



# Maldives Police Service

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Republic of Maldives

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## Request for Proposal

### PURPOSE:

The purpose of this document is to propose **Supply, Upgrade, Migration, Installation and Configuration of Oracle Database Appliance Hardware Infrastructure and Oracle Database Environment including Training** to Maldives Police Service.

Any single firm, sole proprietorship, partnership, company, or other legal entity registered in the Republic of Maldives is eligible to participate in the tender.

### TECHNICAL REQUIREMENT AND SCOPE OF WORKS

Requirements
<b>ORACLE DATABASE APPLIANCE X8 Model for ORACLE DATABASE ENVIRONMENT (1 BUNDLE)</b>
<b>GENERIC REQUIREMENTS</b>
An integrated, pre-built clustered system comprising computer hardware, software, storage, and networking components in a single unit.
Hardware and software configuration built to protect against component failures such as disk failures, CPU failures, memory failure, network card failures, and system controller failures.
Hot swappable components such as power units, fans, storage disks.
Single vendor for all component support calls.
The solution should be certified to work with Oracle Database 19c Enterprise Edition and Real Application Cluster (RAC) option and supported by Oracle Technical Support. Solutions based on technologies that not certified and supported by Oracle Technical Support will not be considered.
Automated deployment wizard for rapid complete end-to-end install of Oracle products with HA option measured in hours.
Single automated patching interface and patch bundle to update and patch software system components such as firmware and hardware drivers, operating system, storage manager, clustering software, and database.

Requirements
Ability to dynamically increase CPU capacity and license software incrementally using pay-as-you-grow approach.
<b>TECHNICAL REQUIREMENTS</b>
At least 2 (two) servers to support redundant server configuration and system high availability.
At least 1 (one) shared disk enclosure, preconfigured and connected to the servers.
The solution must have a minimum of 64 (sixty-four) Intel Xeon 64-bit used by the database server and supporting infrastructure.
<b>Each server must have the following characteristics:</b>
<b>Processors</b>
Processor architecture implemented in 64-bit technology
Each server must have at least 2 (two) physical Intel Xeon 64-bit with a minimum of 16 (sixteen) cores per processor.
Each server must have a minimum of 2 (two) active processor cores, while the rest of the processor cores may stay inactive.
Each server must be able to activate additional processor cores without hardware upgrades to maximum of 32 (thirty-two) processor cores.
<b>Memory</b>
Each server must have at least 384 GB of DDR4 RAM
The minimum frequency of memory cards is DDR4-2666
<b>Internal Drives</b>
Each server must have at least 2 (two) M.2 SATA SSD internal disks with at least 480 GB for the operating system.
<b>I / O (Input/Output) Units</b>
Each server must have a minimum of Two (2) Dual-Port 12 Gb/s SAS-2 (Serial Attached SCSI) HBA to ensure direct connectivity with disk storage and optional disk storage expansion.
Each server must have of One (1) Dual port 10/25Gbps HBA and Transceivers
Each server must have of Two (2) Oracle 3M 10Gbps FC Cable
Each Server must have a minimum of One (1) Quad port 1/10GE BASE-T Ethernet Network Card
Each server must have at least One (1) dual port 10/25 GBE SFP28 PCIe Adapter designed for the cluster interconnect to support redundant connections between servers.
Each server must have at least 2 (two) USB 3.0 ports.

Requirements
<b>Power Supply Units</b>
Each server must have at least 2 (two) hot swappable, redundant power supplies.
<b>Operating System</b>
Each server must be shipped with a preinstalled, configured and licensed 64-bit Oracle Linux operating system with included technical support for at least one year as well an appliance manager which allows one-button automation for provisioning, storage management, patching, and diagnostics.
<b>The system of shared disks (storage) should have the following characteristics:</b>
<b>Disk Storage</b>
Disk storage must have at least Six (6) SAS (Serial Attached SCSI) SSD disks with capacity of at least 7.68TB
Total Capacity (gross) of storage system must be at least 42TB of raw disk space implemented using SSD disk drives.
All usable disk capacity should be configured for the database and should have at least triple (3) mirroring configuration for the maximum redundancy.
Hard disks drives must be Hot Swap replaceable.
Hard disks drives must be interconnected in such way that database servers see them as one unified data storage system.
Disk storage shelf must have at least 2 (two) hot swappable, redundant power supplies.
<b>Assembly and installation of the rack enclosure</b>
The solution should be delivered as a 8U rack-mountable system.
<b>Declared system performance</b>
Depending on how the system is configured, how many instances of the server is active and what templates are used, the system should provide adequate I/O bandwidth.
<b>FUNCTIONAL REQUIREMENTS</b>
<b>Ease of installation, configuration, and maintenance</b>
The system should have the wizard-driven installation and configuration mechanism which allows easy installation and configuration of software, patches and best practices usage based on predefined database templates.
The system should have self-management features, which implies automatically download of software and patches if configured so by the user of the system.
<b>Ease of diagnosis and technical support</b>

## Requirements

Diagnostics and support should be enabled using Diagnostic Wizard that allows identification of problems and taking corrective actions. It should allow the easy creation of service requests for the technical support to be sent to the vendor of the system and includes preparation of all necessary technical details contained in the software logs, their packaging in the software archive and add the Service Request.

### Scalability and high availability

Scalability of the system should be provided in a way that goes from the minimal configuration of the system when it comes to the number of active core processors (2 processor cores on a single server) to the activation of all available cores on both servers (64 processor cores on both servers).

High availability should be provided through clustering software and based on some of the high availability options available in Oracle Database 19c Enterprise Edition (Oracle Real Application Cluster RAC, Oracle RAC-1-node or Oracle Data Guard).

## OPERATING SYSTEM AND SOFTWARE LICNESES

### OS and Software Support

Each ODA server node should support minimum the following operating systems and other software:

#### Operating systems

- Oracle Solaris
- Oracle Linux

#### Virtualization

- Oracle Virtualization Manager
- Oracle Linux Enterprise Edition
- Oracle Enterprise Manager 13C
- Oracle KSPLICE (for zero downtime patching)
- Oracle Linux Cloud Native Framework (Kubernetes)

### Software Licenses and Support Services

The ODA each server node minimum should be installed and licensed all the required operating system and other software and 1 Year 24 x 7 software update and license support for the following software and the other software must be included with the server node:

- Oracle Virtualization Manager with 1 Year 24 x 7 software update and license support
- Oracle Linux Enterprise Edition with 1 Year 24 x 7 software update and license support
- Enterprise Manger 13C with 1 Year 24 x 7 software update and license support
- ODA Appliance Manager with 1 Year 24 x 7 software update and license support
- Oracle KSPLICE (for zero downtime patching) with 1 Year 24 x 7 software update and license support
- Oracle Linux Cloud Native Framework (Kubernetes) with 1 Year software update and license support

Requirements
support
<b>DATABASE SOFTWARE</b>
<b>Licensing Guidelines</b>
Licensing should be based on "pay-as-you-growth" principle. This licensing principle is based on payment for the Oracle DBMS licenses, depending how much processor cores are active and working for the Oracle DB 19c Enterprise Edition.
The system should enable dynamic activation of processor cores per customer needs through a principle known as "sub-capacity licensing." This principle involves the allocation of processor cores ranging from a minimum of 2 (two) processor cores on a single server and up to 64 (sixty-four) processor cores on both servers, depending on what are the real needs of users for processing power.
The system should allow the use of all available hardware resources (server's RAM, SSD and disk space servers, and shared disk systems) without any licensing restrictions, regardless of the number of active processor cores.
<b>Database Licenses and Support</b>
Oracle Database Enterprise Edition – Processor Perpetual – Full use License (4Nos)
Oracle 1 Year Software Update and License Support (4Nos)
Oracle Real Application Cluster – Processor Perpetual – Full use License (4Nos)
Oracle 1 Year Software Update and License Support (4Nos)
Oracle Tuning Pack – Processor Perpetual – Full use License (4Nos)
Oracle 1 Year Software Update and License Support (4Nos)
Oracle Diagnostics Pack – Processor Perpetual – Full use License (4Nos)
Oracle 1 Year Software Update and License Support (4Nos)
Oracle Audit Vault and Database Firewall - Processor Perpetual (4Nos)
Oracle 1 Year Software Update and License Support (4Nos)
Oracle Partitioning – Processor Perpetual – Full use License (4Nos)
Oracle 1 Year Software Update and License Support (4Nos)
Oracle Advanced Security – Processor Perpetual – Full use License (4Nos)
Oracle 1 Year Software Update and License Support (4Nos)
<b>SUPPORT SERVICE</b>

Requirements
Support must allow access to online support for access to service requests and firmware downloads
Support must allow access to multiserver management tools, which also feature automated service request capability, whereby potential issues are detected and reported without user intervention
Oracle 1Year 24 x 7 <b>Hardware</b> Premier Support for ODA System
<b>ORACLE SERVER – EM13C for MANAGEMENT &amp; MONITROING OF DATABASE HW (1 BUNDLE)</b>
<b>GENERIC REQUIREMENTS</b>
The server should be based on industry standards
One (1) Intel Xeon Gold 5218 16-core 2.3 GHz
The server should support up to 2 Processor
The server should support DDR4-2666 memory
Memory requirement is 128GB
The server should support up to 1.5TB RAM
Two (2) on-board auto-sensing 100/1000G Base-T Ethernet ports
The server should support up to 8 (eight) 2.5-inch disks
Minimum four (4) 1.2 TB 10k SAS should be provided
The server should optionally support the following RAID levels: 0, 1, 5, 6, 10, 50 and 60
All disk bays should be able to support SAS-3 HDDs or SSDs
The server must also optionally support NVMe drives
The server should have four (4) PCIe 3.0 slots, with at least two slots being x16
One (1) 10GE Dual port SFP+ HBA and Transceivers or Quad port 1/10GE BASE-T Ethernet Card
Each server must have of Two (2) Oracle 3M 10Gbps FC Cable OR 3M 10Gbps RJ45 Cat6 Cable
<b>SYSTEMS MANAGEMENT:</b>
The server must have full-function server management tools at no additional cost
<p>The server management must include the following features:</p> <ul style="list-style-type: none"> <li>• Remote keyboard, video and mouse redirection</li> <li>• Full remote management through command-line, IPMI, and browser interfaces</li> <li>• Remote media capability (USB, DVD, CD, ISO image)</li> <li>• Advanced power management and monitoring</li> <li>• Active Directory, LDAP, RADIUS support</li> <li>• Direct virtual media redirection</li> </ul>

Requirements
The server management must provide secure and comprehensive local and remote management
The server management must include power management and monitoring, and fault detection and notification
The server management must be accessible via serial port or via a dedicated 10/100 Base-T Ethernet network management port
Network management must support in-band, out-of-band and side-band access
<b>OPERATING SYSTEM AND SOFTWARE SUPPORT</b>
<p>The server should support minimum the following operating systems and virtualization software:</p> <p>Operating systems</p> <ul style="list-style-type: none"> <li>• Oracle Solaris</li> <li>• Oracle Linux</li> </ul> <p>Virtualization</p> <ul style="list-style-type: none"> <li>• Oracle Virtualization Manager</li> <li>• Oracle Linux Enterprise Edition</li> <li>• Oracle Enterprise Manager 13C</li> <li>• Oracle KSPLICE (for zero downtime patching)</li> <li>• Oracle Linux Cloud Native Framework (Kubernetes)</li> </ul>
<b>SOFTWARE LICENSES AND SUPPORT SERVICES</b>
<p>The server minimum should be installed and licensed all the required operating system and other software and 1 Year 24 x 7 software update and license support for the following software and the other software must be included with the server node:</p> <ul style="list-style-type: none"> <li>• Oracle Virtualization Manager with 1 Year 24 x 7 software update and license support</li> <li>• Oracle Linux Enterprise Edition with 1 Year 24 x 7 software update and license support</li> <li>• Enterprise Manager 13C with 1 Year 24 x 7 software update and license support</li> <li>• Oracle KSPLICE (for zero downtime patching) with 1 Year 24 x 7 software update and license support</li> <li>• Oracle Linux Cloud Native Framework (Kubernetes) with 1 Year software update and license support</li> </ul>
<b>SUPPORT SERVICE</b>
Support must allow access to online support for access to service requests and firmware downloads
Support must allow access to multiserver management tools, which also feature automated service request capability, whereby potential issues are detected and reported without user intervention
Oracle 1Year 24 x 7 <b>Hardware</b> Premier Support for System

## ORACLE SERVER – AUDIT VAULT HARDWARE (1 BUNDLE)

### GENERIC REQUIREMENTS

The server should be based on industry standards

One (1) Intel Xeon Gold 5218 16-core 2.3 GHz

The server should support up to 2 Processor

The server should support DDR4-2666 memory

Memory requirement is 128GB

The server should support up to 1.5TB RAM

Two (2) on-board auto-sensing 100/1000G Base-T Ethernet ports

The server should support up to 8 (eight) 2.5-inch disks

Minimum four (4) 1.2 TB 10k SAS should be provided

The server should optionally support the following RAID levels: 0, 1, 5, 6, 10, 50 and 60

All disk bays should be able to support SAS-3 HDDs or SSDs

The server must also optionally support NVMe drives

The server should have four (4) PCIe 3.0 slots, with at least two slots being x16

One (1) 10GE Dual port SFP+ HBA and Transceivers or Quad port 1/10GE BASE-T Ethernet Card

Each server must have of Two (2) Oracle 3M 10Gbps FC Cable OR 3M 10Gbps RJ45 Cat6 Cable

### SYSTEMS MANAGEMENT:

The server must have full-function server management tools at no additional cost

The server management must include the following features:

- Remote keyboard, video, and mouse redirection
- Full remote management through command-line, IPMI, and browser interfaces
- Remote media capability (USB, DVD, CD, ISO image)
- Advanced power management and monitoring
- Active Directory, LDAP, RADIUS support
- Direct virtual media redirection

The server management must provide secure and comprehensive local and remote management

The server management must include power management and monitoring, and fault detection and notification

The server management must be accessible via serial port or via a dedicated 10/100 Base-T Ethernet network management port



Network management must support in-band, out-of-band and side-band access
<b>OPERATING SYSTEM AND SOFTWARE SUPPORT</b>
<p>The server should support minimum the following operating systems and virtualization software:</p> <p>Operating systems</p> <ul style="list-style-type: none"> <li>• Oracle Solaris</li> <li>• Oracle Linux</li> </ul> <p>Virtualization</p> <ul style="list-style-type: none"> <li>• Oracle Virtualization Manager</li> <li>• Oracle Linux Enterprise Edition</li> <li>• Oracle Enterprise Manager 13C</li> <li>• Oracle KSPLICE (for zero downtime patching)</li> <li>• Oracle Linux Cloud Native Framework (Kubernetes)</li> </ul>
<b>SOFTWARE LICENSES AND SUPPORT SERVICES</b>
<p>The server minimum should be installed and licensed all the required operating system and other software and 1 Year 24 x 7 software update and license support for the following software and the other software must be included with the server node:</p> <ul style="list-style-type: none"> <li>• Oracle Virtualization Manager with 1 Year 24 x 7 software update and license support</li> <li>• Oracle Linux Enterprise Edition with 1 Year 24 x 7 software update and license support</li> <li>• Enterprise Manager 13C with 1 Year 24 x 7 software update and license support</li> <li>• Oracle KSPLICE (for zero downtime patching) with 1 Year 24 x 7 software update and license support</li> <li>• Oracle Linux Cloud Native Framework (Kubernetes) with 1 Year software update and license support</li> </ul>
<b>SERVER SUPPORT</b>
Support must allow access to online support for access to service requests and firmware downloads
Support must allow access to multiserver management tools, which also feature automated service request capability, whereby potential issues are detected and reported without user intervention
Oracle 1Year 24 x 7 <b>Hardware</b> Premier Support for System
<b>ORACLE SERVER – DB FIREWALL HARDWARE (1 BUNDLE)</b>
<b>GENERIC REQUIREMENTS</b>
The server should be based on industry standards
Two (2) Intel Xeon Gold 5218 16-core 2.3 GHz
The server should support DDR4-2666 memory
Memory requirement is 128GB
The server should support up to 1.5TB RAM

Two (2) on-board auto-sensing 100/1000G Base-T Ethernet ports
The server should support up to 8 (eight) 2.5-inch disks
Minimum four (4) 1.2 TB 10k SAS should be provided
The server should optionally support the following RAID levels: 0, 1, 5, 6, 10, 50 and 60
All disk bays should be able to support SAS-3 HDDs or SSDs
The server must also optionally support NVMe drives
The server should have four (4) PCIe 3.0 slots, with at least two slots being x16
One (1) 10GE Dual port SFP+ HBA and Transceivers or Quad port 1/10GE BASE-T Ethernet Card
Each server must have of Two (2) Oracle 3M 10Gbps FC Cable OR 3M 10Gbps RJ45 Cat6 Cable
<b>SYSTEMS MANAGEMENT:</b>
The server must have full-function server management tools at no additional cost
<p>The server management must include the following features:</p> <ul style="list-style-type: none"> <li>• Remote keyboard, video, and mouse redirection</li> <li>• Full remote management through command-line, IPMI, and browser interfaces</li> <li>• Remote media capability (USB, DVD, CD, ISO image)</li> <li>• Advanced power management and monitoring</li> <li>• Active Directory, LDAP, RADIUS support</li> <li>• Direct virtual media redirection</li> </ul>
The server management must provide secure and comprehensive local and remote management
The server management must include power management and monitoring, and fault detection and notification
The server management must be accessible via serial port or via a dedicated 10/100 Base-T Ethernet network management port
Network management must support in-band, out-of-band and side-band access
<b>OPERATING SYSTEM AND SOFTWARE SUPPORT</b>
<p>The server should support minimum the following operating systems and virtualization software:</p> <p>Operating systems</p> <ul style="list-style-type: none"> <li>• Oracle Solaris</li> <li>• Oracle Linux</li> </ul> <p>Virtualization</p> <ul style="list-style-type: none"> <li>• Oracle Virtualization Manager</li> <li>• Oracle Linux Enterprise Edition</li> <li>• Oracle Enterprise Manager 13C</li> <li>• Oracle KSPLICE (for zero downtime patching)</li> <li>• Oracle Linux Cloud Native Framework (Kubernetes)</li> </ul>
<b>SOFTWARE LICENSES</b>

The server minimum should be installed and licensed all the required operating system and other software and 1 Year 24 x 7 software update and license support for the following software and the other software must be included with the server node:

- Oracle Virtualization Manager with 1 Year 24 x 7 software update and license support
- Oracle Linux Enterprise Edition with 1 Year 24 x 7 software update and license support
- Enterprise Manager 13C with 1 Year 24 x 7 software update and license support
- Oracle Ksplice (for zero downtime patching) with 1 Year 24 x 7 software update and license support
- Oracle Linux Cloud Native Framework (Kubernetes) with 1 Year software update and license support

#### **SERVER SUPPORT**

Support must allow access to online support for access to service requests and firmware downloads

Support must allow access to multiserver management tools, which also feature automated service request capability, whereby potential issues are detected and reported without user intervention

Oracle 1Year 24 x 7 **Hardware** Premier Support for System

#### **PROFESSIONAL SERVICES (1 BUNDLE)**

##### **PROFESSIONAL SERVICES FOR HARDWARE INSTALLATION – ON-SITE**

Installation, Configuration, and Implementation of ODA

Install AV Server and AV Agent Configurations for 3 Databases

Installation, Configuration, and Implementation of EM13c Servers

Installation, Configuration, and Implementation of DB firewall

##### **PROFESSIONAL SERVICES FOR DATA MIGRATION FROM EXADATA TO ODA – ON-SITE/REMOTE**

Professional Services for Oracle Exadata Migration Services to ODA

Professional Services for Upgrade to Oracle 19C

Services for database upgrade and migration from Exadata to ODA  
Source DB Versions – 11.2.0.3 on Exadata  
Target DB – 19C on ODA

Platform Details

Source OS – Linux\_x86-64 (on Exadata) to Target OS – Linux\_x86-64 (on ODA)

Professional Services for Oracle Exadata Migration to ODA: DBM 277GB

Minimum 4 hours downtime (over the weekend) shall be provided for migration. No near zero downtime-based migration. Migration location for equipment's is same DC

#### **OTHERS**

**Other instruction to Bidders**

The bidders shall include work is obviously required for the type of work being undertaken then it shall be deemed to have been included even though the item is not specifically mentioned or shown in the drawings, specifications or in Scope of Work.

All installation and migration work must be performed by Certified Engineers. All the certifications must submit with the proposal.

Should provide 02 Pax - Database Administrator | Oracle Database - Administration Workshop & Oracle Database Appliance Release 18c from Oracle authorized training center. All costs must be covered by the bidding party.

#### **Warranty and Technical Support**

The successful bidder shall provide a warranty of

- Oracle One (1) 24 x 7 Hardware Premier Support for ODA and Server System
- Oracle One (1) 24 x 7 Software Update and License Support
- Local One (1) 24 x 7 Year Maintenance Support for Hardware and Technical Support Services

for the entire solution (software, hardware, etc..) provided under the contract will comply strictly with the contract, shall be genuine in every case and shall be free from defects.

The successful bidder further warrants to MPS that all materials, equipment, and supplies furnished by the vendor will be new, merchantable of the most suitable grade and fit for their intended purposes.

The warranty period shall be as given in the bid proposal and/or otherwise agreed in conditions of contract between MPS and the successful bidder. Additionally, the successful bidder further warrants that all materials and equipment furnished have supplied from authorized channels.

MPS reserves the right to reject the goods if it has identified as grey market products or counterfeit equipment.

#### **Service Level Expectations**

The Bidder shall offer warranty for the hardware against defects arising out of faulty design, materials, and workmanship from the date of acceptance of the full system as specified below:

- Oracle One (1) 24 x 7 Hardware Premier Support for ODA and Server System
  - Oracle One (1) 24 x 7 Software Update and License Support
  - Local One (1) 24 x 7 Year Maintenance Support for Hardware and Technical Support Services
- a) Defective equipment shall be replaced by the Bidder at his own cost, including the cost of transport if any.
  - b) The Bidder shall provide all normal toolkit and test equipment needed for the maintenance of the hardware.
  - c) System Maintenance & Support services will include the following activities.
    - 24 x 7 online support
    - Patch updating and major / minor software version upgrading support.
    - Issue resolution / Onsite Visits within 2 hrs. For hardware failures reported.
    - Phone/Email TAC and RMA support must be provided.
    - Local TAC support plan must be maintained by the bidder for the warranty period.