Intel® Virtual RAID on CPU (Intel® VROC) 9.3 Production Version (PV) Out-of-Band (OOB)

Release Notes

Revision 1.9

October 2025

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Revision History

Revision Number	Description	Revision Date
1.9	• Updated issue list	October 2025
1.8	• Updated issue list • Updated support OS list	June 2025
1.7	• Initial Public release	April 2025
1.7	• Updated issue list	February 2025
1.6	• Updated issue list	November 2024
1.5	• Updated issue list	June 2024
1.4	• Updated limitations • Updated support OS list • Updated issue list	March 2024
1.3	• Updated issue list	November 2023
1.2	• Updated issue list	August 2023
1.1	• Added Section 3.4	June 2023
1.0	• Initial release of the document.	March 2023

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1 Introduction

1.1 Overview

This document outlines the release notes for the Out-of-Band (OOB) management feature for the Intel® Virtual RAID on CPU (Intel® VROC) family of products. Intel® VROC is an integrated solution supporting both NVMe* and SATA drives. The Intel® VROC Out-of-Band management interface supports only NVMe* drives attached to the Intel® Volume Management Device (Intel® VMD) and using Intel VROC (VMD NVMe RAID). SATA drives and Intel® VROC (SATA RAID) volumes can be managed through other VROC (in-band) interfaces.

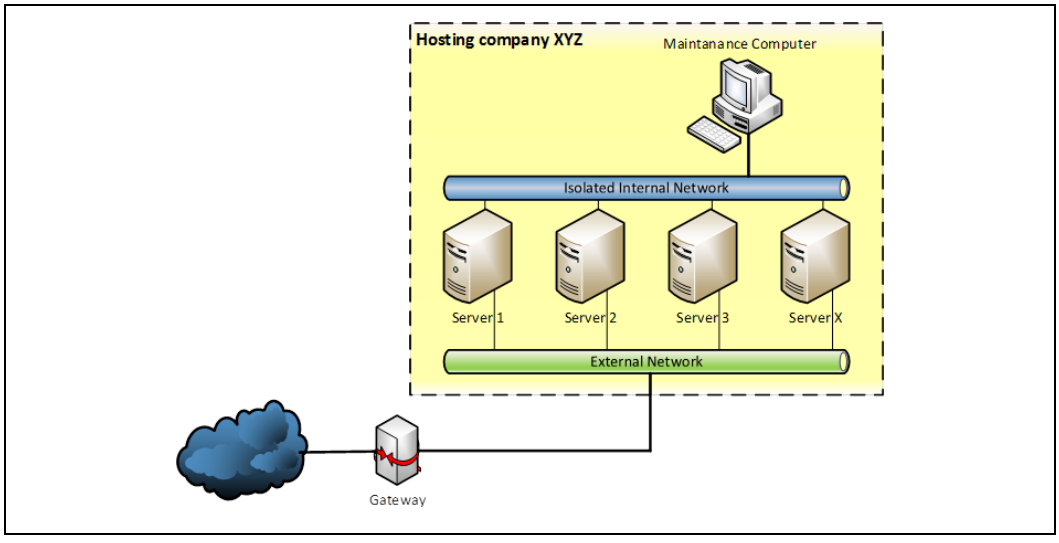
The main motivation for the OOB manageability feature for the Intel® VROC product is providing similar functionalities to hardware RAID cards. The Intel® VROC OOB management provides functionalities like:

- Retrieving drives inventory
- Monitoring drives state
- Monitoring RAID volumes state
- Triggering actions (for example, RAID create, delete, and LED management)

1.2 Background

OOB communication is an activity outside of a standard network. The high-level concept is represented in Figure 1-1. The OOB communication infrastructure is marked as a blue network: "Isolated Internal Network".

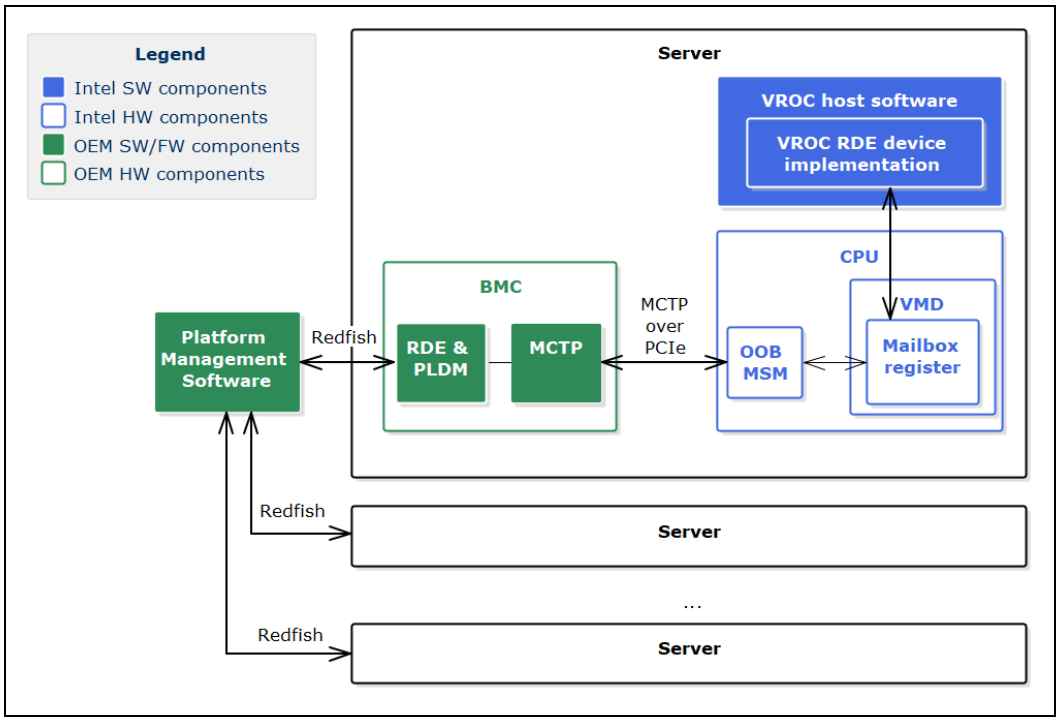
Figure 1-1. OOB Management Networking Diagram



1.3 Architecture Overview

In the Intel® VROC OOB management solution, the BMC is entry point for the requests from a management network. It processes the requests (for example, management command) and sends them to the Management Component Transport Protocol (MCTP) endpoint exposed by the Intel® Out-of-Band Management Services Module (Intel® OOBM Services Module), via MCTP over PCI Express* (PCIe*). The Intel® OOBM Services Module works as MCTP bridge, it receives requests from BMC and sends it to Intel® VROC OOB host software over Intel® VMD mailbox register. The Intel® VROC OOB host software component periodically polls the Intel® VMD mailbox register for new requests. The Intel® VROC OOB host software performs requested action and sends the response to the BMC in the opposite way. A high-level view of the solution is presented on Figure 1-2.

Figure 1-2. High-Level OOB Architecture View



1.4 Defect Submission Support

With this release, Intel receives, and processes issues reported by customers via the Intel® Premier Support (IPS) portal.

Please use the Intel® Premier Support tool to submit an issue. Information, training, and details can be found in http://www.intel.com/content/www/us/en/design/support/ips/training/welcome.html. Your local Field Application Engineer (FAE) can also provide you the necessary requirements to enable you to submit an Intel® Premier Support issue (also known as a "case"), including an account setup if you do not have one already.

When submitting a case, the following information needs to be included in the corresponding fields to flag Intel® VROC Application Engineering (AE) support:

1.5 Supported Platforms

The Intel® VROC 9.3 Production Validation (PV) package was designed to work on customer platforms that are starting with 6th Gen Intel Xeon Scalable processors codenamed Granite Rapids.

1.6 Reference Documents

Document	Document Number Location
Redfish Scalable Platforms Management API Specification v1.11.1	*https://www.dmtf.org/sites/default/files/standards/documents/DSP0266_1.14.0.pdf*
Redfish Base Message Registry	https://redfish.dmtf.org/registries/Base.1.8.2.json
Storage Device Message Registry	*https://redfish.dmtf.org/registries/StorageDevice.1.1.0.json*
Platform Level Data Model (PLDM) for Redfish Device Enablement	https://www.dmtf.org/sites/default/files/standards/documents/DSP0218_1.1.0.pdf
Platform Level Data Model (PLDM) for Platform Monitoring and Control Specification	https://www.dmtf.org/sites/default/files/standards/documents/DSP0248_1.2.0.pdf

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2 Drivers, Images, and Intel® VROC OOB Utilities

PreOS: `Intel® VROC Pre-OS OOB version 9.3.0.1132`.

The OOB UEFI package relies on the UEFI package from the `Intel® VROC 9.3.0.1132 PreOS PV` release Package.

OOB PreOS driver (`VrocOobDriver.efi`) should be integrated into BIOS if OOB feature is needed.

Table 2-1. VROC OOB Components

Function	OOB Version	9.3 PV Package
OOB PreOS	OOB PreOS 9.3.0.1132	VROC_OOB_DXE_9.3.0.1132
VROC PreOS	VROC PreOS 9.3.0.1132	VROC_DXE_9.3.0.1132
OOB Linux* Service Daemon	oob-0.1-OOB_9.3.0.1009.el9.x86_64.rpm	VROC_Linux_OOB_9.3.0.1009_PV.zip
OOB Windows* Service Agent	IntelVrocOobAgent.exe	VROC 9.3 PV Windows* release package

OOB components are provided over IPS by Intel® VROC PAE specifically.

2.1 How to Use in Linux*

The service (OOB Daemon) should be initialized in Linux*.

It can be installed manually:

`rpm -Uvh` oob-0.1-OOB_9.3.0.1009.el9.x86_64.rpm

```
systemctl start oobd
```

2.2 How to Use in Windows*

The service is called `IntelVrocOobAgent.exe`. The following manual commands are used to configure VROC OOB Agent service and start the service, which should be running for using OOB.

This service can be also started with the Windows application called "Services":

```
sc config "IntelVrocOobAgent" start=auto

sc start "IntelVrocOobAgent"
```

2.3 VROC OOB Support OS List

- RHEL 8.2/8.3/8.4/8.5/8.6/9.0 8.0PV (out-of-box)
- SLES 15.2/15.3/15.4 8.0PV (out-of-box)
- RHEL 8.7 (OOB supported)
- RHEL 8.8 (OOB supported)
- RHEL 9.1 (OOB supported)
- RHEL 9.2 (OOB supported)
- RHEL 9.4 (OOB supported)
- RHEL 9.5 (OOB supported)
- RHEL 9.6 (OOB supported)
- SLES 15.5 (OOB supported)
- SLES 15.6 (OOB supported)
- SLES 15.7 (OOB supported)
- Ubuntu* 20.04 8.2PV (out-of-box)
- Ubuntu* 22.04.3 (OOB supported)
- Ubuntu* 24.04.1(OOB supported)
- Windows* Server 2022
- Windows* Server 2025
- Windows* 11
- Windows* 10 21H2 with basic scope validation

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3 Intel® VROC OOB Limitations

3.1 Support for NVMe* Drive Only

The Intel® VROC OOB management interface supports only NVMe* drives managed by Intel® VROC (VMD NVMe RAID). SATA drives and Intel® VROC (SATA RAID) volumes can be managed through other Intel® VROC interfaces (that is, in-band).

3.2 Intel's Workstation Support

Intel® VROC OOB feature is not supported on workstation platforms.

3.3 Support for CPU on Socket 1 (1-Based)

Each CPU has the Intel® OOBMSM Services Module instance. The BMC should communicate only with the instance corresponding to the CPU on socket 1 (1-based). Activating the Intel® VMD domain on CPU socket 1 (1-based) is required.

3.4 Limitations on Linux*

1. VROC OOB does not currently support Linux* Kernel multipathing.
2. VROC OOB does not currently support Linux* real time kernel.

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4 Intel® VROC Issues

This section outlines the issues reported -and internally found- that customers need to be aware of. The issues are broken down into “Known Issues”.

4.1 Known Issues in Intel® VROC 9.3 PV

These are the known issues in this PV release package.

ID	Title
18039998957	Wrong default StripSizeBytes for Raid 0 and 10

4.2 Resolve Issues in Intel® VROC 9.3 PV

These are the resolved issues in this PV release package.

ID	Title
15018322159	[Linux]Redfish PATCH operation on a Volume with "CapacityBytes: 0" triggers Error

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