YES BANK Ltd.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Business Requirement Document for Automating On-Demand Oracle Database Installation on Linux Server

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Prepared by: Sagar Bhalerao

Date Prepared: 10/07/2023

Document Revision History\*

| Ver. No. | Ver. Date | Prepared By | Reviewed By | Approved By | Affected Section & Summary of Change |
| --- | --- | --- | --- | --- | --- |
| 1.0 | 10/07/2023 | Sagar Bhalerao (BDTS) | Hiten Bhatia (BDTS)  Tushar Raut (BDTS) | Aarti Kamble (BDTS) |  |
| 1.1 | 26/07/2023 | Sagar Bhalerao (BDTS) | Hiten Bhatia (BDTS)  Tushar Raut (BDTS) | Aarti Kamble (BDTS) | Added Oracleasm library configure |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Table of Contents

[1 Executive Summary\* 3](#_Toc139894171)

[2 Introduction: 3](#_Toc139894172)

[3 Business Objectives: 3](#_Toc139894173)

[4 Scope: 3](#_Toc139894174)

[4.1 In Scope 3](#_Toc139894175)

[4.2 Out of Scope 3](#_Toc139894176)

[5 Stakeholders: 4](#_Toc139894177)

[6 Functional Requirements: 4](#_Toc139894178)

[6.1 Flow Diagram 4](#_Toc139894179)

[7 Non-Functional Requirements: 5](#_Toc139894180)

[8 Assumptions: 5](#_Toc139894181)

[9 Risks and Mitigation: 5](#_Toc139894182)

[10 Project Timeline: 5](#_Toc139894183)

[11 Process 6](#_Toc139894184)

[11.1 Prerequisites – 6](#_Toc139894185)

[11.2 RAC Pre-Requisites. 6](#_Toc139894186)

[11.3 Software Deployment 6](#_Toc139894187)

[11.4 Background Process 6](#_Toc139894188)

[11.5 Oracle Database 19c: Installation Guide for Linux 7](#_Toc139894189)

[12 . Conclusion: 7](#_Toc139894190)

# Executive Summary\*

Automating On-Demand Oracle Database Installation on Linux Server by Developing a robust and reliable automated solution for installing Oracle Database.

# Introduction:

The purpose of this document is to outline the business requirements for automating the on-demand installation of Oracle Database on Linux servers. By automating this process, we aim to streamline and simplify the installation procedure, reduce manual effort, and enhance efficiency for our clients.

# Business Objectives:

a. Automation: Develop a robust and reliable automated solution for installing Oracle Database on Linux servers.

b. Flexibility: Enable on-demand installations to meet project and application requirements efficiently.

c. Consistency: Ensure consistent and standardized installations across multiple environments.

d. Time and Cost Savings: Reduce installation time and associated costs by minimizing manual intervention.

e. Scalability: Support installation on a growing number of servers to cater to increasing demand.

# Scope:

## In Scope

The automation solution will cover the following aspects:

a. Pre-Installation Checks: Validate server prerequisites, such as available system resources, required packages, and system configurations.

b. Oracle Database Installation: Execute the installation process on physical and virtual Linux servers, including software extraction, and necessary post-installation tasks.

c. OracleASM configuration

d. Oracle Grid installation

c. Logging and Error Handling: Generate detailed logs for troubleshooting and error handling during the installation process.

d. Security: Implement appropriate security measures, such as secure authentication and encryption, to protect sensitive data during installation.

## Out of Scope

1. Execute the installation process on virtual appliances or pre-configured customized Linux operating system
2. Windows operating system
3. Post install database configuration
4. Post install database hardening

# Stakeholders:

a. BDTS DBA Support: Organizations seeking on-demand Oracle Database installations.

b. BDTS Linux System Administrators: Responsible for managing the Linux servers and executing the installation process.

c. IT Process Automation (Developers): Involved in creating and maintaining the automated installation solution.

d. BDTS DBA Support: Ensures smooth functioning of the automated installation process and provides support to Application owner or Database requester.

# Functional Requirements:

a. User Interface: Develop an intuitive web-based interface via promethean for initiating and customizing the installation process.

b. Compatibility: Support various versions of Oracle Database and Linux distributions.

c. Pre-Installation Checks: Verify server prerequisites, including available disk space, memory, required packages, and network connectivity.

d. Silent Mode Installation: Provide an option for unattended installation, enabling hands-free execution with default or predefined settings.

e. Logging and Error Handling: Generate comprehensive logs for troubleshooting and record any errors encountered during the installation process.

## Flow Diagram



# Non-Functional Requirements:

a. Reliability: Ensure the installation process is consistent, reliable, and minimizes the risk of errors or failures.

b. Performance: Optimize the installation process to minimize the time required for installation.

c. Security: Implement secure authentication mechanisms and protect sensitive data during installation.

d. Scalability: Design the solution to support simultaneous installations on multiple servers to handle increased demand.

e. Maintainability: Develop the solution with modularity and code reusability in mind to facilitate easy maintenance and future enhancements.

# Assumptions:

a. The Linux servers meet the minimum hardware and software requirements specified by Oracle Database.

b. Requester or the application owner have appropriate licensing agreements and permissions to use Oracle Database.

c. Adequate network connectivity is available for downloading necessary software and updates during the installation process.

# Risks and Mitigation:

Identify potential risks and corresponding mitigation strategies, such as:

a. Compatibility issues between Oracle Database versions and Linux distributions: Perform thorough compatibility testing before implementing the solution.

b. Insufficient system resources: Conduct capacity planning and validate server specifications before initiating installations.

c. Network connectivity issues: Implement retry mechanisms and offline installation options to handle intermittent network connectivity.

# Project Timeline:

Provide a high-level timeline for the development, testing, and deployment of the automated installation solution.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Automation Activity Task** | **Start Date** | **End Date** | **Days** | **Task Owner** |
| **Oracle Installation / DB Creation** | 18/06/2023 | 14/08/2023 |  |  |
| **Technical Requirement Gathering** | 03/07/2023 | 10/07/2023 | 15 | Sagar / Rahul / Aarti |
| **Solution design** | 10/07/2023 | 17/07/2023 | 7 | Tushar / Devidas / Ritu |
| **Pre-requisites** | 10/07/2023 | 17/07/2023 | 7 | Sagar / Tushar / Devidas / Ritu / Rahul |
| **Automation development / Implementation - UAT** | 17/07/2023 | 31/07/2023 | 14 | Tushar / Devidas |
| **Automation Implementation - Production** | 31/07/2023 | 07/08/2023 | 7 | Tushar / Devidas / Ritu / Rahul |
| **Production Handover** | 07/08/2023 | 14/08/2023 | 7 | Tushar / Devidas |
| **Automation Process Logging** | 07/08/2023 | 09/08/2023 | 2 | Sagar / Omkar |

# Process

4 mandatory phases for BDTS requester.

## Prerequisites –

a. ARMS request – BDTS requester to get access of Promethean as per access module provisioned in ARMS and based on requester’s requirement.

b. PIM Access of Host/s – BDTS requester to raise PIM access request for respective software support team members as per the existing defined PIM process. (Note-this is not required from automation perspective. This is purely from post installation support perspective)

c. Entry of Hosts, Application in uCMDB – Please ensure whether hosts, applications are correctly created, and information is rightly updated in uCMDB along with service map. Otherwise host will not be visible in Promethean.

d. Server automation agent should be installed on host, from which Promethean will communicate to server automation application and will connect to host through agent installed on host.

e. Database file system (Drives) to be configured on host

REDO - 20GB \* 4  
ARCH - 500GB \* 1  
DATA - 500GB \* 2  
/ora\_home -100GB  
/grid\_home - 100GB  
/orabkp - 600GB

## RAC Pre-Requisites.



## Software Deployment

BDTS requester to raise request through promethean page for Oracle Installation.

## Background Process

a. Promethean to update HPSM for create change and update change.

b. Promethean to update server automation of task to action.

c. Server automation to update Promethean of task actioned.

d. Promethean to update status and close change in HPSM.

e. Promethean, Server automation application and HPSM are using URL to communicate each other through API which are hosted in ESB-IDP and for which URLs are created for each individual task.

4) Deployment Check – BDTS requester to first check the change request for success or failure, in absence of this follow-up with respective software support team members to check software deployment based on respective Promethean and HPSM change request.

## Oracle Database 19c: Installation Guide for Linux



## Oracle Grid Installation septs



## Oracle ASM library configuration



# . Conclusion:

Automating the on-demand installation of Oracle Database on Linux servers will significantly enhance efficiency, reduce manual effort, and ensure consistent installations. By meeting the specified business requirements, we aim for a reliable and scalable solution that meets the needs of database provisioning while saving time and costs associated with manual installations.