

**OnRAMP Design Suite
Release R110.1
Release and Installation Notes**

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Honeywell International SARL

Z.A. La Pièce 16

1180 Rolle, Switzerland

<http://www.honeywell.com>

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1 Introduction

1.1 About the OnRAMP Design Suite

The OnRAMP Design Suite is a development process and software tool for the generation of models and optimal control algorithms for a wide range of engine applications.

1.2 About this Document

This document provides an overview of the OnRAMP Design Suite R110 software release, including contents, installation/uninstallation instructions, prerequisites, and technical support information.

This document uses the terms *OnRAMP Design Suite* and *OnRAMP* interchangeably.

1.3 Technical Assistance

For technical assistance, please contact OnRAMP Support by one of the following methods:

Email: OnRAMP.Support@honeywell.com

Phone: +1-800-391-7795 (toll free in North America)

+1-778-300-1513 (worldwide)

Technical assistance contact information is also available from **About OnRAMP Design Suite** under the Help menu within the application.

The OnRAMP Design Suite includes a Help file that can be accessed through the Start menu under **Programs → OnRAMP** or from the **Help** menu within the application.

2 Contents of Release

The OnRAMP Design Suite R110 release includes the following item:

Part Description	Part Number
Installation Package	N/A The installation package is distributed electronically. The package includes these Release and Installation Notes (PN 6510020377).

3 New Features in R110

This section provides details on new functionality introduced in OnRAMP Design Suite R110.

See Section 5 for information on upgrading the OnRAMP software as well as on updating OnRAMP project files (including model components) from previous releases.

3.1 New Optimization Algorithm

The R110 release includes a new, more efficient, optimization algorithm that permits users to either treat larger control problems in the same memory footprint, or to treat the same control problems with a smaller memory footprint. The new solver algorithm is available for selection (as the Iterative solver) on the Controller Configuration page.

3.2 Model Library Expansion

The R110 model library has been enhanced with a new engine block. It contains an enhanced combustion model that includes the thermodynamic states of the in-cylinder gas pressure. This new block allows for rail pressure to be used in the control strategy, and for maximum cylinder pressure to be used as a controlled variable (provided a maximum in-cylinder pressure sensor is available). Information on upgrading the legacy engine block to the R110 version is available in Section 5.

The new engine block also contains preliminary functionality for variable valve actuation (VVA) for both intake and exhaust cylinder valves. If you are interested in implementing VVA in your model, please contact the [OnRAMP team](#).

3.3 Improved Usability

The R110 release supports exporting a Design of Experiment that can be imported into AVL's CAMEO software tool. Please see the OnRAMP help (the Export section under the Design of Experiment heading) for details on using this feature.

The release also includes a simplified licensing process, improved workflow navigation, and a more intuitive physical plausibility visualization.

3.4 Continued Improvements

The R110 release incorporates over 100 fixes and enhancements, many of which came from customer feedback.

4 Getting Started

To get started with installing the OnRAMP Design Suite, you need the installation package (see Section 2). The instructions for installing the OnRAMP Design Suite are provided in Section 6 of this document.

The OnRAMP licensing process requires that you send a *hostid* file to Honeywell through the license configuration utility. You then receive an *ULMLicense* file back from Honeywell.

Installing the *ULMLicense* file allows you to start using the OnRAMP Design Suite. You can successfully install the OnRAMP Design Suite without completing the licensing process. However, you need to complete the licensing process to start using OnRAMP. For details on the licensing process, see Section 7.

The OnRAMP Design Suite requires certain third-party software applications, or prerequisites, to be installed on the computer along with the Design Suite. While four of these third-party applications are included with the OnRAMP installation and require no additional downloads by the user, two other third-party applications need to be independently installed and licensed. You can successfully install the OnRAMP Design Suite without having these two independent prerequisites already installed on your computer. However, you need to have these prerequisites installed to start using the OnRAMP Design Suite. For further details, including supported versions of the prerequisite software, see Section 8.

Minimum computer hardware specifications for the OnRAMP software are provided in Section 9.

OnRAMP Design Suite R110 cannot be licensed in a virtual machine and must be run on physical hardware.

5 Upgrading to R110

If you are using a previous release of the OnRAMP Design Suite, upgrading to R110 will require two steps: updating the software to R110, and updating your project file to take advantage of the improvements in R110.

5.1 Update the Software to R110

The R110 installation automatically updates older versions of OnRAMP that have been installed on your system. The installation steps for updating OnRAMP are the same as for an installation on a clean machine, and can be found in Section 6.

5.2 Update the OnRAMP Project Files to R110

The R110 release has updated versions of component blocks, and users are asked to update their project files to take advantage of these enhancements. When opening a project file that was saved in a previous release, you will see a message describing the steps necessary to complete the upgrade process.

The R110 release also introduces a new engine block; if you have an R104 version of an OnRAMP project, you can manually replace the older engine block in your model. The R104 version of the engine block is still supported, so the manual replacing of the engine block is an optional step. Instructions on how to replace older engine blocks with the R110 version are available in the Help file, in a dedicated section called Replacing the Engine Block under the Model Configuration heading.

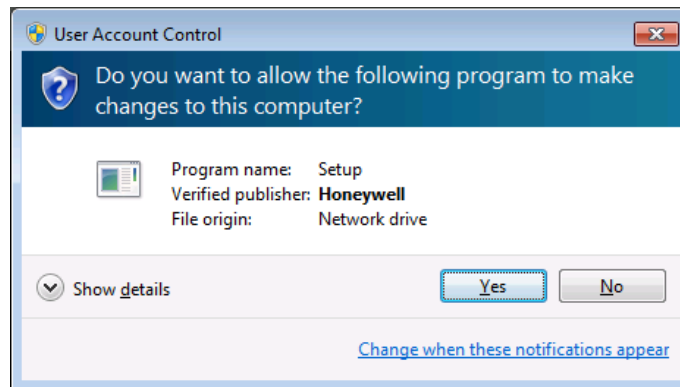
6 Installation Procedure

To install the OnRAMP Design Suite software application:

1. Download the installation package and double-click on the *setup.exe* file.



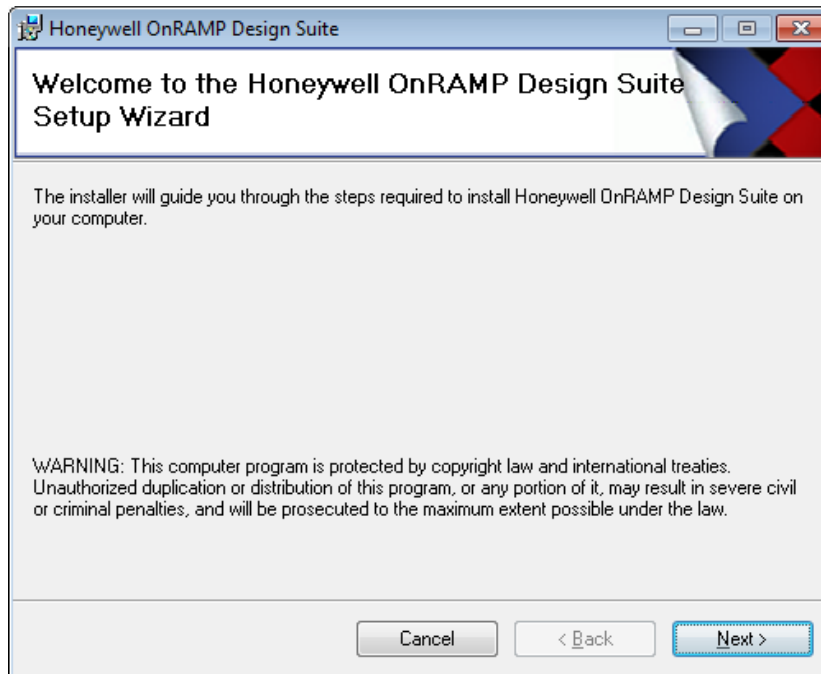
ATTENTION: The installer requires administrator privileges on Windows 7. If User Account Control (UAC) is enabled, you are prompted to elevate the privileges of the setup application to proceed with the installation. If you are prompted to elevate privileges, select **Yes**. You may also need to provide credentials of a user with administrator privileges, if the current account does not have these privileges already.



2. If you get a dialog notifying you that prerequisites are required, install the prerequisites as suggested (see Section 8 for prerequisite details). If you require the .Net 4.0 Framework prerequisite, you will be asked to agree to the Microsoft End User License Agreement to install the software package.

The process of installing the prerequisites may require a reboot.

3. Once the prerequisites are installed, you are presented with an OnRAMP installation welcome dialog. If the OnRAMP installation welcome dialog does not appear after the prerequisites installation, double-click on the *setup.exe* file to restart the OnRAMP installation process. Select **Next**.



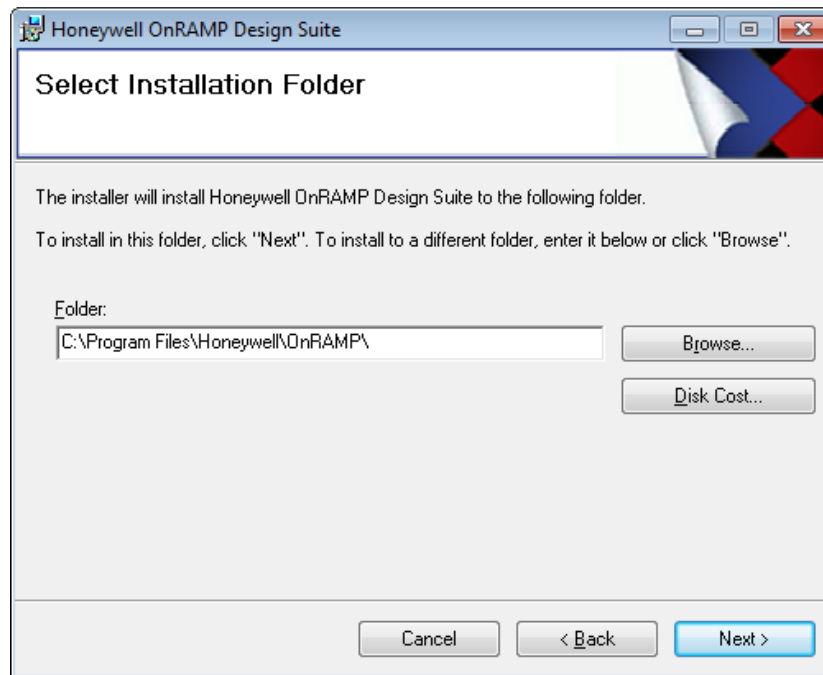
The License Agreement dialog appears.

4. If you agree to the license terms, click the *I Agree* radio button and select **Next**.



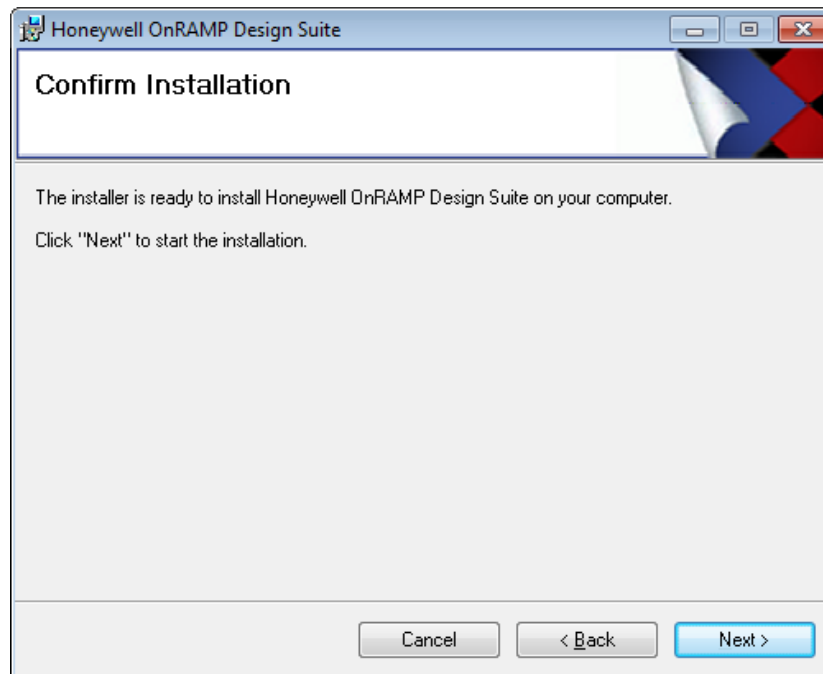
After agreeing to the license terms, you are prompted for the installation folder.

5. Select **Next** to proceed with the default installation folder.



The installation confirmation dialog appears.

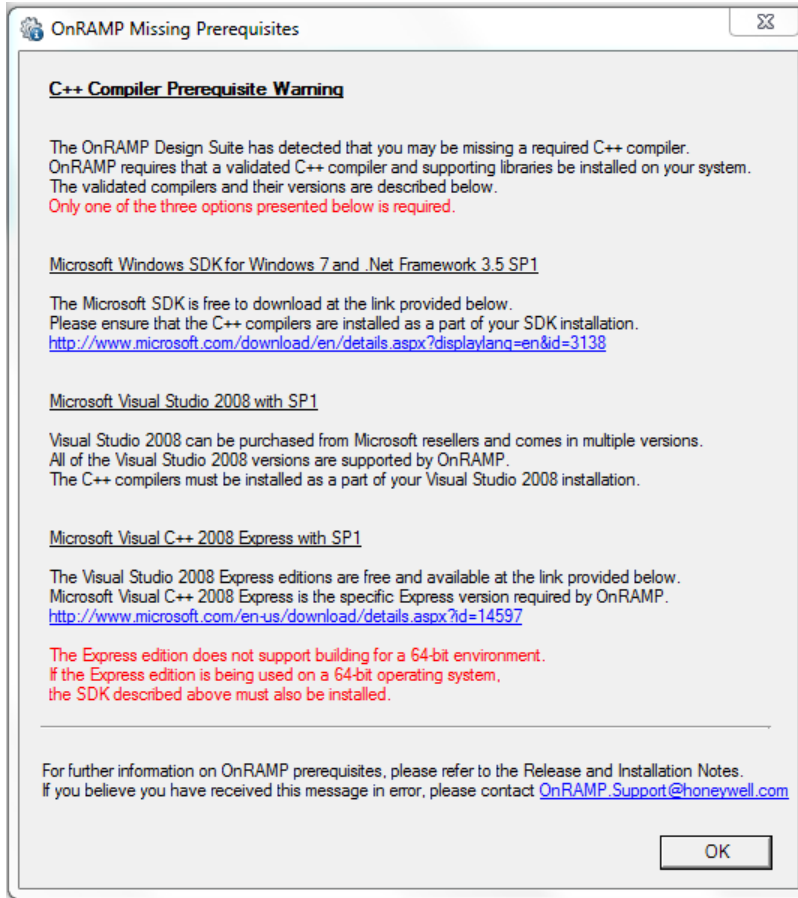
6. Select **Next** to start the installation.



7. If you are missing any of the independent prerequisites, you will be notified during the installation process. The prerequisite messages are informational and do not impact the installation process. However, you will need to install the prerequisites before using OnRAMP.

See Section 8 for the list of software prerequisites and their validated versions.

If you do receive a prerequisite message(s), acknowledge the message(s) by selecting **OK**.



8. Towards the end of the installation, you are prompted to license the software through the OnRAMP License Management Utility. Cancelling the license configuration by closing the window will not impact the installation process.

Instructions on completing the licensing process after the installation are available in Section 7.

9. Complete all fields on the **OnRAMP License Request** dialog and select **Next**.
For the Name field, the user's full name should be entered. All fields need to be filled in for the **Next** button to become available for selection.

OnRAMP License Request

Your request for a license requires the following information to be provided:

Name:

Company:

Country:

E-mail:

Work Phone:

* All fields are required

The license submission dialog appears.

10. Check the information and select **Submit** to send the license request to the OnRAMP support team or select **Back** to correct the input.

OnRAMP License Request

You are about to send the license request to:
OnRAMP.Support@honeywell.com. The request contains the following information:

Name: User Name

Company: Company Name

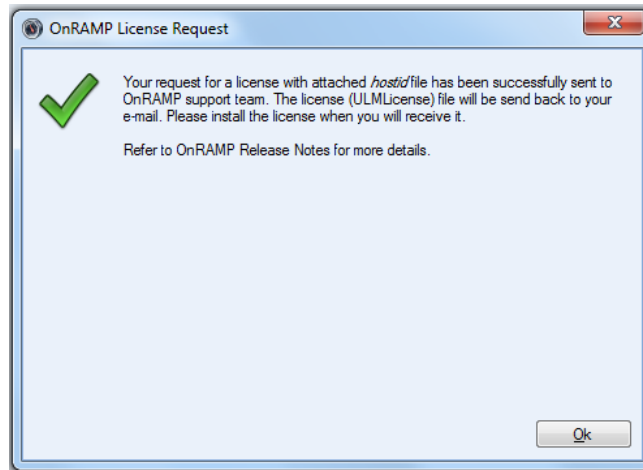
Country: United States

E-mail: user.name@honeywell.com

Work phone: +1-555-555-5555

Host ID file: C:\Program Files (x86)\Common Files\Honeywell\Simstation\license.hostid

11. The license configurator emails your *hostid* file to the OnRAMP Support team.
If this step succeeds, the dialog will display a message indicating that the request was sent successfully. If your email client performs a send on a periodic basis, you can initiate a send to prevent any delays in receiving a license.
Close the dialog and go to Step 13.



If the automated email process fails, you may get an error message indicating that you do not have an email client.

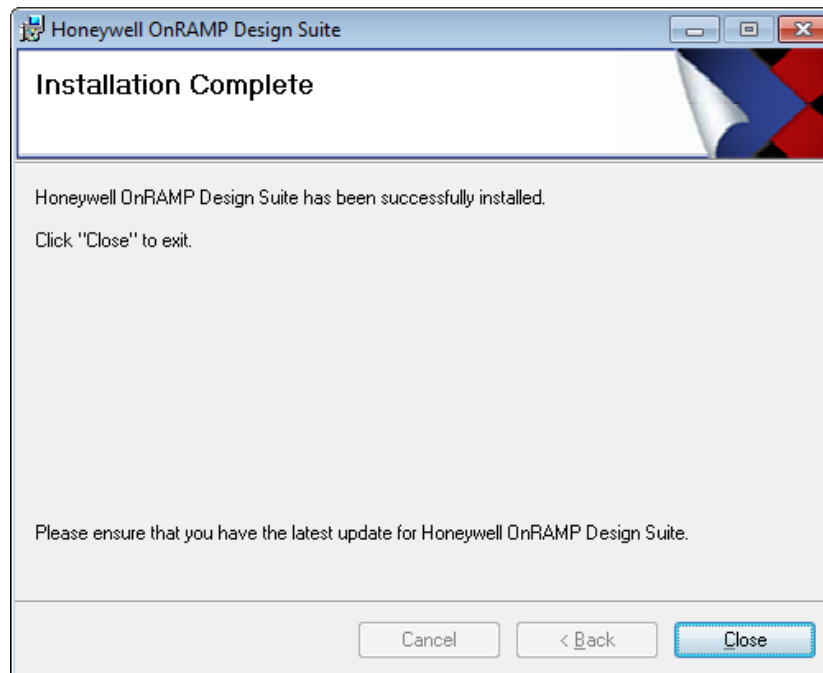
12. If you receive a message indicating that the license tool has failed to send the email, review the additional instructions to manually send the license file to the OnRAMP Support team. Send an email to OnRAMP.Support@honeywell.com, with the hostid file included as an attachment. The hostid file can be found in the following location:

C:\Program Files (x86)\Common Files\Honeywell\SimStation\license.hostid

If you are running a 32-bit Operating System, remove (x86) from the path shown above.

Close the License Management window by using the red X in the top right corner of the dialog or by selecting the Close button.

13. Select the **Close** button on the final dialog to complete the installation.



There is now a shortcut on the desktop as well as in your **Programs** menu. These shortcuts can be used to launch the OnRAMP Design Suite application.

Once you have completed the *hostid* submission, you need to install a license before using the OnRAMP application. Instructions on installing the license are available in Section 7.

7 Licensing

The OnRAMP Design Suite requires that the end user be licensed to use the software's functionality.

The OnRAMP licensing approach is a Honeywell proprietary licensing method called ULM. The licenses are associated with the named user and the hardware profile where OnRAMP is installed, and cannot be transferred between computers.

7.1 Requesting a License

During the OnRAMP installation, you are prompted with a license dialog.

If you close the licensing dialog during the install, or it fails because you do not have an email client on the computer, you can re-launch the Licensing Wizard from the machine where OnRAMP was installed by going to the Start menu and selecting **Programs→OnRAMP→Generate OnRAMP License Request** or from the OnRAMP help menu (**OnRAMP→Help→License Request**).

After launching the Licensing Wizard, follow the licensing steps (steps 9-12) provided in Section 6.

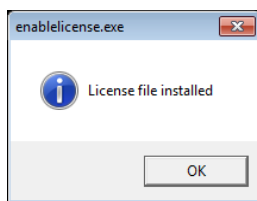
If the transmission fails due to a missing email client, follow the manual steps provided in step 12 of Section 6 to submit your *hostid* file to OnRAMP Support.

7.2 Installing a License

After receiving your license request, the OnRAMP support team reviews the information and emails a license (*ULMLicense*) file back to you. This *ULMLicense* file needs to be installed to license the computer that will be running the OnRAMP software.

To install the *ULMLicense* file:

1. Copy the *ULMLicense* file to the computer that will be running OnRAMP.
The folder location where the file is copied to does not impact the remaining steps.
If your email client is on the machine that is running OnRAMP, this step can be ignored.
2. Double-click the *ULMLicense* file.
The *ULMLicense* file extension is registered to the appropriate license installer.
Double-clicking the file runs a tool to import the license information for use with the OnRAMP application. On a successful import, you see this message:



It is not possible to install a ULM license on a virtual machine.

If you have any licensing problems, contact the OnRAMP Support team (see Section 1.3).

8 Software Prerequisites and Compatibility

The OnRAMP Design Suite requires the installation of certain third-party software applications.

They are referred to here as prerequisites, and include:

- MATLAB and Simulink (with the Control System and Optimization toolboxes)
- C++ Compiler
- .Net Frameworks 3.5 SP1 & 4.0
- Windows Installers 3.1 & 4.5

Two of the prerequisites – MATLAB/Simulink and the Visual C++ compiler – must be downloaded and installed separately from the OnRAMP software.

The other prerequisites – the .Net Frameworks and Windows Installers – require no additional downloads and are installed as a part of the OnRAMP installation process if required.

8.1 MATLAB and Simulink

The OnRAMP Design Suite requires that MATLAB and Simulink be installed on the same computer.

MATLAB and Simulink require their own licenses; install them separately.

MATLAB and Simulink are developed by MathWorks and are packaged with MathWorks software releases. The following MathWorks releases were validated for use with the OnRAMP R110 release.

As both Simulink and MATLAB are required, their respective versions are also included below (in parenthesis).

MathWorks Release	Architecture(s)
Release 2009B SP1 (MATLAB 7.9.1 and Simulink 7.4.1)	Same as Operating System (32-bit)
Release 2010A (MATLAB 7.10 and Simulink 7.5)	Same as Operating System (32-bit or 64-bit)
Release 2010B SP1 (MATLAB 7.11.1 and Simulink 7.6.1)	Same as Operating System (32-bit or 64-bit)
Release 2011A (MATLAB 7.12 and Simulink 7.7)	Same as Operating System (32-bit or 64-bit)

The following MATLAB toolboxes are required to use the OnRAMP R110 Design Suite.

MATLAB Toolbox
Control System Toolbox
Optimization Toolbox

The MATLAB installation must be registered as a COM server on your computer to be available for use. If a supported version of MATLAB is installed but not available for selection in the OnRAMP Preferences dialog, the MATLAB installation will need to be registered as a COM server.

See the `-regserver` command details at

<http://www.mathworks.com/help/techdoc/ref/matlabwindows.html>

for more information.

8.2 C++ Compiler

The OnRAMP Design Suite requires that a C++ compiler be installed on the computer running OnRAMP. The validated compiler for use with OnRAMP is the Microsoft Visual C++ Compiler that is provided with Visual Studio 2008. If you do not have Visual Studio 2008 installed, the compiler is available for free with the appropriate Windows Software Development Kit (SDK).

The Visual C++ compiler can be installed by one of three methods (only one is required):

- **Microsoft Windows SDK for Windows 7 and .Net Framework 3.5 SP1**

The Microsoft Windows SDK is free to download at the link provided below.

Please ensure that the C++ compilers are installed as a part of your SDK installation.

Note that while the SDK mentions Windows 7, it will support all of the Operating Systems validated for use with the OnRAMP application.

<http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=3138>

- **Microsoft Visual Studio 2008 with SP1**

Visual Studio 2008 can be purchased from Microsoft resellers and comes in multiple versions. All of the Visual Studio 2008 versions are supported by OnRAMP.

The C++ compilers must be installed as a part of your Visual Studio 2008 installation.

- **Microsoft Visual C++ 2008 Express with SP1**

Microsoft Visual C++ 2008 Express is the specific Express version supported by OnRAMP.

The Express edition does not support building for a 64-bit target.

If the Express edition is being used on a 64-bit Operating System, the Windows SDK must also be installed.

<http://www.microsoft.com/en-us/download/details.aspx?id=14597>

C++ Compiler Release	Architecture(s)
Microsoft Visual C++ 9.0 (Visual Studio 2008, Windows 7 SDK)	Same as Operating System (32-bit and 64-bit)

8.3 .Net Framework

The OnRAMP Design Suite requires the installation of .Net Framework versions 3.5 SP1 and 4.0. The OnRAMP installation package installs these versions of the .Net Framework on your computer if they are not already installed.

8.4 Windows Installer

The OnRAMP Design Suite requires the installation of Windows Installer versions 3.1 and 4.5.

The OnRAMP installation package installs these versions of the Windows Installer on your computer if they have not already been installed.

8.5 Windows Operating System

The OnRAMP Design Suite has been validated against the following Operating Systems:

Operating System	Architecture(s)
Microsoft Windows XP Professional SP3	32-bit
Microsoft Windows 7 SP1	32-bit and 64-bit

8.6 Microsoft Excel

The OnRAMP Design Suite does not require Microsoft Excel as a prerequisite, and is able to import data from, and export data to, the Excel spreadsheet format without Microsoft Excel being installed. The Design Suite works with spreadsheets of version Excel 97 or later.

To open, view, or print an Excel spreadsheet, the computer must have Microsoft Excel, or the free Microsoft Excel Viewer, installed. The Microsoft Excel Viewer is available at:

<http://www.microsoft.com/download/en/details.aspx?id=10>

9 Hardware Recommendations

As OnRAMP is a computationally intensive application, the following minimum hardware specifications are required.

Hardware	Minimum Specification
Processor	Pentium 4 dual core; 3.0 GHz ; SSE2
Memory	2 GB
Available Hard Drive Space	100 MB The hard drive space specification is for the OnRAMP installation only, and does not include prerequisite requirements. Data and project file size totals can vary greatly and are not included in the minimum specification.

10 Uninstall Instructions

To uninstall the software, go to **Add\Remove Programs** (or **Programs and Features**) in **Control Panel** and select **Honeywell OnRAMP Design Suite** to uninstall.

Uninstalling OnRAMP does not uninstall any of its prerequisites.

To uninstall the prerequisites, you can do so independently through **Add\Remove Programs** (or **Programs and Features**).

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