Intel® Ethernet 800 Series RDMA Ease of Use for Linux

Application Note

Rev. 1.2

October 2025

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Contents

Revision History

Revision	Date	Comments
1.2	October 07, 2025	Added the following section: • Section 1.2, "ICE Driver Comes First" Updated the following section: • Section 2.1, "Supported Operating Systems and Versions" • Section 2.2, "How to Run the Scripts" • Section 2.3, "What Does the Scripts Do?"
1.1	December 04, 2023	Updated the following sections: • Section 2.1, "Supported Operating Systems and Versions" • Section 2.2, "How to Run the Scripts" • Section 2.3, "What Does the Script Do?"
1.0	October 03, 2023	Initial public release.

1.0 Introduction

Before the development of installation scripts, setting up Remote Direct Memory Access (RDMA) and its associated core files was a manual, error-prone process on some OSes.

Starting with Intel® Ethernet Controller E810, Software Release 28.2, Intel provides RDMA installation scripts to automatically download and set up the RDMA core userspace libraries and irdma driver.

NOTE

Specific details might differ based on the version and structure of the irdma TAR file.

Refer to the provided *README_irdma.txt* file in the irdma TAR file for accurate instructions on effectively utilizing the scripts and successfully installing the RDMA core userspace libraries and irdma driver.

1.1 Common Problems with RDMA Driver Installation

When installing the RDMA driver, you might encounter the following issues:

- Prior installation of the RDMA driver from other vendors has replaced the standard libraries.
- Key files, such as operating system (OS) packages and module dependencies, are missing.
- Core files, supporting libraries, and drivers are missing.
- Customer systems do not have access to the Internet.

Some vendors replace the core libraries and standard libraries as part of their RDMA installation process. Consequently, when you try to install drivers from a different vendor, some critical libraries could be missing. Therefore, the Intel RDMA installation script reinstalls the necessary core files and standard libraries.

IMPORTANT

Missing OS packages are a frequent problem. The customer must have the supporting packages to build the RDMA core and the driver files on the system.

1.2 ICE Driver Comes First

RDMA functionality on Intel® Ethernet Controller E810 requires a compatible ICE driver to be installed before installing the RDMA (irdma) driver.

- The ICE driver serves as the LAN PF (Physical Function) driver and is a mandatory prerequisite for RDMA enablement.
- If the ICE driver is missing or incompatible, the RDMA functionality will not work as expected.
- You can download the ICE driver from Intel's official GitHub repository: https://github.com/intel/ethernet-linux-ice

2.0 Intel RDMA Installation Script

2.1 Supported Operating Systems

The Intel RDMA installation script is available starting with Intel® Ethernet Controller E810, Software Release 28.2.

The RDMA installation script is supported on multiple Linux distributions. Refer to the *README_irdma.txt* file included in the driver package for the current list of supported operating systems.

The Intel RDMA installation script is supported on future OS versions as well.

2.2 How to Run the Scripts

To run the Intel® RDMA installation script:

1. Extract the RDMA TAR-BALL located in:

```
~/RDMA/Linux
```

2. Extract the files from the TAR file:

```
tar zxf irdma-1.12.55.tgz
```

3. Change the directory to:

```
irdma-1.12.55
```

4. Build and install the IRDMA driver. Run this command:

```
./build_sh
```

5. Build and install rdma-core:

```
./build_core.sh -y && ./install_core.sh
```

If there is an air gap (a self-contained network with no external or Internet connectivity) for security reasons, there are two files downloaded from the Internet that need to be handled.

Depending on your RHEL version, download the following:

- **For RHEL 8.x**:
  - GitHub copy of *rdma-core*
  - EPEL release RPM: *epel-release-latest-8.noarch.rpm*

- **For RHEL 9.x**:
  - GitHub copy of *rdma-core*
  - EPEL release RPM: *epel-release-latest-9.noarch.rpm*

The **build_core.sh** script provides overrides to point to an offline copy.

The RPMs required to build *rdma-core* need to be moved across the air gap.

For RHEL and clones, this includes the RPMs that are on the install ISO as well as the Code Ready Builder (CRB) repository, such as Powertools. The required RPMs can be determined using the following commands executed from the root directory of *rdma-core*:

For RHEL:

```
rpmspec --parse redhat/rdma-core.spec | grep BuildRequires
```

For SLES:

```
rpmspec --parse suse/rdma-core.spec | grep BuildRequires | grep -v curl-mini
```

For UBUNTU:

```
dpkg-checkbuilddeps 2>&1 | sed 's/([^)]*) *//g' | \
sed 's/dpkg-checkbuilddeps:\serror:\sUnmet build dependencies://g'
```

The explicit list of packages (RPMs or debs) can be moved across the gap into a private dnf/zypper/aptr repository or installed manually.

2.3 What Does the Scripts Do?

1. Requires access to *yum/dnf/zypper/apt* repositories and GitHub:
   a. Offline systems require migrated repositories or private repositories.
   b. Packages are documented in README_irdma.txt.
2. Build and install the IRDMA driver.
3. Determine rdma-core version by parsing patch file name.
4. Downloads rdma-core from GitHub using version from Step 2.

   NOTE
   This can be a pre-downloaded file for offline systems.

5. Patches rdma-core with the libirdma patch.
6. Installs the Build dependencies.
7. Runs the Build.
8. Install process:
   a. Removes any old packages that had been installed.
   b. Installs all packages from the directory.

3.0 Conclusion

Intel RDMA installation scripts simplify the installation of the Intel RDMA driver by addressing the familiar challenges encountered by users.

Intel RDMA installation scripts for Linux are available starting with Intel® Ethernet Controller E810, Software Release 28.2 and are part of future software releases.