



.NET Core 1.1 Release Notes

Red Hat Customer Content
Services

.NET Core 1.1 Release Notes

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Abstract

The Release Notes provide high-level coverage of the features and functionality that comprise the .NET Core 1.1 platform and documents known problems in this release. For detailed documentation on all changes, refer to Errata on the Red Hat Customer Portal.

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CHAPTER 1. AVAILABILITY

.NET Core 1.1 is a general purpose development platform that has several key features many developers find attractive, including automatic memory management and modern programming languages. These features make it easier to build high-quality apps more efficiently. Multiple implementations of .NET Core are available, based on open [.NET Standards](#) that specify the fundamentals of the platform.

This availability allows Windows developers to deploy to Red Hat Enterprise Linux without having to learn Red Hat Enterprise Linux and to expand the reach of workloads to Red Hat Enterprise Linux environments. The goal is to provide a safe introduction to a new environment and culture without risk of exposure. Now users of Red Hat Enterprise Linux and Red Hat Enterprise Linux-based Red Hat products can develop and run .NET Core applications directly on Red Hat Enterprise Linux 7, including Red Hat Enterprise Linux Atomic Host and Red Hat OpenShift Container Platform.

The .NET Core 1.1 component (rh-dotnetcore11) is packaged as a Software Collection (SCL) and is available for Red Hat Enterprise Linux 7 in the .NET content set. The RPM is yum installable. Full instructions for installing .NET Core 1.1 on Red Hat Enterprise Linux 7 is available in the [.NET Core 1.1 Getting Started Guide](#)

The .NET Core 1.1 is available in S2I-compatible docker containers and for OpenShift. Full instructions for using .NET Core 1.1 in containers are also available in the [.NET Core 1.1 Getting Started Guide](#).

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CHAPTER 2. .NET CORE OVERVIEW

The .NET Core platform is a general purpose development platform featuring automatic memory management and modern programming languages. It allows users to build high-quality applications efficiently. The .NET Core platform is available in Red Hat Enterprise Linux (RHEL 7) and OpenShift Container Platform via certified containers.

The .NET Core platform offers:

- ✧ the ability to follow a microservices-based approach, where some components are built with .NET and others with Java, but all can run on a common, supported platform in Red Hat Enterprise Linux and OpenShift Container Platform.
- ✧ the capacity to more easily develop new .NET Core workloads on Microsoft Windows. Customers can deploy and run on either Red Hat Enterprise Linux or Windows Server.
- ✧ a heterogeneous datacenter, where the underlying infrastructure is capable of running .NET applications without having to rely solely on Windows Server.
- ✧ access to many of the popular development frameworks, such as .NET, Java, Ruby, and Python from within OpenShift Container Platform.

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CHAPTER 3. NEW FEATURES

1. The .NET Core 1.1 image, *dotnet/dotnetcore-11-rhel7*, now supports the following environment variables:

- ✳ HTTP_PROXY
- ✳ HTTPS_PROXY
- ✳ NPM_MIRROR
- ✳ DOTNET_STARTUP_PROJECT
- ✳ DOTNET_PUBLISH
- ✳ DOTNET_ASSEMBLY_NAME
- ✳ DOTNET_RESTORE_SOURCES
- ✳ DOTNET_NPM_TOOLS
- ✳ DOTNET_TEST_PROJECTS
- ✳ DOTNET_CONFIGURATION
- ✳ ASPNETCORE_URLS

See the .NET Core 1.1 [Getting Started Guide](#) for more details

2. Two image templates are available:

- ✳ [dotnet-example](#)
- ✳ [dotnet-pgsql-persistent](#)

3. A sample app, [redhat-developer/s2i-dotnetcore-ex](#), is now the primary sample application. It provides a more exciting example than the simple "Hello World" app we used previously.

4. Many specific product changes were made in the .NET Core 1.1 release. You can look at the [full set of .NET Core 1.1 commits](#) to learn more.

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CHAPTER 4. APIS

There were 1,380 APIs added in the .NET Core 1.0 release to enable specific scenarios; there was no specific theme to the API additions. You can see the [complete set](#) of changes in the API between .NET Core 1.0 and .NET Core 1.1.

The .NET Core 1.0 release does not contain the new CLI tooling (Preview 3). .NET Core 1.1 uses project.json (xproj) files rather than .csproj files.

.NET Core 1.1 is compatible with .NET Standard 1.6.0.

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CHAPTER 5. OPERATING SYSTEM AND ARCHITECTURE SUPPORTED FOR .NET CORE ON RED HAT ENTERPRISE LINUX

.NET Core 1.1 is available for Red Hat Enterprise Linux 7 x86_64 Server, Workstation, and HPC Compute Node. .NET Core 1.1 is also available for Red Hat Enterprise Atomic Host and OpenShift Platform.

The .NET Core platform comprises runtime, library, and compiler components. As a developer, you have the flexibility to use the components in numerous configurations for device and cloud workloads.

The .NET Core platform provides:

- ✧ automatic memory management
- ✧ type safety
- ✧ delegates and lambdas
- ✧ generic types
- ✧ Language Integrated Query (LINQ)
- ✧ asynchronous programming
- ✧ native interoperability

C# is one of the prominent languages in the .NET Core platform. The platform also includes VB and F# to support such modern language features as generics, LINQ, and async support, to name a few.

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CHAPTER 6. CUSTOMER PRIVACY

Various Microsoft products have a feature that reports usage statistics, analytics, and various other metrics to Microsoft over the network. Microsoft calls this Telemetry. Red Hat is disabling telemetry because we do not recommend sending customer data to anyone without explicit permission.

As part of the `scl enable` command, we automatically set an environment variable that tells the CLI to disable its telemetry reporting. Any customer that uses `scl enable` to run .NET Core will not report telemetry information to Microsoft. This helps keep customer information confidential. Customers are free to override the environment variable after using `scl enable` to report telemetry, if they wish.

Customers can enable telemetry by unsetting the environment variable **`DOTNET_CLI_TELEMETRY_OPTOUT`**. See [.NET Core Tools Telemetry](#) for more information.

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CHAPTER 7. SUPPORT

7.1. SUPPORT OVERVIEW

Red Hat and Microsoft are committed to providing excellent support for .NET Core and are working together to resolve any problems that come up from either side. At a high level, Red Hat supports the installation, configuration, and running of the .NET Core component in Red Hat OpenShift Container Platform and Red Hat Enterprise Linux. If it's a runtime issue, we're responsible for getting the customer an answer. Red Hat can also provide "commercially reasonable" support for issues we can help with, for instance, NuGet access problems, permissions issues, firewalls, and application questions that we might know the answer to. If it's a defect or vulnerability in .NET Core, we let Microsoft know about it.

.NET Core 1.1 is supported on Red Hat Enterprise Linux 7 and OpenShift Container Platform versions 3.3 and later.

7.2. LENGTH OF SUPPORT

Developers can use either the Long Term Support (LTS) releases or Current releases. LTS releases are normally major releases (for example, 1.0) and only receive critical fixes. Current releases are minor releases (for example, 1.1.x) and receive the same fixes. They will also be revised when compatible innovations and features are available.

LTS releases are supported for 3 years after the general availability date or 1 year after the general availability of a subsequent LTS release.

According to Microsoft, Current releases are supported within the same 3-year window as the parent LTS release. They are supported for 3 months after the general availability of a subsequent Current release and 1 year after the general availability of a subsequent LTS release. See Microsoft's [.NET Core Support Lifecycle Fact Sheet](#) for more details.

7.3. WHO DO I CONTACT?

There are a couple of ways you can get support, depending on how you are using .NET Core.

- ✎ If you are using .NET Core on-premises, you can contact either [Red Hat Support](#) or [Microsoft](#) directly.
- ✎ If you using .NET Core in Microsoft Azure, you can contact either [Red Hat Support](#) or [Azure Support](#) to receive Integrated Support.

Integrated Support is a collaborative support agreement between Red Hat and Microsoft. Customers using Red Hat products in Microsoft Azure are mutual customers, so both companies are united to provide the best troubleshooting and support experience possible.

7.4. FREQUENTLY ASKED QUESTIONS

Here are four of the most common support questions for Integrated Support.

1. When do I access Integrated Support?

You can engage [Red Hat Support](#) directly. If the Red Hat Support Engineer assigned to your case needs assistance from Microsoft, the Red Hat Support Engineer will collaborate with Microsoft directly without any action required from you. Likewise on the Microsoft side, they have a process for directly collaborating with Red Hat Support Engineers.

2. What happens after I file a support case?

Once the Red Hat support case has been created, a Red Hat Support Engineer will be assigned to the case and begin collaborating on the issue with you and your Microsoft Support Engineer. You should expect a response to the issue based on [Red Hat's Production Support Service Level Agreement](#)

3. What if I need further assistance?

Contact [Red Hat Support](#) for assistance in creating your case or with any questions related to this process. You can view any of your open cases [here](#).

4. How do I engage Microsoft for support for an Azure platform issue?

If you have support from Microsoft, you can open a case using whatever process you typically would follow. If you don't have support with Microsoft, you can always get support from Microsoft [here](#).

7.5. MORE SUPPORT RESOURCES

The [Resources](#) page at [Red Hat Developers](#) provides a wealth of information, including:

- 📖 Getting started documents
- 📖 Knowledgebase articles and solutions
- 📖 Blog posts

The [.NET Runtime for Red Hat Enterprise Linux Forum](#) is a great place to interact with other .NET Core developers.

You can also see more support policy information at [Red Hat and Microsoft Azure Certified Cloud & Service Provider Support Policies](#).

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CHAPTER 8. KNOWN ISSUES

The known issues for running .NET Core on Red Hat Enterprise Linux include:

1. Use Red Hat Enterprise Linux 7 to run .NET Core; it will not run on earlier versions of Red Hat Enterprise Linux.
2. If you encounter problems with publishing self-contained applications on Red Hat Enterprise Linux 7 for other platforms where the errors clearly talk about libuv, use this workaround.

```
rm -rf ~/.nuget/packages/Libuv
```

This will delete the Red Hat-built libuv nuget package and let dotnet download (on the next run) the Microsoft-built libuv package that includes libuv built for all the platforms supported by .NET Core.

3. There are several known issues that occur when multiple users try to use NuGet in .NET Core.

- ✦ [dotnet restore: temporary directory is expected to be user specific #1748](#)
- ✦ [Dotnet restore uses global temporary directory #2806](#)
- ✦ [Dotnet restore uses global temporary directory #2793](#)

NuGet uses a global temporary directory that makes it impossible for two users to use NuGet simultaneously. Multiple users trying to use NuGet one at a time will need to remove `/tmp/NuGetScratch` or change permissions so they own this directory when using NuGet.

4. Math libraries that are part of .NET Core 1.1 can return different values on different platforms. This is expected behavior. .NET Core 1.1 takes advantage of the platform specific libraries to improve performance and reduce overhead. See the [issue discussion](#) for more information.
5. The .NET Core 1.1 software collection (rh-dotnetcore11) ships with the project.json build system (1.0.0-preview2 SDK). Visual Studio 2017 does not support the project.json build system. Support for the msbuild/csproj build system will be added in the .NET Core 2.0 release.

- ✦ Use the [installer](#) to install the 1.0.0-preview2 SDK on a Microsoft Windows platform.
- ✦ To install the 1.0.0-preview2 SDK on non-RHEL Linux:
 - follow these [instructions](#) to install .NET Core on your system.
 - add the 1.0.0-preview2 SDK.

```
cd /tmp wget
https://raw.githubusercontent.com/dotnet/cli/rel/1.0.0/scripts/obtain/dotnet-install.sh
chmod +x ./dotnet-install.sh ./dotnet-install.sh -v 1.0.0-
preview2-1-003177 -i /tmp/dotnet
sudo cp -r /tmp/dotnet/sdk/* /opt/dotnet/sdk/
```

The **dotnet** command defaults to using the latest SDK on the system. To explicitly make it use the 1.0.0-preview2 SDK, add a global.json file in your project root.

```
{  
  "sdk": { "version": "1.0.0-preview2-1-003177" }  
}
```

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APPENDIX A. REVISION HISTORY

Date	Version	Author	Changes
06/24/2016	1.0	Les Williams	Original version
09/23/2016	1.0	Les Williams	Revised the link for Common Language Runtime (CLR) and added a link for Common Language Infrastructure (CLI)
11/29/2016	1.1	Les Williams	First minor release
12/09/2016	1.1	Les Williams	Revised support information
03/20/2017	1.1.1	Les Williams	Revised to include environment variables
04/04/2017	1.1.1	Les Williams	Revised to include container templates
04/26/2017	1.1.1	Les Williams	Revised to include build system support information
05/16/2017	1.1.2	Les Williams	Revised to include three new environment variables

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