16) dias del mes de diciembre de dos mil veinticuatro (2024) con destino a **quien interese.**

DEHIRY ANDREA CRUZ GOMEZ
T.P. No. 191320-T
CC 1.024.476.670
Revisor Fiscal
Designado por AMC AUDIT S.A.S

SERBAN
GROUP

Señores
Agencia Logística de las Fuerzas Militares
Calle 95 No 13-08
Bogotá, Colombia

Atn, Supervisor contrato 001-170-2024

CERTIFICACIÓN DE CUMPLIMIENTO:
OBLIGACIONES LABORALES DEL PERSONAL

Por medio de la presente, yo Carlos Enrique Tocora Manrique, identificado como aparece al pie de mi firma, actuando como Representante Legal (Primer Suplente) de SERBAN COLOMBIA SAS, certifico que, en cumplimiento de las normativas laborales establecidas en el Código Sustantivo del Trabajo y las leyes complementarias vigentes en Colombia, se han cumplido durante la ejecución del contrato en mención y se continúan cumpliendo todas las obligaciones laborales y de seguridad social respecto al personal vinculado bajo nuestra responsabilidad.

En particular, certifico que:

1. Afiliaciones y Aportes a Seguridad Social:
   - Todo el personal se encuentra afiliado al Sistema de Seguridad Social, incluyendo Salud (EPS), Pensión (AFP), Riesgos Laborales (ARL) y, según corresponda, a la Caja de Compensación Familiar.
   - Se realizan los aportes correspondientes de manera oportuna y conforme a la normativa vigente.

2. Pagos de Prestaciones Sociales:
   - Se cumplen con las obligaciones de primas legales, cesantías, intereses sobre cesantías, vacaciones, y demás prestaciones establecidas por ley.

3. Condiciones de Trabajo:
   - Se respetan las normas sobre jornadas laborales, descansos, y condiciones dignas de trabajo, según el Código Sustantivo del Trabajo.

SERBAN
GROUP

4. Seguridad y Salud en el Trabajo (SG-SST):
   - Se cuenta con un Sistema de Gestión de Seguridad y Salud en el Trabajo (SG-SST) implementado, incluyendo la entrega de elementos de protección personal (EPP) y la realización de capacitaciones periódicas.

5. Exámenes Médicos Ocupacionales:
   - Se realizan los exámenes médicos de ingreso, periódicos y de egreso para todos los trabajadores expuestos a riesgos laborales.

Esta certificación se expide a solicitud del interesado el 11 de diciembre de 2024 y para los fines que considere pertinentes.

Atentamente,



CARLOS E. TOCORA MANRIQUE
Representante Legal (Primer suplente)
Serban Colombia S.A.S.

aportes en línea

Planilla Resumen

DATOS GENERALES DEL APORTANTE

Identificación	dv	Razon Social	Clase Aportante	Sucursal Principal	Direccion	Ciudad-Departamento	Teléfono	Exonerado SENA e ICBF
NIT 900450904	8	C.G.H. INGENIERIA & SOLUCIONES	B - MENOS DE 200 COTIZANTES	PRINCIPAL	CARRERA 19C 19-20	VILLAVICENCIO-META	6836680	SI

DATOS GENERALES DE LA LIQUIDACION

Periodo		Clave		Tipo	Fecha		Pago		
Pensión	Salud	Pago	Planilla	Planilla	Limite	Pago	Banco	Dias Mora	Valor
2024-11	2024-12	1096795002	9478422847	E	2024/12/03	2024/12/03	BANCOLOMBIA	0	$956,400

LIQUIDACION DETALLADA DE APORTES

EMPLEADO				NOVEDADES	PENSION				SALUD				CCF				RIESGOS					PARAFISCALES				
No.	Identificación		Nombre	ing ret tde tae tdp tap vsp cor vst sln ige lma vac avp vct irl vip	Codigo	Dias	IBC	Aporte	Codigo	Dias	IBC	Aporte	Codigo	Dias	IBC	Aporte	Codigo	Dias	IBC	Tarifa	Aporte	Dias	IBC	Aporte	Exonerado SENA e ICBF	Total Aportes
							$3,900,000	$624,000			$3,900,000	$156,000			$3,900,000	$156,000			$3,900,000		$20,400		$0	$0		$956,400
SUCURSAL: PRINCIPAL (2 Afiliados)							$3,900,000	$624,000			$3,900,000	$156,000			$3,900,000	$156,000			$3,900,000		$20,400		$0	$0		$956,400
Centro de Trabajo: PRINCIPAL (2 Afiliados)							$3,900,000	$624,000			$3,900,000	$156,000			$3,900,000	$156,000			$3,900,000		$20,400		$0	$0		$956,400
Ciudad: VILLAVICENCIO Depto: META (2 Afiliados)							$3,900,000	$624,000			$3,900,000	$156,000			$3,900,000	$156,000			$3,900,000		$20,400		$0	$0		$956,400
1	CC	1007426375	ROJAS LIZETH		230301	30	$1,300,000	$208,000	EPS002	30	$1,300,000	$52,000	CCF34	30	$1,300,000	$52,000	14-23	30	$1,300,000	0.522%	$6,800	30	$0	$0	SI	$318,800
2	CC	1121965077	SANDINO JUAN		230301	30	$2,600,000	$416,000	EPS037	30	$2,600,000	$104,000	CCF34	30	$2,600,000	$104,000	14-23	30	$2,600,000	0.522%	$13,600	30	$0	$0	SI	$637,600
Total			**Afiliados(2)**				$3,900,000	$624,000			$3,900,000	$156,000			$3,900,000	$156,000			$3,900,000		$20,400		$0	$0		$956,400

DATOS GENERALES DEL APORTANTE

Identificación	dv	Razon Social	Clase Aportante	Sucursal Principal	Direccion	Ciudad-Departamento	Teléfono	Exonerado SENA e ICBF
NIT 900450904	8	C.G.H. INGENIERIA & SOLUCIONES	B - MENOS DE 200 COTIZANTES	PRINCIPAL	CARRERA 19C 19-20	VILLAVICENCIO-META	6836680	SI

DATOS GENERALES DE LA LIQUIDACION

Periodo		Clave		Tipo	Fecha		Pago		
Pensión	Salud	Pago	Planilla	Planilla	Limite	Pago	Banco	Dias Mora	Valor
2024-11	2024-12	1096795002	9478422847	E	2024/12/03	2024/12/03	BANCOLOMBIA	0	$956,400

RESUMEN DE PAGO

RIESGO	CODIGO	NIT	DV	AFILIADOS	VALOR LIQUIDADO	INTERESES MORA	SALDOS E INCAPACIDADES	VALOR A PAGAR
AFP (ADMINISTRADORAS: 1)				2	$624,000	$0	$0	$624,000
PORVENIR	230301	800,224,808	8	2	$624,000	$0	$0	$624,000
ARL (ADMINISTRADORAS: 1)				2	$20,400	$0	$0	$20,400
POSITIVA COMPAÑIA DE SEGUROS	14-23	860,011,153	6	2	$20,400	$0	$0	$20,400
CCF (ADMINISTRADORAS: 1)				2	$156,000	$0	$0	$156,000
COFREM	CCF34	892,000,146	3	2	$156,000	$0	$0	$156,000
EPS (ADMINISTRADORAS: 2)				2	$156,000	$0	$0	$156,000
NUEVA E.P.S.	EPS037	900,156,264	2	1	$104,000	$0	$0	$104,000
SALUD TOTAL	EPS002	800,130,907	4	1	$52,000	$0	$0	$52,000
TOTAL				2	$956,400	$0	$0	$956,400

INFORME DE SUPERVISIÓN No. 2

Bogotá **11/12/2024**

AL: Contadora Pública. Sandra Patricia Bolaños Rodríguez
Secretaria General de la ALFM (E)

Con toda atención me permito enviar a la señora Contadora Pública Sandra Patricia Bolaños Rodriguez encargada de las funciones de secretario general de la ALFM, el informe de supervisión No. 02 del contrato No. 001-170-2024 Correspondiente al periodo de 12 de Noviembre de 2024 al 02 de Diciembre de 2024, de acuerdo con la siguiente información:

1. DATOS GENERALES DEL CONTRATO: (De acuerdo con la notificación enviada por la Agencia Logística, se **deberán** establecer los datos)

CONTRATO No. 001-170-2024 del 11 de octubre de 2024
CONTRATISTA: SERBAN COLOMBIA S.A.S
OBJETO: ADQUISICIÓN CONTROLADORA NETAPP, ACTUALIZACIÓN, MANTENIMIENTO Y SOPORTE A LA SOLUCIÓN DE ALMACENAMIENTO (SAN-NAS) PARA LA ALFM.
VALOR DEL CONTRATO: $ 492.998.890,00 IVA INCLUIDO
PLAZO DE EJECUCION DEL CONTRATO: 20 DE DICIEMBRE DE 2024
MODIFICACIONES: SI __X__ **NO** _____

2. CONTROL OBLIGACIONES Y ENTREGABLES CONTRACTUALES:

NUMERAL	OBLIGACION	ENTREGABLE	OCT	NOV	DIC
10.1.1	**1. Almacenamiento:** • Upgrade de las controladoras Netapp FAS2040 del datacenter principal compatible con la solución de almacenamiento de la entidad y con garantía a 3 años de fábrica. • Mantener licenciamiento (FCP,ISCSI,CIFS y NFS) y esquema de conectividad SAN y NAS de 10GBps y 16 Gbps • Se requiere actualizar la capacidad de su almacenamiento principal FAS2620 y se debe entregar la capacidad de 200 TB efectivos NL-SAS de 7.2 RPM, antes de deduplicacion y compresión de datos compatible con la solución de almacenamiento de la entidad y con garantía a 3 años de fábrica. • Garantía de soporte de fábrica x 3 años • Reconfigurar y Redistribuir los discos actuales del sistema de la actual FAS2620 del datacenter principal a el sistema FAS2620 del datacenter alterno Ubicado en la estrella Antioquia. • Migración de la data en los discos actuales de los sistemas de almacenamientos FAS2040 y FAS2620 a los nuevos discos. • Mantener y actualizar el esquema de replicación de la solución de almacenamiento los nuevos volúmenes que se replicarán serán seleccionados por la entidad durante la etapa de implementación • El upgrade de controladoras propuesto debe permite el crecimiento horizontal (scale-out) de la infraestructura actual mediante unos switches de conectividad en el backend a una tasa de transferencia mínima de 10 Gbps. **2. Instalación configuración y puesta en marcha de los elementos solicitados** • El contratista deberá realizar todos los servicios profesionales de la instalación, configuración y puesta en marcha que haya lugar para el correcto funcionamiento del upgrade de los componentes propuestos en el ítem 1. Almacenamiento, sin costo adicional para la ALFM. • El contratista deberá realizar la migración y replicación sin costo adicional para la ALFM. • El contratista entregará un diseño de la configuración de toda la solución de almacenamiento, el cual será avalado por el supervisor del contrato. • La entidad asegurara espacio en rack, energía y comunicaciones necesarias para la puesta a punto del upgrade establecido en el ítem 1. Almacenamiento. **3. Soporte 7x24 del partner** • Se requiere incluir un soporte 7x24 con atención incidentes y problemas de forma ilimitada por parte del proveedor para en la solución de almacenamiento y switches de los dos entornos DR Y PRODUCCION de la entidad se requiere que dicho soporte sea prestado por parte de ingeniero certificado por el fabricante Netapp y con experiencia en la instalación y soporte de almacenamientos marca Netapp. • Capacitación de 3 horas no formal **de la solución de almacenamiento**	INFORME	X	X	

4. CUMPLIMIENTO DE LOS RIESGOS PREVISIBLES DEL CONTRATO.

Seguimiento y monitoreo de los riesgos establecidos para la etapa de ejecución del contrato:

No.	TIPO	DESCRIPCIÓN	TRATAMIENTO	RESPONSABLE	PERIOCIDAD
1	SOCIAL O POLÍTICO	Dispersión de la normatividad	Hacer seguimiento de las normas de contratación y de sus modificaciones	Contratación	Semanal
2	OPERACIONAL	Deficiente determinación de las especificaciones técnicas mínimas	Verificación del estudio previo y anexo técnico, presentando las respectivas observaciones cuando las especificaciones no ofrecen calidad	Comités estructuradores (técnico, financiero, Jurídico)	Correcciones del estudio previo
3	OPERACIONAL	Deficiencia en la claridad de los requisitos habilitantes	Análisis y verificación de los criterios técnicos, financieros y jurídicos	Comités estructuradores (técnico, económico y jurídico	Durante la etapa de planeación
4	OPERACIONAL	Selección de proponentes que no cumplan con la totalidad de los requisitos habilitantes o se encuentre incursos en alguna inhabilidad o incompatibilidad	Designar personal capacitado y con perfil adecuado para evaluar las propuestas con fines de incurrir en mínimos Errores.	Comités evaluador respectivo	Previo a la adjudicación
5	OPERACIONAL	No se identifican los aspectos de oferta y demanda del mercado	Diseñar un Análisis económico de sector acorde a los criterios establecidos por entidades como Colombia Compra eficiente	Comité Estructurador Económico	Previo a la aprobación del proyecto pliego de condiciones
6	OPERACIONAL	No suscripción del contrato	Adjudicación del contrato a proponente en segundo menor valor; declarar el proceso desierto; aplicar la póliza de garantía de seriedad de la oferta	Contratación	Posterior a la adjudicación y previo al vencimiento del plazo de ejecución

7	ECONÓMICO	Sobrecostos en bienes y/o servicios	Realizar un análisis del mercado que permita determinar que los bienes/servicios se encuentran acorde a los precios del mercado	Comité Económico	Previo a la adjudicación
8	OPERACIONAL	Incumplimiento de las obligaciones establecidas en el contrato	Establecer claramente las obligaciones del contratista; establecer pólizas de cumplimiento, seriedad de la oferta	Comités estructuradores (técnico, económico, jurídico)	Mensual
9	OPERACIONAL	Advenimiento de nuevos desarrollos tecnológicos	La empresa debe garantizar que cuenta con el personal técnico y/o profesional idóneo para realizar este tipo de mantenimientos correctivos y preventivos a la plataforma e infraestructura.	CONTRATISTA Y SUPERVISOR CONTRATO	MENSUAL

5. NOVEDADES DE INCUMPLIMIENTO EN LA EJECUCION:

Actualmente no se registra incumplimiento por parte del contratista a la ejecución del objeto del contrato. En ejecución de acuerdo a las obligaciones contractuales

6. CONTROL DE PAGOS

Valor total de Contrato	**$ 492.998.861**			
No. Factura y/o Cuenta de cobro	**Fecha**	**Valor Facturado**	**Saldo por Ejecutar**	**Con cargo al Contrato Interadministrativo No.**
SERB - 13358	11/12/2024	$ 492.998.889.61	$ 0	N/A
TOTAL		$ 492.998.889.61		

Porcentaje cumplimiento Avance 100 % Demora 0 %

7. INFORMACIÓN FIDUCIAS (Cuando aplique)

N/A

8. INFORMACIÓN PERSONAL CONTRATADO (Cuando aplique)

Se realiza seguimiento del pago de obligaciones laborales de acuerdo al documento que remite el contratista de fecha 11 de Diciembre de 2024 así como el pago de aportes a la seguridad social el cual también aporta el contratista con fecha 03 de Diciembre 2024, estos documentos reposan en el expediente para su validación, junto a "CERTIFICACIÓN DE CUMPLIMIENTO DEL PAGO DE APORTES AL SISTEMA DE SEGURIDAD SOCIAL INTEGRAL Y PARAFISCALES Y DE CUMPLIMIENTO DEL SISTEMA DE GESTIÓN DE SEGURIDAD Y SALUD EN EL TRABAJO - SG SST".

Adicional se adjunta factura modificada por ajuste de 0.38 centavos de diferencia con la que se encuentra en la DIAN Y SIIF NACION, teniendo en cuenta que la factura fue aprobada en el secop II y que ya no es posible modificarla se sube al secop en la opción de ejecución del contrato

8. INFORMACIÓN AIU (Cuando aplique)

N/A

9 DOCUMENTOS ANEXOS AL INFORME

10 RECOMENDACIONES

De acuerdo al cumplimiento del cronograma establecido, en la entrega de la controladora NETAAP, la actualización el mantenimiento y soporte a la solución de Almacenamiento (SAN-NAS) para la ALFM y cumplimento de los ANS durante el mes de Noviembre, se realiza el trámite de pago correspondiente por ($ 492.998.889.61) de acuerdo a los porcentajes establecidos en el valor del contrato.

ELIO RAMIRO DIAZ
Supervisor del contrato No. 001-170-2024

MINISTERIO DE DEFENSA NACIONAL
AGENCIA LOGÍSTICA DE LAS FUERZAS MILITARES

ENTRADA MERCANCÍAS

Información	Doc Num: 5000743215
Fecha Documento	11.12.2024
Fecha Contabilización	11.12.2024
Sociedad No.	000
Nombre Sociedad	Oficina Principal
Centro	P001 General Oficina principal
Proveedor No.	80005974
Nombre Proveedor	SERBAN COLOMBIA S.A.S
Orden de Compra	4200129542
Grupo de Compras	011 Activos
No. Contrato	001-170-2024
Clase Movimiento	101 EM Entr.mercancías
Nro. Factura Proveedor:	FACTURA ELEC No.SERB13358

Pos.	Almacén	Denominación	Material	Descripción	Cantidad	Unidad	Vlr. Unit.	Vlr. Total
0001		Alm Gral Of Ppal		CONTROLADORA NETAPP	1	UND	492.998.891,0000	492.998.891
							TOTAL	492.998.891

Emisor : CBARRIOS Firma : Carlos Eduardo Barrios Ramirez Firmado digitalmente por Carlos Eduardo Barrios Ramirez

Recibe : Firma :

NetApp

Design Documentation

Design and Implementation Summary

ONTAP (Cluster View)

Prepared for: ALFM
Location: BOGOTA
Project: <Project Name>
Author: <Author Name>
Date: 11/15/2024

In partnership with

Logo Logo

Abstract

This document provides a comprehensive configuration summary of all the NetApp storage systems for which this report was generated.

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Document Version Information

The following table lists the date the data was obtained from the systems and the NetAppDocs script versions used for both the collection and this document generation.

Table i) Document Version Information.

Cluster Name	Data Reference Date	NetAppDocs Version	PowerShell Version
san-nas	2024-11-15 15:09:09Z	Col: 3.7.0 | Gen: 3.7.0	Col: 4.0 | Gen: 4.0

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Overview

This report will provide the following information:

- Hardware inventory
- Firmware and software revisions
- ONTAP software configuration details
- Storage capacity and provisioning
- Storage efficiency configuration
- Storage Virtual Machine (SVM) configuration
- Network configuration
- Network attached storage (NAS) SVM configuration
- Storage area network (SAN) SVM configuration
- Data protection configuration
- Rack elevation and logical diagrams
- Reference material

General Information

Hardware

The current iteration of ONTAP was originally developed for NetApp's scale out cluster storage architecture. This is the architecture you typically find in datacenter implementations of ONTAP. Because this implementation exercises most of ONTAP's capabilities, it's a good place to start in understanding the concepts that inform ONTAP technology.

Datacenter architectures usually deploy dedicated FAS or AFF controllers running ONTAP data management software. Each controller, its storage, its network connectivity, and the instance of ONTAP running on the controller is called a node.

Nodes are paired for high availability (HA). Together these pairs (up to 12 nodes for SAN, up to 24 nodes for NAS) comprise the cluster. Nodes communicate with each other over a private, dedicated cluster interconnect.

Depending on the controller model, node storage consists of flash disks, capacity drives, or both. Network ports on the controller provide access to data. Physical storage and network connectivity resources are virtualized, visible to cluster administrators only, not to NAS clients or SAN hosts.

Nodes in an HA pair must use the same storage array model. Otherwise you can use any supported combination of controllers. You can scale out for capacity by adding nodes with like storage array models, or for performance by adding nodes with higher-end storage arrays.

Of course you can scale up in all the traditional ways as well, upgrading disks or controllers as needed. ONTAP's virtualized storage infrastructure makes it easy to move data nondisruptively, meaning that you can scale vertically or horizontally without downtime

A single-node cluster is a special implementation of a cluster running on a standalone node. You might want to deploy a single-node cluster in a branch office, for example, assuming the workloads are small enough and that storage availability is not a critical concern.

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In this scenario, the single-node cluster would use SnapMirror replication to back up the site's data to your organization's primary data center. ONTAP Select, with its support for ONTAP running on commodity hardware, would be a good candidate for this type of implementation.

Cluster Details

A cluster consists of one or more nodes grouped together as (HA pairs) to form a scalable cluster. Creating a cluster enables the nodes to pool their resources and distribute work across the cluster, while presenting administrators with a single entity to manage. Clustering also enables continuous service to end users if individual nodes go offline.

- The maximum number of nodes within a cluster depends on the platform model and licensed protocols.
- Each node in the cluster can view and manage the same volumes as any other node in the cluster.

  The total file-system namespace, which comprises all of the volumes and their resultant paths, spans the cluster.
- The nodes in a cluster communicate over a dedicated, physically isolated and secure Ethernet network.

  The cluster logical interfaces (LIFs) on each node in the cluster must be on the same subnet.
- When new nodes are added to a cluster, there is no need to update clients to point to the new nodes.

  The existence of the new nodes is transparent to the clients.
- If you have a two-node cluster (a single HA pair), you must configure cluster high availability (HA).
- You can create a cluster on a stand-alone node, called a single-node cluster.

  This configuration does not require a cluster network, and enables you to use the cluster ports to serve data traffic. However, nondisruptive operations are not supported on single-node clusters.

The following table shows the cluster details.

Table 1) Cluster Details.

Cluster Name	ONTAP Version	Node Count	Data SVM Count	Cluster Raw Capacity	Cluster HA Configured
san-nas	9.1P8	2	2	271,38 TB	True

Cluster Contact Details

The following table lists the cluster contact details.

Table 2) Cluster Contact Details.

Cluster Name	Primary Name	Primary Email	Secondary Name	Secondary Email
none				

Node Details

A node is a controller in a cluster. You can display information about a node, set node attributes, rename a node, add or remove a node, or start or stop a node. You can also manage a node remotely by using the Service Processor (SP).

A node is connected to other nodes in the cluster over a cluster network. It is also connected to the disk shelves that provide physical storage for the ONTAP system or to storage arrays that provide array LUNs for ONTAP use. Services and components that are controlled by the node, not by the cluster, can be managed by using the system node commands.

The following table shows the node details.

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Table 3) Node Details.

Cluster Name	Node Name	System Model	Serial Number	HA Partner Node Name	ONTAP Version
san-nas	san-nas-01	FAS2650	621735000516	san-nas-02	9.1P8
san-nas	san-nas-02	FAS2650	621735000517	san-nas-01	9.1P8

Cluster Switch Details

The cluster switch health monitor automatically attempts to discover your cluster and management network switches using the Cisco Discovery Protocol (CDP). You must configure the health monitor if it cannot automatically discover a switch or if you do not want to use CDP for automatic discovery.

The following table shows the cluster switch details.

Table 4) Cluster Switch Details.

Cluster Name	Switch Network	Device Name	Model Number	Software Version
none				

Note: This information is only available on Data ONTAP 8.2 or later.

Storage Details

The following table shows the storage details for each HA pair.

Table 5) Storage Details.

Node Names	Shelf Count	Disk Count	Disk Capacity	Raw Capacity
san-nas-01 san-nas-02	DS212-12: 3 DS224-12: 2	FSAS: 30 SAS: 35	FSAS: 214,18 TB SAS: 57,20 TB	271,38 TB

Note: Raw capacity is NOT usable capacity.

Shelf Details

The following table shows the shelf details for each HA Pair.

Table 6) Shelf Details.

Cluster Name	Node Names	Shelf ID	Shelf State	Shelf Model	Shelf Type	Drive Slot Count
san-nas	san-nas-01 san-nas-02	0	online	DS224-12	IOM12E	24
san-nas	san-nas-01 san-nas-02	1	online	DS224-12	IOM12	24
san-nas	san-nas-01 san-nas-02	2	online	DS212-12	IOM12	12
san-nas	san-nas-01 san-nas-02	3	online	DS212-12	IOM12	12
san-nas	san-nas-01 san-nas-02	4	online	DS212-12	IOM12	12

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Shelf Connectivity Details

The following table lists the shelf connectivity details for each node.

Table 7) Shelf Connectivity Details.

Node Name	Storage Configuration	Shelf ACP Connectivity
san-nas-01	Multi-Path HA	Inband Active
san-nas-02	Multi-Path HA	Inband Active

Drive Allocation Details

The following table shows the drive allocation details for each node.

Table 8) Drive Allocation Details.

Node Name	Total Disk Count	Allocated Disk Count	Disk Type	Raw Capacity	Spare Disk Count
san-nas-01	23	22	1.8TB_SAS_10k	37,59 TB	1
san-nas-01	15	14	8.0TB_NL-SAS_7.2k	107,09 TB	1
san-nas-02	12	12	1.8TB_SAS_10k	19,61 TB	0
san-nas-02	15	14	8.0TB_NL-SAS_7.2k	107,09 TB	1

Note: Raw capacity is NOT usable capacity.

Adapter Card Details

The following table shows the adapter cards present in each node.

Table 9) Adapter Card Details.

Node Name	System Model	Slot Number	Part Number	Description
san-nas-01	FAS2650	1	X3310A	Samsung M.2 512GB NVMe Drive
san-nas-02	FAS2650	1	X3310A	Samsung M.2 512GB NVMe Drive

Service Processor Devices

A Service Processor is a system-independent resource in the storage system that helps you to monitor and manage storage system parameters such as the temperature, voltage, current, and fan speeds.

When the service processor detects an abnormal condition in any of the storage system parameters, it logs an event, notifies ONTAP of the issue, and generates AutoSupport messages through email or through SNMP traps.

The Service Processor monitors ONTAP through a watchdog mechanism and can facilitate a quick failover to the partner node. The Service Processor also tracks numerous system events and saves them in a log file. The events include boot progress, field-replaceable unit (FRU) changes, ONTAP generated events, and a user transaction history.

The Service Processor can remotely log in and administer the storage system and can diagnose, shut down, power cycle, or reboot the system, regardless of the state of the storage system. In addition, the Service Processor provides remote diagnostic features.

The combined monitoring and managing capabilities of the Service Processor enables you to evaluate the storage system in the event of an issue, and you can immediately perform effective service actions.

The following table lists the service processor devices.

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Table 10) Service Processor Devices.

Cluster Name	Node Name	Type	Status	IP Address	Gateway
san-nas	san-nas-01	SP	online	10.16.3.179/25	10.16.3.129
san-nas	san-nas-02	SP	online	10.16.3.180/25	10.16.3.129

Firmware Details

The following table shows the relevant firmware details for each node.

Table 11) Firmware Details.

Node Name	Node Firmware	Shelf Firmware	Shelf ACP Firmware	Drive Firmware	SP Firmware
san-nas-01	FAS2650: 11.0.2	IOM12: A:0210, B:0210 IOM12: A:0270, B:0270 IOM12E: A:0110, B:0110	n/a	X318_HLBRE08TA07 : NA00 X318_SMKPE08TA0 7: NA02 X343_STBTE1T8A10 : NA02 X343_TA14E1T8A10: NA01 X343_TA15E1T8A10: NA00	SP: 5.1P1
san-nas-02	FAS2650: 11.0.2	IOM12: A:0210, B:0210 IOM12: A:0270, B:0270 IOM12E: A:0110, B:0110	n/a	X318_HLBRE08TA07 : NA00 X318_SMKPE08TA0 7: NA02 X343_TA14E1T8A10: NA01	SP: 5.1P1

Software

ONTAP software provides features for network file service, multiprotocol file and block sharing, data storage management, data organization management, data access management, data migration management, data protection management and AutoSupport.

License v2.0 Details

All license keys are 28 characters in length. Licenses installed prior to ONTAP 8.2 continue to work in ONTAP 8.2 and later releases. However, if you need to reinstall a license (for example, you deleted a previously installed license and want to reinstall it in ONTAP 8.2 or later, or you perform a controller replacement procedure for a node in a cluster running ONTAP 8.2 or later), ONTAP requires that you enter the license key in the 28-character format.

The following table lists the licensed software for clusters running ONTAP versions 8.2 or later.

Table 12) License V2 Details.

Cluster Name	Package	Owner	Legacy	Type	Expiration Date
san-nas	base	san-nas	False	license	
san-nas	cifs	san-nas-01	False	license	
san-nas	cifs	san-nas-02	False	license	
san-nas	fcp	san-nas-01	False	license	

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Cluster Name	Package	Owner	Legacy	Type	Expiration Date
san-nas	fcp	san-nas-02	False	license	
san-nas	flexclone	san-nas-01	False	license	
san-nas	flexclone	san-nas-02	False	license	
san-nas	iscsi	san-nas-01	False	license	
san-nas	iscsi	san-nas-02	False	license	
san-nas	nfs	san-nas-01	False	license	
san-nas	nfs	san-nas-02	False	license	
san-nas	snapmanagersuite	san-nas-01	False	license	
san-nas	snapmanagersuite	san-nas-02	False	license	
san-nas	snapmirror	san-nas-01	False	license	
san-nas	snapmirror	san-nas-02	False	license	
san-nas	snaprestore	san-nas-01	False	license	
san-nas	snaprestore	san-nas-02	False	license	
san-nas	snapvault	san-nas-01	False	license	
san-nas	snapvault	san-nas-02	False	license	
san-nas	tpm	san-nas-01	False	license	
san-nas	tpm	san-nas-02	False	license	
san-nas	ve	san-nas-01	False	license	
san-nas	ve	san-nas-02	False	license	

AutoSupport

AutoSupport is a mechanism that proactively monitors the health of your system and automatically sends messages to NetApp technical support, your internal support organization, and a support partner. Although AutoSupport messages to technical support are enabled by default, you must set the correct options and have a valid mail host to have messages sent to your internal support organization.

Only the cluster administrator can perform AutoSupport management. The Storage Virtual Machine (SVM) administrator has no access to AutoSupport.

AutoSupport is enabled by default when you configure your storage system for the first time. AutoSupport begins sending messages to technical support 24 hours after AutoSupport is enabled. You can shorten the 24-hour period by upgrading or reverting the system, modifying the AutoSupport configuration, or changing the system time to be something other than a 24-hour period.

Note: You can disable AutoSupport at any time, but you should leave it enabled. Enabling AutoSupport can significantly help speed problem determination and resolution should a problem occur on your storage system. By default, the system collects AutoSupport information and stores it locally, even if you disable AutoSupport.

For more information about AutoSupport, see the NetApp Support Site.

AutoSupport Settings

The following table lists the AutoSupport settings.

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Table 13) AutoSupport Settings.

Node Name	Enabled	Support Enabled	Performance Data Enabled	Private Data Removed	Throttle Enabled
san-nas-01	True	True	True	False	True
san-nas-02	True	True	True	False	True

AutoSupport Transport Settings

The following table lists the AutoSupport transport settings.

Table 14) AutoSupport Transport Settings.

Node Name	Transport Protocol	Mailhosts	Proxy URL
san-nas-01	smtp	10.16.4.7	
san-nas-02	smtp	10.16.4.7	

AutoSupport Addresses

The following table lists the AutoSupport email address information.

Table 15) AutoSupport Addresses.

Node Name	From	To
san-nas-01	san-nas@agencialogistica.gov.co	autosupport@netapp.com, cristian.cruz@agencialogistica.gov.co
san-nas-02	san-nas@agencialogistica.gov.co	autosupport@netapp.com, cristian.cruz@agencialogistica.gov.co

SNMP Settings

You can configure SNMP to monitor SVMs in your cluster to avoid issues before they occur, and to respond to issues if they do occur. Managing SNMP involves configuring SNMP users and configuring SNMP traphost destinations (management workstations) for all SNMP events. SNMP is disabled by default on data LIFs.

You can create and manage read-only SNMP users in the data SVM. Data LIFs must be configured to receive SNMP requests on the SVM.

SNMP network management workstations, or managers, can query the SVM SNMP agent for information. The SNMP agent gathers information and forwards it to the SNMP managers. The SNMP agent also generates trap notifications whenever specific events occur. The SNMP agent on the SVM has read-only privileges; it cannot be used for any set operations or for taking a corrective action in response to a trap. ONTAP provides an SNMP agent compatible with SNMP versions v1, v2c, and v3. SNMPv3 offers advanced security by using passphrases and encryption.

The following table lists the SNMP settings.

Table 16) SNMP Settings.

Cluster Name	Communities	Traphosts	Trap Enabled
san-nas			True

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System Time Settings

Problems can occur when the cluster time is inaccurate. Although ONTAP enables you to manually set the time zone, date, and time on the cluster, you should configure the Network Time Protocol (NTP) servers to synchronize the cluster time.

NTP is always enabled. However, configuration is still required for the cluster to synchronize with an external time source.

System Time Settings (8.2.x and earlier)

The following table lists the system time settings for Data ONTAP 8.2.x and earlier.

Table 17) System Time Settings Pre-8.3.

Cluster Name	Enabled	Node Name	Server	Version
none				

System Time Settings (8.3 or later)

The following table lists the system time settings for Data ONTAP 8.3 or later and ONTAP 9.

Table 18) System Time Settings.

Cluster Name	Server	Version	Preferred	Public Default
san-nas	none			

Web Protocol Engine Settings

You can configure the web protocol engine on the cluster to control whether web access is allowed and what SSL versions can be used. You can also display the configuration settings for the web protocol engine.

- You can manage the web protocol engine at the cluster level in the following ways:
- You can specify whether remote clients can use HTTP or HTTPS to access web service content by using the `system services web modify` command with the `-external` parameter.
- You can specify whether SSLv3 should be used for secure web access by using the `security config modify` command with the `-supported-protocol` parameter.

  By default, SSLv3 is disabled. Transport Layer Security 1.0 (TLSv1.0) is enabled and it can be disabled if needed.
- You can enable Federal Information Processing Standard (FIPS) 140-2 compliance mode for cluster-wide control plane web service interfaces.

  Note: By default, FIPS 140-2 compliance mode is disabled.

When FIPS 140-2 compliance mode is disabled

You can enable FIPS 140-2 compliance mode by setting the is-fips-enabled parameter to true for the `security config modify` command, and then using the `security config show` command to confirm the online status.

When FIPS 140-2 compliance mode is enabled

Both TLSv1 and SSLv3 are disabled and only TLSv1.1 and TLSv1.2 remain enabled. ONTAP prevents you from enabling both TLSv1 and SSLv3 when FIPS 140-2 compliance mode is enabled. If you enable FIPS 140-2 compliance mode and then subsequently disable it, TLSv1 and SSLv3 remain disabled, but either TLSv1.2 or both TLSv1.1 and TLSv1.2 are enabled depending on the previous configuration.

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- You can display the configuration of cluster-wide security by using the `system security config show` command.

If the firewall is enabled, the firewall policy for the logical interface (LIF) to be used for web services must be set up to allow HTTP or HTTPS access.

If you use HTTPS for web service access, SSL for the cluster or Storage Virtual Machine (SVM) that offers the web service must also be enabled, and you must provide a digital certificate for the cluster or SVM.

In MetroCluster configurations, the setting changes you make for the web protocol engine on a cluster are not replicated on the partner cluster.

The following table lists the web protocol engine settings.

Table 19) Web Protocol Engine Settings.

Cluster Name	Node Name	External	HTTP Port	HTTPS Port	Status	TLSv1 Enabled	SSLv3 Enabled	FIPS 140-2 Enabled
san-nas	-	True	80	443	online	True	False	False
san-nas	san-nas-01	True	80	443	online			
san-nas	san-nas-02	True	80	443	online			

Cluster Host-Name Resolution

ONTAP must be able to translate host names to numerical IP addresses in order to provide access to clients and to access services. You must configure Storage Virtual Machines (SVMs) to use local or external name services to resolve host information. ONTAP supports configuring an external DNS server or configuring the local hosts file for host name resolution.

Cluster DNS Settings

You use DNS to access either local or remote sources for host information. You must configure DNS to access one or both of these sources.

ONTAP must be able to look up host information to provide proper access to clients. You must configure name services to enable ONTAP to access local or external DNS services to obtain the host information.

ONTAP stores name service configuration information in a table that is the equivalent of the /etc/nsswitch.conf file on UNIX systems.

The following table lists the cluster DNS settings.

Table 20) Cluster DNS Settings.

Cluster Name	State	Domain Names	Servers
san-nas	enabled	alfm.mil.co	10.16.3.134 10.16.3.136

Cluster DNS Hosts Table

The following table lists the cluster DNS hosts table.

Table 21) Cluster DNS Hosts Table.

Cluster Name	Hostname	Host IP Address	Aliases
none			

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ONTAP Configuration

Storage Virtual Machines (SVM)

SVMs contain data volumes and one or more LIFs through which they serve data to clients and hosts. Each SVM appears as a single dedicated server to a client or host.

A cluster must have at least one SVM to serve data. Multiple SVMs can coexist in a single cluster without being bound to any node in a cluster. An SVM has a separate administrator authentication domain and can be managed independently by its SVM administrator.

SVMs can contain files and LUNs. They provide file-level data access by using NFS and CIFS protocols for the NAS clients, and block-level data access by using iSCSI and Fibre Channel (FC) (FCoE included) for SAN hosts.

SVM Configuration

A cluster consists of three types of SVMs, which help in managing the cluster and its resources and data access to the clients and applications.

A cluster contains the following types of SVMs:

- Admin SVM

  The cluster setup process automatically creates the admin SVM for the cluster. The admin SVM represents the cluster.
- Node SVM

  A node SVM is created when the node joins the cluster, and the node SVM represents the individual nodes of the cluster.
- System SVM (advanced)

  A system SVM is automatically created for cluster-level communications in an IPspace.
- Data SVM

  A data SVM represents the data serving SVMs. After the cluster setup, a cluster administrator must create data SVMs and add volumes to these SVMs to facilitate data access from the cluster.

  A cluster must have at least one data SVM to serve data to its clients.

Note: Unless otherwise specified, the term SVM refers to data (data-serving) SVM, which applies to both SVMs with FlexVol volumes and SVMs with Infinite Volume. In the CLI, SVMs are displayed as Vservers.

The following table lists the SVM configuration.

Table 22) SVM Configuration.

Cluster Name	SVM Name	Type	Subtype	Admin State	Operational State	Allowed Protocols	Comment
san-nas	HELIOS	data	default	running	running	nfs, cifs, fcp, iscsi	
san-nas	san-nas	admin					The administrative vserver.
san-nas	TRITON	data	default	running	running	nfs, cifs	

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SVM Storage Configuration

The following table lists the SVM Storage Configuration.

Table 23) SVM Storage Configuration.

Cluster Name	SVM Name	Root Volume Security Style	Language	Root Volume	Root Aggregate	Aggregate List
san-nas	HELIOS	unix	c.utf_8	HELIOS_root	aggr_data_01_sas_n01	
san-nas	TRITON	ntfs	c.utf_8	TRITON_root	aggr_data_01_sas_n01	

SVM Default Policies

The following table lists the SVM default policy settings.

Table 24) SVM Default Policies.

Cluster Name	SVM Name	Snapshot Policy	Quota Policy	Antivirus On-Access Policy	QOS Policy Group
san-nas	HELIOS	default	default	default	
san-nas	TRITON	default	default	default	

SVM Host-Name Resolution

A cluster administrator or a SVM administrator can configure DNS for host-name lookup in a SVM.

Starting with Data ONTAP 8.1, each SVM has its own DNS configuration. Each SVM communicates with its DNS server in the SVM's context, which includes the SVM's LIF and routing tables. Client requests are authenticated and authorized by using the specific SVM network configuration.

DNS configuration is mandatory when CIFS is used for data access.

SVM DNS Settings

The following table lists the SVM DNS settings.

Table 25) SVM DNS Settings.

Cluster Name	SVM Name	DNS State	Domain Names	DNS Servers
san-nas	HELIOS	enabled	alfm.mil.co	10.16.3.134 10.16.3.136
san-nas	TRITON	enabled	ALFM.MIL.CO alfm.mil.co	10.16.3.134 10.16.3.136

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SVM DNS Hosts Table

A cluster administrator can add, modify, delete, and view the host name entries in the hosts table of the admin Storage Virtual Machine (SVM). An SVM administrator can configure the host name entries only for the assigned SVM.

The following table lists the SVM DNS hosts table.

Table 26) SVM DNS Hosts Table.

Cluster Name	SVM Name	Hostname	Host IP Address	Aliases
san-nas	TRITON	mailhost	10.16.4.3	
san-nas	TRITON	san-nas-alfm-02	10.16.3.161	san-nas-alfm-02-vif1

SVM Name Services

Depending on the configuration of your storage system, ONTAP needs to be able to look up host, user, group, or netgroup information to provide proper access to clients. You must configure name services to enable ONTAP to access local or external name services to obtain this information.

LDAP

An LDAP server enables you to centrally maintain user information. If you store your user database on an LDAP server in your environment, you can configure your storage system to look up user information in your existing LDAP database.

LDAP Client Configuration

ONTAP provides three LDAP schemas: one for Active Directory Services for UNIX compatibility, one for Active Directory Identity Management for UNIX compatibility, and one for RFC-2307 LDAP compatibility. If the LDAP schema in your environment differs from these, you must create a new LDAP client schema for ONTAP before creating the LDAP client configuration.

The following table lists the LDAP client configuration.

Table 27) LDAP Client Configuration.

Cluster Name	SVM Name	Client Configuration	LDAP Servers	AD Domain	Schema	Minimum Bind Level
none						

LDAP Configuration

The following table lists the LDAP configuration.

Table 28) LDAP Configuration.

Cluster Name	SVM Name	Client Config Name	Client Enabled
none			

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Kerberos

Kerberos provides strong secure authentication for client/server applications. Authentication provides verification of user and process identities to a server. In the ONTAP environment, Kerberos provides authentication between SVMs and NFS/CIFS clients.

Kerberos Configuration

The following table lists the Kerberos configuration.

Table 29) Kerberos Configuration.

Cluster Name	SVM Name	Interface Name	IP Address	Enabled	SPN
san-nas	HELIOS	HELIOS_nfs_lif1	10.16.3.140	False	

Kerberos Realm Configuration

The following table lists the Kerberos realm configuration.

Table 30) Kerberos Realm Configuration.

Cluster Name	SVM Name	Kerberos Realm	Config Name	AD Server Name	KDC Vendor	KDC IP Address
none						

NIS

A Network Information Service (NIS) domain provides a directory of hostnames and IP addresses in a network. A Storage Virtual Machine (SVM) administrator can manage NIS domains by creating, modifying, deleting, or displaying information about them. NIS cannot be configured for the cluster management server.

You can configure multiple NIS domains for a given SVM, but only one NIS domain can be active on an SVM at any given time. You can also configure an NIS domain with more than one SVM.

The following table lists the NIS domain configuration.

Table 31) NIS Domain Configuration.

Cluster Name	SVM Name	NIS Domain	NIS Servers	Active
none				

Job Schedules

A job is defined as any asynchronous task. Jobs are typically long-running volume operations such as copy, move and mirror. Jobs are placed into a job queue and run when resources are available. If a job is consuming too many system resources, you can stop it or pause it until there is less demand on the system.

Many tasks—for instance, volume Snapshot copies—can be configured to run on specified schedules. Schedules that run at specific times are called cron schedules (similar to UNIX cron schedules). Schedules that run at intervals are called interval schedules. You use the `job schedule` commands to manage job schedules.

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Job schedules do not adjust to manual changes to the cluster date and time. These jobs are scheduled to run based on the current cluster time when the job was created or when the job most recently ran. Therefore, if you manually change the cluster date or time, you should use the job show and `job history show` commands to verify that all scheduled jobs are queued and completed according to your requirements.

If the cluster is part of a MetroCluster configuration, then the job schedules on both clusters must be identical. Therefore, if you create, modify, or delete a job schedule, you must perform the same operation on the remote cluster.

The following table lists the configured job schedules.

Table 32) Job Schedules.

Cluster Name	Schedule Name	Type	Description
san-nas	5min	cron	@:00,:05,:10,:15,:20,:25,:30,:35,:40,:45,:50,:55
san-nas	8hour	cron	@2:15,10:15,18:15
san-nas	Auto Balance Aggregate Scheduler	interval	Every 1h
san-nas	daily	cron	@0:10
san-nas	hourly	cron	@:05
san-nas	RepositoryBalanceMonitorJobSchedule	interval	Every 10m
san-nas	transition_snapshot_schedule_0	cron	@0:00
san-nas	transition_snapshot_schedule_1	cron	@8:00,12:00,16:00,20:00
san-nas	weekly	cron	Sun@0:15

Policies

ONTAP utilizes policies for many configuration items. These policies are created at the cluster level and then are available to the SVMs for use. As an example, Snapshot policies are created and then those policies are applied to the FlexVol volumes for which they will be taking snapshots, rather than defining specific Snapshot configurations on a per FlexVol volume basis.

Snapshot Policies

When applied to a volume, a Snapshot policy specifies a schedule or schedules according to which Snapshot copies are created and specifies the maximum number of Snapshot copies that each schedule can create. A Snapshot policy can include up to five schedules.

For vault relationships, the SnapMirror Label attribute is used to select Snapshot copies on the source volumes. Only Snapshot copies with the labels configured in the vault policy rules are replicated in backup vault operations. The Snapshot policy assigned to the source volume must include the SnapMirror Label attribute.

The following table lists the snapshot policy settings.

Table 33) Snapshot Policies.

Cluster Name	SVM Name	Policy Name	Enabled	Total Schedules	Schedule Name	Schedule Prefix	Schedule Count
san-nas	san-nas	default	True	3	hourly daily	hourly daily	6 2

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Cluster Name	SVM Name	Policy Name	Enabled	Total Schedules	Schedule Name	Schedule Prefix	Schedule Count
					weekly	weekly	2
san-nas	san-nas	default-1weekly	True	3	hourly daily weekly	hourly daily weekly	6 2 1
san-nas	san-nas	none	False	0			
san-nas	TRITON	transition_snapshot_policy_0	True	2	transition_snapshot_schedule_0 transition_snapshot_schedule_1	transition_snapshot_schedule_0 transition_snapshot_schedule_1	7 6

SnapMirror Policies

To manage a data protection mirror, vault, or mirror and vault relationship, you must assign a policy to the relationship. You use the policy to maximize the efficiency of the transfers to the backup secondaries and manage the update operations for SnapVault backups.

SVM disaster recovery relationships support only SnapMirror policies.

FlexVol volumes support data protection mirror, vault, and mirror and vault relationships and policies.

Note: SnapMirror policies are only available starting with Data ONTAP 8.2.

The following table lists the SnapMirror policy settings.

Table 34) SnapMirror Policies.

Cluster Name	SVM Name	Policy Name	Policy Type	Policy Owner	Tries Limit	Total Rules	SnapMirror Label	Keep	Preserve	Warn
san-nas	san-nas	DPDefault	async_mirror	cluster_admin	8	1	sm_created	1	false	0
san-nas	san-nas	MirrorAllSnapshots	async_mirror	cluster_admin	8	2	sm_created all_source_snapshots	1 1	false false	0 0
san-nas	san-nas	MirrorAndVault	mirror_vault	cluster_admin	8	3	sm_created daily weekly	1 7 52	false false false	0 0 0
san-nas	san-nas	MirrorLatest	async_mirror	cluster_admin	8	1	sm_created	1	false	0
san-nas	san-nas	XDPDefault	vault	cluster_admin	8	2	daily weekly	7 52	false false	0 0

Quota Policy Rules

Quotas are defined in quota rules specific to FlexVol volumes. These quota rules are collected together in a quota policy of a Storage Virtual Machine (SVM), and then activated on each volume on the SVM.

A quota rule is always specific to a volume. Quota rules have no effect until quotas are activated on the volume defined in the quota rule.

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A quota policy is a collection of quota rules for all the volumes of an SVM. Quota policies are not shared among SVMs. An SVM can have up to five quota policies, which enable you to have backup copies of quota policies. One quota policy is assigned to an SVM at any given time.

A quota is the actual restriction that ONTAP enforces or the actual tracking that ONTAP performs. A quota rule always results in at least one quota, and might result in many additional derived quotas. The complete list of enforced quotas is visible only in quota reports.

Activation is the process of triggering ONTAP to create enforced quotas from the current set of quota rules in the assigned quota policy. Activation occurs on a volume-by-volume basis. The first activation of quotas on a volume is called initialization. Subsequent activations are called either reinitialization or resizing, depending on the scope of the changes.

Note: When you initialize or resize quotas on a volume, you are activating the quota rules in the quota policy that is currently assigned to the SVM.

The following table lists the quota policy rules.

Table 35) Quota Policy Rules.

Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Backup_Analaizer	DATA_GRANULAR		471859200	-
san-nas	TRITON	default	tree	CHECKOUT	DATA_GRANULAR		45088768	-
san-nas	TRITON	default	tree	CONTRALORIA_2016	DATA_GRANULAR		204800	-
san-nas	TRITON	default	tree	EJECUCION Y SEGUIMIENTO	DATA_GRANULAR		31457280	-
san-nas	TRITON	default	tree	PLANTA TELEFONICA BIOMETRIA	DATA_GRANULAR		512000	-
san-nas	TRITON	default	tree	Proyecto_ERP	DATA_GRANULAR		293601280	-
san-nas	TRITON	default	tree	Q_Antioquia_Choco	DATA_GRANULAR		256000	-
san-nas	TRITON	default	tree	Q_Archivos_Siscom	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_Arquitectura_Empresarial	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_AUTODIAGNOSTICOS_MIPG	DATA_GRANULAR		2097152	-
san-nas	TRITON	default	tree	Q_Ayudas_Manejo_Modulo_Mantenimiento	DATA_GRANULAR		10485760	-
san-nas	TRITON	default	tree	Q_Backup_App_Informatica	DATA_GRANULAR		15728640	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_Backup_Appweb	DATA_GRANULAR		10485760	-
san-nas	TRITON	default	tree	Q_Backup_Buzones_Retirados	DATA_GRANULAR		377487360	-
san-nas	TRITON	default	tree	Q_Backup_Control_Interno	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_Backup_Mesa_Ayuda	DATA_GRANULAR		20971520	-
san-nas	TRITON	default	tree	Q_Backup_Portalweb	DATA_GRANULAR		327155712	-
san-nas	TRITON	default	tree	Q_Backup_Vicidial	DATA_GRANULAR		2097152	-
san-nas	TRITON	default	tree	Q_Backup_VM	DATA_GRANULAR		3167538308	-
san-nas	TRITON	default	tree	Q_Backup_zimbra	DATA_GRANULAR		524288000	-
san-nas	TRITON	default	tree	Q_Backups	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_Bakcup_Info_Planeacion	DATA_GRANULAR		52428800	-
san-nas	TRITON	default	tree	Q_Bakcup_Intranet	DATA_GRANULAR		209715200	-
san-nas	TRITON	default	tree	Q_BMC	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_Buceo_Salvamento	DATA_GRANULAR		1048576	-
san-nas	TRITON	default	tree	Q_Capacitacion_Tic	DATA_GRANULAR		10485760	-
san-nas	TRITON	default	tree	Q_CATERING	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_Cierre_Vigencia	DATA_GRANULAR		512000	-
san-nas	TRITON	default	tree	Q_Comision_de_Personal	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_comite_convivencia_laboral	DATA_GRANULAR		2097152	-
san-nas	TRITON	default	tree	Q_Contraloria	DATA_GRANULAR		73400320	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_Contraloria_2022	DATA_GRANULAR		524288000	-
san-nas	TRITON	default	tree	Q_contraloria_2023	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_Contraloria2021	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_Contratos	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_Contratos_Archivo	DATA_GRANULAR		1073741824	-
san-nas	TRITON	default	tree	Q_Contratos_Principal	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_Correspondencia	DATA_GRANULAR		262144000	-
san-nas	TRITON	default	tree	Q_CR_Camacho	DATA_GRANULAR		178257920	-
san-nas	TRITON	default	tree	Q_Cuentas_fiscales	DATA_GRANULAR		576716800	-
san-nas	TRITON	default	tree	Q_Cuentas_Por_Pagar	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_Cumplimiento_Plazos	DATA_GRANULAR		2097152	-
san-nas	TRITON	default	tree	Q_Digitalizacion_Direccion	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_Direccion	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_Direccion_Administrativa	DATA_GRANULAR		1048576	-
san-nas	TRITON	default	tree	Q_Direccion_Financiera	DATA_GRANULAR		8388608	-
san-nas	TRITON	default	tree	Q_Direccion_Produccion	DATA_GRANULAR		1048576	-
san-nas	TRITON	default	tree	Q_Documentos_Oficina_tecnologia	DATA_GRANULAR		15728640	-
san-nas	TRITON	default	tree	Q_Estadarizacion_equipos	DATA_GRANULAR		1048576	-
san-nas	TRITON	default	tree	Q_Facturacion_CADS	DATA_GRANULAR		41943040	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_Fichas_Tecnicas_Producto	DATA_GRANULAR		1048576	-
san-nas	TRITON	default	tree	Q_Fondo_pantalla	DATA_GRANULAR		307200	-
san-nas	TRITON	default	tree	Q_Fotos_Regionales	DATA_GRANULAR		20971520	-
san-nas	TRITON	default	tree	Q_Funcion_Publica	DATA_GRANULAR		1048576	-
san-nas	TRITON	default	tree	Q_Grupo_Contabilidad	DATA_GRANULAR		512000	-
san-nas	TRITON	default	tree	Q_Historias_Laborales	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_Informacion	DATA_GRANULAR		314572800	-
san-nas	TRITON	default	tree	Q_Infraestructura	DATA_GRANULAR		2147483648	-
san-nas	TRITON	default	tree	Q_Instaladores	DATA_GRANULAR		943718400	-
san-nas	TRITON	default	tree	Q_Licenciamiento	DATA_GRANULAR		153600	-
san-nas	TRITON	default	tree	Q_Manuales_SAP	DATA_GRANULAR		8388608	-
san-nas	TRITON	default	tree	Q_Manuales_Usuario_SAP	DATA_GRANULAR		20971520	-
san-nas	TRITON	default	tree	Q_MARKETING	DATA_GRANULAR		1073741824	-
san-nas	TRITON	default	tree	Q_matriz_activos_alfm	DATA_GRANULAR		102400	-
san-nas	TRITON	default	tree	Q_Modernizacion	DATA_GRANULAR		8704000	-
san-nas	TRITON	default	tree	Q_Novasoft	DATA_GRANULAR		52428800	-
san-nas	TRITON	default	tree	Q_Oficina_Abastecimientos	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Administrativa	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Atencion_Ciudadana	DATA_GRANULAR		16777216	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_Oficina_Contratacion	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Control_Interno	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Control_Interno_Disciplinario	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Direccion_General	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_DOAS	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Financiera	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Infraestructura	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Juridica	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Operaciones_Logisticas	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Planeacion	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_Secretaria_General	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Oficina_TIC	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Piloto_Teletrabajo	DATA_GRANULAR		3145728	-
san-nas	TRITON	default	tree	Q_Planeacion	DATA_GRANULAR		209715200	-
san-nas	TRITON	default	tree	Q_Planeacion_DOGI	DATA_GRANULAR		15728640	-
san-nas	TRITON	default	tree	Q_Presentaciones	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Proceso_SuperIntendencia	DATA_GRANULAR		838860800	-
san-nas	TRITON	default	tree	Q_Proyecto_Inversion_Gestion_Documental	DATA_GRANULAR		2097152	-
san-nas	TRITON	default	tree	Q_proyecto_Migracion_IPV6	DATA_GRANULAR		5242880	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_Proyecto_TVD	DATA_GRANULAR		10485760	-
san-nas	TRITON	default	tree	Q_R_Amazonia	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Antioquia_Choco	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Caribe	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Centro	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Llanos_Orientales	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Nororiente	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Norte	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Pacifico	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Sur	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Suroccidente	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_R_Tolima	DATA_GRANULAR		16777216	-
san-nas	TRITON	default	tree	Q_Recuperado	DATA_GRANULAR		58720256	-
san-nas	TRITON	default	tree	Q_RED_ALFM	DATA_GRANULAR		10240	-
san-nas	TRITON	default	tree	Q_Regional_Suroccidente	DATA_GRANULAR		20971520	-
san-nas	TRITON	default	tree	Q_Repositorio_Orfeo	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_Secreatria_General	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_SEGUIMIENTO_CADS_NACIONAL	DATA_GRANULAR		1048576	-
san-nas	TRITON	default	tree	Q_Seguimiento_PAA_Contratos	DATA_GRANULAR		204800	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_SGAS	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_SST	DATA_GRANULAR		52428800	-
san-nas	TRITON	default	tree	Q_SST_CO	DATA_GRANULAR		10485760	-
san-nas	TRITON	default	tree	Q_SST2023	DATA_GRANULAR		104857600	-
san-nas	TRITON	default	tree	Q_Tecnologia	DATA_GRANULAR		6291456	-
san-nas	TRITON	default	tree	Q_Teletrabajo	DATA_GRANULAR		5242880	-
san-nas	TRITON	default	tree	Q_Temporal	DATA_GRANULAR		2097152	-
san-nas	TRITON	default	tree	Q_TI_Seguridad	DATA_GRANULAR		996147200	-
san-nas	TRITON	default	tree	Q_Transparencia	DATA_GRANULAR		4194304	-
san-nas	TRITON	default	tree	Q_Unidos_Somos_Mas	DATA_GRANULAR		6291456	-
san-nas	TRITON	default	tree	Q_Usuarios_Directorio_Activo	DATA_GRANULAR		10485760	-
san-nas	TRITON	default	tree	Q_Video_elecciones	DATA_GRANULAR		512000	-
san-nas	TRITON	default	tree	Q_Visitas_Regionales	DATA_GRANULAR		512000	-
san-nas	TRITON	default	tree	VITUALLA	DATA_GRANULAR		39845888	-
san-nas	TRITON	default	tree	Q_adriana.rodriguez	DATA_USUARIO		17301504	-
san-nas	TRITON	default	tree	Q_alberto.camacho	DATA_USUARIO		24117248	-
san-nas	TRITON	default	tree	Q_Ana_Palacios	DATA_USUARIO		16777216	-
san-nas	TRITON	default	tree	Q_Ana_Pinto	DATA_USUARIO		104857600	-
san-nas	TRITON	default	tree	Q_Aura.fuentes	DATA_USUARIO		22020096	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_Backup_Marluin_Pabon	DATA_USUARIO		47185920	-
san-nas	TRITON	default	tree	Q_Backup_Proyectos_Infraestructura	DATA_USUARIO		15728640	-
san-nas	TRITON	default	tree	Q_Backup_Zulay_Rojas	DATA_USUARIO		47185920	-
san-nas	TRITON	default	tree	Q_backups_temporal	DATA_USUARIO		36700160	-
san-nas	TRITON	default	tree	Q_Backups_USR	DATA_USUARIO		16106127360	-
san-nas	TRITON	default	tree	Q_Bayron_sanabria	DATA_USUARIO		17825792	-
san-nas	TRITON	default	tree	Q_Blanca_Puentes	DATA_USUARIO		41943040	-
san-nas	TRITON	default	tree	Q_Capacitación_Carrera	DATA_USUARIO		8388608	-
san-nas	TRITON	default	tree	Q_carlos.camacho	DATA_USUARIO		819200	-
san-nas	TRITON	default	tree	Q_Carmen_Pulido	DATA_USUARIO		181403648	-
san-nas	TRITON	default	tree	Q_Carold_Martinez	DATA_USUARIO		314572800	-
san-nas	TRITON	default	tree	Q_Cesar_Gonzalez	DATA_USUARIO		419430400	-
san-nas	TRITON	default	tree	Q_Claribel_vargas	DATA_USUARIO		12582912	-
san-nas	TRITON	default	tree	Q_Cristian_Barrera	DATA_USUARIO		115343360	-
san-nas	TRITON	default	tree	Q_Daniela_Caro	DATA_USUARIO		9437184	-
san-nas	TRITON	default	tree	Q_Daris.padilla	DATA_USUARIO		1572864	-
san-nas	TRITON	default	tree	Q_Deysi_Campos	DATA_USUARIO		576716800	-
san-nas	TRITON	default	tree	Q_felipe.leon	DATA_USUARIO		31457280	-
san-nas	TRITON	default	tree	Q_Fernando_Forero	DATA_USUARIO		20971520	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_Francelina_Riveros	DATA_USUARIO		136314880	-
san-nas	TRITON	default	tree	Q_German_Palencia	DATA_USUARIO		262144000	-
san-nas	TRITON	default	tree	Q_Gladys_Melo	DATA_USUARIO		71827456	-
san-nas	TRITON	default	tree	Q_Hector_Sanchez	DATA_USUARIO		136314880	-
san-nas	TRITON	default	tree	Q_Jairo.Bocanegra	DATA_USUARIO		194560	-
san-nas	TRITON	default	tree	Q_Jairton.Ramirez	DATA_USUARIO		51200	-
san-nas	TRITON	default	tree	Q_Janeth_Tarapues	DATA_USUARIO		194560	-
san-nas	TRITON	default	tree	Q_Jennifer.Correa	DATA_USUARIO		139460608	-
san-nas	TRITON	default	tree	Q_Jenny_Carmargo	DATA_USUARIO		53477376	-
san-nas	TRITON	default	tree	Q_johana.parra	DATA_USUARIO		28835840	-
san-nas	TRITON	default	tree	Q_Joice_Cabarcas	DATA_USUARIO		4194304	-
san-nas	TRITON	default	tree	Q_Jose.Espitia	DATA_USUARIO		57671680	-
san-nas	TRITON	default	tree	Q_Jose_Vargas	DATA_USUARIO		115343360	-
san-nas	TRITON	default	tree	Q_Leidy.aparicio	DATA_USUARIO		8388608	-
san-nas	TRITON	default	tree	Q_leonardo.acosta	DATA_USUARIO		13316915	-
san-nas	TRITON	default	tree	Q_Lizeth.sanabria	DATA_USUARIO		377487360	-
san-nas	TRITON	default	tree	Q_Lizeth_S	DATA_USUARIO		419430400	-
san-nas	TRITON	default	tree	Q_Luz.hincapie	DATA_USUARIO		125829120	-
san-nas	TRITON	default	tree	Q_Luz.Ramirez	DATA_USUARIO		716800	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_Luz_gonzalez	DATA_USUARIO		136314880	-
san-nas	TRITON	default	tree	Q_Marcela.Guevara	DATA_USUARIO		155648	-
san-nas	TRITON	default	tree	Q_Maria.Guzman	DATA_USUARIO		36700160	-
san-nas	TRITON	default	tree	Q_Maria_Silva	DATA_USUARIO		73400320	-
san-nas	TRITON	default	tree	Q_Martha.Garcia	DATA_USUARIO		524288000	-
san-nas	TRITON	default	tree	Q_Martha_Polania	DATA_USUARIO		138412032	-
san-nas	TRITON	default	tree	Q_maura.sierra	DATA_USUARIO		8074036	-
san-nas	TRITON	default	tree	Q_Mervin_Baron	DATA_USUARIO		7130316	-
san-nas	TRITON	default	tree	Q_Miguel.Valero	DATA_USUARIO		21600668	-
san-nas	TRITON	default	tree	Q_nestor.castellanos	DATA_USUARIO		83886080	-
san-nas	TRITON	default	tree	Q_nidia.gongora	DATA_USUARIO		7549747	-
san-nas	TRITON	default	tree	Q_Olga_Guevara	DATA_USUARIO		209715200	-
san-nas	TRITON	default	tree	Q_Oscar.Ruiz	DATA_USUARIO		10905192	-
san-nas	TRITON	default	tree	Q_planeacion_backup	DATA_USUARIO		46871347	-
san-nas	TRITON	default	tree	Q_RAFAEL_LLINAS	DATA_USUARIO		1024	-
san-nas	TRITON	default	tree	Q_Regional_Antioquia_Choco	DATA_USUARIO		325058560	-
san-nas	TRITON	default	tree	Q_Regionales	DATA_USUARIO		10485760	-
san-nas	TRITON	default	tree	Q_Ricardo_Parra	DATA_USUARIO		188743680	-
san-nas	TRITON	default	tree	Q_rosa.fuentes	DATA_USUARIO		60188262	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	tree	Q_ruth.calderon	DATA_USUARIO		51200	-
san-nas	TRITON	default	tree	Q_Sandra.cano	DATA_USUARIO		30720	-
san-nas	TRITON	default	tree	Q_SANDRA.SUAREZ	DATA_USUARIO		8388608	-
san-nas	TRITON	default	tree	Q_Sandra.vargas	DATA_USUARIO		389120	-
san-nas	TRITON	default	tree	Q_Sonia.Lopez	DATA_USUARIO		49283072	-
san-nas	TRITON	default	tree	Q_SS_Alejandro_gomez	DATA_USUARIO		22649244	-
san-nas	TRITON	default	tree	Q_Tera_Maria_Helena	DATA_USUARIO		429916160	-
san-nas	TRITON	default	tree	Q_Yenny.Ariza	DATA_USUARIO		26455572	-
san-nas	TRITON	default	tree	Q_yenny.daza	DATA_USUARIO		240123904	-
san-nas	TRITON	default	tree	Q_Yolanda.Castaneda	DATA_USUARIO		13526632	-
san-nas	TRITON	default	tree	Q_Yolanda_Bustos	DATA_USUARIO		17825792	-
san-nas	TRITON	default	tree	Q_Yuby.Aguacia	DATA_USUARIO		251658240	-
san-nas	TRITON	default	tree	Q_Yuli_Pena	DATA_USUARIO		98566144	-
san-nas	TRITON	default	tree	Q_yulieth.quintero	DATA_USUARIO		108003328	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Archivos_Siscom	104857600	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Funcion_Publica	1048576	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Abastecimientos	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Administrativa	16777216	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Atencion_Ciudadana	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Contratacion	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Control_Interno	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Control_Interno_Disciplinario	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Direccion_General	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_DOAS	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Financiera	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Infraestructura	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Juridica	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Operaciones_Logisticas	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Planeacion	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_Secretaria_General	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Oficina_TIC	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Piloto_Teletrabajo	3145728	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Amazonia	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Antioquia_Choco	16777216	-

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Cluster Name	SVM Name	Policy Name	Quota Type	Quota Target	Volume Name	Qtree	Disk Limit	File Limit
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Caribe	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Centro	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Llanos_Orientales	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Nororiente	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Norte	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Pacifico	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Sur	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Suroccidente	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_R_Tolima	16777216	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_Secreatria_General	104857600	-
san-nas	TRITON	default	user	*	DATA_GRANULAR	Q_SGAS	5242880	-
san-nas	TRITON	default	user	*	DATA_USUARIO	Q_Regional_Antioquia_Choco	325058560	-

Export Policy Rules

Export policies contain one or more export rules that process each client access request. The result of the process determines whether the client is denied or granted access and what level of access. An export policy with export rules must exist on the SVM for clients to access data.

You associate exactly one export policy with each volume or qtree to configure client access to the volume or qtree. The SVM can contain multiple export policies. This enables you to do the following for SVMs with multiple volumes or qtrees:

- Assign different export policies to each volume or qtree of the SVM for individual client access control to each volume or qtree in the SVM.
- Assign the same export policy to multiple volumes or qtrees of the SVM for identical client access control without having to create a new export policy for each volume or qtree.

If a client makes an access request that is not permitted by the applicable export policy, the request fails with a permission-denied message. If a client does not match any rule in the export policy, then access is denied. If an export policy is empty, then all accesses are implicitly denied.

You can modify an export policy dynamically on a system running ONTAP.

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The following table lists the export policy rules.

Table 36) Export Policy Rules.

Cluster Name	SVM Name	Policy Name	Rule Index	Client Match	Protocol	RO Rule	RW Rule	Anon Userid	Super User
san-nas	HELIOS	NFS_POLICY	1	10.16.20.113	nfs3, cifs	any	any	65534	any
san-nas	HELIOS	NFS_POLICY01	1	0.0.0.0/0	nfs3, cifs	any	any	65534	any
san-nas	TRITON	transition_export_policy_1	1	0.0.0.0/0	nfs	sys	sys	65534	none
san-nas	TRITON	transition_export_policy_1	2	0.0.0.0/0	cifs	any	any	65534	none
san-nas	TRITON	transition_noaccess	1	0.0.0.0/0	cifs	any	any	65534	none
san-nas	TRITON	transition_readonly	1	0.0.0.0/0	nfs	any	never	65534	none
san-nas	TRITON	transition_readonly	2	0.0.0.0/0	cifs	any	any	65534	none

Firewall Policies

Setting up a firewall enhances the security of the cluster and helps prevent unauthorized access to the storage system. By default, the firewall service allows remote systems access to a specific set of default services for data, management, and intercluster LIFs.

Firewall policies can be used to control access to management service protocols such as SSH, HTTP, HTTPS, Telnet, NTP, NDMP, NDMPS, RSH, DNS, or SNMP. Firewall policies cannot be set for data protocols such as NFS or CIFS.

Firewall Policies (8.2.x and earlier)

The following table lists the firewall policy settings for Data ONTAP 8.2.x and earlier.

Table 37) Firewall Policies Pre-8.3.

Cluster Name	Policy Name	Service Name	Action	IP Address List
none				

Firewall Policies (8.3 or later)

The following table lists the firewall policy settings for Data ONTAP 8.3 or later and ONTAP 9.

Table 38) Firewall Policies.

Cluster Name	SVM Name	Policy Name	Service Name	IPspace Name	Allow List
san-nas	alfm	data	dns	alfm	::/0 0.0.0.0/0
san-nas	alfm	data	ndmp	alfm	::/0 0.0.0.0/0
san-nas	alfm	data	ndmps	alfm	::/0

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Cluster Name	SVM Name	Policy Name	Service Name	IPspace Name	Allow List
					0.0.0.0/0
san-nas	alfm	intercluster	https	alfm	::/0 0.0.0.0/0
san-nas	alfm	intercluster	ndmp	alfm	::/0 0.0.0.0/0
san-nas	alfm	intercluster	ndmps	alfm	::/0 0.0.0.0/0
san-nas	alfm	mgmt	dns	alfm	::/0 0.0.0.0/0
san-nas	alfm	mgmt	http	alfm	::/0 0.0.0.0/0
san-nas	alfm	mgmt	https	alfm	::/0 0.0.0.0/0
san-nas	alfm	mgmt	ndmp	alfm	::/0 0.0.0.0/0
san-nas	alfm	mgmt	ndmps	alfm	::/0 0.0.0.0/0
san-nas	alfm	mgmt	ntp	alfm	::/0 0.0.0.0/0
san-nas	alfm	mgmt	snmp	alfm	::/0 0.0.0.0/0
san-nas	alfm	mgmt	ssh	alfm	::/0 0.0.0.0/0
san-nas	san-nas	data	dns	Default	::/0 0.0.0.0/0
san-nas	san-nas	data	ndmp	Default	::/0 0.0.0.0/0
san-nas	san-nas	data	ndmps	Default	::/0 0.0.0.0/0
san-nas	san-nas	intercluster	https	Default	::/0 0.0.0.0/0
san-nas	san-nas	intercluster	ndmp	Default	::/0 0.0.0.0/0
san-nas	san-nas	intercluster	ndmps	Default	::/0 0.0.0.0/0
san-nas	san-nas	mgmt	dns	Default	::/0

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Cluster Name	SVM Name	Policy Name	Service Name	IPspace Name	Allow List
					0.0.0.0/0
san-nas	san-nas	mgmt	http	Default	::/0 0.0.0.0/0
san-nas	san-nas	mgmt	https	Default	::/0 0.0.0.0/0
san-nas	san-nas	mgmt	ndmp	Default	::/0 0.0.0.0/0
san-nas	san-nas	mgmt	ndmps	Default	::/0 0.0.0.0/0
san-nas	san-nas	mgmt	ntp	Default	::/0 0.0.0.0/0
san-nas	san-nas	mgmt	snmp	Default	::/0 0.0.0.0/0
san-nas	san-nas	mgmt	ssh	Default	::/0 0.0.0.0/0

Volume Efficiency Policies

You can create a volume efficiency policy to run deduplication or data compression followed by deduplication on a FlexVol volume or an Infinite Volume.

The following table lists the volume efficiency policy settings.

Table 39) Volume Efficiency Policies.

Cluster Name	SVM Name	Policy Name	Enabled	Schedule	Duration (Hours)	QOS Policy
san-nas	HELIOS	default	True	daily		best_effort
san-nas	HELIOS	inline-only				
san-nas	TRITON	default	True	daily		best_effort
san-nas	TRITON	inline-only				

Administrator Authentication and RBAC

You can enable local or remote administrator accounts. A local account is one in which the account information, public key, or security certificate resides on the storage system. A remote account is one in which the account information resides elsewhere. Each account can have a predefined or custom role.

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Cluster Administration

Cluster Administrative Users

A cluster administrator accesses the admin SVM for the cluster. The admin SVM and a cluster administrator with the reserved name admin are automatically created when the cluster is set up.

A cluster administrator with the default admin role can administer the entire cluster and its resources. The cluster administrator can create additional cluster administrators with different roles as needed.

The following table lists the cluster administrative users.

Table 40) Cluster Administrative Users.

Cluster Name	User Name	Application	Authentication Method	Role Name
san-nas	admin	console	password	admin
san-nas	admin	http	password	admin
san-nas	admin	ontapi	password	admin
san-nas	admin	service-processor	password	admin
san-nas	admin	ssh	password	admin
san-nas	autosupport	console	password	autosupport
san-nas	backup03	console	password	admin
san-nas	backup03	http	password	admin
san-nas	backup03	ontapi	password	admin
san-nas	backup03	service-processor	password	admin
san-nas	backup03	ssh	password	admin
san-nas	diag	console	password	admin
san-nas	IPV6	http	password	readonly
san-nas	IPV6	ontapi	password	readonly

Cluster Administrative Roles

The role assigned to an administrator determines the commands to which the administrator has access. You assign the role when you create the account for the administrator. You can assign a different role or define custom roles as needed.

The following table lists the cluster administrative roles.

Table 41) Cluster Administrative Roles.

Cluster Name	Role Name	Command Directory Name	Access Level	Role Query
san-nas	admin	DEFAULT	all	
san-nas	autosupport	DEFAULT	none	

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Cluster Name	Role Name	Command Directory Name	Access Level	Role Query
san-nas	autosupport	set	all	
san-nas	autosupport	system node autosupport	all	
san-nas	backup	DEFAULT	none	
san-nas	backup	security login role show-user-capability	all	
san-nas	backup	volume	readonly	
san-nas	backup	vserver services ndmp	all	
san-nas	none	DEFAULT	none	
san-nas	readonly	DEFAULT	readonly	
san-nas	readonly	security	none	
san-nas	readonly	security login password	all	
san-nas	readonly	security login role show-user-capability	all	
san-nas	readonly	set	all	

SVM Administration

SVM Administrative Users

An SVM administrator accesses a data SVM. The cluster administrator creates data SVMs and SVM administrators as needed.

SVM administrators are assigned the vsadmin role by default. The cluster administrator can assign different roles to SVM administrators as needed.

The following table lists the SVM administrative users.

Table 42) SVM Administrative Users.

Cluster Name	SVM Name	User Name	Application	Authentication Method	Role Name
san-nas	HELIOS	vsadmin	http	password	vsadmin
san-nas	HELIOS	vsadmin	ontapi	password	vsadmin
san-nas	HELIOS	vsadmin	ssh	password	vsadmin
san-nas	TRITON	backup03	ontapi	password	vsadmin
san-nas	TRITON	backup03	ssh	password	vsadmin
san-nas	TRITON	vsadmin	http	password	vsadmin
san-nas	TRITON	vsadmin	ontapi	password	vsadmin
san-nas	TRITON	vsadmin	ssh	password	vsadmin

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Network Configuration

Configuring the physical networking components of a cluster into logical components provides the flexibility and multi-tenancy functionality in ONTAP.

The various networking components in a cluster are as follows:

- Physical ports

  Network interface cards (NICs) and host bus adapters (HBAs) provide physical (Ethernet and Fibre Channel) connections from each node to the physical networks (management and data networks).

  In earlier releases of ONTAP, default roles were assigned to each Ethernet network port. The roles included data, cluster, cluster management, intercluster, and node management. In ONTAP 9.0, these roles are assigned when LIFs are created.

  For site requirements, switch information, port cabling information, and controller onboard port cabling, see the Hardware Universe at hwu.netapp.com.

- Logical ports

  VLANs and interface groups (ifgrps) constitute the logical ports. Although interface groups treat several physical ports as a single port, VLANs subdivide a physical port into multiple separate ports.

- IPspaces

  You can use an IPspace to create a distinct IP address space for each SVM in a cluster. Doing so enables clients in administratively separate network domains to access cluster data while using overlapping IP addresses from the same IP address subnet range.

- Broadcast domains

  A broadcast domain resides in an IPspace, and it contains a group of network ports, potentially from many nodes in the cluster, that belong to the same layer 2 network. The ports in the group are used in an SVM for data traffic.

- Subnets

  A subnet is created within a broadcast domain, and it contains a pool of IP addresses that belong to the same layer 3 subnet. Addresses in a subnet are allocated to ports in the broadcast domain when a LIF is created.

- Logical interfaces

  A logical interface (LIF) is an IP address or a WWPN that is associated with a port. It is associated with attributes such as failover groups, failover rules, and firewall rules. A LIF communicates over the network through the port (physical or logical) to which it is currently bound.

  The different types of LIFs in a cluster are data LIFs, cluster management LIFs, node management LIFs, intercluster LIFs, and cluster LIFs. The ownership of the LIFs depends on the Storage Virtual Machine (SVM, formerly known as Vserver) where the LIF resides. Data LIFs are owned by data SVMs, node management LIFs, cluster management, and intercluster LIFs are owned by the admin SVMs, and cluster LIFs are owned by the cluster SVM.

- DNS zones

  DNS zone can be specified during the LIF creation, providing a name for the LIF to be exported through the cluster's DNS server. Multiple LIFs can share the same name, allowing the DNS load balancing feature to distribute IP addresses for the name according to load. SVMs can have multiple DNS zones.

- Routing

  Each SVM is self sufficient with respect to networking. An SVM owns LIFs and routes that can reach each of the configured external servers.

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Physical Interfaces

The network ports are either physical ports or virtualized ports. VLANs and interface groups constitute the virtual ports. Interface groups treat several physical ports as a single port, while VLANs subdivide a physical port into multiple separate logical ports.

Network Port Settings

You can modify the MTU, autonegotiation, duplex, flow control, speed, and health settings of a physical network port or interface group. You can modify only the MTU size and not any other port settings of a VLAN.

The following table lists the network port settings.

Table 43) Network Port Settings.

Node Name	Port Name	Link Status	Port Type	MTU Size	Flow Control (Admin/Oper)	IPspace Name	Broadcast Domain
san-nas-01	e0a	up	physical	9000	none/none	Cluster	Cluster
san-nas-01	e0b	up	physical	9000	none/none	Cluster	Cluster
san-nas-01	e0e	up	physical	1500	full/full	alfm	alfm
san-nas-01	e0f	up	physical	1500	full/full	Default	Default
san-nas-01	e0M	up	physical	1500	full/full	Default	Default
san-nas-02	e0a	up	physical	9000	none/none	Cluster	Cluster
san-nas-02	e0b	up	physical	9000	none/none	Cluster	Cluster
san-nas-02	e0e	up	physical	1500	full/full	alfm	alfm
san-nas-02	e0f	up	physical	1500	full/full	Default	Default
san-nas-02	e0M	up	physical	1500	full/full	Default	Default

Network Port Interface Groups

An interface group is created by combining two or more physical ports into a single logical port. The logical port provides increased resiliency, increased availability, and load sharing.

Three types of interface groups are supported on the storage system: single-mode, static multimode, and dynamic multimode. Each interface groups provides different levels of fault tolerance. Multimode interface groups provide methods for load balancing network traffic.

The following table lists the network port interface group settings.

Table 44) Network Port Interface Groups.

Node Name	Ifgrp Name	Mode	Distribution Function	Ports
none				

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Network Port VLAN Settings

VLANs provide logical segmentation of networks by creating separate broadcast domains that are defined on a switch port basis as opposed to the traditional broadcast domains, defined on physical boundaries. A VLAN can span multiple physical network segments. The end-stations belonging to a VLAN are related by function or application.

The following table lists the network port VLAN settings.

Table 45) Network Port VLAN Settings.

Node Name	Interface Name	VLAN ID	Parent Interface	GVRP Enabled
none				

Logical Interfaces

A LIF represents a network access point to a node in the cluster. You can configure LIFs on ports over which the cluster sends and receives communications over the network.

LIFs can be hosted on the following ports:

- Physical ports that are not part of interface groups
- Interface groups
- VLANs
- Physical ports or interface groups that host VLANs

While configuring SAN protocols such as FC on a LIF, it will be associated with a WWPN.

A LIF role determines the kind of traffic that is supported over the LIF, along with the failover rules that apply and the firewall restrictions that are in place. A LIF can have any one of the five roles: node management, cluster management, cluster, intercluster, and data.

- Node management LIF

  A LIF that provides a dedicated IP address for managing a particular node in a cluster. Node management LIFs are created at the time of creating or joining the cluster. These LIFs are used for system maintenance, for example, when a node becomes inaccessible from the cluster.
- Cluster management LIF

  A LIF that provides a single management interface for the entire cluster.

  A cluster management LIF can fail over to any node management or data port in the cluster. It cannot fail over to cluster or intercluster ports.
- Cluster LIF

  A LIF that is used to carry intracluster traffic between nodes in a cluster. Cluster LIFs must always be created on 10-GbE network ports.

  Cluster LIFs can fail over between cluster ports on the same node, but they cannot be migrated or failed over to a remote node. When a new node joins a cluster, IP addresses are generated automatically. However, if you want to assign IP addresses manually to the cluster LIFs, you must ensure that the new IP addresses are in the same subnet range as the existing cluster LIFs.
- Data LIF

  A LIF that is associated with a Storage Virtual Machine (SVM) and is used for communicating with clients.

  You can have multiple data LIFs on a port. These interfaces can migrate or fail over throughout the cluster. You can modify a data LIF to serve as an SVM management LIF by modifying its firewall policy to mgmt.

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Sessions established to NIS, LDAP, Active Directory, WINS, and DNS servers use data LIFs.

- Intercluster LIF

  A LIF that is used for cross-cluster communication, backup, and replication. You must create an intercluster LIF on each node in the cluster before a cluster peering relationship can be established.

  These LIFs can only fail over to ports in the same node. They cannot be migrated or failed over to another node in the cluster.

LIFs with different roles have different characteristics. A LIF role determines the kind of traffic that is supported over the interface, along with the failover rules that apply, the firewall restrictions that are in place, the security, the load balancing, and the routing behavior for each LIF

Node and Admin SVM Logical Interface Settings

This section pertains to LIFs with the following roles: node-management, cluster-management and cluster.

The following table lists the node and admin SVM LIF settings.

Table 46) Node and Admin SVM LIF Settings.

Cluster Name	SVM Name	Interface Name	Status (Admin/Oper)	IP Address	Current Node	Current Port	Is Home
san-nas	Cluster	san-nas-01_clus1	up/up	169.254.119.61/16	san-nas-01	e0a	True
san-nas	Cluster	san-nas-01_clus2	up/up	169.254.221.167/16	san-nas-01	e0b	True
san-nas	Cluster	san-nas-02_clus1	up/up	169.254.147.17/16	san-nas-02	e0a	True
san-nas	Cluster	san-nas-02_clus2	up/up	169.254.249.123/16	san-nas-02	e0b	True
san-nas	san-nas	cluster_mgmt	up/up	10.16.3.191/25	san-nas-01	e0M	True
san-nas	san-nas	san-nas-01_mgmt1	up/up	10.16.3.192/25	san-nas-01	e0M	True
san-nas	san-nas	san-nas-02_mgmt1	up/up	10.16.3.193/25	san-nas-02	e0M	True

Intercluster Logical Interface Settings

This section pertains to LIFs with the following roles: intercluster.

The following table lists the intercluster LIF settings.

Table 47) Intercluster LIF Settings.

Cluster Name	SVM Name	Interface Name	Status (Admin/Oper)	IP Address	Current Node	Current Port	Is Home
san-nas	san-nas	san-nas-01-icl01	up/up	10.16.3.190/25	san-nas-01	e0f	True

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Cluster Name	SVM Name	Interface Name	Status (Admin/Oper)	IP Address	Current Node	Current Port	Is Home
san-nas	san-nas	san-nas-02-icl02	up/up	10.16.3.196/25	san-nas-02	e0f	True

SVM Management Logical Interface Settings

You can modify a data LIF to serve as a SVM management LIF by modifying its firewall policy to mgmt.

This section pertains to LIFs with the role of data and the firewall policy set to mgmt.

The following table lists the SVM management LIF settings.

Table 48) SVM Management LIF Settings.

Cluster Name	SVM Name	Interface Name	Status (Admin/Oper)	IP Address	Current Node	Current Port	Is Home
san-nas	HELIOS	HELIOS_nfs_lif1	up/up	10.16.3.140/25	san-nas-02	e0e	True
san-nas	HELIOS	SVMSAN_admin_lif1	up/up	10.16.3.195/25	san-nas-02	e0e	True
san-nas	TRITON	TRITON_admin_lif1	up/up	10.16.3.194/25	san-nas-01	e0e	True

SVM Data Logical Interfaces

This section pertains to LIFs with the following roles: data.

SAN LIFs cannot fail over.

NAS Logical Interface Settings

The following table lists the NAS LIF settings.

Table 49) NAS LIF Settings.

Cluster Name	SVM Name	Interface Name	Status (Admin/Oper)	IP Address	Current Node	Current Port	Is Home
san-nas	HELIOS	HELIOS_nfs_lif1	up/up	10.16.3.140/25	san-nas-02	e0e	True
san-nas	HELIOS	SVMSAN_admin_lif1	up/up	10.16.3.195/25	san-nas-02	e0e	True
san-nas	TRITON	cifs_n01	up/up	10.16.3.197/25	san-nas-01	e0e	True
san-nas	TRITON	cifs_n02	up/up	10.16.3.161/25	san-nas-02	e0e	True
san-nas	TRITON	TRITON_admin_lif1	up/up	10.16.3.194/25	san-nas-01	e0e	True

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NAS Logical Interface DNS Zones

DNS load balancing helps in selecting an appropriately loaded data LIF and balancing user network traffic across all available ports (physical, interface groups, and VLANs).

With DNS load balancing, LIFs are associated with the load balancing zone of an SVM. A site-wide DNS server is configured to forward all DNS requests and return the least-loaded LIF based on the network traffic and the availability of the port resources (CPU usage, throughput, open connections, and so on). DNS load balancing provides the following benefits:

- New client connections balanced across available resources.
- No manual intervention required for deciding which LIFs to use when mounting a particular SVM.
- DNS load balancing supports NFSv3, NFSv4, NFSv4.1, CIFS, SMB 2.0, SMB 2.1, and SMB 3.0.

The following table lists the NAS LIF DNS zones.

Table 50) NAS LIF DNS Zones.

Cluster Name	SVM Name	Interface Name	DNS Zone	DNS Query Listen Enabled	Load Balancing Migrate Allowed	Load Balanced Weight
san-nas	HELIOS	HELIOS_nfs_lif1	none	False	False	load
san-nas	HELIOS	SVMSAN_admin_lif1	none	False	False	load
san-nas	TRITON	cifs_n01	none	False	False	load
san-nas	TRITON	cifs_n02	none	False	False	load
san-nas	TRITON	TRITON_admin_lif1	none	False	False	load

FCP Logical Interface Settings

The following table lists the FCP LIF settings.

Table 51) FCP LIF Settings.

Cluster Name	SVM Name	Interface Name	Status (Admin/Oper)	Port Name	Current Node	Current Port	Is Home
san-nas	HELIOS	san_n01_0c	up/up	20:00:00:a0:98:b5:24:52	san-nas-01	0c	True
san-nas	HELIOS	san_n01_0d	up/up	20:04:00:a0:98:b5:24:52	san-nas-01	0d	True
san-nas	HELIOS	san_n02_0c	up/up	20:02:00:a0:98:b5:24:52	san-nas-02	0c	True
san-nas	HELIOS	san_n02_0d	up/up	20:03:00:a0:98:b5:24:52	san-nas-02	0d	True

iSCSI Logical Interface Settings

The following table lists the iSCSI LIF settings.

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Table 52) iSCSI LIF Settings.

Cluster Name	SVM Name	Interface Name	TP Group Tag	Status (Admin/Oper)	IP Address	Current Node	Current Port	Enabled
none								

NVMe Logical Interface Settings

The following table lists the NVMe LIF settings.

Table 53) NVMe LIF Settings.

Cluster Name	SVM Name	Interface Name	Status (Admin/Oper)	Transport Address	FC WWPN	Home Node	Home Port
none							

Network Routes

You control how LIFs in a Storage Virtual Machine (SVM) use your network for outbound traffic by configuring routing tables and static routes.

- Routing tables

  Routes are configured for each SVM, identifying the SVM, subnet, and destination. Because routing tables are per-SVM, routing changes to one SVM do not alter the route table of another SVM.

  Routes are created in an SVM when a service or application is configured for the SVM. Like data SVMs, the admin SVM of each IPspace has its own routing table, as LIFs can be owned by admin SVMs and might need different route configurations from those on data SVMs.

  If you have defined a default gateway when creating a subnet, a default route to that gateway is added automatically to the SVM that uses a LIF from that subnet.
- Static route

  A defined route between a LIF and a specific destination IP address; the route can use a gateway IP address.

The following table lists the network routes for Data ONTAP 8.3 or later and ONTAP 9.

Table 54) Network Routes.

Cluster Name	SVM Name	Destination Address	Gateway Address	Metric	LIF Names
san-nas	alfm	0.0.0.0/0	10.16.3.129	20	
san-nas	HELIOS	0.0.0.0/0	10.16.3.129	20	HELIOS_nfs_lif1 SVMSAN_admin_lif1
san-nas	san-nas	0.0.0.0/0	10.16.3.129	20	cluster_mgmt san-nas-01_mgmt1 san-nas-01-icl01 san-nas-02_mgmt1 san-nas-02-icl02
san-nas	TRITON	0.0.0.0/0	10.16.3.129	20	cifs_n01

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Cluster Name	SVM Name	Destination Address	Gateway Address	Metric	LIF Names
					cifs_n02 TRITON_admin_lif1

Network IPspaces

IPspaces enable you to configure a single ONTAP cluster so that it can be accessed by clients from more than one administratively separate network domain, even if those clients are using the same IP address subnet range. This allows for separation of client traffic for privacy and security.

An IPspace defines a distinct IP address space in which Storage Virtual Machines (SVMs) reside. Ports and IP addresses defined for an IPspace are applicable only within that IPspace. A distinct routing table is maintained for each SVM within an IPspace; therefore, no cross-SVM or cross-IPspace traffic routing occurs.

Note: IPspaces support both IPv4 and IPv6 addresses on their routing domains.

If you are managing storage for a single organization, then you do not need to configure IPspaces. If you are managing storage for multiple companies on a single ONTAP cluster, and you are certain that none of your customers have conflicting networking configurations, then you also do not need to use IPspaces. In many cases, the use of Storage Virtual Machines (SVMs), with their own distinct IP routing tables, can be used to segregate unique networking configurations instead of using IPspaces.

The following table lists the network IPspaces.

Table 55) Network IPspaces.

Cluster Name	IPspace Name	Port List	Broadcast Domains	Vservers
san-nas	alfm	san-nas-01:e0e san-nas-02:e0e	alfm	alfm HELIOS TRITON
san-nas	Cluster	san-nas-01:e0a san-nas-01:e0b san-nas-02:e0a san-nas-02:e0b	Cluster	Cluster
san-nas	Default	san-nas-01:e0f san-nas-01:e0M san-nas-02:e0f san-nas-02:e0M	Default	san-nas

Network Port Broadcast Domains

Broadcast domains enable you to group network ports that belong to the same layer 2 network. The ports in the group can then be used by a Storage Virtual Machine (SVM) for data or management traffic.

A broadcast domain resides in an IPspace. During cluster initialization, the system creates two default broadcast domains:

- The "Default" broadcast domain contains ports that are in the "Default" IPspace.

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These ports are used primarily to serve data. Cluster management and node management ports are also in this broadcast domain.

- The "Cluster" broadcast domain contains ports that are in the "Cluster" IPspace.

  These ports are used for cluster communication and include all cluster ports from all nodes in the cluster.

If you have created unique IPspaces to separate client traffic, then you need to create a broadcast domain in each of those IPspaces.

The following table lists the network port broadcast domains for Data ONTAP 8.3 or later and ONTAP 9.

Table 56) Network Port Broadcast Domains.

Cluster Name	Broadcast Domain	IPspace Name	MTU Size	Subnet Names	Port List	Failover Group Names
san-nas	alfm	alfm	1500		san-nas-01:e0e san-nas-02:e0e	alfm
san-nas	Cluster	Cluster	9000		san-nas-01:e0a san-nas-01:e0b san-nas-02:e0a san-nas-02:e0b	Cluster
san-nas	Default	Default	1500		san-nas-01:e0f san-nas-01:e0M san-nas-02:e0f san-nas-02:e0M	Default

Network Failover Groups

LIF failover refers to the automatic migration of a LIF to a different network port in response to a link failure on the LIF's current port. This is a key component to providing high availability for the connections to SVMs. Configuring LIF failover involves creating a failover group, modifying the LIF to use the failover group, and specifying a failover policy.

A failover group contains a set of network ports (physical ports, VLANs, and interface groups) from one or more nodes in a cluster. The network ports that are present in the failover group define the failover targets available for the LIF. A failover group can have cluster management, node management, intercluster, and NAS data LIFs assigned to it.

Configuring LIF failover groups involves creating the failover group, modifying the LIF to use the failover group, and specifying a failover policy.

Note: When a LIF is configured without a valid failover target, an outage will occur when the LIF attempts to fail over. You can use the `network interface show -failover` command to verify the failover configurartion.

When you create a broadcast domain, a failover group of the same name is created automatically that contains the same network ports. This failover group is automatically managed by the system, meaning that as ports are added or removed from the broadcast domain, they are automatically added or removed from this failover group. This is provided as an efficiency for administrators who do not want to manage their own failover groups.

The following table lists the network failover groups.

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Table 57) Network Failover Groups.

Cluster Name	SVM Name	Failover Group Name	Members	Broadcast Domain
san-nas	alfm	alfm	san-nas-01:e0e san-nas-02:e0e	alfm
san-nas	Cluster	Cluster	san-nas-01:e0a san-nas-01:e0b san-nas-02:e0a san-nas-02:e0b	Cluster
san-nas	san-nas	Default	san-nas-01:e0f san-nas-01:e0M san-nas-02:e0f san-nas-02:e0M	Default

Storage Configuration

Aggregates

Aggregates are containers for the disks managed by a node. You can use aggregates to isolate workloads with different performance demands, to tier data with different access patterns, or to segregate data for regulatory purposes.

- For business-critical applications that need the lowest possible latency and the highest possible performance, you might create an aggregate consisting entirely of SSDs.
- To tier data with different access patterns, you can create a hybrid aggregate, deploying flash as high-performance cache for a working data set, while using lower-cost HDDs or object storage for less frequently accessed data. A FlashPool consists of both SSDs and HDDs. A FabricPool consists of an all-SSD aggregate with an attached object store.
- If you need to segregate archived data from active data for regulatory purposes, you can use an aggregate consisting of capacity HDDs, or a combination of performance and capacity HDDs.

The following table contains all aggregate configuration information.

Table 58) Aggregate Configuration.

Aggregate Name	Home Node Name	State	RAID Status	RAID Type	Disk Count (By Type)	RG Size (HDD / SSD)	HA Policy	Has Mroot	Mirrored	Size Nominal
aggr_data_01_sas_n01	san-nas-01	online	normal	raid_dp	11@1.8TB_SAS_10k (Shared)	16	sfo	False	False	12,81 TB
aggr_data_01_sas_n02	san-nas-02	online	normal	raid_dp	11@1.8TB_SAS_10k (Shared)	16	sfo	False	False	12,81 TB
aggr_data_02_fsas_n01	san-nas-01	online	normal	raid_dp	14@8.0TB_NL-SAS_7.2k	14	sfo	False	False	77,10 TB

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Aggregate Name	Home Node Name	State	RAID Status	RAID Type	Disk Count (By Type)	RG Size (HDD / SSD)	HA Policy	Has Mroot	Mirrored	Size Nominal
aggr_data_02_fsas_n02	san-nas-02	online	normal	raid_dp	14@8.0TB_NL-SAS_7.2k	14	sfo	False	False	77,10 TB
aggr_data_02_sas_n01	san-nas-01	online	normal	raid_dp	11@1.8TB_SAS_10k	16	sfo	False	False	13,24 TB
aggr_n01	san-nas-01	online	normal	raid_dp	10@1.8TB_SAS_10k (Shared)	16	cfo	True	False	387,81 GB
aggr_n02	san-nas-02	online	normal	raid_dp	10@1.8TB_SAS_10k (Shared)	16	cfo	True	False	387,81 GB

Volumes

ONTAP serves data to clients and hosts from logical containers called FlexVol volumes. Because these volumes are only loosely coupled with their containing aggregate, they offer greater flexibility in managing data than traditional volumes.

You can assign multiple FlexVol volumes to an aggregate, each dedicated to a different application or service. You can expand and contract a FlexVol volume, move a FlexVol volume, and make efficient copies of a FlexVol volume. You can use qtrees to partition a FlexVol volume into more manageable units, and quotas to limit volume resource usage.

Volumes contain file systems in a NAS environment and LUNs in a SAN environment. A LUN (logical unit number) is an identifier for a device called a logical unit addressed by a SAN protocol.

In addition to data volumes, there are a few special volumes you need to know about:

- A node root volume (typically "vol0") contains node configuration information and logs.
- An SVM root volume serves as the entry point to the namespace provided by the SVM and contains namespace directory information.
- System volumes contain special metadata such as service audit logs.

  You cannot use these volumes to store data.

The following table contains volume configuration information.

Root Volume Configuration

A node's root volume contains special directories and files for that node. The root aggregate contains the root volume. A few rules govern a node's root volume and root aggregate.

A node's root volume is a FlexVol volume that is installed at the factory or by setup software. It is reserved for system files, log files, and core files. The directory name is /mroot, which is accessible only through the systemshell by technical support. The minimum size for a node's root volume depends on the platform model.

- The following rules govern the node's root volume:
  - Unless technical support instructs you to do so, do not modify the configuration or content of the root volume.
  - Do not store user data in the root volume.

    Storing user data in the root volume increases the storage giveback time between nodes in an HA pair.

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  - Contact technical support if you need to designate a different volume to be the new root volume or move the root volume to another aggregate.
- The root aggregate is dedicated to the node's root volume only.

  ONTAP prevents you from creating other volumes in the root aggregate.

Every Storage Virtual Machine (SVM) has a root volume that contains the paths where the data volumes are junctioned into the namespace. NAS clients' data access is dependent on the health of the root volume in the namespace and SAN clients' data access is independent of the root volume's health in the namespace.

The root volume serves as the entry point to the namespace provided by that SVM. The root volume of the SVM is a FlexVol volume that resides at the top level of the namespace hierarchy and contains the directories that are used as mount points, the paths where data volumes are junctioned into the namespace.

In the unlikely event that the root volume of an SVM namespace is unavailable, NAS clients cannot access the namespace hierarchy and therefore cannot access data in the namespace. For this reason, it is best to create a load-sharing mirror copy for the root volume on each node of the cluster so that the namespace directory information remains available in the event of a node outage or failover.

You should not store user data in the root volume of an SVM. The root volume of the SVM should be used for junction paths, and user data should be stored in non-root volumes of the SVM.

The following table lists the node and SVM root volumes configuration.

Table 59) Root Volume Configuration.

Cluster Name	SVM Name	Volume Name	Containing Aggregate	Root Type	State	Snapshot Policy	Export Policy	Security Style	Size Nominal
san-nas	HELIOS	HELIOS_root	aggr_data_01_sas_n01	Vserver (RW)	online	none	NFS_POLICY01	unix	1,00 GB
san-nas	san-nas-01	vol0	aggr_n01	Node	online				348,62 GB
san-nas	san-nas-02	vol0	aggr_n02	Node	online				348,62 GB
san-nas	TRITON	TRITON_root	aggr_data_01_sas_n01	Vserver (RW)	online	default	transition_readonly	ntfs	1,00 GB

FlexVol Configuration

A FlexVol volume is a data container associated with a SVM with FlexVol volumes. It gets its storage from a single associated aggregate, which it might share with other FlexVol volumes or Infinite Volumes. It can be used to contain files in a NAS environment, or LUNs in a SAN environment.

The following table lists the FlexVol configuration.

Table 60) FlexVol Configuration.

Cluster Name	SVM Name	Volume Name	Containing Aggregate	Type	Snapshot Policy	Export Policy	Security Style	Size Nominal
san-nas	HELIOS	alfm_nfs	aggr_data_01_sas_n01	RW	none	default	unix	100,00 GB

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Cluster Name	SVM Name	Volume Name	Containing Aggregate	Type	Snapshot Policy	Export Policy	Security Style	Size Nominal
san-nas	HELIOS	ASPRD_BACKUP_P13	aggr_data_02_fsas_n01	RW	none	default	unix	720,00 GB
san-nas	HELIOS	ASPRD_DATAVG_P13	aggr_data_02_fsas_n02	RW	none	default	unix	3,61 TB
san-nas	HELIOS	ASPRD_P13_PRUEBA2	aggr_data_02_fsas_n01	RW	none	default	unix	120,00 GB
san-nas	HELIOS	ASPRD_P13_PRUEBA3	aggr_data_02_fsas_n01	RW	none	default	unix	48,00 GB
san-nas	HELIOS	ASPRD_P13_SO	aggr_data_01_sas_n02	RW	none	default	unix	120,00 GB
san-nas	HELIOS	DBPRDERP_DATAVG	aggr_data_01_sas_n02	RW	none	default	unix	3,20 TB
san-nas	HELIOS	DBPRDERP_P13_SO	aggr_data_01_sas_n01	RW	none	default	unix	400,00 GB
san-nas	HELIOS	DEVERP_P14_DATAVG	aggr_data_01_sas_n01	RW	none	default	unix	2,00 TB
san-nas	HELIOS	DEVERP_P14_SO	aggr_data_01_sas_n01	RW	none	default	unix	120,00 GB
san-nas	HELIOS	diskhb_sapci_sapbd	aggr_data_01_sas_n01	RW	none	default	unix	10,00 GB
san-nas	HELIOS	ICPRDERP_BACKUPVG	aggr_data_02_fsas_n01	RW	none	default	unix	2,90 TB
san-nas	HELIOS	ICPRDERP_DATAVG	aggr_data_01_sas_n01	RW	none	default	unix	240,00 GB
san-nas	HELIOS	ICPRDERP_LOGVG	aggr_data_01_sas_n02	RW	none	default	unix	150,00 GB
san-nas	HELIOS	ICPRDERP_ORAARCH	aggr_data_01_sas_n02	RW	none	default	unix	65,00 GB
san-nas	HELIOS	ICPRDERP_P13_SO	aggr_data_01_sas_n02	RW	none	default	unix	350,00 GB
san-nas	HELIOS	LUN_MAGNO_vol	aggr_data_02_fsas_n01	RW	none	default	unix	1,03 TB
san-nas	HELIOS	MAGNO_Bkp	aggr_data_02_fsas_n01	RW	none	default	unix	1,03 TB
san-nas	HELIOS	PRUEBAS_DEVERP_P14_DATAVG	aggr_data_02_fsas_n01	RW	none	default	unix	1,51 TB
san-nas	HELIOS	QASERP_BACKUP_P14	aggr_data_02_fsas_n01	RW	none	default	unix	1,20 TB

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Cluster Name	SVM Name	Volume Name	Containing Aggregate	Type	Snapshot Policy	Export Policy	Security Style	Size Nominal
san-nas	HELIOS	QASERP_BACKUP1_P14	aggr_data_02_fsas_n01	RW	none	default	unix	120,00 GB
san-nas	HELIOS	QASERP_DATAVG_P14	aggr_data_01_sas_n01	RW	none	default	unix	2,00 TB
san-nas	HELIOS	QASERP_P14_SO	aggr_data_01_sas_n02	RW	none	default	unix	120,00 GB
san-nas	HELIOS	Redes_net_vol	aggr_data_02_fsas_n01	RW	none	default	unix	1,03 TB
san-nas	HELIOS	RMAN_DATA	aggr_data_01_sas_n02	RW	none	default	unix	360,00 GB
san-nas	HELIOS	RMAN_P14_SO	aggr_data_01_sas_n02	RW	none	default	unix	180,00 GB
san-nas	HELIOS	RMAN_PRUEBAS_vol	aggr_data_02_fsas_n01	RW	none	default	unix	180,00 GB
san-nas	HELIOS	SOLMAN_BACKUPVG	aggr_data_02_fsas_n01	RW	none	default	unix	1010,00 GB
san-nas	HELIOS	SOLMAN_BACKUPVG2_vol	aggr_data_02_fsas_n01	RW	none	default	unix	650,00 GB
san-nas	HELIOS	SOLMAN_DATAVG_P14	aggr_data_01_sas_n02	RW	none	default	unix	3,20 TB
san-nas	HELIOS	SOLMAN_MEDIOS_P14	aggr_data_01_sas_n01	RW	none	default	unix	500,00 GB
san-nas	HELIOS	SOLMAN_P14_SO	aggr_data_02_fsas_n02	RW	none	default	unix	250,00 GB
san-nas	HELIOS	SOLMAN_P14_SO2_vol	aggr_data_01_sas_n01	RW	none	default	unix	103,09 GB
san-nas	HELIOS	VEEAMBACKUP_NUTANIX_TAPE	aggr_data_02_fsas_n01	RW	none	NFS_POLICY01	unix	24,00 TB
san-nas	HELIOS	VIOS1_P13_SO	aggr_data_01_sas_n01	RW	none	default	unix	120,00 GB
san-nas	HELIOS	VIOS1_P14_SO	aggr_data_01_sas_n01	RW	none	default	unix	168,00 GB
san-nas	HELIOS	VmWare_DataStore_01	aggr_data_01_sas_n01	RW	none	default	unix	5,10 TB
san-nas	HELIOS	VmWare_Datastore_01_FSAS	aggr_data_02_fsas_n01	RW	none	default	unix	3,44 TB
san-nas	HELIOS	VmWare_DataStore_02	aggr_data_01_sas_n01	RW	none	default	unix	2,54 TB

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Cluster Name	SVM Name	Volume Name	Containing Aggregate	Type	Snapshot Policy	Export Policy	Security Style	Size Nominal
san-nas	HELIOS	VmWare_DataStore_03	aggr_data_01_sas_n02	RW	none	default	unix	2,54 TB
san-nas	HELIOS	VmWare_DataStore_04	aggr_data_02_sas_n01	RW	none	default	unix	3,54 TB
san-nas	HELIOS	VmWare_DataStore_05	aggr_data_01_sas_n02	RW	none	default	unix	5,94 TB
san-nas	HELIOS	VmWare_DataStore_06	aggr_data_02_fsas_n01	RW	none	default	unix	5,00 TB
san-nas	HELIOS	Vol_Orfeo	aggr_data_02_fsas_n01	RW	none	default	unix	1,60 TB
san-nas	HELIOS	Vol_Orfeo_0	aggr_data_02_fsas_n01	TMP	none	default	unix	1,20 TB
san-nas	TRITON	DATA_GRANULAR	aggr_data_02_fsas_n02	RW	transition_snapshot_policy_0	transition_noaccess	ntfs	40,00 TB
san-nas	TRITON	DATA_USUARIO	aggr_data_02_fsas_n02	RW	transition_snapshot_policy_0	transition_noaccess	ntfs	30,30 TB
san-nas	TRITON	Volumen_temporal	aggr_data_02_fsas_n02	RW	transition_snapshot_policy_0	transition_export_policy_1	ntfs	1,66 TB

Load Sharing Mirrors

To protect the Storage Virtual Machine (SVM) namespace root volume, you can create a load-sharing mirror volume on every node in the cluster, including the node in which the root volume is located. Then you create a mirror relationship to each load-sharing mirror volume and initialize the set of load-sharing mirror volumes.

Note: A source volume can have only one set of load-sharing mirrors.

Table 61) Load Sharing Mirrors.

Source Location	Destination Location	Mirror State	Schedule
none			

FlexGroup Volume Configuration

A FlexGroup volume is a scale-out NAS container that provides high performance along with automatic load distribution and scalability. A FlexGroup volume contains several constituents that automatically and transparently share the traffic.

FlexGroup volumes provide the following benefits:

- High scalability

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The maximum size for a FlexGroup volume in ONTAP 9.1 and later is 20 PB, with 400 billion files on a 10-node cluster.

- High performance

  FlexGroup volumes can utilize the resources of the cluster to serve workloads that have high throughput and low latency.
- Simplified management

  A FlexGroup volume is a single namespace container that can be managed in a similar way as FlexVol volumes.

Table 62) FlexGroup Volume Configuration.

Cluster Name	SVM Name	Volume Name	Containing Aggregate	Type	Extended Style	Constituent Role	FlexGroup Index	Percent Snapshot Reserve	Size Nominal
none									

Infinite Volume Configuration

An Infinite Volume is a single, scalable volume that can store up to 2 billion files and tens of petabytes of data.

With an Infinite Volume, you can manage multiple petabytes of data in one large logical entity and clients can retrieve multiple petabytes of data from a single junction path for the entire volume.

An Infinite Volume uses storage from multiple aggregates on multiple nodes. You can start with a small Infinite Volume and expand it nondisruptively by adding more disks to its aggregates or by providing it with more aggregates to use.

The following table lists the Infinite Volume configuration.

Table 63) Infinite Volume Configuration.

Cluster Name	SVM Name	Volume Name	Containing Aggregate	Constituent Role	Snapshot Policy	Export Policy	Security Style	Size Nominal
none								

Qtrees

A qtree is a logically defined file system that can exist as a special subdirectory of the root directory within a FlexVol volume. You can create up to 4995 qtrees per volume. There is no maximum limit for the storage system as a whole. You can create qtrees for managing and partitioning your data within the volume. Qtrees are available only for FlexVol volumes, not for Infinite Volumes.

In general, qtrees are similar to volumes. However, they have the following key differences:

- Snapshot copies can be enabled or disabled for individual volumes but not for individual qtrees.
- Qtrees do not support space reservations or space guarantees.

There are no restrictions on how much disk space can be used by the qtree or how many files can exist in the qtree.

The following table contains qtree configuration information.

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Table 64) Qtree Configuration.

Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Backup_Analaizer	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	CHECKOUT	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	CONTRALORIA_2016	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	EJECUCION Y SEGUIMIENTO	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	FIREWALL, PROXY Y ANTIVIRUS	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	PLANTA TELEFONICA BIOMETRIA	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Proyecto_ERP	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Antioquia_Choco	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Archivos_Siscom	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Arquitectura_Empresarial	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Auditoria_Catering_SGOL	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_AUDITORIA_CGR_2024	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Auditoria_Combustibles	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Auditoria_Combustibles_V2	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Auditoria_Gestion_Combustibles	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Auditoria_Grupo_Gestion_Documental	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Auditoria_Nororiente	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Auditoria_R_Surocciden te_2024	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_Auditoria_Reg_Antioquia_Choco	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_AUTODIAGNOSTICOS_MIPG	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Ayudas_Manejo_Modulo_Mantenimiento	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_App_Informatica	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Appweb	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Buzones_Retirados	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Control_Interno	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Mesa_Ayuda	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Nomina	DATA_GRANULAR	normal	default	ntfs	enabled
san-nas	TRITON	Q_Backup_Portalweb	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_PST	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_TH	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Vicidial	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_VM	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_zimbra	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backups	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Bakcup_Info_Planeacion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Bakcup_Intranet	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_BCP_2024	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_BMC	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Buceo_Salvamento	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Calidad_doas	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Capacitacion_Tic	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Carrera_Administrativa	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Cierre_Vigencia	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Combustible	DATA_GRANULAR	normal	transition_noaccess	ntfs	disabled
san-nas	TRITON	Q_Comision_de_Personal	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_comite_convivencia_laboral	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Comite_Tic	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Contraloria	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Contraloria_2022	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_contraloria_2023	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Contraloria2021	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Contratos	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Contratos_Archivo	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Contratos_Principal	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Control_Politicas_Contables	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Correspondencia	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_CR_Camacho	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Cuentas_fiscales	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Cuentas_Por_Pagar	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Cumplimiento_Plazos	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Desarrollo_Organizacional_y_Gestion_Integral	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Digitalizacion_Direccion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Direccion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Direccion_Administrativa	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Direccion_Financiera	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Direccion_Infraestructura	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Direccion_Produccion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Doas	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Documentos_Oficina_tecnologia	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Entrega_Direccion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Erradicadores	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Estadarizacion_equipos	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Estado_Comedores	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Evaluacion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Facturacion_CADS	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_Fichas_Tecnicas_Producto	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Firma_Acrobat	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Fondo_pantalla	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Fotos_Regionales	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Funcion_Publica	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Grabaciones	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Grupo_Contabilidad	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Grupo_Contabilidad_V2	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Historias_Laborales	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Historias_Laborales_Fondos_Rotatorios	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Informacion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Información_Presupuestal_OCI	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Informacion_transitoria_2024	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Infraestructura	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Instaladores	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Jenifer_Castaneda	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Licenciamiento	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Manuales_SAP	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Manuales_Usuario_SAP	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_MARKETING	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_matriz_activos_alfm	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Mesa_de_Trabajo_Teletrabajo	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Modernizacion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Novasoft	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Abastecimientos	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Administrativa	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Atencion_Ciudadana	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Contratacion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Control_Interno	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Control_Interno_Disciplinario	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Direccion_General	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_DOAS	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Financiera	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Infraestructura	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Juridica	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Operaciones_Logisticas	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Planeacion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oficina_Secretaria_General	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_Oficina_TIC	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Piloto_Teletrabajo	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Piso_4	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Planeacion	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_PLAPRE	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_PNID	DATA_GRANULAR	normal	transition_noaccess	ntfs	disabled
san-nas	TRITON	Q_Portafolios_Caja_Compensacion_Familiar	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Presentaciones	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Presupuesto	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Proceso_SuperIntendencia	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Proyecto_DATH_2024	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Proyecto_Inversion_Gestion_Documental	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_proyecto_Migracion_IPV6	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Proyecto_TVD	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Amazonia	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Antioquia_Choco	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Caribe	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Centro	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Llanos_Orientales	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_R_Nororiente	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Norte	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Pacifico	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Sur	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Suroccidente	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_R_Tolima	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Recopilacion_general	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Recuperado	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_RED_ALFM	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Regional_Suroccidente	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Repositorio_Orfeo	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Respaldo	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Secreatria_General	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_SEGUIMIENTO_CADS_NACIONAL	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Seguimiento_PAA_Contratos	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Seguimiento_Revisión_inspecciones_realizadas	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_SGAS	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_SGOL	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Socializacion_Guia_Backups	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_SST	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_SST_CO	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_SST2023	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Tecnologia	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Teletrabajo	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Temporal	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Temporal_Centro	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_TI_Seguridad	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Tramites_de_Pago_BMC	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Transparencia	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Unidos_Somos_Mas	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Usuarios_Directorio_Activo	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Video_Elecciones	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Video_TI	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Visitas_Regionales	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	VITUALLA	DATA_GRANULAR	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_adriana.rodriguez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_alberto.camacho	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Ana_Palacios	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_Ana_Pinto	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Angelica_Vargas	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Aura.fuentes	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Marluin_Pabon	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Proyectos_Infraestructura	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backup_Zulay_Rojas	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_backups_temporal	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Backups_USR	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Bayron_sanabria	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Blanca_Puentes	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Capacitación_Carrera	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_carlos.camacho	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Carmen_Pulido	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Carold_Martinez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Cesar_Gonzalez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Claribel_vargas	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Claudia.Rodriguez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Cristian_Barrera	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Daniela_Caro	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_Daris.padilla	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Deysi_Campos	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Elisa_Villamil	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Emma_Reyes	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_felipe.leon	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Fernando_Forero	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Francelina_Riveros	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_German_Palencia	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Gladys_Melo	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Hector_Sanchez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Jairo.Bocanegra	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Jairton.Ramirez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Janeth_Tarapues	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Jennifer.Correa	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Jenny_Carmargo	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_johana.parra	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Joice_Cabarcas	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Jorge_Rivas	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Jose.Espitia	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_Jose_Vargas	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Leidy.aparicio	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_leonardo.acosta	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Lizeth.sanabria	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Lizeth_S	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Luz.hincapie	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Luz.Ramirez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Luz_gonzalez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Marcela.Guevara	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Maria.Guzman	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Maria_Silva	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Mario_Nerea	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Martha.Garcia	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Martha_Polania	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_maura.sierra	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Mervin_Baron	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Miguel.Valero	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_nestor.castellanos	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_nidia.gongora	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_Olga_Guevara	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Oscar.Ruiz	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_planeacion_backup	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_RAFAEL_LLINAS	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Regional_Antioquia_Choco	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Regionales	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Ricardo_Parra	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Roberto_Velasquez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_rosa.fuentes	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_ruth.calderon	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Sandra.cano	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_SANDRA.SUAREZ	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Sandra.vargas	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Sonia.Lopez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_SS_Alejandro_gomez	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Tera_Maria_Helena	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Yenny.Ariza	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_yenny.daza	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Yolanda.Castaneda	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled

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Cluster Name	SVM Name	Qtree Name	Containing Volume	Status	Export Policy	Security Style	Oplocks
san-nas	TRITON	Q_Yolanda_Bustos	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Yuby.Aguacia	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_Yuli_Pena	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled
san-nas	TRITON	Q_yulieth.quintero	DATA_USUARIO	normal	transition_noaccess	ntfs	enabled

LUNs

Logical Units or LUNs are created and exist within a given FlexVol Volume and are used to store data which is presented to servers or clients. LUNs provide storage for block based protocols such as Fibre Channel or iSCSI.

The following table lists the LUN details.

Table 65) LUN Configuration.

Cluster Name	SVM Name	Path	Mapped	Online	Protocol Type	Read Only	Size
san-nas	HELIOS	/vol/alfm_nfs/alfm_nfs.lun	True	True	aix	False	30,00 GB
san-nas	HELIOS	/vol/ASPRD_BACKUP_P13/ASPRD_BACKUP_P13.lun	False	True	aix	False	600,08 GB
san-nas	HELIOS	/vol/ASPRD_DATAVG_P13/ASPRD_DATAVG_P13.lun	False	True	aix	False	2,10 TB
san-nas	HELIOS	/vol/ASPRD_P13_PRUEBA2/ASPRD_P13_PRUEBA2.lun	False	True	aix	False	100,00 GB
san-nas	HELIOS	/vol/ASPRD_P13_PRUEBA3/ASPRD_P13_PRUEBA3.lun	False	True	aix	False	40,00 GB
san-nas	HELIOS	/vol/ASPRD_P13_SO/ASPRD_P13_SO.lun	False	True	aix	False	99,00 GB
san-nas	HELIOS	/vol/DBPRDERP_DATAVG/DBPRDERP_DATAVG.lun	True	True	aix	False	1,50 TB
san-nas	HELIOS	/vol/DBPRDERP_P13_SO/DBPRDERP_P13_SO.lun	True	True	aix	False	170,02 GB
san-nas	HELIOS	/vol/DEVERP_P14_DATAVG/DEVERP_P14_DATAVG.lun	True	True	aix	False	1,70 TB
san-nas	HELIOS	/vol/DEVERP_P14_SO/DEVERP_P14_SO.lun	True	True	aix	False	100,00 GB
san-nas	HELIOS	/vol/diskhb_sapci_sapbd/diskhb_sapci_sapbd.lun	True	True	aix	False	5,00 GB

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Cluster Name	SVM Name	Path	Mapped	Online	Protocol Type	Read Only	Size
san-nas	HELIOS	/vol/ICPRDERP_BACKUPVG/ICPRDERP_BACKUPVG.lun	True	True	aix	False	2,00 TB
san-nas	HELIOS	/vol/ICPRDERP_DATAVG/ICPRDERP_DATAVG.lun	True	True	aix	False	100,00 GB
san-nas	HELIOS	/vol/ICPRDERP_LOGVG/ICPRDERP_LOGVG.lun	True	True	aix	False	100,00 GB
san-nas	HELIOS	/vol/ICPRDERP_ORAARCH/ICPRDERP_ORAARCH.lun	True	True	aix	False	50,00 GB
san-nas	HELIOS	/vol/ICPRDERP_P13_SO/ICPRDERP_P13_SO.lun	True	True	aix	False	260,02 GB
san-nas	HELIOS	/vol/MAGNO_Bkp/LUN_MAGNO	True	True	windows_2008	False	1,00 TB
san-nas	HELIOS	/vol/PRUEBAS_DEVERP_P14_DATAVG/PRUEBAS_DEVERP_P14_DATAVG.lun	False	True	aix	False	1,26 TB
san-nas	HELIOS	/vol/QASERP_BACKUP_P14/QASERP_BACKUP_P14.lun	True	True	aix	False	1,10 TB
san-nas	HELIOS	/vol/QASERP_BACKUP1_P14/QASERP_BACKUP1_P14.lun	True	True	aix	False	100,00 GB
san-nas	HELIOS	/vol/QASERP_DATAVG_P14/QASERP_DATAVG_P14.lun	True	True	aix	False	1,60 TB
san-nas	HELIOS	/vol/QASERP_P14_SO/QASERP_P14_SO.lun	True	True	aix	False	99,00 GB
san-nas	HELIOS	/vol/RMAN_DATA/RMAN_DATA.lun	True	True	aix	False	300,04 GB
san-nas	HELIOS	/vol/RMAN_P14_SO/RMAN_P14_SO.lun	True	True	aix	False	150,00 GB
san-nas	HELIOS	/vol/RMAN_PRUEBAS_vol/RMAN_PRUEBAS	False	True	aix	False	160,00 GB
san-nas	HELIOS	/vol/SOLMAN_BACKUPVG2_vol/SOLMAN_BACKUPVG2	True	True	aix	False	600,14 GB
san-nas	HELIOS	/vol/SOLMAN_DATAVG_P14/SOLMAN_DATAVG_P14.lun	True	True	aix	False	970,20 GB
san-nas	HELIOS	/vol/SOLMAN_MEDIOS_P14/SOLMAN_MEDIOS_P14.lun	True	True	aix	False	140,01 GB
san-nas	HELIOS	/vol/SOLMAN_P14_SO/SOLMAN_P14_SO.lun	True	False	aix	False	100,00 GB
san-nas	HELIOS	/vol/SOLMAN_P14_SO2_vol/SOLMAN_P14_SO2	True	True	aix	False	100,00 GB

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Cluster Name	SVM Name	Path	Mapped	Online	Protocol Type	Read Only	Size
san-nas	HELIOS	/vol/VIOS1_P13_SO/VIOS1_P13_SO.lun	True	True	aix	False	99,00 GB
san-nas	HELIOS	/vol/VIOS1_P14_SO/VIOS1_P14_SO.lun	True	True	aix	False	140,01 GB
san-nas	HELIOS	/vol/VmWare_DataStore_01/DataStore_01.lun	True	True	vmware	False	5,00 TB
san-nas	HELIOS	/vol/VmWare_Datastore_01_FSAS/Datastore_01_FSAS	True	True	vmware	False	2,00 TB
san-nas	HELIOS	/vol/VmWare_DataStore_02/DataStore_02.lun	True	True	vmware	False	2,00 TB
san-nas	HELIOS	/vol/VmWare_DataStore_03/DataStore_03.lun	True	True	vmware	False	2,00 TB
san-nas	HELIOS	/vol/VmWare_DataStore_04/DataStore_04.lun	True	True	vmware	False	2,00 TB
san-nas	HELIOS	/vol/VmWare_DataStore_05/DataStore_05.lun	True	True	vmware	False	3,40 TB
san-nas	HELIOS	/vol/VmWare_DataStore_06/DataStore_06	True	True	vmware	False	4,50 TB
san-nas	HELIOS	/vol/Vol_Orfeo/Orfeo.lun	True	True	linux	False	1,47 TB

Storage Efficiency And Space Management

Storage Efficiency

ONTAP offers a wide range of storage efficiency technologies in addition to Snapshot copies. Key technologies include thin provisioning, deduplication, compression, and FlexClone volumes, files, and LUNs. Like Snapshot copies, all are built on ONTAP's Write Anywhere File Layout (WAFL).

Volume Efficiency

You can run deduplication, data compression, and data compaction together or independently on a FlexVol volume or an Infinite Volume to achieve optimal space savings. Deduplication eliminates duplicate data blocks and data compression compresses the data blocks to reduce the amount of physical storage that is required. Data compaction stores more data in less space to increase storage efficiency.

Note: Beginning with ONTAP 9.2, all inline storage efficiency features, such as inline deduplication and inline compression, are enabled by default on All Flash FAS (AFF) volumes.

The following table contains volume efficiency settings.

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Table 66) Volume Efficiency Settings.

Cluster Name	SVM Name	Volume Name	Space Guarantee	Dedupe	Schedule or Policy Name	Compression	Inline Compression
san-nas	HELIOS	alfm_nfs	volume		-		
san-nas	HELIOS	ASPRD_BACKUP_P13	volume		-		
san-nas	HELIOS	ASPRD_DATAVG_P13	volume		-		
san-nas	HELIOS	ASPRD_P13_PRUEBA2	volume		-		
san-nas	HELIOS	ASPRD_P13_PRUEBA3	volume		-		
san-nas	HELIOS	ASPRD_P13_SO	volume		-		
san-nas	HELIOS	DBPRDERP_DATAVG	none		-		
san-nas	HELIOS	DBPRDERP_P13_SO	volume		-		
san-nas	HELIOS	DEVERP_P14_DATAVG	volume		-		
san-nas	HELIOS	DEVERP_P14_SO	volume		-		
san-nas	HELIOS	diskhb_sapci_sapbd	volume		-		
san-nas	HELIOS	HELIOS_root	volume		-		
san-nas	HELIOS	ICPRDERP_BACKUPVG	volume		-		
san-nas	HELIOS	ICPRDERP_DATAVG	volume		-		
san-nas	HELIOS	ICPRDERP_LOGVG	volume		-		
san-nas	HELIOS	ICPRDERP_ORAARCH	volume		-		
san-nas	HELIOS	ICPRDERP_P13_SO	volume	True	sun-sat@0	False	False
san-nas	HELIOS	LUN_MAGNO_vol	volume		-		
san-nas	HELIOS	MAGNO_Bkp	volume		-		
san-nas	HELIOS	PRUEBAS_DEVERP_P14_DATAVG	volume		-		
san-nas	HELIOS	QASERP_BACKUP_P14	volume		-		
san-nas	HELIOS	QASERP_BACKUP1_P14	volume		-		
san-nas	HELIOS	QASERP_DATAVG_P14	volume		-		
san-nas	HELIOS	QASERP_P14_SO	volume		-		
san-nas	HELIOS	Redes_net_vol	volume		-		
san-nas	HELIOS	RMAN_DATA	volume		-		
san-nas	HELIOS	RMAN_P14_SO	volume		-		
san-nas	HELIOS	RMAN_PRUEBAS_vol	volume		-		
san-nas	HELIOS	SOLMAN_BACKUPVG	none		-		
san-nas	HELIOS	SOLMAN_BACKUPVG2_vol	volume		-		

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Cluster Name	SVM Name	Volume Name	Space Guarantee	Dedupe	Schedule or Policy Name	Compression	Inline Compression
san-nas	HELIOS	SOLMAN_DATAVG_P14	none		-		
san-nas	HELIOS	SOLMAN_MEDIOS_P14	volume		-		
san-nas	HELIOS	SOLMAN_P14_SO	none		-		
san-nas	HELIOS	SOLMAN_P14_SO2_vol	volume		-		
san-nas	HELIOS	VEEAMBACKUP_NUTANIX_TAPE	none		-		
san-nas	HELIOS	VIOS1_P13_SO	volume		-		
san-nas	HELIOS	VIOS1_P14_SO	volume		-		
san-nas	HELIOS	VmWare_DataStore_01	volume		-		
san-nas	HELIOS	VmWare_Datastore_01_FSAS	none	True	sun-sat@0	False	False
san-nas	HELIOS	VmWare_DataStore_02	none		-		
san-nas	HELIOS	VmWare_DataStore_03	none		-		
san-nas	HELIOS	VmWare_DataStore_04	none	True	-	False	False
san-nas	HELIOS	VmWare_DataStore_05	volume	True	-	False	False
san-nas	HELIOS	VmWare_DataStore_06	volume		-		
san-nas	HELIOS	Vol_Orfeo	none		-		
san-nas	HELIOS	Vol_Orfeo_0	volume		-		
san-nas	TRITON	DATA_GRANULAR	volume	True	sun@0	False	False
san-nas	TRITON	DATA_USUARIO	volume	True	sun@0	False	False
san-nas	TRITON	TRITON_root	volume		-		
san-nas	TRITON	Volumen_temporal	volume	True	sat@0	False	False

LUN Efficiency

Thin provisioning enables storage administrators to provision more storage on a LUN than is physically present on the volume. By over-provisioning the volume, storage administrators can increase the capacity utilization of that volume. As the blocks are written to the LUN, ONTAP adds more space to the LUN from available space on the volume.

With thin provisioning, you can present more storage space to the hosts connecting to the SVM than is actually available on the SVM. Storage provisioning with thinly provisioned LUNs enables storage administrators to provide actual storage that the LUN needs. As ONTAP writes blocks to the LUN, the LUN increases in size automatically.

The following table contains the LUN efficiency settings.

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Table 67) LUN Efficiency Settings.

Cluster Name	SVM Name	Path	Space Reservation Enabled	Space Allocation Enabled
san-nas	HELIOS	/vol/alfm_nfs/alfm_nfs.lun	True	False
san-nas	HELIOS	/vol/ASPRD_BACKUP_P13/ASPRD_BACKUP_P13.lun	True	False
san-nas	HELIOS	/vol/ASPRD_DATAVG_P13/ASPRD_DATAVG_P13.lun	True	False
san-nas	HELIOS	/vol/ASPRD_P13_PRUEBA2/ASPRD_P13_PRUEBA2.lun	True	False
san-nas	HELIOS	/vol/ASPRD_P13_PRUEBA3/ASPRD_P13_PRUEBA3.lun	True	False
san-nas	HELIOS	/vol/ASPRD_P13_SO/ASPRD_P13_SO.lun	True	False
san-nas	HELIOS	/vol/DBPRDERP_DATAVG/DBPRDERP_DATAVG.lun	True	False
san-nas	HELIOS	/vol/DBPRDERP_P13_SO/DBPRDERP_P13_SO.lun	True	False
san-nas	HELIOS	/vol/DEVERP_P14_DATAVG/DEVERP_P14_DATAVG.lun	True	False
san-nas	HELIOS	/vol/DEVERP_P14_SO/DEVERP_P14_SO.lun	True	False
san-nas	HELIOS	/vol/diskhb_sapci_sapbd/diskhb_sapci_sapbd.lun	True	False
san-nas	HELIOS	/vol/ICPRDERP_BACKUPVG/ICPRDERP_BACKUPVG.lun	True	False
san-nas	HELIOS	/vol/ICPRDERP_DATAVG/ICPRDERP_DATAVG.lun	True	False
san-nas	HELIOS	/vol/ICPRDERP_LOGVG/ICPRDERP_LOGVG.lun	True	False
san-nas	HELIOS	/vol/ICPRDERP_ORAARCH/ICPRDERP_ORAARCH.lun	True	False
san-nas	HELIOS	/vol/ICPRDERP_P13_SO/ICPRDERP_P13_SO.lun	True	False
san-nas	HELIOS	/vol/MAGNO_Bkp/LUN_MAGNO	True	False
san-nas	HELIOS	/vol/PRUEBAS_DEVERP_P14_DATAVG/PRUEBAS_DEVERP_P14_DATAVG.lun	True	False
san-nas	HELIOS	/vol/QASERP_BACKUP_P14/QASERP_BACKUP_P14.lun	True	False
san-nas	HELIOS	/vol/QASERP_BACKUP1_P14/QASERP_BACKUP1_P14.lun	True	False
san-nas	HELIOS	/vol/QASERP_DATAVG_P14/QASERP_DATAVG_P14.lun	True	False
san-nas	HELIOS	/vol/QASERP_P14_SO/QASERP_P14_SO.lun	True	False
san-nas	HELIOS	/vol/RMAN_DATA/RMAN_DATA.lun	True	False
san-nas	HELIOS	/vol/RMAN_P14_SO/RMAN_P14_SO.lun	True	False
san-nas	HELIOS	/vol/RMAN_PRUEBAS_vol/RMAN_PRUEBAS	True	False

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Cluster Name	SVM Name	Path	Space Reservation Enabled	Space Allocation Enabled
san-nas	HELIOS	/vol/SOLMAN_BACKUPVG2_vol/SOLMAN_BACKUPVG2	True	False
san-nas	HELIOS	/vol/SOLMAN_DATAVG_P14/SOLMAN_DATAVG_P14.lun	True	False
san-nas	HELIOS	/vol/SOLMAN_MEDIOS_P14/SOLMAN_MEDIOS_P14.lun	True	False
san-nas	HELIOS	/vol/SOLMAN_P14_SO/SOLMAN_P14_SO.lun	True	False
san-nas	HELIOS	/vol/SOLMAN_P14_SO2_vol/SOLMAN_P14_SO2	True	False
san-nas	HELIOS	/vol/VIOS1_P13_SO/VIOS1_P13_SO.lun	True	False
san-nas	HELIOS	/vol/VIOS1_P14_SO/VIOS1_P14_SO.lun	True	False
san-nas	HELIOS	/vol/VmWare_DataStore_01/DataStore_01.lun	True	False
san-nas	HELIOS	/vol/VmWare_Datastore_01_FSAS/Datastore_01_FSAS	True	False
san-nas	HELIOS	/vol/VmWare_DataStore_02/DataStore_02.lun	True	False
san-nas	HELIOS	/vol/VmWare_DataStore_03/DataStore_03.lun	True	False
san-nas	HELIOS	/vol/VmWare_DataStore_04/DataStore_04.lun	True	False
san-nas	HELIOS	/vol/VmWare_DataStore_05/DataStore_05.lun	True	False
san-nas	HELIOS	/vol/VmWare_DataStore_06/DataStore_06	True	False
san-nas	HELIOS	/vol/Vol_Orfeo/Orfeo.lun	True	False

Space Management

ONTAP uses two methods for automatically providing more space for a FlexVol volume when that volume is nearly full: allowing the volume size to increase, and deleting Snapshot copies (with any associated storage objects). If you enable both of these methods, you can specify which method ONTAP should try first.

ONTAP can automatically provide more free space for the volume by using one of the following methods:

- Increase the size of the volume when it is nearly full (known as the autogrow feature).

  This method is useful if the volume's containing aggregate has enough space to support a larger volume. You can configure ONTAP to increase the size in increments and set a maximum size for the volume. The increase is automatically triggered based on the amount of data being written to the volume in relation to the current amount of used space and any thresholds set.
- Delete Snapshot copies when the volume is nearly full.

  For example, you can configure ONTAP to automatically delete Snapshot copies that are not linked to Snapshot copies in cloned volumes or LUNs, or you can define which Snapshot copies you want ONTAP to delete first—your oldest or newest Snapshot copies. You can also determine when ONTAP should begin deleting Snapshot copies—for example, when the volume is nearly full or when the volume's Snapshot reserve is nearly full.

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If you enable both of these methods, you can specify which method ONTAP tries first when a volume is nearly full. If the first method does not provide sufficient additional space to the volume, ONTAP tries the other method next. By default, ONTAP tries to increase the size of the volume first.

The following table contains volume space management settings.

Table 68) Volume Space Management Settings.

Cluster Name	SVM Name	Volume Name	Try First	Autosize Enabled	Maximum Size	Increment Size	Snapshot Autodelete	Trigger	Target Free Space
san-nas	HELIOS	alfm_nfs	volume_grow	False	120,00 GB		True	volume	20%
san-nas	HELIOS	ASPRD_BACKUP_P13	volume_grow	False	864,00 GB		True	volume	20%
san-nas	HELIOS	ASPRD_DATAVG_P13	volume_grow	False	4,33 TB		True	volume	20%
san-nas	HELIOS	ASPRD_P13_PRUEBA2	volume_grow	False	144,00 GB		True	volume	20%
san-nas	HELIOS	ASPRD_P13_PRUEBA3	volume_grow	False	57,60 GB		True	volume	20%
san-nas	HELIOS	ASPRD_P13_SO	volume_grow	False	144,00 GB		True	volume	20%
san-nas	HELIOS	DBPRDERP_DATAVG	volume_grow	False	3,84 TB		True	volume	20%
san-nas	HELIOS	DBPRDERP_P13_SO	volume_grow	False	480,00 GB		True	volume	20%
san-nas	HELIOS	DEVERP_P14_DATAVG	volume_grow	False	2,40 TB		True	volume	20%
san-nas	HELIOS	DEVERP_P14_SO	volume_grow	False	144,00 GB		True	volume	20%
san-nas	HELIOS	diskhb_sapci_sapbd	volume_grow	False	12,00 GB		True	volume	20%
san-nas	HELIOS	HELIOS_root	volume_grow	False	1,20 GB		True	volume	20%
san-nas	HELIOS	ICPRDERP_BACKUPVG	volume_grow	False	3,00 TB		True	volume	20%
san-nas	HELIOS	ICPRDERP_DATAVG	volume_grow	False	288,00 GB		True	volume	20%
san-nas	HELIOS	ICPRDERP_LOGVG	volume_grow	False	180,00 GB		True	volume	20%
san-nas	HELIOS	ICPRDERP_ORAARCH	volume_grow	False	78,00 GB		True	volume	20%

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Cluster Name	SVM Name	Volume Name	Try First	Autosize Enabled	Maximum Size	Increment Size	Snapshot Autodelete	Trigger	Target Free Space
san-nas	HELIOS	ICPRDERP_P13_SO	volume_grow	False	420,00 GB		True	volume	20%
san-nas	HELIOS	LUN_MAGNO_vol	volume_grow	False	1,24 TB		True	volume	20%
san-nas	HELIOS	MAGNO_Bkp	volume_grow	False	1,24 TB		True	volume	20%
san-nas	HELIOS	PRUEBAS_DEVERP_P14_DATAVG	volume_grow	False	1,81 TB		True	volume	20%
san-nas	HELIOS	QASERP_BACKUP_P14	volume_grow	False	1,44 TB		True	volume	20%
san-nas	HELIOS	QASERP_BACKUP1_P14	volume_grow	False	144,00 GB		True	volume	20%
san-nas	HELIOS	QASERP_DATAVG_P14	volume_grow	False	2,40 TB		True	volume	20%
san-nas	HELIOS	QASERP_P14_SO	volume_grow	False	144,00 GB		True	volume	20%
san-nas	HELIOS	Redes_net_vol	volume_grow	False	1,24 TB		True	volume	20%
san-nas	HELIOS	RMAN_DATA	volume_grow	False	432,00 GB		True	volume	20%
san-nas	HELIOS	RMAN_P14_SO	volume_grow	False	216,00 GB		True	volume	20%
san-nas	HELIOS	RMAN_PRUEBAS_vol	volume_grow	False	216,00 GB		True	volume	20%
san-nas	HELIOS	SOLMAN_BACKUPVG	volume_grow	False	1,18 TB		True	volume	20%
san-nas	HELIOS	SOLMAN_BACKUPVG2_vol	volume_grow	False	780,00 GB		True	volume	20%
san-nas	HELIOS	SOLMAN_DATAVG_P14	volume_grow	True	3,84 TB		True	volume	20%
san-nas	HELIOS	SOLMAN_MEDIOS_P14	volume_grow	False	600,00 GB		True	volume	20%
san-nas	HELIOS	SOLMAN_P14_SO	volume_grow	False	360,00 GB		True	volume	20%
san-nas	HELIOS	SOLMAN_P14_SO2_vol	volume_grow	False	123,71 GB		True	volume	20%

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Cluster Name	SVM Name	Volume Name	Try First	Autosize Enabled	Maximum Size	Increment Size	Snapshot Autodelete	Trigger	Target Free Space
san-nas	HELIOS	VEEAMBACKUP_NUTANIX_TAPE	volume_grow	False	24,00 TB		True	volume	20%
san-nas	HELIOS	VIOS1_P13_SO	volume_grow	False	144,00 GB		True	volume	20%
san-nas	HELIOS	VIOS1_P14_SO	volume_grow	False	201,60 GB		True	volume	20%
san-nas	HELIOS	VmWare_DataStore_01	volume_grow	False	6,00 TB		True	volume	20%
san-nas	HELIOS	VmWare_Datastore_01_FSAS	volume_grow	False	4,13 TB		True	volume	20%
san-nas	HELIOS	VmWare_DataStore_02	volume_grow	False	3,04 TB		True	volume	20%
san-nas	HELIOS	VmWare_DataStore_03	volume_grow	False	3,04 TB		True	volume	20%
san-nas	HELIOS	VmWare_DataStore_04	volume_grow	False	4,25 TB		True	volume	20%
san-nas	HELIOS	VmWare_DataStore_05	volume_grow	False	7,13 TB		True	volume	20%
san-nas	HELIOS	VmWare_DataStore_06	volume_grow	False	6,00 TB		True	volume	20%
san-nas	HELIOS	Vol_Orfeo	volume_grow	False	1,68 TB		True	volume	20%
san-nas	HELIOS	Vol_Orfeo_0	volume_grow	False	720,00 GB		False	volume	20%
san-nas	TRITON	DATA_GRANULAR	volume_grow	False	48,00 TB		False	volume	20%
san-nas	TRITON	DATA_USUARIO	volume_grow	True	39,42 TB		True	volume	20%
san-nas	TRITON	TRITON_root	volume_grow	False	1,20 GB		False	volume	20%
san-nas	TRITON	Volumen_temporal	volume_grow	False	1,20 TB		False	volume	20%

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Protocol Configuration

NAS

ONTAP can be accessed over Common Internet File System protocol (CIFS), Server Message Block (SMB) and Network File System (NFS) capable clients.

This means clients can access all files on a SVM regardless of what protocol they are connecting with or what type of authentication they require.

Name Mappings

ONTAP uses name mapping to map CIFS identities to UNIX identities, Kerberos identities to UNIX identities, and UNIX identities to CIFS identities. It needs this information to obtain user credentials and provide proper file access regardless of whether they are connecting from an NFS client or a CIFS client.

There are two exceptions where you do not have to use name mapping:

- You configure a pure UNIX environment and do not plan to use CIFS access or NTFS security style on volumes.
- You configure the default user to be used instead.

  In this scenario, name mapping is not required because instead of mapping every individual client credential all client credentials are mapped to the same default user.

Note that you can use name mapping only for users, not for groups.

However, you can map a group of individual users to a specific user. For example, you can map all AD users that start or end with the word SALES to a specific UNIX user and to the user's UID.

The following table lists the configured name mappings.

Table 69) Name Mappings.

Cluster Name	SVM Name	Direction	Position	Pattern	Replacement
none					

Namespace Configuration

A NAS namespace is a logical grouping of volumes joined together at junction points to create a single file system hierarchy. A client with sufficient permissions can access files in the namespace without specifying the location of the files in storage. Junctioned volumes can reside anywhere in the cluster.

Rather than mounting every volume containing a file of interest, NAS clients mount an NFS export or access an SMB share. The export or share represents the entire namespace or an intermediate location within the namespace. The client accesses only the volumes mounted below its access point.

Every SVM has a unique namespace. The SVM root volume is the entry point to the namespace hierarchy.

Note: To ensure that data remains available in the event of a node outage or failover, you should create a load-sharing mirror copy for the SVM root volume on each node of the cluster, including the node on which the root volume is located.

The following table lists the volumes and their junction paths that make up the namespace configuration.

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Table 70) Namespace Configuration.

Cluster Name	SVM Name	Junction Path	Volume Name	Junction Active
san-nas	HELIOS		alfm_nfs	
san-nas	HELIOS		ASPRD_BACKUP_P13	
san-nas	HELIOS		ASPRD_DATAVG_P13	
san-nas	HELIOS		ASPRD_P13_PRUEBA2	
san-nas	HELIOS		ASPRD_P13_PRUEBA3	
san-nas	HELIOS		ASPRD_P13_SO	
san-nas	HELIOS		DBPRDERP_DATAVG	
san-nas	HELIOS		DBPRDERP_P13_SO	
san-nas	HELIOS		DEVERP_P14_DATAVG	
san-nas	HELIOS		DEVERP_P14_SO	
san-nas	HELIOS		diskhb_sapci_sapbd	
san-nas	HELIOS		ICPRDERP_BACKUPVG	
san-nas	HELIOS		ICPRDERP_DATAVG	
san-nas	HELIOS		ICPRDERP_LOGVG	
san-nas	HELIOS		ICPRDERP_ORAARCH	
san-nas	HELIOS		ICPRDERP_P13_SO	
san-nas	HELIOS		LUN_MAGNO_vol	
san-nas	HELIOS		MAGNO_Bkp	
san-nas	HELIOS		PRUEBAS_DEVERP_P14_DATAVG	
san-nas	HELIOS		QASERP_BACKUP_P14	
san-nas	HELIOS		QASERP_BACKUP1_P14	
san-nas	HELIOS		QASERP_DATAVG_P14	
san-nas	HELIOS		QASERP_P14_SO	
san-nas	HELIOS		Redes_net_vol	
san-nas	HELIOS		RMAN_DATA	
san-nas	HELIOS		RMAN_P14_SO	
san-nas	HELIOS		RMAN_PRUEBAS_vol	
san-nas	HELIOS		SOLMAN_BACKUPVG	
san-nas	HELIOS		SOLMAN_BACKUPVG2_vol	
san-nas	HELIOS		SOLMAN_DATAVG_P14	
san-nas	HELIOS		SOLMAN_MEDIOS_P14	
san-nas	HELIOS		SOLMAN_P14_SO	

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Cluster Name	SVM Name	Junction Path	Volume Name	Junction Active
san-nas	HELIOS		SOLMAN_P14_SO2_vol	
san-nas	HELIOS		VIOS1_P13_SO	
san-nas	HELIOS		VIOS1_P14_SO	
san-nas	HELIOS		VmWare_DataStore_01	
san-nas	HELIOS		VmWare_Datastore_01_FSAS	
san-nas	HELIOS		VmWare_DataStore_02	
san-nas	HELIOS		VmWare_DataStore_03	
san-nas	HELIOS		VmWare_DataStore_04	
san-nas	HELIOS		VmWare_DataStore_05	
san-nas	HELIOS		VmWare_DataStore_06	
san-nas	HELIOS		Vol_Orfeo	
san-nas	HELIOS		Vol_Orfeo_0	
san-nas	HELIOS	/	HELIOS_root	True
san-nas	HELIOS	/VEEAMBACKUP_NUTANIX_TAPE	VEEAMBACKUP_NUTANIX_TAPE	True
san-nas	TRITON	/	TRITON_root	True
san-nas	TRITON	/vol/DATA_GRANULAR	DATA_GRANULAR	True
san-nas	TRITON	/vol/DATA_USUARIO	DATA_USUARIO	True
san-nas	TRITON	/vol/Volumen_temporal	Volumen_temporal	True

Quota Configuration

Quotas provide a way to restrict or track the disk space and number of files used by a user, group, or qtree. Quotas are applied to a specific FlexVol volume or qtree.

The following table lists the quota configuration (only volumes with a quota policy applied will be shown).

Table 71) Quota Configuration.

Cluster Name	SVM Name	Volume Name	Quota Policy	Quota Status
san-nas	TRITON	DATA_GRANULAR	default	on
san-nas	TRITON	DATA_USUARIO	default	on

NFS

You can export file system paths on your storage system, making them available for mounting by NFS clients.

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NFS Service Configuration

NFS clients can access your storage system using the NFS protocol provided ONTAP can properly authenticate the user or computer.

The following table contains NFS service configuration information.

Table 72) NFS Service Configuration.

Cluster Name	SVM Name	Access Enabled	v3 Enabled	v4.0 Enabled	v4.1 Enabled	v4.1 pNFS Enabled	Default Windows User	v4 ID Domain
san-nas	HELIOS	True	True	False	False	True		defaultv4iddomain.com
san-nas	TRITON	True	True	False	False	True		alfm.mil.co

Windows File Services

You can enable and configure a CIFS SVM to let SMB clients access files on your SVM. Each data SVM in the cluster can be bound to only one Active Directory domain; however, the data SVMs do not need to be bound to the same domain. Each SVM can be bound to a unique Active Directory domain. Additionally, a CIFS SVM can be used to tunnel Cluster administration authentication, which can be bound to only one Active Directory domain.

CIFS Servers

CIFS clients can access files on a SVM using the CIFS protocol provided ONTAP can properly authenticate the user.

The following table contains CIFS server configuration information.

Table 73) CIFS Servers.

Cluster Name	SVM Name	CIFS Server	Domain	Domain NetBIOS Name	WINS Servers	Preferred DC
san-nas	TRITON	TRITON	ALFM.MIL.CO	ALFM		10.16.3.134

CIFS Security Settings

You can manage your SVM's CIFS server security settings by modifying the CIFS Kerberos security settings, enabling or disabling required SMB signing for incoming SMB traffic, requiring or not requiring password complexity for local users, and displaying information about current CIFS server security settings.

Note: SMB signing is only available starting with Data ONTAP 8.2.

The following table contains the CIFS security settings.

Table 74) CIFS Security Settings.

Cluster Name	SVM Name	SMB Signing Required	Password Complexity Required	Kerberos Clock Skew	Kerberos Renew Age	Kerberos Ticket Age
san-nas	TRITON	False	True	5	7	10

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CIFS BranchCache Configuration

BranchCache was developed by Microsoft to enable caching of content on computers local to requesting clients. The ONTAP implementation of BranchCache can reduce wide-area network (WAN) utilization and provide improved access response time when users in a branch office access content stored on Storage Virtual Machines (SVMs) using SMB.

If you configure BranchCache, Windows BranchCache clients first retrieve content from the SVM and then cache the content on a computer within the branch office. If another BranchCache-enabled client in the branch office requests the same content, the SVM first authenticates and authorizes the requesting user. The SVM then determines whether the cached content is still up-to-date and, if it is, sends the client metadata about the cached content. The client then uses the metadata to retrieve content directly from the locally based cache.

The following table lists the CIFS BranchCache configuration.

Table 75) CIFS BranchCache Configuration.

Cluster Name	SVM Name	Versions	Hash Store Path	Hash Store Max Size	Server Key
none					

CIFS Local Users and Groups

You can create local users and groups on the Storage Virtual Machine (SVM). The CIFS server can use local users for CIFS authentication and can use both local users and groups for authorization when determining both share and file and directory access rights.

Local group members can be local users, domain users and groups, and domain machine accounts.

Local users and groups can also be assigned privileges. Privileges control access to SVM resources and can override the permissions that are set on objects. A user or member of a group that is assigned a privilege is granted the specific rights that the privilege allows.

Note: Note: Privileges do not provide ONTAP general administrative capabilities.

CIFS Local Users

A local user is a user account with a unique security identifier (SID) that has visibility only on the SVM on which it is created. Local user accounts have a set of attributes, including user name and SID. A local user account authenticates locally on the CIFS server using NTLM authentication.

The following table lists the CIFS local user accounts.

Table 76) CIFS Local Users.

Cluster Name	SVM Name	User Name	Full Name	Privileges	Account Disabled	Description
san-nas	TRITON	TRITON\administrator			False	Built-in account for administering the filer
san-nas	TRITON	TRITON\backup02			False	

CIFS Local Groups

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A local group is a group with a unique SID that has visibility only on the SVM on which it is created. Groups contain a set of members. Members can be local users, domain users, domain groups, and domain machine accounts.

The following table lists the CIFS local groups.

Table 77) CIFS Local Groups.

Cluster Name	SVM Name	Group Name	Privileges	Members	Description
san-nas	TRITON	BUILTIN\administrators		ALFM\Admins. del dominio TRITON\administrator TRITON\backup02	Members can fully administer the filer
san-nas	TRITON	BUILTIN\backup operators			Members can bypass file security to backup files
san-nas	TRITON	BUILTIN\guests		ALFM\Invitados de dominio	Users granted Guest Access
san-nas	TRITON	BUILTIN\power users			Members that can share directories
san-nas	TRITON	BUILTIN\users		ALFM\Usuarios del dominio	Ordinary Users
san-nas	TRITON	TRITON\compliance administrators			Members can perform compliance operations

CIFS Shares

A CIFS share is a named access point in a volume and/or namespace that enables CIFS clients to view, browse, and manipulate files on a SVM.

The following table contains the CIFS shares.

Table 78) CIFS Shares.

Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
san-nas	TRITON	admin$	/	browsable		-
san-nas	TRITON	Archivos_Siscom	/vol/DATA_GRANULAR/Q_Archivos_Siscom	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Arquitectura_Empresarial	/vol/DATA_GRANULAR/Q_Arquitectura_Empresarial	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
san-nas	TRITON	Auditoria_Catering_SGOL	/vol/DATA_GRANULAR/Q_Auditoria_Catering_SGOL	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	AUDITORIA_CGR_2024	/vol/DATA_GRANULAR/Q_AUDITORIA_CGR_2024	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Auditoria_Combustibles	/vol/DATA_GRANULAR/Q_Auditoria_Combustibles	browsable changenotify oplocks show_previous_versions	enable	elio.diaz:Full Control Everyone:Full Control
san-nas	TRITON	Auditoria_Gestion_Combustibles	/vol/DATA_GRANULAR/Q_Auditoria_Gestion_Combustibles	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Auditoria_Grupo_Gestion_Documental	/vol/DATA_GRANULAR/Q_Auditoria_Grupo_Gestion_Documental	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Auditoria_Nororiente	/vol/DATA_GRANULAR/Q_Auditoria_Nororiente	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Auditoria_R_Suroccidente_2024	/vol/DATA_GRANULAR/Q_Auditoria_R_Suroccidente_2024	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Auditoria_Reg_Antioquia_Choco	/vol/DATA_GRANULAR/Q_Auditoria_Reg_Antioquia_Choco	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	AUTODIAGNOSTICOS_MIPG	/vol/DATA_GRANULAR/Q_AUTODIAGNOSTICOS_MIPG	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Ayudas_Manejo_Modulo_Mantenimiento	/vol/DATA_GRANULAR/Q_Ayudas_Manejo_Modulo_Mantenimiento	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_Analaizer	/vol/DATA_GRANULAR/Backup_Analaizer	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_App_Informatica	/vol/DATA_GRANULAR/Q_Backup_App_Informatica	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_Appweb	/vol/DATA_GRANULAR/Q_Backup_Appweb	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_Buzones_Retirados	/vol/DATA_GRANULAR/Q_Backup_Buzones_Retirados	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_Mesa_Ayuda	/vol/DATA_GRANULAR/Q_Backup_Mesa_Ayuda	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_Nomina	/vol/DATA_GRANULAR/Q_Backup_Nomina	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_Portalweb	/vol/DATA_GRANULAR/Q_Backup_Portalweb	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	Backup_Proyectos_Infraestructura	/vol/DATA_USUARIO/Q_Backup_Proyectos_Infraestructura	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_PST	/vol/DATA_GRANULAR/Q_Backup_PST	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_TH	/vol/DATA_GRANULAR/Q_Backup_TH	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_Vicidial	/vol/DATA_GRANULAR/Q_Backup_Vicidial	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_VM	/vol/DATA_GRANULAR/Q_Backup_VM	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Backup_zimbra	/vol/DATA_GRANULAR/Q_Backup_zimbra	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Backups	/vol/DATA_GRANULAR/Q_Backups	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Bakcup_Intranet	/vol/DATA_GRANULAR/Q_Bakcup_Intranet	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	BCP_2024	/vol/DATA_GRANULAR/Q_BCP_2024	oplocks browsable	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				changenotify show_previous_versions		
san-nas	TRITON	BMC	/vol/DATA_GRANULAR/Q_BMC	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Buceo_Salvamento	/vol/DATA_GRANULAR/Q_Buceo_Salvamento	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	c$	/	oplocks browsable changenotify show_previous_versions	symlinks	Administrators:Full Control
san-nas	TRITON	Calidad_Doas	/vol/DATA_GRANULAR/Q_Calidad_doas	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Capacitación_Carrera	/vol/DATA_USUARIO/Q_Capacitación_Carrera	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Capacitacion_Tic	/vol/DATA_GRANULAR/Q_Capacitacion_Tic	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Carrera_Administrativa	/vol/DATA_GRANULAR/Q_Carrera_Administrativa	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
san-nas	TRITON	CHECKOUT	/vol/DATA_GRANULAR/CHECKOUT	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Cierre_Vigencia	/vol/DATA_GRANULAR/Q_Cierre_Vigencia	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Claudia_Rodriguez	/vol/DATA_USUARIO/Q_Claudia.Rodriguez	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Combustible	/vol/DATA_GRANULAR/Q_Combustible	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Comision_de_Personal	/vol/DATA_GRANULAR/Q_Comision_de_Personal	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Comite_convivencia_laboral	/vol/DATA_GRANULAR/Q_comite_convivencia_laboral	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Comite_Tic	/vol/DATA_GRANULAR/Q_Comite_Tic	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Contraloria	/vol/DATA_GRANULAR/Q_Contraloria	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
san-nas	TRITON	Contraloria2021	/vol/DATA_GRANULAR/Q_Contraloria2021	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Contraloria2022	/vol/DATA_GRANULAR/Q_Contraloria_2022	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Contraloria2023	/vol/DATA_GRANULAR/Q_contraloria_2023	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Contratos	/vol/DATA_GRANULAR/Q_Contratos	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Contratos_Archivo	/vol/DATA_GRANULAR/Q_Contratos_Archivo	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Contratos_Principal	/vol/DATA_GRANULAR/Q_Contratos_Principal	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Control_Politicas_Contables	/vol/DATA_GRANULAR/Q_Control_Politicas_Contables	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Correspondencia	/vol/DATA_GRANULAR/Q_Correspondencia	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	Cuentas_fiscales	/vol/DATA_GRANULAR/Q_Cuentas_fiscales	oplocks browsable changenotify show_previous_versions	symlinks	ALFM\cesar.rojas:Change Everyone:Full Control
san-nas	TRITON	Cuentas_Por_Pagar	/vol/DATA_GRANULAR/Q_Cuentas_Por_Pagar	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Daris_padilla	/vol/DATA_USUARIO/Q_Daris.padilla	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	DATA_GRANULAR	/vol/DATA_GRANULAR	browsable changenotify oplocks show_previous_versions	enable, read_only	Everyone:Full Control
san-nas	TRITON	DATA_USUARIO	/vol/DATA_USUARIO	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Desarrollo_Organizacional_y_Gestion_Integral	/vol/DATA_GRANULAR/Q_Desarrollo_Organizacional_y_Gestion_Integral	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Digitalizacion Direccion	/vol/DATA_GRANULAR/Q_Digitalizacion_Direccion	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Direccion Financiera	/vol/DATA_GRANULAR/Q_Direccion_Financiera	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
san-nas	TRITON	Dirección Infraestructura	/vol/DATA_GRANULAR/Q_Direccion_Infraestructura	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Direccion_Administrativa	/vol/DATA_GRANULAR/Q_Direccion_Administrativa	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Direccion_General	/vol/DATA_GRANULAR/Q_Direccion	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Direccion_Produccion	/vol/DATA_GRANULAR/Q_Direccion_Produccion	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Documentos_Oficina_tecnologia	/vol/DATA_GRANULAR/Q_Documentos_Oficina_tecnologia	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	EJECUCION Y SEGUIMIENTO	/vol/DATA_GRANULAR/EJECUCION Y SEGUIMIENTO	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Entrega_Direccion	/vol/DATA_GRANULAR/Q_Entrega_Direccion	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Erradicadores	/vol/DATA_GRANULAR/Q_Erradicadores	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Estadarizacion_Equipos	/vol/DATA_GRANULAR/Q_Estadarizacion_equipos	oplocks browsable	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				changenotify show_previous_versions		
san-nas	TRITON	Estado_Comedores	/vol/DATA_GRANULAR/Q_Estado_Comedores	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Evaluacion	/vol/DATA_GRANULAR/Q_Evaluacion	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Facturacion_CADS	/vol/DATA_GRANULAR/Q_Facturacion_CADS	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Fichas_Tecnicas_Producto	/vol/DATA_GRANULAR/Q_Fichas_Tecnicas_Producto	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Firma_Acrobat	/vol/DATA_GRANULAR/Q_Firma_Acrobat	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Fondo_pantalla	/vol/DATA_GRANULAR/Q_Fondo_pantalla	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Fotos_Regionales	/vol/DATA_GRANULAR/Q_Fotos_Regionales	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
san-nas	TRITON	Funcion_Publica	/vol/DATA_GRANULAR/Q_Funcion_Publica	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	German_Palencia	/vol/DATA_USUARIO/Q_German_Palencia	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Grabaciones	/vol/DATA_GRANULAR/Q_Grabaciones	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Grupo_Contabilidad_V2	/vol/DATA_GRANULAR/Q_Grupo_Contabilidad_V2	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Historias_Laborales	/vol/DATA_GRANULAR/Q_Historias_Laborales	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Historias_Laborales_Fondos_Rotatorios	/vol/DATA_GRANULAR/Q_Historias_Laborales_Fondos_Rotatorios	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Informacion	/vol/DATA_GRANULAR/Q_Informacion	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Información_Presupuestal_OCI	/vol/DATA_GRANULAR/Q_Información_Presupuestal_OCI	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	Información_Transitoria	/vol/DATA_GRANULAR/Q_Presentaciones	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Informacion_transitoria_2024	/vol/DATA_GRANULAR/Q_Informacion_transitoria_2024	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Infraestructura	/vol/DATA_GRANULAR/Q_Infraestructura	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Instaladores	/vol/DATA_GRANULAR/Q_Instaladores	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	ipc$	/	browsable		-
san-nas	TRITON	Jenifer_Castaneda	/vol/DATA_GRANULAR/Q_Jenifer_Castaneda	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Licenciamiento	/vol/DATA_GRANULAR/Q_Licenciamiento	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Manual Interactivo	/vol/DATA_GRANULAR/Q_Planeacion/GESTIÓN DE INNOVACIÓN/2018_al_I_Semestre 2022/Backup Daniel/2021/PROFESIONAL DE DEFENSA 3-1-14 DANIEL BONILLA/2021/Proyectos/Pla	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
			n Conocimiento/Manual Interactivo			
san-nas	TRITON	Manuales_SAP	/vol/DATA_GRANULAR/Q_Manuales_SAP	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Manuales_Usuario_SAP	/vol/DATA_GRANULAR/Q_Manuales_Usuario_SAP	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	MARKETING	/vol/DATA_GRANULAR/Q_MARKETING	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Matriz_Activos_ALFM	/vol/DATA_GRANULAR/Q_matriz_activos_alfm	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Mesa_de_Trabajo_Teletrabajo	/vol/DATA_GRANULAR/Q_Mesa_de_Trabajo_Teletrabajo	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Modernizacion	/vol/DATA_GRANULAR/Q_Modernizacion	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Novasoft	/vol/DATA_GRANULAR/Q_Novasoft	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Nydia_Lizarralde	/vol/DATA_USUARIO/Q_Francelina_Riveros	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	ODIN	/vol/DATA_GRANULAR/Disco_G/ODIN	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina Talento Humano	/vol/DATA_GRANULAR/Q_Oficina_Administrativa	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Abastecimientos	/vol/DATA_GRANULAR/Q_Oficina_Abastecimientos	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Atencion_Ciudadana	/vol/DATA_GRANULAR/Q_Oficina_Atencion_Ciudadana	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Contratacion	/vol/DATA_GRANULAR/Q_Oficina_Contratacion	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Control_Interno	/vol/DATA_GRANULAR/Q_Oficina_Control_Interno	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Control_Interno_Disciplinario	/vol/DATA_GRANULAR/Q_Oficina_Control_Interno_Disciplinario	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Direccion_General	/vol/DATA_GRANULAR/Q_Oficina_Direccion_General	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	Oficina_DOAS	/vol/DATA_GRANULAR/Q_Oficina_DOAS	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Financiera	/vol/DATA_GRANULAR/Q_Oficina_Financiera	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Infraestructura	/vol/DATA_GRANULAR/Q_Oficina_Infraestructura	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Juridica	/vol/DATA_GRANULAR/Q_Oficina_Juridica	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Operaciones_Logisticas	/vol/DATA_GRANULAR/Q_Oficina_Operaciones_Logisticas	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Planeacion	/vol/DATA_GRANULAR/Q_Oficina_Planeacion	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_Secretaria_General	/vol/DATA_GRANULAR/Q_Oficina_Secretaria_General	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Oficina_TIC	/vol/DATA_GRANULAR/Q_Oficina_TIC	oplocks browsable	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				changenotify show_previous_versions		
san-nas	TRITON	Piloto_Teletrabajo	/vol/DATA_GRANULAR/Q_Piloto_Teletrabajo	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Piso_4	/vol/DATA_GRANULAR/Q_Piso_4	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Planeacion	/vol/DATA_GRANULAR/Q_Planeacion	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	PLANTA TELEFONICA BIOMETRIA	/vol/DATA_GRANULAR/PLANTA TELEFONICA BIOMETRIA	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	PLAPRE	/vol/DATA_GRANULAR/Q_PLAPRE	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	PNID	/vol/DATA_GRANULAR/Q_PNID	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Portafolios_Caja_Compensacion_Familiar	/vol/DATA_GRANULAR/Q_Portafolios_Caja_Compensacion_Familiar	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Presupuesto	/vol/DATA_GRANULAR/Q_Presupuesto	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	Proyecto_DATH_2024	/vol/DATA_GRANULAR/Q_Proyecto_DATH_2024	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Proyecto_ERP	/vol/DATA_GRANULAR/Proyecto_ERP	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Proyecto_Inversion_Gestion_Documental	/vol/DATA_GRANULAR/Q_Proyecto_Inversion_Gestion_Documental	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Proyecto_Migracion_IPV6	/vol/DATA_GRANULAR/Q_proyecto_Migracion_IPV6	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Proyecto_TVD	/vol/DATA_GRANULAR/Q_Proyecto_TVD	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Q_Socializacion_Guia_Backups	/vol/DATA_GRANULAR/Q_Socializacion_Guia_Backups	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Amazonia	/vol/DATA_GRANULAR/Q_R_Amazonia	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Antioquia_Choco	/vol/DATA_GRANULAR/Q_R_Antioquia_Choco	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	R_Caribe	/vol/DATA_GRANULAR/Q_R_Caribe	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Centro	/vol/DATA_GRANULAR/Q_R_Centro	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Llanos_Orientales	/vol/DATA_GRANULAR/Q_R_Llanos_Orientales	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Nororiente	/vol/DATA_GRANULAR/Q_R_Nororiente	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Norte	/vol/DATA_GRANULAR/Q_R_Norte	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Pacifico	/vol/DATA_GRANULAR/Q_R_Pacifico	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Sur	/vol/DATA_GRANULAR/Q_R_Sur	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	R_Suroccidente	/vol/DATA_GRANULAR/Q_R_Suroccidente	oplocks browsable	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				changenotify show_previous_versions		
san-nas	TRITON	R_Tolima	/vol/DATA_GRANULAR/Q_R_Tolima	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Recopilacion_general	/vol/DATA_GRANULAR/Q_Recopilacion_general	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Redes ALFM	/vol/DATA_GRANULAR/Q_RED_ALFM	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Regional_Antioquia_Choco	/vol/DATA_USUARIO/Q_Regional_Antioquia_Choco	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Regional_Suroccidente	/vol/DATA_GRANULAR/Q_Regional_Suroccidente	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Regionales	/vol/DATA_USUARIO/Q_Regionales	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Repositorio_Orfeo	/vol/DATA_GRANULAR/Q_Repositorio_Orfeo	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
san-nas	TRITON	Respaldo	/vol/DATA_GRANULAR/Q_Respaldo	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Roberto_Velasquez	/vol/DATA_USUARIO/Q_Roberto_Velasquez	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Secreatria_General	/vol/DATA_GRANULAR/Q_Secreatria_General	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	SEGUIMIENTO_CADS_NACIONAL	/vol/DATA_GRANULAR/Q_SEGUIMIENTO_CADS_NACIONAL	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Seguimiento_PAA_Contratos	/vol/DATA_GRANULAR/Q_Seguimiento_PAA_Contratos	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Seguimiento_Revisión_inspecciones_realizadas	/vol/DATA_GRANULAR/Q_Seguimiento_Revisión_inspecciones_realizadas	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	SGAS	/vol/DATA_GRANULAR/Q_SGAS	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	SGOL	/vol/DATA_GRANULAR/Q_SGOL	oplocks browsable changenotify	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				show_previous_versions		
san-nas	TRITON	SST	/vol/DATA_GRANULAR/Q_SST	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	SST_CO	/vol/DATA_GRANULAR/Q_SST_CO	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	SST2023	/vol/DATA_GRANULAR/Q_SST2023	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Tecnologia	/vol/DATA_GRANULAR/Q_Tecnologia	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Temporal_Centro	/vol/DATA_GRANULAR/Q_Temporal_Centro	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Temporal_seguridad	/vol/DATA_GRANULAR/Q_Temporal	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	TI_Seguridad	/vol/DATA_GRANULAR/Q_TI_Seguridad	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Tramites_de_Pago_BMC	/vol/DATA_GRANULAR/Q_Tramites_de_Pago_BMC	oplocks browsable	symlinks	Everyone:Full Control

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Cluster Name	SVM Name	Share Name	Path	Share Properties	Symlink Properties	Share ACL
				changenotify show_previous_versions		
san-nas	TRITON	Transparencia	/vol/DATA_GRANULAR/Q_Transparencia	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Unidos_Somos_Mas	/vol/DATA_GRANULAR/Q_Unidos_Somos_Mas	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Video_Elecciones	/vol/DATA_GRANULAR/Q_Video_Elecciones	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Video_TI	/vol/DATA_GRANULAR/Q_Video_TI	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	Visitas_Regionales	/vol/DATA_GRANULAR/Q_Visitas_Regionales	oplocks browsable changenotify show_previous_versions	symlinks	Everyone:Full Control
san-nas	TRITON	VITUALLA	/vol/DATA_GRANULAR/VITUALLA	browsable oplocks changenotify	symlinks	Everyone:Full Control
san-nas	TRITON	Volumen_temporal	/vol/Volumen_temporal	browsable changenotify oplocks	enable, read_only	Everyone:Full Control

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CIFS Home Directory Search Paths

ONTAP home directories enable you to configure an SMB share that maps to different directories based on the user that connects to it and a set of variables. Instead of having to create separate shares for each user, you can configure a single share with a few home directory parameters to define a user's relationship between an entry point (the share) and their home directory (a directory on the Storage Virtual Machine (SVM)).

The home directory search paths are a set of absolute paths from the root of the SVM that you specify that directs the ONTAP search for home directories. You specify one or more search paths by using the `vserver cifs home-directory search-path add` command. If you specify multiple search paths, ONTAP tries them in the order specified until it finds a valid path.

The following table lists the CIFS home directory search paths.

Table 79) CIFS Home Directory Search Paths.

Cluster Name	SVM Name	Position	Path
san-nas	TRITON	1	/
san-nas	TRITON	2	/vol/DATA_GRANULAR/Q_PLAPRE

Vscan Configuration

You can configure virus scanning on an external server to protect files and data stored in a system running ONTAP. You must configure scanner pools to define the external virus scanning servers and on-access policies to scan files for viruses when they are accessed by a user (on-access scanning).

You must also configure the Vscan file-operations profile parameter to specify which action on the CIFS share can trigger virus scanning before you enable virus scanning on a Storage Virtual Machine (SVM).

Note: You must have completed the CIFS configuration before you configure virus scanning.

To ensure that files on the storage system are scanned and cleaned, you must configure the virus scanning across a cluster or an SVM. You must also understand the process of virus scanning and the components that are required for the antivirus setup.

Virus scanning is not supported on SVMs with Infinite Volume. Virus scanning is supported only on SVMs with FlexVol volumes.

Vscan On-Access Policies

On-access policy defines the scope of scanning of files when accessed by a client. You can specify the maximum size of the file, which must be considered for virus scanning, and file extensions and paths to be excluded from scanning. You can also choose one or more filters from the available set of filters to define the scope of scanning.

The following are the list of available filters:

- scan-mandatory: Enables mandatory scan. File access will be denied if there are no external virus-scanning servers available for virus scanning.
- scan-ro-volume: Enables scan also for read-only volume.
- scan-execute-access: Scans only files opened with execute-access (CIFS only).

  Files opened with execute-access (open with execute intent) is different from execute permission on the file.

You can also choose not to use any of the filters by setting this parameter to "-". This will cause file accesses to be allowed even if the files are not scanned. Also, only read/write volumes are considered for scanning.

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The following table lists the Vscan on-access policies.

Table 80) Vscan On-Access Policies.

Cluster Name	SVM Name	Vscan Enabled	Policy Name	Policy Enabled	Policy Owner	Protocol	Filters
san-nas	HELIOS	False	default_CIFS	True	cluster	cifs	
san-nas	san-nas		default_CIFS	False	cluster	cifs	
san-nas	TRITON	False	default_CIFS	True	cluster	cifs	

Vscan Scanner Pools

A scanner pool is used to validate and manage the connection between the Vscan servers and the Storage Virtual Machine (SVM). You can create a scanner pool for an SVM and define the list of Vscan servers and privileged users that can access and connect to that SVM. You can also specify the scan request and scan response timeout period. If the scan response to a scan request is not received within this timeout period, then the scan request is sent to an alternative Vscan server, if available.

The following table lists the Vscan scanner pools.

Table 81) Vscan Scanner Pools.

Cluster Name	SVM Name	Scanner Pool	Applied Policy	Currently Active	Pool Owner	Vscan Servers	Privileged Users
none							

FPolicy Configuration

FPolicy is a file access notification framework that is used to monitor and manage file access events on SVMs with FlexVol volumes.

The framework generates notifications that are sent to either external FPolicy servers or to ONTAP. FPolicy supports event notifications for files and directories that are accessed using NFS and CIFS.

Note: FPolicy is not supported on SVMs with Infinite Volumes.

FPolicy External Engine

FPolicy configurations that use external FPolicy servers to process and manage notifications provide robust solutions for use cases where more than simple file blocking based on file extension is needed.

You should create a configuration that uses external FPolicy servers when you want to do such things as monitor and record file access events, provide quota services, perform file blocking based on criteria other than simple file extensions, provide data migration services using hierarchical storage management applications, or provide a fine-grained set of policies that monitor only a subset of data in the SVM.

The following table lists the FPolicy external engines.

Table 82) FPolicy External Engine.

Cluster Name	SVM Name	Engine Name	Primary Servers	Secondary Servers	Port	Engine Type
none						

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FPolicy Event Configuration

Creating the FPolicy event means defining information that the FPolicy Service Manager (FSM) process needs to determine what file access operations to monitor and for which of the monitored events notifications should be sent to the external FPolicy server.

The following table lists the FPolicy event configuration.

Table 83) FPolicy Event Configuration.

Cluster Name	SVM Name	Event Name	Protocols	File Operations	Filters	Volume Operation
none						

FPolicy Policy Configuration

Creating the FPolicy policy means associating a SVM, an FPolicy event, and an external engine to an FPolicy policy.

The following table lists the FPolicy policy configuration.

Table 84) FPolicy Policy Configuration.

Cluster Name	SVM Name	Policy Name	Events	Engine Name	Mandatory	Privileged Access
none						

FPolicy Scope Configuration

Creating the FPolicy scope means defining the boundaries on which the FPolicy policy applies. The SVM is the basic boundary. When you create a scope for an FPolicy policy, you must define the FPolicy policy to which it will apply, and you must designate to which SVM you want to apply the scope. There are a number of parameters that further restrict the scope within the specified SVM. You can restrict the scope by specifying what to include in the scope, or you can restrict the scope by specifying what to exclude from the scope. After you apply a scope to an enabled policy, policy event checks get applied to the scope defined by this command.

Notifications are generated for file access events where matches are found in the "include" options. Notifications are not generated for file access events where matches are found in the "exclude" options.

The following table lists the FPolicy scope configuration.

Table 85) FPolicy Scope Configuration.

Cluster Name	SVM Name	Policy Name	File Extensions to Exclude	File Extensions to Include
none				

SAN

Storage Area Network (SAN) is a term used to describe a purpose built storage controller that provides block based data access. ONTAP supports traditional Fibre Channel (FC) as well as Internet SCSI (iSCSI) and Fibre Channel over Ethernet (FCoE) within a unified architecture.

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Initiator Groups

Initiator groups (igroups) are tables of FC protocol host WWPNs or iSCSI host node names. You can define igroups and map them to LUNs to control which initiators have access to LUNs.

Typically, you want all of the host's initiator ports or software initiators to have access to a LUN. If you are using multipathing software or have clustered hosts, each initiator port or software initiator of each clustered host needs redundant paths to the same LUN.

You can create igroups that specify which initiators have access to the LUNs either before or after you create LUNs, but you must create igroups before you can map a LUN to an igroup.

Initiator groups can have multiple initiators, and multiple igroups can have the same initiator. However, you cannot map a LUN to multiple igroups that have the same initiator. An initiator cannot be a member of igroups of differing ostypes.

The following table lists the igroups that have been created.

Table 86) Initiator Groups.

Cluster Name	SVM Name	Initiator Group Name	Protocol	OS Type	ALUA	Initiators Logged In
san-nas	HELIOS	30-D0-42-FE-A3-5D	iscsi	windows	True	-
san-nas	HELIOS	ASPRD_P13	fcp	aix	True	none
san-nas	HELIOS	DBPRDERP_P13	fcp	aix	True	none
san-nas	HELIOS	DBPRDERP_TEMP	fcp	aix	True	none
san-nas	HELIOS	DEV_SAP	fcp	aix	True	-
san-nas	HELIOS	DEVERP_P14	fcp	aix	True	none
san-nas	HELIOS	ESX01	fcp	vmware	True	full
san-nas	HELIOS	ESX02	fcp	vmware	True	full
san-nas	HELIOS	ICPRDERP_P14	fcp	aix	True	none
san-nas	HELIOS	ICPRDERP_TEMP	fcp	aix	True	none
san-nas	HELIOS	MAGNO_iSCSI	iscsi	windows	True	none
san-nas	HELIOS	ORFEO	fcp	linux	True	partial
san-nas	HELIOS	QASERP_P13	fcp	aix	True	full
san-nas	HELIOS	QASERP_TEMP	fcp	aix	True	none
san-nas	HELIOS	RMAN_P14	fcp	aix	True	none
san-nas	HELIOS	SOLMAN_P14	fcp	aix	True	none
san-nas	HELIOS	SOLMAN_PRUEBAS	fcp	aix	True	none
san-nas	HELIOS	VIOS1_P13	fcp	aix	True	full
san-nas	HELIOS	VIOS1_P14	fcp	aix	True	none

Portset Configuration

Portsets are used to limit which LIFs can be used by an initiator to access a LUN.

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The following table lists the portset configuration.

Table 87) Portset Configuration.

Cluster Name	SVM Name	Portset Name	Type	Port Total	Portset Port Names	Initiator Groups
san-nas	HELIOS	alfm	fcp	4	san_n01_0c, san_n01_0d, san_n02_0c, san_n02_0d	ASPRD_P13 DBPRDERP_P13 DBPRDERP_TEMP DEV_SAP DEVERP_P14 ESX01 ESX02 ICPRDERP_P14 ICPRDERP_TEMP ORFEO QASERP_P13 QASERP_TEMP RMAN_P14 SOLMAN_P14 SOLMAN_PRUEBAS VIOS1_P13 VIOS1_P14

FCP / FCoE

Considerations for FC configurations:

- You can set up your FC configuration with single nodes or HA pairs using a single fabric or multifabric.

  Multiple hosts, using different operating systems, such as Windows, Linux, or UNIX, can access the storage solution at the same time.

  Hosts require that a supported multipathing solution be installed and configured. Supported operating systems and multipathing solutions can be verified on the Interoperability Matrix.
- ONTAP dual or multiple node solutions can be connected to multiple, physically independent storage fabrics, a minimum of two are recommended for SAN solutions.

  This provides redundancy at the fabric and storage system layers. Redundancy is particularly important because these layers typically support many hosts.
- The use of heterogeneous FC switch fabrics is not supported, except in the case of embedded blade switches.

  Specific exceptions are listed on the Interoperability Matrix.
- Cascade, mesh, and core-edge fabrics are all industry-standard methods of connecting FC switches to a fabric, and all are supported.

  A fabric can consist of one or multiple switches, and the storage controllers can be connected to multiple switches.

Ways to configure FCoE:

FCoE can be configured in various ways using FCoE switches. Direct-attached configurations are not supported in FCoE.

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All FCoE configurations are dual-fabric, fully redundant, and require host-side multipathing software. In all FCoE configurations, you can have multiple FCoE and FC switches in the path between the initiator and target, up to the maximum hop count limit. To connect switches to each other, the switches must run a firmware version that supports Ethernet ISLs. Each host in any FCoE configuration can be configured with a different operating system.

FCoE configurations require Ethernet switches that explicitly support FCoE features. FCoE configurations are validated through the same interoperability and quality assurance process as FC switches. Supported configurations are listed in the Interoperability Matrix. Some of the parameters included in these supported configurations are the switch model, the number of switches that can be deployed in a single fabric, and the supported switch firmware version.

The FC target expansion adapter port numbers in the illustrations are examples. The actual port numbers might vary, depending on the expansion slots in which the FCoE target expansion adapters are installed.

FCP Service Configuration

FC is a licensed service on the storage system that enables you to export LUNs and transfer block data to hosts using the SCSI protocol over a Fibre Channel fabric.

The following table shows the FCP service configuration details.

Table 88) FCP Service Configuration.

Cluster Name	SVM Name	Node Name	Available
san-nas	HELIOS	20:01:00:a0:98:b5:24:52	True

FCP Adapter Configuration

You can use storage controller onboard FC ports as both initiators and targets. You can also add storage controller FC ports on expansion adapters and use them as initiators or targets, depending on the type of expansion adapter installed.

The following table shows the details of the storage controller target ports and the WWPN address of each.

Table 89) FCP Adapter Configuration.

Node Name	Adapter Name	State	Data Link Rate	Media Type	Speed	Port Name
san-nas-01	0c	online	16	ptp	auto	50:0a:09:83:80:23:6a:1e
san-nas-01	0d	online	16	ptp	auto	50:0a:09:84:80:23:6a:1e
san-nas-01	0e	link not connected	0	ptp	auto	50:0a:09:81:80:23:6a:1e
san-nas-01	0f	link not connected	0	ptp	auto	50:0a:09:82:80:23:6a:1e
san-nas-02	0c	online	16	ptp	auto	50:0a:09:83:80:33:69:8b

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Node Name	Adapter Name	State	Data Link Rate	Media Type	Speed	Port Name
san-nas-02	0d	online	16	ptp	auto	50:0a:09:84:80:33:69:8b
san-nas-02	0e	link not connected	0	ptp	auto	50:0a:09:81:80:33:69:8b
san-nas-02	0f	link not connected	0	ptp	auto	50:0a:09:82:80:33:69:8b

iSCSI

Considerations for iSCSI configurations:

- You can set up your iSCSI configuration with single nodes or with HA pairs.

  Selective LUN mapping (SLM) limits the paths that are being utilized in accessing the LUNs owned by an HA pair.

  This is the default behavior for LUNs created with Data ONTAP 8.3 or later and ONTAP 9 releases.
- HA pairs are defined as the reporting nodes for the Active/Optimized and the Active/Unoptimized paths that will be used by the host in accessing the LUNs through ALUA.
- You need to create one or more iSCSI paths from each node in an HA pair, using logical interfaces (LIFs) to allow access to LUNs that are serviced by the HA pair.

  If a node fails, LIFs do not migrate or assume the IP addresses of the failed partner node. Instead, the MPIO software, using ALUA on the host, is responsible for selecting the appropriate paths for LUN access through LIFs.
- VLANs offer specific benefits, such as increased security and improved network reliability that you might want to leverage in iSCSI.

iSCSI Service Configuration

iSCSI configurations are per SVM and consist of node names, status and alias. The default SVM iSCSI node name is not human friendly and should either be changed or an alias created to assist in administration, which should be performed at the time of the iSCSI service creation.

The following table shows the iSCSI service configuration details.

Table 90) iSCSI Service Configuration.

Cluster Name	SVM Name	iSCSI Node Name	Available	Alias Name
san-nas	HELIOS	iqn.1992-08.com.netapp:sn.03d01635c58311e7a20200a098b52444:vs.5	True	HELIOS

iSCSI Target Portal Groups

A target portal group is a set of one or more SVM LIFs that can be used for an iSCSI session between an initiator and a target. A target portal group is identified by a name and a numeric tag.

If you want to have multiple connections per session across more than one interface for performance and reliability reasons, then you must use target portal groups.

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The following table lists the iSCSI target portal groups.

Table 91) iSCSI Target Portal Groups.

Cluster Name	SVM Name	Target Portal Group	Tag	Interface List Entries	User Defined
none					

NVMe

The nonvolatile memory express (NVMe) protocol is a transport protocol used for accessing nonvolatile storage media.

NVMe over Fabrics (NVMeoF) is a specification-defined extension to NVMe that enables NVMe-based communication over connections other than PCIe. This interface allows for external storage enclosures to be connected to a server.

NVMe is designed to provide efficient access to storage devices built with non-volatile memory, from flash technology to higher performing, persistent memory technologies. As such, it does not have the same limitations as storage protocols designed for hard disk drives. Flash and solid state devices (SSDs) are a type of non-volatile memory (NVM). NVM is a type of memory that keeps its content during a power outage. NVMe is a way that you can access that memory.

The benefits of NVMe include increased speeds, productivity, throughput, and capacity for data transfer. Specific characteristics include the following:

- NVMe is designed to have up to 64 thousand queues.

  Each queue in turn can have up to 64 thousand concurrent commands.
- NVMe is supported by multiple hardware and software vendors
- NVMe is more productive with Flash technologies enabling faster response times
- NVMe allows for multiple data requests for each "request" sent to the SSD.
- NVMe takes less time to decode a "request" and does not require thread locking in a multithreaded program.

NVMe Service Configuration

The NVMe service enables you to manage NVMe adapters for use with namespaces. You can use System Manager to start the NVMe service to bring the adapters online. You can stop the NVMe service to take the NVMe adapters offline and to disable access to the namespaces.

The following table shows the NVMe service configuration details.

Table 92) NVMe Service Configuration.

Cluster Name	SVM Name	Available
none		

NVMe Namespaces

An NVMe namespace is a quantity of non-volatile memory (NVM) that can be formatted into logical blocks. Namespaces are used when a storage virtual machine is configured with the NVMe protocol.

One or more namespaces are provisioned and connected to an NVMe host. Each namespace can support various block sizes.

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The NVMe protocol provides access to namespaces through multiple controllers. Using NVMe drivers, which are supported on most operating systems, solid state drive (SSD) namespaces appear as standard-block devices on which file systems and applications can be deployed without any modification.

A namespace ID (NSID) is an identifier used by a controller to provide access to a namespace. When setting the NSID for a host or host group, you also configure the accessibility to a volume by a host. A logical block can only be mapped to a single host group at a time, and a given host group does not have any duplicate NSIDs.

The following table lists the NVMe namespaces.

Table 93) NVMe Namespaces.

Cluster Name	SVM Name	Namespace Path	Namespace ID	State	Subsystem	Size
none						

NVMe Subsystems

When you create an NVMe namespace, you can associate this with a nonvolatile memory (NVM) subsystem. The subsystem includes one or more NVMe controllers, namespaces, NVM subsystem ports, an NVM storage medium and an interface between the controlller and the NVM storage medium.

You provision a subsystem by providing the following details:

- The subsystem name

  The subsystem name is case sensitive. It must contain 1-64 characters and special characters are allowed.
- Host OS

  The host OS type that the subsystem is being created on.
- Host NQN

  The host NVMe qualification name attached to the controller. This column can be a comma separated value as there can be one to many hosts attached to a subsystem.

The following table lists the NVMe subsystems.

Table 94) NVMe Subsystems.

Cluster Name	SVM Name	Subsystem	Target NQN
none			

Storage QOS

Storage QoS (Quality of Service) can help you manage risks around meeting your performance objectives. You use Storage QoS to limit the throughput to workloads and to monitor workload performance. You can reactively limit workloads to address performance problems and you can pro-actively limit workloads to prevent performance problems.

A workload represents the input/output (I/O) operations to one of the following kinds of storage objects:

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- FlexVol volumes
- LUNs

You assign a storage object to a policy group to control and monitor a workload. You can monitor workloads without controlling them.

Policy Groups

A policy group is comprised of one or more workloads and a performance limit that applies collectively to all workloads in the policy group. There are two types of policy groups:

- User-defined policy group

  Enforces a maximum throughput limit on the storage objects that belong to the policy group by throttling input/output (I/O) requests.
- System-defined policy group

  Manages internal work that the cluster performs.

You can view performance data for both types of policy groups. The names of system-defined policy groups start with an underscore.

The following table lists the user-defined policy groups.

Table 95) Storage QOS Policy Groups.

Cluster Name	SVM Name	Policy Group Name	Group ID	Class	Max Throughput
none					

Workloads

A workload represents work that the cluster performs. There are two types of workloads:

- User-defined workload

Represents the input/output (I/O) operations from clients to a storage object that belongs to a policy group. A storage object is one of the following:

  - A SVM with FlexVol volumes
  - A FlexVol volume
  - A LUN
  - A file (typically represents a virtual machine)

  I/O to storage objects that are not assigned to policy groups belongs to the "User-Default" workload.
- System-defined workload

  Represents internal work that the cluster performs. Storage QoS controls specific system operations to prevent them from interfering with client operations. Examples include storage efficiency operations and data replication operations.

You can view performance data for both types of workloads. The names of system-defined workloads start with an underscore.

The following table lists the user-defined workloads.

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Table 96) Storage QOS Workloads.

Cluster Name	Workload Name	Policy Group	Vserver	Volume	Qtree	Lun	File
none							

Data Protection

SnapMirror is disaster recovery technology, designed for failover from primary storage to secondary storage at a geographically remote site. As its name implies, SnapMirror creates a replica, or mirror, of your working data in secondary storage from which you can continue to serve data in the event of a catastrophe at the primary site.

Data is mirrored at the volume level. The relationship between the source volume in primary storage and the destination volume in secondary storage is called a data protection relationship. The clusters in which the volumes reside and the SVMs that serve data from the volumes must be peered. A peer relationship enables clusters and SVMs to exchange data securely.

Note: You can also create a data protection relationship between SVMs. In this type of SVM disaster recovery relationship, the SVM's configuration, from NFS exports and SMB shares to RBAC, is mirrored, as well as the data in the volumes the SVM owns.

The first time you invoke SnapMirror, it performs a baseline transfer from the source volume to the destination volume. The baseline transfer typically involves the following steps:

- Make a Snapshot copy of the source volume.
- Transfer the Snapshot copy and all the data blocks it references to the destination volume.
- Transfer the remaining, less recent Snapshot copies on the source volume to the destination volume for use in case the "active" mirror is corrupted.

Once a baseline transfer is complete, SnapMirror transfers only new Snapshot copies to the mirror. Updates are asynchronous, following the schedule you configure. Retention mirrors the Snapshot policy on the source. You can activate the destination volume with minimal disruption in case of a disaster at the primary site, and reactivate the source volume when service is restored.

Because SnapMirror transfers only Snapshot copies after the baseline is created, replication is fast and nondisruptive. As the failover use case implies, the controllers on the secondary system should be equivalent or nearly equivalent to the controllers on the primary system to serve data efficiently from mirrored storage.

You can also use SnapMirror to replicate data between endpoints in the NetApp data fabric. You can choose between one-time replication or recurring replication when you create the SnapMirror policy.

Cluster Peer Relationships

You can create data protection mirroring relationships from one cluster to another and you can manage the jobs on a remote cluster from another cluster if you have cluster peer relationships.

The following table lists the cluster peer relationships.

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Table 97) Cluster Peer Relationships.

Cluster Name	Peer Cluster Name	Peer Addresses	Availability
san-nas	san-nas-dr	10.16.7.20, 10.16.7.21	unavailable

SVM Peer Relationships

A cluster administrator can create and manage data protection mirroring relationships between two SVMs either existing within a cluster (intracluster) or in the peered clusters (intercluster) to provide an infrastructure for peering applications, such as SnapMirror.

Peered clusters and peered SVMs can be managed either by the same cluster administrator or different cluster administrators.

An SVM administrator can perform only the following SVM peer management tasks:

- Viewing SVM peer relationships to identify the peered SVMs
- Setting up SnapMirror relationships, such as a data protection relationship (DP), SnapVault relationship (XDP), and transition relationship (TDP), between volumes of the peered SVMs

Note: SVM peer relationships are only available in Data ONTAP 8.2 or later.

The following table lists the SVM peer relationships.

Table 98) SVM Peer Relationships.

Cluster Name	SVM Name	Peer Cluster Name	Peer SVM Name	Peering State	Applications
san-nas	HELIOS	san-nas-dr	HELIOS_DRP	peered	snapmirror

Transition Data Protection Mirrors

Transition data protection (TDP) relationships are volume SnapMirror relationships that are established between a 7-Mode system and a ONTAP system.

Transition data protection is supported only for transition. You should not keep this relationship for long periods of time because it is not possible to resynchronize data from a ONTAP volume back to a 7-Mode volume.

The following table lists the transition data protection mirrors configured on the storage systems.

Table 99) Transition Data Protection Mirrors.

Source Location	Destination Location	Mirror State	Schedule	SnapMirror Policy	Max Transfer Rate
10.16.3.160:Vol_Orfeo	HELIOS:Vol_Orfeo_0	snapmirrored		DPDefault	unlimited

Data Protection Mirrors

You can create a data protection (DP) mirror within a cluster to protect your data or, for greater disaster protection, you can create a data protection mirror to a different cluster in a different location.

A data protection mirror consists of a source volume that can fan out to one or more destination volumes. Each data protection mirror relationship is independent from the other.

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You can create data protection mirrors on the same aggregate as the source volume and on the same SVM or on a different SVM. For greater protection, you can create the data protection mirror on a different aggregate to recover from the failure of the source volume's aggregate and the same SVM is required to fail over from the source volume. Neither of these two configurations protects against a cluster failure. To protect against a cluster failure, you can create a data protection mirror relationship between two clusters.

For greater data protection, you can create a data protection mirror relationship between two clusters, in which the source volume is on one cluster and the destination volume is on the other. If the cluster on which the primary volume resides experiences a disaster, you can direct user clients to the destination volume on the cluster peer until the source volume is available again.

A data protection mirror can be used for limited disaster recovery, off-loading tape backup, data distribution, and making offline copies of production data for research, such as data mining.

The following table lists the data protection mirror relationships configured on the storage systems.

Table 100) Data Protection Mirrors.

Source Location	Destination Location	Mirror State	Schedule	SnapMirror Policy	Max Transfer Rate
none					

Extended Data Protection Mirrors

Extended data protection mirrors (XDP) provide storage-efficient and long-term retention of backups. They enable you to back up selected Snapshot copies of volumes to a destination volume that is specialized for quick backup and restore of its sources and retain the backups for as long as you need.

Note: Extended data protection mirrors are only available starting with Data ONTAP 8.2.

The following table lists the extended data protection mirror relationships configured on the storage systems.

Table 101) Extended Data Protection Mirrors.

Source Location	Destination Location	Mirror State	Schedule	SnapMirror Policy	Max Transfer Rate
none					

SVM Disaster Recovery

Data stored in a Storage Virtual Machine (SVM) is susceptible to disaster, either through hardware failure or environmental catastrophe on the cluster. You can protect the SVM data volumes and configuration by creating a mirror copy of the data volumes and configuration details on a destination SVM on the destination cluster.

You can create a SnapMirror relationship (also referred as SVM disaster recovery relationship) from the source SVM to the destination SVM to provide asynchronous disaster recovery. When you create a SnapMirror relationship, you can choose to replicate all or a subset of configuration (excluding network and protocol configuration) along with the data volumes, depending on the cluster setup.

When the source SVM is unavailable, the cluster administrator of the destination cluster can start the destination SVM to provide data access, with minimum disruption.

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When the source SVM is available, the cluster administrator of the source cluster can resynchronize the data and configuration from the destination SVM to serve data from the source SVM.

As the cluster administrator, you must configure the source and destination SVMs for disaster recovery and understand the tasks to manage the SVM disaster recovery relationships.

You cannot set up an SVM disaster recovery relationship for SVMs with Infinite Volumes.

You can use snapmirror commands to configure SVM disaster recovery and manage the SVM disaster recovery relationships. After the configuration is complete, the SnapMirror operations are executed only at the SVM level.

The following table lists the SVM DR data protection mirrors.

Table 102) SVM DR Data Protection Mirrors.

Source Location	Destination Location	Identity Preserve	Mirror State	Schedule	SnapMirror Policy	Max Transfer Rate
none						

NDMP

The Network Data Management Protocol (NDMP) is a standardized protocol for controlling backup, recovery, and other types of data transfer between primary and secondary storage devices, such as storage systems and tape libraries.

By enabling NDMP protocol support on a storage system, you enable that storage system to carry out communications with NDMP-enabled commercial network-attached backup applications, data servers, and tape servers participating in backup or recovery operations. NDMP also provides low-level control of tape drives and medium changers.

Starting with Data ONTAP 8.2, you can perform tape backup and restore operations in either node-scoped NDMP mode or SVM aware NDMP mode.

NDMP does not support backup and restore of Infinite Volumes.

NDMP Mode

Starting with Data ONTAP 8.2, you can choose to perform tape backup and restore operations either at the node level as you have been doing until now or at the Storage Virtual Machine (SVM) level. To perform these operations successfully at the SVM level, NDMP service must be enabled on the SVM.

If you upgrade from Data ONTAP 8.2 to Data ONTAP 8.3, the NDMP mode of operation used in 8.2 will continue to be retained post the upgrade from 8.2 to 8.3.

If you install a new cluster with Data ONTAP 8.2 or later, NDMP is in the SVM-scoped NDMP mode by default. To perform tape backup and restore operations in the node-scoped NDMP mode, you must explicitly enable the node-scoped NDMP mode.

The following table lists the NDMP mode.

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Table 103) NDMP Mode.

Cluster Name	NDMP Mode
san-nas	SVM aware

Node NDMP Settings

NDMP follows the node-scoped behavior when the cluster is in a mixed version state. In the nodescoped NDMP mode, you can perform tape backup and restore operations at a node level.

In the node-scoped NDMP mode, you must use NDMP specific credentials to access a storage system in order to perform tape backup and restore operations.

The default user ID is "root". Before using NDMP on a node, you must ensure that you change the default NDMP password associated with the NDMP user. You can also change the default NDMP user ID.

The following table lists the node level NDMP settings.

Table 104) Node NDMP Settings.

Cluster Name	Node Name	Service Enabled	Allow Clear Text Password	User ID
san-nas	san-nas-01	False	True	root
san-nas	san-nas-02	False	True	root

SVM NDMP Settings

Starting with Data ONTAP 8.2, you can perform tape backup and restore operations at a SVM level if the NDMP service is enabled on the SVM. You can back up and restore all volumes hosted across different nodes in a cluster of a SVM if the backup application supports the CAB extension.

You can add NDMP in the allowed or disallowed protocols list by using the `vserver modify` command. By default, NDMP is in the allowed protocols list. If NDMP is added to the disallowed protocols list, NDMP sessions cannot be established.

An NDMP control connection can be established on different LIF types. In a SVM aware NDMP mode, these LIFs belong to either the data SVM or admin SVM.

The following table lists the SVM level NDMP Settings.

Table 105) SVM NDMP Settings.

SVM Name	Service Enabled	Authentication Type	Preferred Interface Role
HELIOS	False	challenge	data, intercluster
san-nas	False	challenge	cluster-mgmt, intercluster, node-mgmt
TRITON	False	challenge	data, intercluster

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MetroCluster

NetApp MetroCluster software is a solution that combines array-based clustering with synchronous replication to deliver continuous availability and zero data loss at the lowest cost. Administration of the array-based cluster is simpler because the dependencies and complexity normally associated with host-based clustering are eliminated. MetroCluster immediately duplicates all your mission-critical data on a transaction-by-transaction basis, providing uninterrupted access to your applications and data. And unlike standard data replication solutions, MetroCluster works seamlessly with your host environment to provide continuous data availability while eliminating the need to create and maintain complicated failover scripts. With MetroCluster, you can:

- Protect against hardware, network, or site failure with transparent switchover
- Eliminate planned and unplanned downtime and change management
- Upgrade hardware and software without disrupting operations
- Deploy without complex scripting, application, or operating system dependencies
- Achieve continuous availability for VMware, Microsoft, Oracle, SAP, or any critical application

NetApp MetroCluster enhances the built-in high-availability (HA) and nondisruptive operations of NetApp hardware and ONTAP storage software, providing an additional layer of protection for the entire storage and host environment. Whether your environment is composed of standalone servers, HA server clusters, or virtualized servers, MetroCluster seamlessly maintains application availability in the face of a total storage outage. Such an outage could result from loss of power, cooling, or network connectivity; a storage array shutdown; or operational error.

MetroCluster is an array-based, active-active clustered solution that eliminates the need for complex failover scripts, server reboots, or application restarts. MetroCluster maintains its identity in the event of a failure and thus provides application transparency in switchover and switchback events. In fact, most MetroCluster customers report that their users experience no application interruption when a cluster recovery takes place. MetroCluster provides the utmost flexibility, integrating seamlessly into any environment with support for mixed protocols.

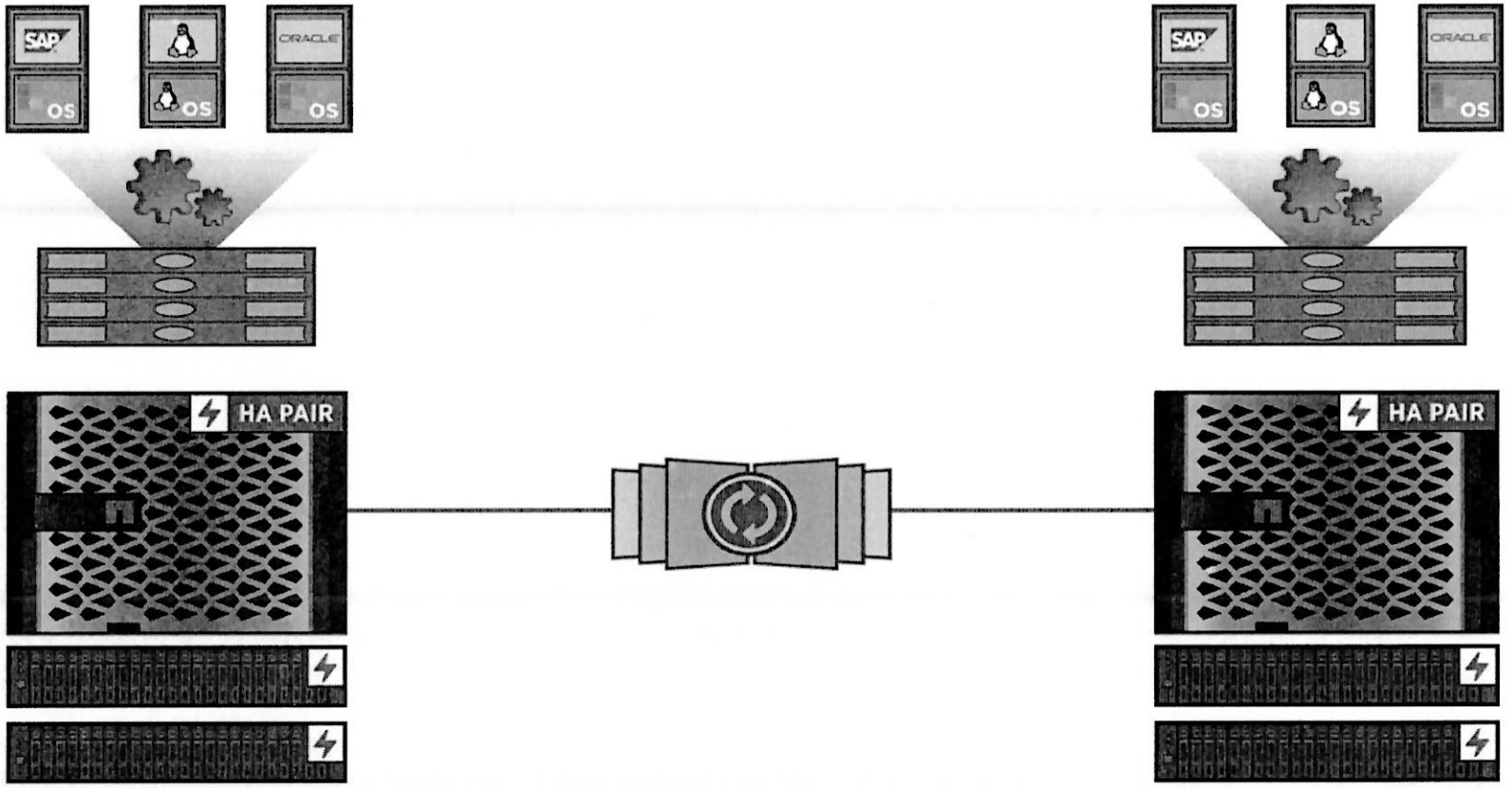
MetroCluster provides the following benefits:

- SAN and NAS host support
- Mixed controller deployments with AFF and FAS
- Integration with NetApp SnapMirror® technology to support asynchronous replication, distance, and SLA requirements
- Support for synchronous replication over FC or IP networks
- Zero RPO and near-zero RTO
- MetroCluster is a no-charge feature built into ONTAP
- Mirror only what you need
- Support for third-party storage with NetApp FlexArray® technology
- Data efficiencies include deduplication, compression, and compaction

MetroCluster configurations are supported in Data ONTAP 8.3 or later and ONTAP 9. The following illustration shows a simplified view of the MetroCluster configuration.

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Figure 1) MetroCluster Configuration Diagram.



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Rack Elevation / Configuration Diagrams

The following pages contain drawings of the physical storage layouts and/or cabling diagrams.

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References

Online Support Resources

Table 106) Online Support Resources.

Name	Link
Online Support Site	http://support.netapp.com
Knowledgebase	http://kb.netapp.com
Customer Success Community	http://forums.netapp.com
Documentation: Product Library A-Z	https://mysupport.netapp.com/site/docs-and-kb
NetApp Technical Library (Technical Reports/White Papers)	http://www.netapp.com/us/library/index.aspx
Product Support Portals	https://mysupport.netapp.com/site/products/all
Interoperatibliy Matrix Tool (IMT)	https://mysupport.netapp.com/matrix/
Hardware Universe	http://hwu.netapp.com
Support Communications	https://mysupport.netapp.com/info/communications/index.html
ONTAP for 7-Mode Administrators	http://mysupport.netapp.com/info/web/ECMP1658253.html

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