THALES

Compatibility Matrix for CTE Agent with Data Security Manager

Release 7.1.1.30

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Contents

Rebranding Announcement

From release 7.0.0 and onward, the VTE (Vormetric Transparent Encryption) Agent had been rebranded to CTE (CipherTrust Transparent Encryption) Agent. When a host is registered with the DSM key manager, CTE is backward compatible with the VTE Agent when it comes to supported kernel platforms, applications, and configurations. For example, if a given kernel is supported starting with VTE 6.3.0.130, it is automatically supported in all CTE releases as well.

For information about VTE release support, see the *Vormetric Transparent Encryption Agent Compatibility Matrix, Release 6.3.1*.

CTE Agent for Linux

Interoperability

Table 1: Linux Interoperability with Third Party Applications

Product	Version	OS	Notes
IBM Infosphere Guardium	8.0, v9.0, v10.1	Linux	Compatible
Imperva Securesphere	9.0, v9.5, v10.5, v11.5, v12	Linux	Compatible
McAfee Enterprise Endpoint	10.6.5, 10.7.4.x	Red Hat 7 Red Hat 8	Compatible
Quantum StorNext		Red Hat 7.5+	LDT is not supported
Red Hat Pacemaker	0.9.168 and onward	Red Hat 7 Red Hat 8	Compatible
Sentinel One	4.5.3.2	Red Hat 7 Red Hat 8	Compatible
Symantec Net-backup	7.6.1.2 7.7.3	Linux	Compatible
Trend Micro Deep Security	12.0.347	Red Hat 7 Red Hat 8	Compatible

Note
Guardium and Imperva are not supported with LDT and Docker.

ESG (Efficient Storage GuardPoint) Support

Table 2: Efficient Storage GuardPoint Support

CTE Agent	CTE Agent and DSM Versions Supporting ESG	Operating Systems Supported	Virtualization Platforms Supported	Storage Systems Supported
CTE for Linux	CTE Version: 7.0.103 and onward DSM Version: 6.3.0 and onward	RHEL 7.5 and onward RHEL 8 and onward SLES 12 SP3 ~ 12 SP5 SLES 15 and onward Ubuntu 18	VMWare (RDMs and vVols)	Pure FlashArray (minimum version 5.3.7) Dell EMC PowerMax Family: PowerMax 2000, PowerMax 8000 PowerMax OS: 5978.711.711
CTE for Windows	CTE Version: 7.0.0.107 and onward DSM Version: 6.3.0 and onward	Windows 2012 Windows 2016 Windows 2019	Hyper-V, VMWare (RDMs and vVols)	Pure FlashArray (minimum version 5.3.7) Dell EMC PowerMax Family: PowerMax 2000 PowerMax 8000 PowerMax OS: 5978.711.711

Notes

- For technical details and use case guidelines, see the “Efficient Storage” chapter in the *CTE Agent for Linux Advanced Configuration and Integration Guide* or the *CTE Agent for Windows Advanced Configuration and Integration Guide*.
- VMWare vVols is only supported with the Pure FlashArray. It is not with Dell EMC PowerMax Family
- For the OS, file system, and database applications supported with ESG on file system use cases, see the existing file system compatibility tables.
- For details about the compatible Pure Storage versions, the Pure Storage requirements, and other Pure Storage features supported with CTE, see your Pure Storage documentation.
- Limitations for Windows ES GuardPoint Support:
  - Windows dynamic disks are not supported.
  - DFS/DFSR with shared disk scenarios are not supported.
  - All applications accessing the Pure LUN directly must be closed during the initialization and IDT process.
    - GuardPoint may fail to apply if resources are used. User may need to reboot the system to complete the GuardPoint.
    - User must not use any tools to manage the disk during these operations.

Linux Agent Raw Device Support Matrix

- CipherTrust supports up to 6000 raw (secvm) devices.
- KVM VirtIO driver is supported from CTE 7.0.0 release and onwards.

> **Note**
> Raw devices are not supported with LDT and Docker.

Red Hat, CentOS, and OEL non-UEK 7.5-7.9 Raw Device Support

Table 3: Red Hat 7.5-7.9 | CentOS 7.5-7.9 | OEL non-UEK 7.5-7.9 (x86_64)[1,2]

Database		
Oracle 11gR2/12c/18c/19c	**DB2 9.7/10.1/10.5/11.1**	**Sybase ASE 16**
RAW	RAW	RAW
Native LVM		
ASM/ASMlib		
ASMFD[3]		

Notes:

1. CTE supports only RHEL 7.5 GA (Kernel 3.10.0-862.el7.x86_64) and later releases.
2. Support for RAW Character Devices must be configured manually.
3. ASMFD is supported from CTE 7.1.0 GA onwards Oracle 12c/18c/19c.

Red Hat, CentOS, and OEL non-UEK 8 Raw Device Support

Table 4: Red Hat 8.0-8.4 | CentOS 8.0-8.4 | OEL non-UEK 8.0-8.4 (x86_64)[1,2]

Database	
Oracle 12c/18c/19c	**DB2 10.5/11.1**
RAW	RAW
Native LVM	
ASM	

Notes:

1. CTE supports only RHEL 8.0 GA and later.
2. Support for RAW Character Devices must be configured manually.

SLES 12 Raw Device Support

Table 5: SLES 12 SP3, SLES 12 SP4, and SLES 12 SP5 (x86_64)[2]

Database			
Oracle 11gR2/12c/18c/19c	**DB2 9.7/10.1/10.5/11.1**	**Informix 11.5/11.7/12.1**	**Sybase ASE 16**
RAW	RAW	RAW[1]	RAW
Native LVM		Native LVM	
ASM			

Notes:

1. Support for RAW Character Devices must be configured manually.
2. CTE supports only SLES12 SP3 (Kernel 4.4.126-94.22.1) and later.

SLES 15 Raw Device Support

Table 6: SLES 15, SLES 15 SP1, SLES 15 SP2, and SLE 15 SP3 (x86_64)

Database	
Oracle 11gR2/12c/18c/19c	**DB2 9.7/10.1/10.5/11.1**
RAW	RAW[1]
Native LVM	
ASM	

Note:

1. Support for RAW Character Devices must be configured manually.

Red Hat 7.5 ACFS Support with Secvm

Table 7: Oracle ACFS/Secvm Support on Red Hat 7.5 (x86_64)

Database		
OS Platform	**Oracle Database Application**	**DSM Policy**
Redhat 7.5 (x86_64)	Oracle 12c Oracle 12c RAC	Encryption-only, no access control, no auditing, and do not execute binaries stored in the ACFS file system

> **Note**
> For ACFS file systems mounted over Efficient Storage GuardPoints, see the “Efficient Storage” chapter in the *CTE Agent for Linux Advanced Configuration and Integration Guide*.

Table 8: Oracle ACFS/Secvm Stack with Red Hat 7.5 (x86_64)

Oracle RAC
Oracle ACFS (File System)
Oracle ADVM (Volume Manager)
Oracle ASM (Storage Manager)
SecVM
Block Device(s)

Linux Agent File System Support Matrix

Red Hat, CentOS, and OEL non-UEK 7.5 - 7.9 File System Support

Table 9: Red Hat 7.5-7.9 | CentOS 7.5-7.9 | OEL non-UEK 7.5-7.9 (x86_64)[1,4,5,6]

File System	Database											
Unstructured Data	**Oracle 11gR2 12c/18c/19c**	**DB2 9.7 10.1 10.5 11.1 11.5**	**Informix 11.5 11.7 12.1 14.1**	**Sybase 16**	**MySQL 5.5 5.6 8 Maria DB 10.5**	**Postgre SQL**	**MongoDB**	**Cassandra**	**Couchbase 4.5 6.6**	**GreenPlum 5.21.0 Standalone & Cluster**	**HP Vertica 9.0.1**	**Enterprise DB 13.4.8**
EXT3	EXT3	EXT3	EXT3		EXT3							
EXT4	EXT4	EXT4	EXT4	EXT4	EXT4		EXT4	EXT4				EXT4
NFS V4/V3	NFS V4/ V3	NFS V4/V3			NFS V4/V3							
XFS	XFS	XFS		XFS	XFS	XFS	XFS		XFS	XFS[3]	XFS	XFS
AWS EFS[2]												
Gluster[6]												

Notes:

1. For supported kernel versions see the CTE Compatibility Portal or the compatibility matrix PDF available at https://packages.vormetric.com/pub/cte_compatibility_matrix.pdf.
2. AWS EFS support with and without on-premises Direct Connect.
3. GreenPlum is supported only in Red Hat 7.5 and later.
4. CTE supports only RHEL 7.5 GA (Kernel 3.10.0-862.el7.x86_64) and later.
5. Couchbase database v6.6 is supported with Red Hat 7.9.
6. The Gluster file system is supported from CTE 7.1.0 GA onward.
7. Enterprise DB v13.4.8 is supported from CTE 7.1.1 onward.

LDT Feature for Red Hat, CentOS, and OEL non-UEK 7.5-7.9 File System Support

Table 10: Red Hat 7.5-7.9 | CentOS 7.5-7.9 | OEL non-UEK 7.5-7.9 (x86_64)[2]

File System	Database								
Unstructured data	**Oracle 11gR2 12c/18c/19c**	**DB2 9.7 10.1 10.5 11.1 11.5**	**Sybase 16**	**MySQL 5.5 5.6 8 Maria DB 10.5**	**Postgre SQL**	**MongoDB**	**GreenPlum 5.21.0 Standalone & Cluster**	**HP Vertica 9.0.1**	**Enterprise DB 13.4.8**
EXT3	EXT3	EXT3		EXT3					
EXT4	EXT4	EXT4	EXT4	EXT4		EXT4			EXT4
XFS	XFS	XFS	XFS	XFS	XFS	XFS	XFS[1]	XFS	
NFS V4/V3[3]	NFS V4/ V3	NFS V4/ V3		NFS V4/ V3					XFS

Notes:

1. GreenPlum is supported only in Red Hat 7.5 and later.
2. CTE supports only RHEL 7.5 GA (Kernel 3.10.0-862.el7.x86_64) and later.
3. Single node reky for LDT over NFS supported in CTE 7.1.0 GA.
4. Enterprise DB v13.4.8 is supported from CTE 7.1.1 onward.

Docker Feature for Red Hat, CentOS, and OEL non-UEK 7.5 - 7.9 File System Support

Note:

- Overlay Storage Driver is supported with Docker from CTE 7.1.0 GA and onwards. CTE 7.0.0 and previous versions only support device mapper with Docker.

Table 11: Red Hat 7.5-7.9 | CentOS | OEL non-UEK 7.5-7.9 (x86_64)

Docker Host	Container (Image-based and container-based)		
	RHEL/CentOS	SLES	Ubuntu
RHEL/CentOS 7.5 with Docker engine 1.12 or later	RHEL/CentOS 7.5	SLES 12 SP3	Not supported
RHEL/CentOS 7.6 with Docker engine 1.12 or later	RHEL/CentOS 7.5/7.6	SLES 12 SP3	Ubuntu 18.04
RHEL/CentOS 7.8/7.9 with Docker engine 1.12 or later	RHEL/CentOS 7.5/7.6/7.7/7.8/7.9	SLES 12 SP3 SLES 12 SP4 SLES 12 SP5 SLES 15	Ubuntu 18.04

Table 12: Red Hat 7.5-7.8 | CentOS | OEL non-UEK 7.5-7.9 (x86_64)

Docker Host	Container (Image-based and container-based)		
	RHEL/CentOS 7.5 - 7.9	SLES 12 SP3/SP4/SP5 SLES 15	Ubuntu 18.04
RHEL/CentOS 7.5/7.6/7.7/7.8/7.9	EXT4 XFS NFSv3 NFSv4	EXT3 EXT4 XFS NFSv3 NFSv4	EXT4 XFS NFSv3 NFSv4

Table 13: OpenShift Support on Docker: Red Hat 7.5 – 7.8 | CentOS | OEL non-UEK 7.5 – 7.9 (x86_64)

OpenShift Version	Docker Host
OCP 3.4 or later version	RHEL/CentOS 7.5/7.6/7.7/7.8

Table 14: Kubernetes Support on Docker: Red Hat 7.5, CentOS, and OEL non-UEK 7.5 (x86_64)

Kubernetes Version	Docker Host	Docker Version
Kubectl 1.10 or later version	RHEL/CentOS 7.5	1.13

Table 15: Kubernetes Support on Docker: Red Hat 7.3/7.4, CentOS, and OEL non-UEK 7.3/7.4 (x86_64)

Mesos Version	Docker Host	Docker Version
Mesos:1.4.1	RHEL/CentOS 7.5	1.12.6

Red Hat 8 File System Support

Table 16: Red Hat 8.0-8.4 (x86_64) [1, 2, 3]

File System	Database				
Unstructured Data	**Oracle 11gR2 12c/18c/19c**	**DB2 9.7 |10.1 10.5 | 11.1**	**MySQL 5.5 | 5.6 | 8 Maria DB 10.5**	**MongoDB**	**Enterprise DB 13.4.8**
EXT3	EXT3	EXT3	EXT3		
EXT4	EXT4	EXT4	EXT4	EXT4	EXT4
NFS V4/V3	NFS V4/ V3	NFS V4/V3	NFS V4/V3		
XFS	XFS	XFS	XFS	XFS	XFS
Gluster					

Notes:

1. For supported kernel versions see the CTE Compatibility Portal or the compatibility matrix PDF available at https://packages.vormetric.com/pub/cte_compatibility_matrix.pdf.
2. Thales has performed validation with CTE for these databases on Red Hat 8, but the database vendors may not have completed their Red Hat validation yet.
3. The Gluster file system is supported from CTE 7.1.0 GA onward.
4. Enterprise DB v13.4.8 is supported from CTE 7.1.1 onward.

LDT Feature for Red Hat 8 File System Support

Table 17: Red Hat 8.3 - 8.4 (x86_64)

File System	Database				
Unstructured data	**Oracle 12c/18c/19c**	**DB2 11.1**	**MySQL 5.5 | 5.6 | 8 Maria DB 10.5**	**MongoDB**	**Enterprise DB 13.4.8**
EXT3	EXT3	EXT3	EXT3		
EXT4	EXT4	EXT4	EXT4	EXT4	EXT4
XFS	XFS	XFS	XFS		
NFS V4/V3[1]	NFS V4/V3	NFS V4/V3	NFS V4/V3		XFS

Notes:

1. Single node reky for LDT over NFS supported in CTE 7.1.0 GA.
2. Enterprise DB v13.4.8 is supported from CTE 7.1.1 onward

Docker Feature for Red Hat 8.0 File System Support

Note:

- Overlay Storage Driver is supported with Docker from CTE 7.1.0 GA and onwards. CTE 7.0.0 and previous versions only support device mapper with Docker.

Table 18: Red Hat 8.0 (x86_64)

Docker Host	Container (Image-based and container-based)		
	RHEL/CentOS	**SLES**	**Ubuntu**
RHEL/CentOS 8.0 with Docker engine 1.13[1] or later	RHEL 7.5 – 7.8 RHEL 8.0	SLES 12 SP4 SLES 15	Ubuntu 18.04.0 – 18.04.5

Note:

1. CTE does not support bind mounts for Docker versions 18.06 and later.

Table 19: Red Hat 8.0 (x86_64)

Docker Host	Container (Image-based and container-based)		
	RHEL/CentOS	**SLES**	**Ubuntu**
	RHEL/CentOS 7.5 - 7.6 RHEL 8.0	**SLES 12 SP4 SLES 15**	**Ubuntu 18.04–18.04.2**
RHEL 8.0	EXT4 XFS NFSv3 NFSv4	EXT3 EXT4 XFS NFSv3 NFSv4	EXT4 XFS NFSv3 NFSv4

HDFS Support

Table 20: Red Hat 7.5-7.9 (x86_64)

HDFS Access Control	Platform Support	File System
Hortonworks (HDP) 2.6.4 Apache Hadoop 2.7.3	RHEL 7.5	EXT4
		XFS
Hortonworks (HDP) 3.0.0 Apache Hadoop 3.1.1	RHEL 7.5	EXT4
		XFS
Hortonworks (HDP) 3.1.0 Apache Hadoop 3.1.1	RHEL 7.8	EXT4
		XFS
Cloudera (CDH) 5.14 Apache Hadoop 2.6.0	RHEL 7.8	EXT4
		XFS
Cloudera (CDH) 6.2 Apache Hadoop 3.1.1	RHEL 7.9	EXT4
		XFS
EMR 5.11.1	Amazon Linux	Default EXT4

Notes:

1. CDH 6.2 is supported from CTE 7.1.1.60 onward

CIFS File System Support

Table 21: CIFS File System Supported on Linux CTE Distributions

CTE on CIFS Share mount to local File System		
Operating System	**SMB Protocol 2.1**	**SMB Protocol 3.0**
RHEL 7	Supported	Supported
RHEL 8	Supported	Supported

Notes:

- CIFS file system is supported from CTE 7.1.0 GA and onwards for both CBC and CBC_CS1 encryption.
- Data access across Linux and Windows with same CIFS share is supported with the same CTE policy and CBC encryption.

> **Note:** Do not use LDT policies used in this context.

SLES Support

SLES 12 File System Support

Table 22: SLES 12 SP3, SLES 12 SP4, and SLES 12 SP5 (x86_64) [1,3]

File System	Database						
Unstructured data	**Oracle 11gR2 12c/18c/19c**	**DB2 9.7, 10.1 10.5, 11.1**	**Informix 11.5, 11.7, 12.1**	**Sybase 16**	**Maria DB 10.5**	**MongoDB**	**Cassandra**
EXT3					EXT3		
EXT4	EXT4			EXT4	EXT4		
NFS V4/V3					NFS V4/V3		
XFS	XFS	XFS		XFS	XFS	XFS	
AWS EFS[2]							

Notes:

1. For supported kernel versions see the CTE Compatibility Portal or the compatibility matrix PDF available at https://packages.vormetric.com/pub/cte_compatibility_matrix.pdf.
2. AWS EFS support with and without on-premises Direct Connect.
3. CTE only supports SLES12 SP3 (Kernel 4.4.126-94.22.1) and later.

LDT Feature for SLES 12 File System Support

Table 23: SLES 12 SP3, SLES 12 SP4, and SLES 12 SP5 (x86_64)[1]

File System	Database			
Unstructured data	**Oracle 11gR2/12c/18c/19c**	**DB2 9.7, 10.1,10.5, 11.1**	**Sybase 16**	**Maria DB 10.5**
EXT3				EXT3
EXT4	EXT4		EXT4	EXT4
XFS	XFS	XFS	XFS	XFS
NFS V4/V3[2]	NFS V4/V3	NFS V4/V3	NFS V4/V3	

Note:

1. CTE only supports SLES12 SP3 (Kernel 4.4.126-94.22.1) and later.
2. Single node reky for LDT over NFS supported in CTE 7.1.0 GA.

SLES 15 File System Support

Table 24: SLES 15, SLES 15 SP1, SLES 15 SP2 and SLES 15 SP3 (x86_64)[1]

File System	Database			
Unstructured data	**Oracle 11gR2, 12c/18c/19c**	**DB2 9.7, 10.1, 10.5,11.1**	**Maria DB 10.5**	**MongoDB**
EXT3			EXT3	
EXT4	EXT4		EXT4	
NFS V4/V3			NFS V4/V3	
XFS	XFS	XFS	XFS	XFS
AWS EFS[3]				

Notes:

1. For supported kernel versions see the CTE Compatibility Portal or the compatibility matrix PDF available at https://packages.vormetric.com/pub/cte_compatibility_matrix.pdf.
2. AWS EFS support with and without on-premises Direct Connect.

LDT Feature for SLES 15 File System Support

Table 25: SLES 15, SLES 15 SP1, SLES 15 SP2 and SLES 15 SP3 (x86_64)

File System	Database		
Unstructured data	**Oracle 11gR2, 12c/18c/19c**	**DB2 9.7, 10.1, 10.5, 11.1**	**Maria DB 10.5**
EXT3			EXT3
EXT4	EXT4		EXT4
XFS	XFS	XFS	XFS
NFS V4/V3[1]	NFS V4/V3	NFS V4/V3	NFS V4/V3

Note:

1. Single node reky for LDT over NFS supported in CTE 7.1.0 GA.

SAP HANA Support (LDT is supported on SAP HANA)

Table 26: SAP HANA Support

SAP HANA Version	Platform Support	File System
1.00.122.06.1485334242	SLES 12 SP3	EXT4 XFS
1.00.122.06.1485334242	SLES 12 SP3 Supports new CBC-CS1 key	EXT4 XFS
1.00.122.06.1485334242	RHEL 7.5	EXT4 XFS
1.00.122.06.1485334242	RHEL 7.5 Supports new CBC-CS1 key	EXT4 XFS

SAP HANA Version	Platform Support	File System
1.00.122.06.1485334242	SLES 12 SP3 (MS Azure) Supports new CBC-CS1 key	EXT4 XFS
2.00.030.00.1522210459	SLES 12 SP3 Supports new CBC-CS1 key	EXT4 XFS
2.00.030.00.1522210459	RHEL 7.5	EXT4 XFS
2.00.030.00.1522210459	RHEL 7.5 Supports new CBC-CS1 key	EXT4 XFS
2.00.030.00.1522210459	SLES 12 SP3 Supports new CBC-CS1 key	EXT4 XFS
2.00.030.00.1522210459	SLES 12 SP3 (MS Azure) Supports new CBC-CS1 key	EXT4 XFS
2.00.030.00.1522210459	SLES 12 SP4 (supported with CBC-CS1)	EXT4 XFS
2.00.040.00.1553674765	SLES 15	EXT4 XFS
2.00.040.00.1553674765	RHEL 8	EXT4 XFS

Note
Test configuration coverage included Physical, Virtual (VMWare ESX), Virtustream environment and AWS.

Ubuntu Support

Ubuntu 18.04 File System Support

Table 27: Ubuntu 18.04, 18.04.1, 18.04.2, 18.04.3, 18.04.4, 18.04.5, and 18.04.6 (x86_64)[1,3]

File System	Database					
Unstructured data	**DB2 10.1 | 10.5 | 11.1 | 11.5**	**Informix 12.1**	**MySQL 5.5/5.6**	**MongoDB**	**Cassandra**	**Couchbase 4.5**
EXT4	EXT4	EXT4	EXT4	EXT4	EXT4	EXT4
NFS V3/V4	NFS V3/V4		NFS V4/V3			
XFS	XFS		XFS	XFS	XFS	
AWS EFS[2]						

Notes:

1. For supported kernel versions see the CTE Compatibility Portal or the compatibility matrix PDF available at https://packages.vormetric.com/pub/cte_compatibility_matrix.pdf.
2. AWS EFS support with and without on-premise Direct Connect.
3. CTE only supports 4.15.0-20-generic and 5.3.0-19-generic kernels.

LDT Feature for Ubuntu 18.04 File System Support

Table 28: Ubuntu 18.04, 18.04.1, 18.04.2, 18.04.3, 18.04.4, 18.04.5, and 18.04.6 (x86_64)[1]

File System	Database			
Unstructured data	**DB2 10.1 | 10.5 | 11.1 | 11.5**	**MySQL 5.5/5.6**	**PostgresSQL**	**MongoDB**
EXT3	EXT3	EXT3	EXT3	EXT3
EXT4	EXT4	EXT4	EXT4	EXT4
XFS	XFS	XFS	XFS	XFS
NFS V4/V3[2]	NFS V4/V3	NFS V4/V3		

Note:

1. CTE only supports 4.15.0-20-generic and 5.3.0-19-generic kernels.
2. Single node reky for LDT over NFS supported in CTE 7.1.0 GA.

Ubuntu 20.04 File System Support

Table 29: Ubuntu 20.04, 20.04.1, 20.04.2, 20.04.3 (x86_64)[1]

File System	Database					
Unstructured data	**DB2 10.1 | 10.5 | 11.1 | 11.5**	**Informix 12.1**	**MySQL 5.5/5.6**	**MongoDB**	**Cassandra**	**Couchbase 4.5**
EXT4	EXT4	EXT4	EXT4	EXT4	EXT4	EXT4
NFS V3/V4	NFS V3/V4		NFS V4/V3			
XFS	XFS		XFS	XFS	XFS	
AWS EFS[2]						

Notes:

1. For supported kernel versions see the CTE Compatibility Portal or the compatibility matrix PDF available at https://packages.vormetric.com/pub/cte_compatibility_matrix.pdf.
2. AWS EFS support with and without on-premise Direct Connect.

LDT Feature for Ubuntu 20.04 File System Support

Table 30: Ubuntu 20.04, 20.04.1, 20.04.2, 20.04.3 (x86_64)

File System	Database			
Unstructured data	**DB2 10.1 | 10.5 | 11.1 | 11.5**	**MySQL 5.5/5.6**	**PostgresSQL**	**MongoDB**
EXT3	EXT3	EXT3	EXT3	EXT3
EXT4	EXT4	EXT4	EXT4	EXT4
XFS	XFS	XFS	XFS	XFS
NFS V4/V3[1]	NFS V4/V3	NFS V4/V3		

Note:

1. Single node reky for LDT over NFS supported in CTE 7.1.0 GA.

CTE Agent for Cloud Environment

General CTE Support for AWS AMI and Microsoft Azure on Linux:

- CTE supports Ubuntu, SLES, and Red Hat OS images/platforms given baseline support and CTE support exists.
- Please refer to Matrices/tables in section "CTE Agent for Linux" on page 6 for existing CTE-supported OS platforms and applications.

CTE Support on AWS EFS, AWS S3 File Storage Gateway, AWS Hadoop/HDFS: EMR and Hortonworks

- CTE supports Amazon Elastic File System (EFS) on both AWS Cloud and AWS Direct Connect (on-premises) configurations. Refer to the Matrix tables in the section "CTE Agent for Linux" on page 6.
- CTE supports Amazon S3 File Storage Gateway on cloud tiering and hybrid cloud backup. S3 buckets and their objects are mountable NFS to clients (one or more) in the AWS or on-premises for data backup/restore with encryption protected by CTE.
- AWS Hadoop Hortonworks is now supported.

- Amazon EMR with S3 & S3 File Storage Gateway is supported.
- Cloud Object Storage (CTE COS) is supported with Red Hat 7 from CTE 7.0.0 GA onward and with Red Hat 8 from CTE 7.1.0 onward. For details see the *CTE Agent for Linux Advanced Configuration and Integration Guide*.

Amazon Linux

Table 31: Amazon Linux File System Support

File System	Database		
Unstructured data	**DB2 10.1, 10.5, 11.1**	**MySQL 5.5/5.6**	**MongoDB**
EXT3	EXT3	EXT3	EXT3
EXT4	EXT4	EXT4	EXT4
XFS	XFS	XFS	XFS
NFSv4	NFSv4	NFSv4	

Note
Raw device is not supported with Amazon Linux.

Table 32: Amazon Linux Kernels Supported

Amazon Linux 2017.09 Kernels
4.9.51-10.52.amzn1.x86_64 (6.0.3.18 GA)
4.9.58-18.51.amzn1.x86_64 (6.0.3.18 GA)
4.9.58-18.55.amzn1.x86_64 (6.0.3.18 GA)
4.9.62-21.56.amzn1.x86_64 (6.0.3.18 GA)
4.9.70-22.55.amzn1.x86_64 (6.0.3.18 GA)
4.9.70-25.242.amzn1.x86_64 (6.0.3.18 GA)
4.9.75-25.55.amzn1.x86_64 (6.0.3.18 GA)
4.9.76-3.78.amzn1.x86_64 (6.0.3.18 GA)
4.9.77-31.58.amzn1.x86_64 (6.0.3.18 GA)
4.9.81-35.56.amzn1.x86_64 (6.0.3.23)
4.9.91-40.57.amzn1.x86_64 (6.0.3.68/6.0.3.111)

AWS AMI

Refer to the Matrix tables in the section "CTE Agent for Cloud Environment" on page 30 for AWS AMI image (distributions) and application support.

Microsoft Azure (Linux)

Refer to matrices/tables in section "CTE Agent for Cloud Environment" on page 30 for existing CTE supported OS platforms and applications for MS Azure distributions and application support.

Table 33: Azure Files Supported Linux CTE Distributions

CTE on Azure Files SMB 2.1 and 3.0 Protocol Support			
OS vs Azure Files Access	**SMB 2.1 (VMs from Azure cloud only)**	**SMB 3.0 (VMs from Azure cloud only)**	**Mount Azure files from on Premises machine (SMB 3.0 only)**
RHEL 7.4	YES	YES	YES[1]
SLES 11 SP4	NO	NO	NO
SLES 12 SP2/SP3	YES	YES	YES[1]

Note:

1. CTE supports Ubuntu, SLES, and Red Hat mounted in Azure File Storage assuming baseline support and that CTE supports the OS and file system combination.

The following features and configurations are not supported:

- Live Data Transformation
- Azure Blob storage
- Rest API to Azure file storage
- azcopy utility to access Blob or file storage

CTE Agent for Windows

Windows Application Interoperability

Table 34: Windows interoperability with IBM Infosphere Guardium and Imperva Securesphere

Product	Version	OS	Notes
IBM Infosphere Guardium	v10.1.4	Windows	Compatible
Imperva Securesphere	v9.0, v9.5, v10.5, v11	Windows 2012 R2	Compatible

Table 35: Windows CTE LDT Interoperability with backup applications

Product	Version	Notes
Microsoft Backup with VSS[1]	Win2012, Win2016, Win2019	Compatible
Symantec Backup Exec 2012, 2016	2012, 2016	Compatible
Symantec Net-backup	7.6.0, 7.6.1.4, 7.6.04, 8.1.1	Compatible
UltraBackup	10.0	Compatible
Veeam	11.0.0.837	Compatible with CTE 7.1.1.43 and subsequent versions

Note:

1. Thales has tested the backup applications with Volume Shadow Copy Service (VSS) for backup and restore.

Table 36: Windows CTE LDT Interoperability with Active-Passive clusters

Product	Version	Notes
Microsoft Cluster	2012 R2/2016/2019	SQL Servers, File Server Compatible with `vmfiltr` driver but not supported with `VMLFS` driver
Veritas Cluster	6.02	Compatible with `vmfiltr` driver but not supported with `VMLFS` driver

Table 37: Windows CTE Quantum StorNext Support

Product	Version	Notes
Quantum StorNext	2012 R2/2016	• Structured data is not supported (i.e. database application) • LDT is not supported • CBC-CS1 key is not supported

Table 38: Windows File System Support (Vmfiltr driver)

File System		Database							Apps			
Windows	**Unstructured data**	**Oracle 10gR1 11gR1 11gR2 12c/18c**	**DB2 95/9.7 10.1 10.5 11.1**	**Informix 11.5 11.7 12.1**	**MySQL 5.5 5.6 8**	**MS SQL 2012[b] 2014[b] 2016[b] 2017 2019**	**MS SQL on MS AZURE 2012 2017**	**MongoDB 3.2, 3.4**	**SharePoint 2010/ 2013/ 2016/ 2019[d]**	**Active Directory 2012/ 2016**	**Active Directory on MS Azure 2012R2**	**Microsoft Exchange DAG 2016**
Windows 2012/R2 (x64)[a,c]	NTFS/CIFS/ReFS	NTFS	NTFS	NTFS	NTFS	NTFS[b]	NTFS	NTFS	NTFS	NTFS		
Windows 10 (x64)[a]	NTFS/CIFS											
Windows 2016 (x64)[a,c]	NTFS/CIFS/ ReFS	NTFS	NTFS	NTFS	NTFS	NTFS[b]	NTFS	NTFS	NTFS	NTFS		NTFS
Windows 2016 Core (x64)[a,c]	NTFS/CIFS/ ReFS	NTFS	NTFS	NTFS	NTFS	NTFS[b]	NTFS	NTFS	NTFS	NTFS		
Windows 2019 (x64)[a]	NTFS/CIFS/ ReFS	NTFS				NTFS[b]						
MS Azure Windows 2012 R2	NTFS/CIFS/ ReFS						NTFS				NTFS	

File System		Database							Apps			
Windows	**Unstructured data**	**Oracle 10gR1 11gR1 11gR2 12c/18c**	**DB2 95/9.7 10.1 10.5 11.1**	**Informix 11.5 11.7 12.1**	**MySQL 5.5 5.6 8**	**MS SQL 2012[b] 2014[b] 2016[b] 2017 2019**	**MS SQL on MS AZURE 2012 2017**	**MongoDB 3.2, 3.4**	**SharePoint 2010/ 2013/ 2016/ 2019[d]**	**Active Directory 2012/ 2016**	**Active Directory on MS Azure 2012R2**	**Microsoft Exchange DAG 2016**
MS Azure Windows 2016	NTFS/CIFS/ ReFS						NTFS					

Notes:

a. Supports AES-NI.
b. Always encrypted, Always on, and File Table features are tested and supported.
c. Azure file storage is supported.
d. SharePoint 2019/MS SQL 2019 is supported with NTFS on Windows 2016 & 2019 in CTE 7.1.1 and all succeeding versions.

LDT Feature for Windows File System Support

Table 39: Windows (Vmfiltr driver)

File System		Database							Apps		
Windows	**Unstructured data**	**Oracle 10gR1 11gR1 11gR2 12c/18c**	**DB2 9.5/9.7 10.1 10.5 11.1**	**Informix 11.5 11.7 12.1**	**MySQL 5.5 5.6 8**	**MS SQL 2012[b] 2014[b] 2016[b] 2017 2019**	**MS SQL on MS AZURE 2012 2017**	**MongoDB 3.2, 3.4**	**SharePoint 2010/ 2013/ 2016/ 2019[d]**	**Active Directory on MS Azure 2012R2**	**Microsoft Exchange DAG 2016**
Windows 2012/R2 (x64)[a,d]	NTFS/ReFS	NTFS	NTFS	NTFS	NTFS	NTFS[b]		NTFS	NTFS		
Windows 10 (x64)[a]	NTFS		NTFS	NTFS							
Windows 2016 (x64)[a,c]	NTFS	NTFS	NTFS	NTFS	NTFS	NTFS[b]		NTFS	NTFS		NTFS
Windows 2016 Core (x64)[a,c]	NTFS	NTFS	NTFS	NTFS	NTFS	NTFS[b]		NTFS	NTFS		
Windows 2019 (x64)[a,c]	NTFS	NTFS				NTFS[b]					
MS Azure Windows 2012 R2	NTFS						NTFS			NTFS	
MS Azure Windows 2016	NTFS						NTFS				

Notes:

a. Supports AES-NI.
b. Always encrypted, Always on, and File Table features are tested and supported.
c. LDT support for Windows 2016 testing is completed but there is no ReFS support.
d. SharePoint 2019/MS SQL 2019 is supported with NTFS on Windows 2016 & 2019 in CTE 7.1.1 and all succeeding versions.

Table 40: Windows (VMLFS Driver)

File System	
Windows	**Unstructured data**
Windows 2012/R2 (x64)[a,d]	CIFS
Windows 10 (x64)[a]	CIFS
Windows 2016 (x64)[a,c]	CIFS
Windows 2016 Core (x64)[a,c]	CIFS
Windows 2019 (x64)[a,c]	CIFS
MS Azure Windows 2012 R2	CIFS
MS Azure Windows 2016	CIFS

Note:

1. Thales has tested the backup applications with Volume Shadow Copy Service (VSS) for backup and restore.

Anti-Virus Support

Table 41: Anti-virus support on Windows (x64-bit)

Product	Version	OS	Notes
Symantec End Point Protection	v12.1, v14.0.1_MP2	Windows 2012R2, Windows 2016, Windows 2019	Compatible
McAfee VirusScan Enterprise + Antispyware Enterprise	8.8.0900	Windows 2012R2, Windows 2016, Windows 2019	Compatible
McAfee Endpoint Security	10.7.0	Windows 2012R2, Windows 2016, Windows 2019	Compatible
Sentinel One	v4.6.12.241	Windows 2012R2, Windows 2016, Windows 2019	Compatible
Sophos Home	3.2.2	Windows 10	
Trend Micro for Small Business	11.0		
Microsoft Defender	4.18		

Note
For DSM/VTE/CTE and CM/CTE/VTE compatibility, see https://thalesdocs.com/ctp/cte/cte-cm/index.html.

End of Support Information

The following third-party products are no longer supported by CTE.

Table 42: End of Support Information

Product	Last VTE Version with Product Support
VxFS File System	6.1.3

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