

**Report Title:** IQ Template Details  
**Run Date and Time:** 27-Oct-2023 04:38:10 PM India Standard Time  
**Run by:** G,Ramsanthosh  
**Table name:** u\_iq\_template

**IQ Template**

Number:	AIQ0008368	Status:	Published
Product Name:	Infosario Safety - Oracle 19c TDE Wallet setup	Version Number:	1
IQ Date:	26-Aug-2022 11:27:47 AM	Category:	Cat 1
IQ Version:	1	GXP Regulated (A):	true
Type:	Software	SOX (B):	false
		Non Regulated (C):	Yes
		Privacy (P):	Yes

Form Changed:

false

Author:

G,RamSanthosh (808326)

Technical Approver:

Ball,Linda (633987)

Development Manager:

IT Manager:

Vishwanath,Akhila (787850)

Qualification Coordinator:

Overview:

\\usadc-sboxi01\q\Dummy\_Work\_Instruction.htm#overview

System Introduction:

Oracle TDE Defined

Oracle Advanced Security TDE provides the ability to encrypt sensitive application data on storage media completely transparent to the application itself.

Transparent Data Encryption Key Architecture

Encryption keys are the secrets used in combination with an encryption algorithm to encrypt data. Oracle Advanced Security TDE uses a two tier encryption key architecture, consisting of a master key and one or more table and/or tablespace keys. The table and tablespace keys are encrypted using the master key. The master key is stored in an external security module (ESM): The Oracle Wallet, Hardware Security Module (HSM), or external PKCS#11 compatible key management system.

Installation Location and Environment Verification:

Responses to the following questions provide information about the location and environment into which the system is being installed:

· What business group/department is responsible for the installation of this system?

Infosario Safety DBA support

· What site preparation is needed for this installation?

Database Server is configured and Oracle RDBMS 19c Version Database available

· What software preparation is needed for this installation?

Oracle database 19c is needed to setup the TDE wallet.

· What interface preparation is needed for this installation?

None

· What data preparation is needed for this installation (e.g., patient data, metadata setup, project-specific data, pre-loaded data necessary to install test user accounts, configuration settings)?

The controlled documents that were followed during the testing process are:

CS.WI.IT0353 Oracle Advanced Section Transparent Data Encryption

CS.WI.IT200 Database Account Management

· Is this to be a multi-component installation (i.e., a single IQ or a series of related IQs)? If yes, describe.

None

· What access rights are necessary to perform this installation (e.g., OS or database admin privileges)?

Database SYS admin

Instructions for the Installer:

\\usadc-sboxi01\q\Dummy\_Work\_Instruction.htm#instructions

Acceptance Criteria:

Instructions for Resolving Errors:

\\usadc-sboxi01\q\Dummy\_Work\_Instruction.htm#error

Uninstall Procedures:

Move all the PII Data from the encryption tablespace to a non encrypted tablespace

Remove/Rename the wallet found by running below command

select \* from gv\$encryption\_wallet;

Shutdown and Restart the database.

Name And Version:

Infosario Safety - Oracle 19c TDE Wallet setup 1

## Installation Procedures

Test Case Number:

1

Title:

Setup TDE wallet in 19c database

Test Objective:

Setup the encryption wallet in Oracle 19c database to hold the PII data.

App Dependencies:

Dependencies:

Oracle database should be in 19c version.

Starting Point:

Login to the 19c Oracle database with DBA admin privileges user.

## Overview Validate:

[\usadc-sboxi01\q\Dummy\\_Work\\_Instruction.htm#overview](#)

ILEV Validate:

Responses to the following questions provide information about the location and environment into which the system is being installed:

• What business group/department is responsible for the installation of this system?

[illegible]

• What site preparation is needed for this installation?

<p><br /> Database Server is configured and Oracle RDBMS 19c Version Database available</p>

• What software preparation is needed for this installation?

Oracle database 19c is needed to setup the TDE wallet.

• What interface preparation is needed for this installation?

[illegible]

• What data preparation is needed for this installation (e.g., patient data, metadata setup, project-specific data, pre-loaded data necessary to install test user accounts, configuration settings)?

[illegible][illegible]

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<ul style="list-style-position: inside;">
```

CS.WI.IT0353 Oracle Advanced  
Section Transparent Data Encryption

[illegible]

**Database Account Management**

• Is this to be a multi-component installation (i.e., a single IQ or a series of related IQs)? If yes, describe.

[illegible]

• What access rights are necessary to perform this installation (e.g., OS or database admin privileges)?

[illegible]

## Instrinstall Validate:

\\usadc-sboxi01\q\Dummy\_Work\_Instruction.htm#instructions

Acceptcrit Validate:

System Introduction Validate:

<p style="margin: 0cm 0cm 0pt;"><span style="font-size: 14pt;"><strong><span style="font-family: Arial;">Oracle TDE Defined</span></strong></span></p>  
<p style="margin: 0cm 0cm 0pt;"><strong><span style="font-family: Arial; font-size: 12pt;">&nbsp;</span></strong></p>  
<p style="margin: 0cm 0cm 0pt;"><span style="font-family: 'Times New Roman'; font-size: 10pt;">Oracle Advanced Security TDE provides the ability to encrypt sensitive application data on storage media completely transparent to the application itself.</span></p>  
<p style="margin: 0cm 0cm 0pt;"><strong><span style="font-family: Arial; font-size: 12pt;">&nbsp;</span></strong></p>  
<p style="margin: 1em 0px;"><strong><span style="font-size: 14pt;"><span style="font-family: 'Times New Roman';">Transparent Data Encryption Key Architecture </span></span></strong></p>  
<p style="margin: 1em 0px;"><span style="font-size: 14pt;"><span style="font-family: 'Times New Roman';">&nbsp;</span></span></p>  
<p style="margin: 0cm 0cm 0pt;"><span style="font-family: 'Times New Roman'; font-size: 10pt;">Encryption keys are the secrets used in combination with an encryption algorithm to encrypt data. Oracle Advanced Security TDE uses a two tier encryption key architecture, consisting of a master key and one or more table and/or tablespace keys. The table and tablespace keys are encrypted using the master key. The master key is stored in an external security module (ESM): The Oracle Wallet, Hardware Security Module (HSM), or external PKCS#11 compatible key management system</span><span style="font-size: 10.5pt;"><span style="font-family: 'Times New Roman';">. </span></span></p>  
<p>&nbsp;</p>

Errors Validate:

\\usadc-sboxi01\q\Dummy\_Work\_Instruction.htm#error

Uninstall Procedures Validate:

## Lifecycle Dates

IQ Date:

26-Aug-2022 11:27:47 AM

Published:

28-Sep-2022 02:49:22 PM

Superseded:

Retired:

Retired by:

Updated: 28-Sep-2022 02:49:22 PM

## Activity

## IQ Variables

**Related List Title:** Document Revision History List  
**Table name:** u\_iq\_revision\_history  
**Query Condition:** IQ Template = Infosario Safety - Oracle 19c TDE Wallet setup 1  
**Sort Order:** Revision Date in ascending order

3 Document Revision History

Version	Changes	Author	▲ Revision Date	IQ Template
1	AIQ creation	Q808326	26-Aug-2022 12:13:29 PM	Infosario Safety - Oracle 19c TDE Wallet setup 1
1	No change	Q808326	26-Aug-2022 03:42:47 PM	Infosario Safety - Oracle 19c TDE Wallet setup 1
1	Adding Installation Procedure fields	Q808326	09-Sep-2022 03:13:48 PM	Infosario Safety - Oracle 19c TDE Wallet setup 1

**Related List Title:** IQ Template Step List

**Table name:** u\_iq\_template\_step

**Query Condition:** IQ Template = Infosario Safety - Oracle 19c TDE Wallet setup 1

**Sort Order:** Step Number in ascending order

10 IQ Template Steps

▲ Step Number	Step Type	Instructions
1	Verify	Make sure /mounts/oracle_wallet is mounted on server.
2	Install	Create directory 'tde' under /mounts/oracle_wallet/\$ORACLE_SID  Eg: /mounts/oracle_wallet/\$ORACLE_SID/tde
3	Install	Wallet creation pre-req:  1. Set wallet_root parameter on database and restart the database.  alter system set WALLET_ROOT="/mounts/oracle_wallet/\$ORACLE_SID" scope=spfile;  shutdown immdiate startup  2. Set tde_configuration on database and restart the database  alter system set TDE_CONFIGURATION="KEYSTORE_CONFIGURATION=FILE" scope=spfile;  shutdown immdiate startup
4	Install	Take a cold backup before making any changes.

▲ Step Number	Step Type	Instructions
5	Install	<p>Initialize the wallet and add the master encryption key using below command.</p> <p>administer key management create keystore '/mounts/oracle_wallet/\$ORACLE_SID/tde' identified by "wallet password";</p>
6	Install	<p>Create an auto open wallet using below command.</p> <p>administer key management create auto_login keystore from keystore '/mounts/oracle_wallet/\$ORACLE_SID/tde' identified by "wallet password";</p>
7	Install	<p>Set Open Keystore by using below command.</p> <p>administer key management set keystore open force keystore identified by "wallet password";</p>
8	Install	<p>Set Master key with backup.</p> <p>administer key management set key FORCE KEYSTORE identified by "wallet password" with backup;</p>
9	Install	<p>Create an Encrypted Tablespace.</p> <p>CREATE TABLESPACE encrypted_ts DATAFILE '/mounts/\$ORACLE_SID_data/oradata/\$ORACLE_ SID/dbfiles/encrypted_ts01.dbf' SIZE 128K AUTOEXTEND ON NEXT 64K ENCRYPTION USING 'AES256' DEFAULT STORAGE(ENCRYPT);</p>
10	Verify	<p>Run below command from the directory that holds the wallet to list the wallet files i.e. /mounts/oracle_wallet/\$ORACLE_SID/tde</p> <p>mkstore -wrl . -list</p>

**Related List Title:** IQ Template Variables List

**Table name:** u\_iq\_template\_variables

**Query Condition:** IQ Template = Infosario Safety - Oracle 19c TDE Wallet setup 1

**Sort Order:** None

1 IQ Template Variables

Name	Default Value	IQ Template
DBNAME		Infosario Safety - Oracle 19c TDE Wallet setup 1

**Related List Title:** Approval List  
**Table name:** sysapproval\_approver  
**Query Condition:** Review for = Infosario Safety - Oracle 19c TDE Wallet setup 1  
**Sort Order:** State in ascending order

3 Approvals

▲ State	Approver	Approval Meaning	Group	Workflow activity	Created
Approved	Vishwanath,Akhila (787850)	For Cat 1: This signature indicates technical review of this document has been completed, and authorizes execution of the IQ For Cat 2-5: This signature indicates review of this document and confirms that this deliverable includes sufficient detail to install the system or project			13-Sep-2022 12:17:11 PM
Approved	G,RamSanthosh (808326)	This signature confirms that installation and verification steps described in this document are complete and sufficient to demonstrate qualified installation of the system.			09-Sep-2022 03:13:49 PM
Approved	Ball,Linda (633987)	This signature indicates technical review of this document and confirms that this deliverable includes sufficient detail to install the system, and that the document is in compliance with the applicable SOPs			09-Sep-2022 03:14:53 PM