Welcome to the Software Solution Test Guidelines for Microsoft Dynamics NAV 2015. This document describes the requirements that an independent software vendor (ISV) solution must meet to interoperate with Microsoft Dynamics NAV 2015.

Optionally, you can choose to replace the software solution test with an online test. For more information, send an email message to dyncert@microsoft.com.

The goals of the test are to increase the quality of solutions that run in the Microsoft Dynamics NAV environment and to assure the market that ISV solutions that are built on Microsoft Dynamics NAV meet technical requirements that ensure a high standard.

The test guidelines are designed to walk you through the test process and to help you ensure that your solution can meet the requirements. The test guidelines are described in individual, subject-based modules and provide detailed information about the summary and intent, additional resources, compliance, test methodology, and criteria for passing. Some guidelines may be common to other Microsoft Dynamics tests.

To pass the test, you must demonstrate the development quality of your solution and your ability as a software company to maintain and enhance that solution in the future. The test is administered and conducted by a third-party vendor and includes a technical review and an in-lab inspection.

This document contains the following sections:

- This Introduction section explains the purpose and high-level requirements of the test.
- The Testing Process section describes how the testing process works from qualification through communication of test results.
- The Documentation Requirements section provides a list of the documentation that you must submit with your solution.
- The ISV Software Solution Requirements and Recommendations section defines each requirement and recommendation category, how these requirements and recommendations are tested, and what you can do to ensure that your solution meets the requirements.
- The Best Practice Guidelines section provides information about best practices for design and development, user experience, and trustworthy computing.

We welcome your comments and suggestions. Send an email message to dyncert@microsoft.com with your feedback.
SUPPORTED PRODUCT VERSIONS
ISV solutions that are submitted for testing must run on Microsoft Dynamics NAV 2015 with the latest cumulative update applied.

TYPES OF SOLUTIONS
Microsoft Dynamics solutions fall into three general categories and three setup complexity levels. The category and setup complexity of a solution determines the type and complexity of the testing requirements and the costs that are associated with testing the solution. Figure 1 shows the different solution categories and setup complexity levels.

<table>
<thead>
<tr>
<th>Setup Complexity</th>
<th>ISV Solution Complexities</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Setup Hosted Solution</td>
<td>ISV solution extending Dynamics using native Dynamics toolset</td>
</tr>
<tr>
<td>Simple Setup</td>
<td>ISV solution connecting to Dynamics using VS/.NET or similar</td>
</tr>
<tr>
<td>Complex Setup</td>
<td>ISV solution extending or connecting to Dynamics and other Microsoft or other third-party technology</td>
</tr>
</tbody>
</table>

**Figure 1 Solution categories and setup complexity levels**

In terms of technology, ISV solution complexity falls into one of the following categories, which are listed from least complex to most complex:

- **An embedded or in-product solution** is an ISV solution that extends Microsoft Dynamics NAV by using only the tools that are provided with Microsoft Dynamics NAV. For example, an embedded solution can be built in C/SIDE, which is a proprietary development environment for Microsoft Dynamics NAV. These solutions are built with a RoleTailored experience.

- **A connected solution** is an ISV solution that uses Microsoft Visual Studio, the Microsoft .NET Framework, or similar tools to connect to Microsoft Dynamics NAV. A connected solution typically refers to a stand-alone product that interoperates with Microsoft Dynamics NAV by using it as a business rules engine. The solution can establish interoperability with web services, .NET Framework assemblies, or COM interoperability. The solution does not need to be based on the .NET Framework. However, it must run on a supported version of a Microsoft operating system.

- **A multiple solution** is one that connects to or extends Microsoft Dynamics NAV and other Microsoft or third-party technologies.

Setup complexity falls into one of the following categories, which are listed from least complex to most complex:

- **No setup**, which can be a hosted solution, provides services to end users who do not have to purchase, set up, or maintain the software or hardware. Installing and configuring a hosted solution can be complex, and the test vendor may not have the hardware, custom software, or services that the solution requires.
• A simple setup is one that the test vendor can install and configure without requiring a restorable backup, virtual hard disks (VHD), or other additional assistance.
• A complex setup is one that the test vendor cannot completely replicate, such as a solution that require specific hardware, custom software, or back-end services that the vendor cannot duplicate.

TEST VALIDITY
For more information about the Certified for Microsoft Dynamics test process, see the Certified for Microsoft Dynamics® Program Overview page at the VeriTest website.

MORE INFORMATION
For more information about the functionality of Microsoft Dynamics NAV, see the Microsoft Dynamics NAV page.
For more information about the Microsoft Partner Program, see the Microsoft Partner Network page.
For more information about how the ISV test helps you earn partner program points, see the Certified for Microsoft Dynamics page on PartnerSource.
For more information about the Microsoft Dynamics ERP competency, see the Enterprise Resource Planning Competency page.
Microsoft offers solution testing through a third-party test vendor. You can register for the test by visiting the test vendor’s website that is linked to from the Certified for Microsoft Dynamics page on PartnerSource. The vendor site contains a description of the test, an application form, and a test fee schedule.

Depending on the type and setup of your solution, different test methods will apply, and the test fee will vary. You can make your solution available to the test vendor for testing by using one of the following methods:

- Providing the solution with installation instructions.
- Sending a Hyper-V® virtual hard disk (VHD) image of a working configuration of the solution,
- Using an interactive Office online conferencing session to provide access to a working configuration of the solution.

After you register your solution and pay the test fee, the test vendor will contact you with information about the testing process that you have selected. For processes that involve shipping software or VHD images to the test vendor, you can choose to send the solution on CD or DVD, upload your solution to an FTP server, or have the test vendor download your solution from your server. If you choose to use Office online conferencing to provide access to your solution, then the test vendor will contact you to schedule the session.

You must meet the following requirements:

- You must be prequalified, and you are responsible for making certain that your solution and organization meets the requirements for submitting and maintaining a Microsoft Dynamics NAV–based solution.
- You must submit documentation, which is identified in the appropriate test modules and in the summary checklist, as part of the test. For more information, see Documentation Requirements.
- You must upload your solution and all supporting documents to the test vendor’s servers for testing. If your setup is complex, then you must be prepared to use Office online conferencing to demonstrate the solution and solution deployment to the test vendor.
The checklists in this section describe the documentation that you must include when you submit your solution. Because a single document can contain information that meets multiple requirements, you may have fewer documents than the number of items on this checklist. Also, some documentation requirements only apply in certain situations. For more information, see the full requirement description.

SOFTWARE TEST REQUIREMENTS

The following checklist describes the documentation that you must include when you submit your solution for first-time testing.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your solution with product documentation. You can provide this with distributable media, a VHD image, or an Office online conferencing session to demonstrate your solution.</td>
<td></td>
</tr>
<tr>
<td>Description of the business functionality that your solution provides and examples of key usage scenarios. See Appendix B.</td>
<td></td>
</tr>
<tr>
<td>Explanation and justification for any FxCop errors. See Requirement 1.1.</td>
<td></td>
</tr>
<tr>
<td>List of all vendor or third-party assemblies. See Requirement 1.2 and Requirement 1.7.</td>
<td></td>
</tr>
<tr>
<td>Screenshots of the following pages.</td>
<td></td>
</tr>
<tr>
<td>Role Centers for the three to five new or revised key user profiles in the solution.</td>
<td></td>
</tr>
<tr>
<td>• Make sure that all views, which are shown as indented links under List Places in the navigation pane, are expanded.</td>
<td></td>
</tr>
<tr>
<td>• Take each screenshot in two sizes: a maximized window at a 1280 × 1024 screen resolution and a maximized window at a 1024 × 768 screen resolution.</td>
<td></td>
</tr>
<tr>
<td>Most frequently used (two to three) unique list places from the navigation pane in each of the Role Centers for the key user profiles.</td>
<td></td>
</tr>
<tr>
<td>• Take each screenshot in two sizes: a maximized window at a 1280 × 1024 screen resolution and a maximized window at a 1024 × 768 screen resolution.</td>
<td></td>
</tr>
<tr>
<td>Task Page that opens when you press ENTER on a line in each list place.</td>
<td></td>
</tr>
<tr>
<td>• Take each screenshot in two sizes: a normalized window at a 1280 × 1024 screen resolution in its default size but with at least a 10-pixel margin to the edge of the screen and a normalized window at a 1024 × 768 screen resolution, resized if needed to fit within a 10-pixel margin to the edge of the screen.</td>
<td></td>
</tr>
<tr>
<td>• The requirement is for a single screenshot for the list places and task pages, no matter how many RoleCenters they are used in.</td>
<td></td>
</tr>
</tbody>
</table>

For more information about the user experience requirements, see Requirement 3.1.
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9, 1.10, 1.11, 1.12</td>
<td>List of all components, including external components that your application uses. For .NET Framework interoperability and COM components, you must specify if they target Microsoft Dynamics NAV Windows clients, Microsoft Dynamics NAV Server, or both. For Automation components that target Microsoft Dynamics NAV clients, you must provide the main user scenarios when you submit your solution. For more information, see Requirement 1.9, Requirement 1.10, Requirement 1.11, and Requirement 1.12.</td>
</tr>
<tr>
<td>0.1</td>
<td>List of available web services. For each web service, you must provide the following information: • IDs of the objects (pages and codeunits) that are exposed as web services. • List each object in table 200000076, Web Service. • If your web service runs in an External Connector licensing scenario, information about why this is a valid External Connector scenario. See Requirement 0.1 and Requirement 1.6.</td>
</tr>
<tr>
<td>1.9</td>
<td>List of all services that are used by the ISV solution to access Microsoft Dynamics NAV data, such as SQL Server Analysis Services. ISV solutions must access data using the Microsoft Dynamics NAV business logic and respect the Microsoft Dynamics NAV security model. See Requirement 1.9.</td>
</tr>
<tr>
<td>6.8</td>
<td>Description of which Microsoft Dynamics NAV license is required for solution installation. See Requirement 6.8.</td>
</tr>
<tr>
<td>6.9</td>
<td>List of all resources that your solution adds to Microsoft Dynamics NAV and complete instructions for uninstalling your solution. If you cannot uninstall your solution, then you must state this in the installation instructions documentation. See Requirement 6.9.</td>
</tr>
<tr>
<td>6.10</td>
<td>Sample data for testing. This does not need to be part of the core solution installation. See Requirement 6.10.</td>
</tr>
<tr>
<td>6.12</td>
<td>List of company types that your solution adds or modifies using RapidStart Services configuration packages. See Requirement 6.12.</td>
</tr>
<tr>
<td>Appendix C</td>
<td>RapidStart Services usage questionnaires. See Requirement 6.12.</td>
</tr>
<tr>
<td>7.1</td>
<td>Description of backup and restore procedures. See Requirement 7.1.</td>
</tr>
</tbody>
</table>
VAR-facing customization and extensibility guide, which is commonly known as a developer's guide that explains how to extend your solution. See Requirement 2.3.

Database upgrade scripts and documentation. See Requirement 8.1.
ISV SOFTWARE SOLUTION REQUIREMENTS AND RECOMMENDATIONS

The Microsoft Dynamics NAV ISV Software Solution Test Guidelines help ensure that ISV solutions interoperate with Microsoft Dynamics NAV without causing problems or errors. Microsoft and third-party test vendors worked together to define the minimum requirements that an ISV solution must meet to operate successfully with Microsoft Dynamics NAV.

**Note**  The test does not validate the correctness or relevance of ISV solution functionality.

This section describes the test requirements and recommendations and the procedures for verifying that each requirement is met. In this document, the word *must* in the text of a requirement means that the item or feature is required. The word *should* means that the item or feature is recommended and its inclusion is a best practice, but it is not strictly required. These recommendations may be considered for inclusion as requirements in later versions of this test.

Some requirements are technology specific and do not apply to all ISV solutions. Therefore, each requirement indicates the type of ISV technology to which it applies. Additionally, an ISV solution may include several technologies. In these situations, the vendor will test those parts of the solution that use the technologies to which the requirement or recommendation applies.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Applicable to</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/SIDE</td>
<td>Any code that is written in C/AL (either business logic or code that implements an integration to an external component), if the vendor in-lab test is performed directly on the code.</td>
</tr>
<tr>
<td></td>
<td>Any solution that includes C/AL code, if the vendor in-lab test is not performed directly on the code.</td>
</tr>
<tr>
<td>External</td>
<td>Any code not written in C/AL (including DLLs, ActiveX controls, services, and applications that have their own user interface), if the vendor in-lab test is performed directly on the code.</td>
</tr>
<tr>
<td></td>
<td>Any solution that includes such code, if the vendor in-lab test is not performed directly on the code.</td>
</tr>
<tr>
<td>WExposed</td>
<td>Pages or codeunits that are designed to be exposed as web services, if the vendor in-lab test is performed directly on the code.</td>
</tr>
<tr>
<td>WCalling</td>
<td>Any code that is not written in C/AL and calls web services in Microsoft Dynamics NAV, if the vendor in-lab test is performed directly on the code.</td>
</tr>
<tr>
<td>All</td>
<td>All code</td>
</tr>
</tbody>
</table>
SUITABILITY REQUIREMENTS

Your solution must meet the following suitability requirement before any other test is performed.

- **Requirement 0.1: Application objects that are submitted for testing must be listed in an Excel workbook.**

### 0.1 Application objects that are submitted for testing must be listed in an Excel workbook.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>C/SIDE</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

#### SUMMARY AND INTENT

When an ISV solution is submitted for testing, it will contain a number of application objects that must be listed by the ISV. If the ISV solution implements any web services, then when the solution is submitted for testing, it will also contain a number of application objects (pages, codeunits and queries) that are exposed as web services. To provide customers and potential reselling partners with an overview of which objects have been tested, this list will be attached to the final certification report and made available in Solution Finder.

### RESOURCES

None

### HOW TO COMPLY

Provide a list of application objects in an Excel workbook. Copy the required fields of all application objects submitted for testing from the object designer into an Excel workbook. The Excel workbook must contain the following columns in the following order: Object ID, Object Name, Object Type, Version, and WSExposed. The WSExposed column specifies if the object is exposed as a web service. If the object is exposed as a web service, then mark it as TRUE. Otherwise, mark it as FALSE.

### TEST METHODOLOGY

To verify this requirement, the test vendor will follow these steps:

For object verification:

1. Open Object Designer, and then choose the **All Objects** button.
2. When all objects are displayed, select all Microsoft Dynamics NAV objects that were modified by the ISV.
3. Copy the names of these objects to an Excel workbook.
4. Compare this file with the Excel workbook that was received from the ISV.
5. Note any discrepancies.

For web services verification:

6. Identify the pages, codeunits and queries that are designed to be exposed as web services. After the ISV solution has been deployed, pages, codeunits, queries that are exposed as web services are displayed on the **Web Service** table (table 200000076).
7. Compare the contents of the **Web Service** table with the Excel workbook that was received from the ISV.
8. Note any discrepancies.

### CRITERIA FOR PASSING

This requirement is mandatory. If the solution contains objects or web services that are not included in the list that is provided by the ISV, then it will fail the test.
DEVELOPMENT REQUIREMENTS

Your solution must meet the following requirements:

- **1.1** The solution-specific managed code must be compiled with at least the .NET Framework 4.5 and must pass the required code analysis tests.
- **1.2** Managed assemblies must be strongly named and signed.
- **1.3** New application objects must use their assigned number range.
- **1.4** The ISV solution must follow standard Microsoft Dynamics NAV version conventions and provide code comments for changed Microsoft Dynamics NAV objects.
- **1.5** Web service URLs must be configurable.
- **1.6** Pages and codeunits that are designed to be exposed as web services must not generate any UI that would cause an exception in the calling code.
- **1.7** ActiveX controls must be digitally signed.
- **1.8** The ISV solution must make its version information available.
- **1.9** The ISV solution must perform all data access through Microsoft Dynamics NAV business logic.
- **1.10** .NET objects that run on Microsoft Dynamics NAV Server must not generate any UI.
- **1.11** Client-side .NET Framework Interoperability add-in assemblies and control add-in assemblies must be named correctly.

1.1 The solution-specific managed code must be compiled with at least the .NET Framework 4.5 and must pass the required code analysis tests.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab test</td>
<td>External</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
<tr>
<td>Managed code</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT

ISV applications that use code from the Microsoft .NET Framework must use at least the .NET Framework 4.5 and must pass the code analysis test provided by Visual Studio and Microsoft FxCop. Visual Studio includes code analysis tools that check .NET Framework assemblies for conformance to .NET Framework design guidelines. We recommend using the .NET Framework 4.5 when creating your solution.

RESOURCES

Visual Studio 2012 and Visual Studio 2013 include code analysis tools. For more information, see Analyzing Managed Code Quality by Using Code Analysis in the MSDN Library.

HOW TO COMPLY

When you develop assemblies using Visual Studio, use the code analysis tools that are included in Visual Studio and implement the relevant changes. For more information, see Analyzing Managed Code Quality by Using Code Analysis in the MSDN Library.

To pass this requirement, you must act on all critical errors for all issues and on errors for security issues. It is a good practice to act on all issue types of all importance levels. For example, you can suppress an error by explaining the reason for violating the rule and why it is not a valid issue. You can suppress a violation. For more information, see In-Source Suppression Overview. You must provide information about in-source suppressions.

**Note** Suppressing an error and explaining the reason for the violation does not guarantee that a waiver will be granted by the vendor or Microsoft.

TEST METHODOLOGY

The test vendor will use the FxCop tool to analyze the ISV solution. If FxCop reports any critical errors or any security errors, the ISV must provide a written explanation and justification in the tool or in a separate document.

CRITERIA FOR PASSING

This requirement is mandatory. If the ISV solution does not pass this requirement, it will fail the test.

Software Solution Test Guidelines for Microsoft Dynamics NAV 2015
1.2 Managed assemblies must be strongly named and signed.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>External</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td>Managed code</td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**

This requirement is included for security purposes. You can ensure that a name is globally unique by signing an assembly with a strong name. In particular, strong names satisfy the following requirements:

- Guarantees name uniqueness by relying on unique key pairs.
- Protects the version lineage of an assembly.
- Provides a strong integrity check.

**RESOURCES**

The Sn.exe tool that is provided with Microsoft Visual Studio and with the .NET Framework 4.5 supports the proper use of strong names. For more information about the Strong Name tool, see [Strong Name Tool (Sn.exe)](#).

**HOW TO COMPLY**

You must use strong naming for managed assemblies. If your solution uses a vendor or third-party assembly, then the assembly must also be signed. You must provide a list of vendor or third-party assemblies.

**TEST METHODOLOGY**

The test vendor will use the list of assemblies that are provided as a documentation requirement and use the Sn.exe tool that is provided with Visual Studio to verify the proper use of strong names.

**CRITERIA FOR PASSING**

This requirement is mandatory. If the solution does not use strong naming for managed assemblies, then it will fail the test.

1.3 New application objects must use their assigned number range.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>C/SIDE</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**

When an ISV solution is registered, Microsoft Dynamics Sales Operations will assign a specific range of object numbers for that solution to use. All new objects that are installed by the solution must use this number range.

**RESOURCES**

See the Microsoft Dynamics Sales Operations document, which is provided to you by your Regional Operations Center when registering your add-on with Microsoft, to obtain a number range for objects in your solution.

The number range is assigned as part of the registration process of your add-on solution as described in your Add-on Applications Addendum and on PartnerSource. For more information, see [Microsoft Dynamics NAV Registered Solution Program](#) (requires PartnerSource account).

**TEST METHODOLOGY**

The test vendor will obtain the registered object number range for the solution and verify that all new objects are in this number range.

**CRITERIA FOR PASSING**

This requirement is mandatory. If the solution adds objects that are outside of the assigned object number range, then it will fail the test unless the solution includes objects that are provided by other ISVs and are declared as part of the solution under test. Other exceptions may apply to this requirement if the ISV provides a valid reason for it.
1.4 The ISV solution must follow standard Microsoft Dynamics NAV version conventions and provide code comments for changed Microsoft Dynamics NAV objects.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
<td>✓</td>
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<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**

Your solution must follow standard Microsoft Dynamics NAV versioning conventions. In your version list of new and customized objects, names and version numbers must be consistent. In addition, if you have modified any Microsoft Dynamics NAV objects, then you must insert code comments that identify the changes and list the changes and corresponding version numbers on your version list.

All unmodified objects from Microsoft Dynamics NAV must be from the latest version of Microsoft Dynamics NAV with the latest service pack, and all modified Microsoft Dynamics NAV objects must be based on the latest version of the Microsoft Dynamics NAV objects.

**RESOURCES**

The following illustration demonstrates the Version List labeling of all objects that are provided in Microsoft Dynamics NAV.

![Version List Diagram]

Note that labeling hotfixes is a recommended approach when applying hotfixes in an installation and does not exist in objects that are provided by Microsoft.

**HOW TO COMPLY**

Ensure that version information for your solution follows the Microsoft Dynamics NAV conventions and that you have clearly identified any modified Microsoft Dynamics NAV objects. When you modify objects that are provided by Microsoft Dynamics NAV, you must add a comma-separated reference to the version of your solution. We recommend that you do not use Microsoft Dynamics NAV and other product codes that are used by Microsoft Dynamics NAV. You can use any other conventions for versioning of your own objects. We recommend aligning your versioning conventions with the Microsoft versioning conventions for major and minor version and hotfix references. There are no restrictions to the number of characters that can be used to reference the Product Code or Region/Country segments of the Version List.

You must also ensure that all modifications to Microsoft Dynamics NAV objects are migrated to the latest version of the standard Microsoft Dynamics NAV objects. Within modified objects, you must clearly delimit your code from the standard Microsoft Dynamics NAV code. You can use comments to indicate where your modifications begin and where they end. You should also comment your code’s functionality.

**TEST METHODOLOGY**

To verify this requirement, the test vendor will follow these steps:

1. Check that the version list of new and customized objects is consistent. If standard Microsoft Dynamics NAV objects have been modified, then you must mark the modifications with a code and version number. The **Modified** flag for the specified object must not be set to **Yes**.

2. Check the version information of the modified objects so that the version information contains both a Microsoft Dynamics NAV version number and an ISV version number. The Microsoft Dynamics NAV version number must be identical to the version number of that object in the latest version of Microsoft Dynamics NAV with the latest cumulative update installed.
3. Check the version information of the unmodified objects, where the version information contains only the Microsoft Dynamics NAV version. The version number, date, and time must be identical to the same information in the latest version of Microsoft Dynamics NAV with the latest cumulative update installed.

4. Select multiple standard application objects that the ISV has modified and compare the code with the standard version of the object. Check that the ISV has commented all code changes to identify the changes.

**CRITERIA FOR PASSING**
This requirement is mandatory. If the solution does not follow Microsoft Dynamics NAV version conventions or if comments for code changes to Microsoft Dynamics NAV objects are missing, then it will fail the test. If the solution is not based on the latest version of standard Microsoft Dynamics NAV objects, then it will fail the test.

### 1.5 Web service URLs must be configurable.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**
A web service solution must not be tied to a particular network configuration. The URL of the hosting machine can change, additional hosts can be added, or proxies or load balancers can be introduced. Editing or recompiling source code to perform these types of changes is counterproductive because it ties a customer to the owner of the source code and makes it harder to deploy the solution to multiple locations and install for multiple customers.

**RESOURCES**
The current standard for the .NET Framework is to store configuration elements in a solution app.config file. For more information, see [How to: Add Application Configuration Files to C# Projects](https://docs.microsoft.com/en-us/dotnet/framework/configure/app.config) in the MSDN Library.

**HOW TO COMPLY**
Ensure that a deployed solution can be made to point to multiple web services without having to edit source code, recompile source code, or run proprietary software to change the configuration. We recommend that you follow existing practices, such as configuration files or registry entries, for configurable elements.

**TEST METHODOLOGY**
To verify this requirement, the test vendor will follow these steps:

1. Identify the method of URL configuration, which must be described in the installation and configuration guide as described in Requirement 2.2. Note that the URL or URLs do not need to be configured as a single entity in the registry or configuration files. Different parts of the URL, such as the host or port, can be configured separately, and the URL can be constructed at run time. The following URL parts must be configurable and cannot be hardcoded:
   - Host
   - Port
   - Microsoft Dynamics NAV service instance
   - Company name

2. Verify that the solution can be configured as described in the installation and configuration guide. This may involve looking for registry entries or configuration file entries and checking that changes to those places are reflected in the solution's behavior. Restarting the ISV solution may be required.

3. Verify the following scenarios:
   - The solution works with at least two different Microsoft Dynamics NAV hosts.
   - The solution works with at least two different Microsoft Dynamics NAV port configurations. You can configure this in the Microsoft Dynamics NAV Administration Tool, and in the CustomSettings.config file for the Microsoft Dynamics NAV service.
   - The solution works with at least two different Microsoft Dynamics NAV service instance configurations. You can configure this in the Microsoft Dynamics NAV Administration Tool, and in the CustomSettings.config file on the computer running Microsoft Dynamics NAV Server.
   - The solution works with at least two different company names. A company can be renamed in the Companies windows.
CRITERIA FOR PASSING
This requirement is mandatory. If a solution does not allow the web service URL to be changed without recompiling or editing the source code, then it will fail the test.

1.6 Pages and codeunits that are designed to be exposed as web services must not generate any UI that would cause an exception in the calling code.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>WSExposed</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT
When writing code for web services, you must not use end-user confirmation dialog boxes, message boxes, or any other page constructs in the code. Because a web service runs independently of a user interface, running this type of code causes the code to throw an exception. The exception can be caught and handled, but the web service will not complete.

RESOURCES
For more information, see Microsoft Dynamics NAV Web Services in the Microsoft Dynamics NAV Developer and IT Pro Documentation in the MSDN Library.

HOW TO COMPLY
Ensure that code for pages and codeunits that is designed to be exposed as web services do not use any end-user confirmation dialog boxes or message boxes.

TEST METHODOLOGY
To verify this requirement, the test vendor will follow these steps:

1. Identify the pages and codeunits that are designed to be exposed as web services. After the ISV solution has been deployed, pages and codeunits that are exposed as web services are listed in table 200000076, Web Service.

2. If direct code inspection is feasible, depending on the complexity of the pages and codeunits and the objects that they call, then the functions from the following table should not be used without conditional code that is based on GUIALLOWED=FALSE or CurrFieldNo=0 circumventing their call. These conditions indicate usage from web services.

<table>
<thead>
<tr>
<th>C/AL function</th>
<th>Applies to</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONFIRM</td>
<td>Codeunit/page</td>
</tr>
<tr>
<td>STRMENU</td>
<td>Codeunit/page</td>
</tr>
<tr>
<td>(Form RunModal)</td>
<td>Page</td>
</tr>
<tr>
<td>Page of type Confirmation Dialog</td>
<td>Page</td>
</tr>
<tr>
<td>(Request form)</td>
<td>Page</td>
</tr>
<tr>
<td>ERROR</td>
<td>Codeunit/page</td>
</tr>
<tr>
<td>BEEP</td>
<td>Codeunit/page</td>
</tr>
<tr>
<td>YIELD</td>
<td>Codeunit/page</td>
</tr>
</tbody>
</table>

Additionally, when running the page or codeunit as a web service, the following exception should never occur:


CRITERIA FOR PASSING
This requirement is mandatory. If the solution uses end-user confirmation dialogs or message boxes in the code that is exposed to a web service, then it will fail the test.
1.7 ActiveX controls must be digitally signed.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>External</td>
<td>Simple</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**
This requirement is included for security purposes. Digital signing helps users decide if they want to trust a control and helps reassure users that files have not been tampered with.

**RESOURCES**
Code-signing certificates are available from several vendors. For more information, see Microsoft Root Certificate Program Members.
The Windows SDK SignTool tool is available on MSDN. For more information, see Sign Tool.

**HOW TO COMPLY**
After you obtain a code-signing certificate, you must use the SignTool tool to sign your files. If your solution uses a vendor or third-party assembly or ActiveX control, then the control must also be signed. You must provide a list of vendor or third-party controls.

**TEST METHODOLOGY**
The test vendor will use the list of third-party controls provided as a documentation requirement and use SignTool to verify the proper use of signatures.
During testing, the test vendor will note any warnings about ActiveX controls that do not have valid certificates.

**CRITERIA FOR PASSING**
This requirement is mandatory. If the solution does not comply with this requirement, then it will fail the test.

1.8 The ISV solution must make its version information available.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**
For support purposes, a user must be able to identify the version of your solution from the user interface. For example, you could include this information in an About dialog box, another window, or another format.

**RESOURCES**
None

**HOW TO COMPLY**
Ensure that version information for your application is available to the user.

**TEST METHODOLOGY**
The test vendor will verify that version information is available to the user.

**CRITERIA FOR PASSING**
This requirement is mandatory. If the solution does not comply with this requirement, then it will fail the test.

**Note**
This requirement does not apply to user interfaces that are designed for special devices, such as handheld devices or cash registers.

1.9 The ISV solution must perform all data access through Microsoft Dynamics NAV business logic.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>None</td>
<td>All</td>
<td>Simple</td>
</tr>
</tbody>
</table>

Software Solution Test Guidelines for Microsoft Dynamics NAV 2015
SUMMARY AND INTENT
To ensure that the ISV solutions maintain data consistency, comply with the Microsoft Dynamics NAV security model, and do not reduce the security level that is present for Microsoft Dynamics NAV, all access to data must be performed through Microsoft Dynamics NAV business logic.

RESOURCES
For information about the Microsoft Dynamics NAV security model, see Security and Protection in the MSDN Library.
For information on setting up a Windows service account, see Setting Up Windows Service Accounts in the MSDN Library.

HOW TO COMPLY
Ensure the following:
- All services that are used to access Microsoft Dynamics NAV must be run on a least-privileged account (non-sysadmin) account.
- All external components must run with least privilege.
- Only business logic is used to perform the access to data.
- Provide non-SUPER roles for testing your solution.

TEST METHODOLOGY
The test vendor will:
1. Install the ISV solution on at least a two-computer (server-client) setup.
2. Ensure that the Microsoft Dynamics NAV security system is activated by creating at least one user. For more information, see How to: Create Microsoft Dynamics NAV Users in the Microsoft Dynamics NAV Help.
3. Open the Windows Services panel on the computer running Microsoft Dynamics NAV Server and ensure that the service tier is running with the least-possible privileges.
4. Open the Microsoft Dynamics NAV Windows client as an existing Microsoft Dynamics NAV user who:
   - Is not assigned to the SUPER user account. Use the non-SUPER user account provided by the ISV.
   - Is not an administrator on the client computer.
   - Is not sysadmin or owner of the Microsoft Dynamics NAV database.
5. Execute the scenarios that are provided with the documentation (see Appendix B).

During the execution of the scenarios, the test vendor will verify that all services that are accessing the Microsoft Dynamics NAV system as provided by the ISV in the documentation requirements are running on a least-privileged account and note any discrepancies.

CRITERIA FOR PASSING
This requirement is mandatory. If the ISV solution does not pass this requirement, then it will fail the test.

1.10 .NET Framework-Based objects that run on Microsoft Dynamics NAV Server must not generate any UI.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>External</td>
<td>Simple Complex Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT
All .NET Framework-based objects that allow a user interface to be generated cannot target Microsoft Dynamics NAV Server. Because Microsoft Dynamics NAV Server runs as a service, it is running in the security context of the built-in Network Service account. This service account has limited permissions for UI objects.

RESOURCES
For more information, see Extending Microsoft Dynamics NAV Using Microsoft .NET Framework Interoperability in the MSDN Library.

HOW TO COMPLY
Ensure that only in-process .NET Framework objects with no user interface target Microsoft Dynamics NAV Server.
TEST METHODOLOGY
Run the scenarios that are provided with the documentation with .NET Framework-based objects that target Microsoft Dynamics NAV Server and verify that Microsoft Dynamics NAV Server does not throw errors or expose any dialog boxes or pages, stop responding, or exit unexpectedly. For more information, see Appendix B.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution has .NET Framework-based objects that generate a user interface and target Microsoft Dynamics NAV Server, then it will fail the test.

1.11 Client-side .NET Framework Interoperability add-in assemblies and control add-in assemblies must be named correctly

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
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</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>External</td>
<td>Simple</td>
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<td></td>
<td></td>
<td></td>
<td>Complex</td>
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<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT
If the solution adds client-side .NET Framework interoperability add-in assemblies or control add-in assemblies to Microsoft Dynamics NAV, the assemblies must have the same assembly name in Microsoft Dynamics NAV as the name that is defined in the ControlAddInExport attribute within that assembly. Inter-dependent add-ins must be placed in the same subfolder of the \Add-ins folder on the server computer where Microsoft Dynamics NAV Server is installed.

This is to make sure that Microsoft Dynamics NAV Server can find these assemblies in the \Add-ins folder and pass them over to the client devices automatically.

RESOURCES
- The How to: Register a Windows Client Control Add-in topic in the MSDN Library.

HOW TO COMPLY
Ensure that the client-side .NET Framework interoperability add-in assemblies and control add-in assemblies have the same assembly name as the name that is defined in the ControlAddInExport attribute in these assemblies.

If the solution adds one or more inter-dependent add-ins, they must be placed in the same subfolder of the \Add-ins folder on the server computer where Microsoft Dynamics NAV Server is installed.

TEST METHODOLOGY
1. All relevant client-side .NET Framework interoperability add-in assemblies and control add-in assemblies are placed in the \Add-ins folder on the Microsoft Dynamics NAV Server machine. The add-ins are not present in the \Add-ins folder on the Microsoft Dynamics NAV client machine.
2. Start the Microsoft Dynamics NAV Windows client (installed or through ClickOnce) and invoke the logic that uses these add-ins, such as opening the relevant page or running the relevant batch job.
3. The logic must execute without complaining about missing assemblies. The assemblies must be present in the "%TEMP%\Microsoft Dynamics NAV\Add-ins" folder on the client machine.

CRITERIA FOR PASSING
The logic that uses the assemblies must execute successfully without complaining about missing assemblies. The assemblies must be present in the "%TEMP%\Microsoft Dynamics NAV\Add-ins" folder on the client machine.
USER ASSISTANCE AND PRODUCT DOCUMENTATION REQUIREMENTS AND RECOMMENDATIONS

Your solution must comply with the following requirements and should comply with the following recommendation:

- **Requirement 2.1:** The ISV solution must include Help that is targeted to the solution user.
- **Requirement 2.2:** The ISV must provide an installation and configuration guide.
- **Requirement 2.3:** The ISV must provide documentation for VARs.
- **Recommendation 2.4:** Solution Help should follow the style guidelines that are described in the Microsoft Dynamics NAV Help Guide.

### 2.1 The ISV solution must include Help that is targeted to the solution user.

<table>
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<tr>
<th>Type</th>
<th>Test method</th>
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</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
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<td>Complex</td>
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<td>Hosted</td>
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<td></td>
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<td></td>
<td>✓</td>
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<td>✓</td>
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</tbody>
</table>

### SUMMARY AND INTENT

You must provide Help documentation that targets the client for your solution. If necessary, also provide Help for administrative tasks. Customizing Help to match your customizations helps increase customer satisfaction with your solution and reduces your support costs.

**Note** This requirement does not apply to functionality that runs on a device that is not exposed within the Microsoft Dynamics NAV user interface, such as handheld devices or cash registers. In these scenarios, you should provide user documentation that is appropriate to the user interface.

Microsoft Dynamics NAV 2013 R2 introduced a new Help Server that replaced the CHM files that were used in earlier releases of Microsoft Dynamics NAV. If you have created Help for earlier versions of Microsoft Dynamics NAV, you must deploy the HTML files from that Help solution to a Help Server. Help in CHM files cannot be accessed from the Microsoft Dynamics NAV clients. Content that is deployed to a Help Server can be accessed both from the Microsoft Dynamics NAV Windows client and from the Web client. The Help Server is a website that you set up and configure for the users of your solution.

### RESOURCES

To satisfy this requirement, you must demonstrate that you can deploy a Microsoft Dynamics NAV 2015 Help Server that provides Help that can be accessed from the UI of your solution. For more information, see [Microsoft Dynamics NAV Help Server](https://docs.microsoft.com/en-us/ dynamics-nav/2015-help-server-help) in the MSDN Library.

In the Microsoft Dynamics NAV 2015 documentation in the MSDN Library, you can find guidelines for creating Help that can be deployed to your Microsoft Dynamics NAV Help Server. The Help Guide section provides information on how to update and customize the base documentation that Microsoft provides and includes instructions for creating Help content in the format and with the file names that result in F1 calls being directed to your Help Server. Optionally, you can use the Microsoft Dynamics NAV 2013 Help Toolkit that is available for download from PartnerSource to convert your existing Help content, and to help you create new content for Microsoft Dynamics NAV 2015.

### HOW TO COMPLY

Documentation for a Microsoft Dynamics NAV solution must provide a user experience that is consistent with the base documentation. It must be easy for the user to access and to navigate. You must provide the following:

- Help to explain all added or changed objects.
  - All new application objects must be documented. To meet the requirement, you can document an object at the page level or at the field level. If you provide documentation at the page level, then you must provide appropriate content for fields to meet user needs.
  - If you have customized objects that were provided by Microsoft, then you must document these changes. You can update the Help that Microsoft provides, or you can create new Help that replaces all or part of the Microsoft-provided Help. All content that you provide must contain appropriate ownership and copyright information. For more information about requirements for addressing copyright issues, see [Copyright Attribution Requirements](https://docs.microsoft.com/en-us/dynamics-nav/copyright-attribution-requirements) in the MSDN Library.

Software Solution Test Guidelines for Microsoft Dynamics NAV 2015
• Help to assist solution users understand how a feature works and is used.
• Your Help content for solution users must be accessible from the user interface (Microsoft Dynamics NAV Windows client and Web client only).

• For each new window in your solution, you must provide context-sensitive Help that opens in your Microsoft Dynamics NAV Help Server website. For example, if you create page 50000, then you must deploy a topic with the filename N_50000.htm to the relevant language folder on your version of the Help Server. The topic can contain audience-appropriate Help content, or it can redirect to the document or location that provides this Help content.
• If you choose to make the Help available as PDF documents or similar, users must be able to access the documents from links in the navigation pane in the Help Server website.

We recommend that you update the documentation feedback script to send documentation feedback email messages to you. If you are creating new Help projects or editing projects that were provided by Microsoft, then you should maintain different versions of the Feedback.js file. For more information about the feedback mechanism and privacy concerns, see the Help Guide section in the MSDN Library.

TEST METHODOLOGY
The test vendor will review your Help documentation for compliance and usability. You can grant the test vendor access to your Microsoft Dynamics NAV Help Server website for verification. Alternatively, if you submit your solution as a VHD file, you can include your Help Server website on the virtual disk.

For functionality that is exposed within the Microsoft Dynamics NAV Windows client or the Microsoft Dynamics NAV Web client, the test vendor will review a representative sample of application modules to make sure that Help is available when a user presses F1 (Microsoft Dynamics NAV Windows client) or chooses a field caption (Microsoft Dynamics NAV Web client). The test vendor will also verify that the same content can be found by using Search in the Help Server website, and that the table of contents navigation provides an entry point to key conceptual content for the relevant application areas.

For functionality that is not exposed within the Microsoft Dynamics NAV Windows client or the Microsoft Dynamics NAV Web client, the test vendor will review your documentation to verify that you have included adequate Help information.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution does not provide Help documentation, then it will fail the test.

2.2 The ISV must provide an installation and configuration guide.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT
You must include an installation and configuration guide in your documentation. If you do not use partners to sell your solution, then you must provide installation and configuration information to customers. If your solution is implemented only by your employees or is hosted by you, then an internal document explaining how your product should be implemented must be provided to the test vendor. If your solution is implemented exclusively by importing application code from a .fob file, this requirement does not apply.

ISV partners and customers who use or deploy a solution must be able to successfully deploy, configure, and manage the solution in an existing Microsoft Dynamics NAV environment. Your documentation must provide information that allows partners and customers to successfully install or upgrade your solution in this environment.

RESOURCES
See the Upgrade Instructions for Microsoft Dynamics NAV and the installation and configuration information in Help, when you create your solution-specific guide.¹
HOW TO COMPLY
Include adequate system requirements, installation, configuration, and upgrade documentation to allow your employees, a partner, or a customer to implement your solution in a new or existing Microsoft Dynamics NAV environment. This can take the form of one document, or you can also refer to separate documents for additional information. We recommend that you use one of the following formats: word document, .pdf, or html page.

A compliant guide will contain the following sections:

- Description of the solution, which describes the problem that the solution solves.
- Hardware and operating system requirements.
- Installation and configuration tasks and walkthroughs.
- Operational checklist, which includes information about performing daily, monthly, and annual procedures; performing backups; and other related tasks.
- Security hardening information, which describes how the solution is deployed in a more secure manner.

TEST METHODOLOGY
The test vendor will review your documentation to verify that you have included adequate implementation information.

Note The test vendor will only validate that the required information is included. The vendor will not verify the quality or technical accuracy of the information.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution documentation does not include an installation and configuration guide, then it will fail the test.

2.3 The ISV must provide documentation for VARs.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT
Customers and VARs frequently customize and extend business software. Therefore, you must provide documentation that explains your solution and how to customize it. You must provide documentation that thoroughly describes your solution, how it works, and how it can be customized. The documentation provides a more technical explanation of the solution than the documentation that targets the solution user. Its purpose is to give value-added resellers (VAR) a solid understanding of the solution to help them customize and sell the solution to customers.

RESOURCES
See Microsoft Dynamics NAV 2015 Developer and IT Pro Help documentation when creating your solution-specific documentation. In addition, to satisfy this requirement, your content can be deployed to a Microsoft Dynamics NAV Help Server. Optionally, you can use the tools and information that are provided in the Microsoft Dynamics NAV 2013 Help Toolkit (requires PartnerSource login) and in the Help Guide section in the Microsoft Dynamics NAV 2015 documentation in the MSDN Library.

HOW TO COMPLY
Document your customization and extensibility procedures in a developer's guide. You should provide an overview that explains the customization and extensibility strategy and detailed information about each API, web service, and other components that your solution exposes.

The documentation can be in the form of a separate Microsoft Office Word document, a .pdf document, a reference section on the Microsoft Dynamics NAV Help Server, or another website.

A compliant guide should contain the following sections:

- An overall description of the solution and the business problem that it solves. Include the target audience for the solution and usage scenarios. For an example, see Design Details: Supply Planning in Help.
- An explanation of the data model for the solution, including:
  - A description of new and modified tables, including fields and stored data types.
  - New and modified functionality and its interaction.
A description of new and modified, objects that are used to gather, process, and display data from the tables including pages, reports, queries, XMLports, codeunits, client control add-ins, and .NET Interoperability objects.

- Describe the C/AL code that connects the application objects.
- For client control add-ins, describe the purpose and the underlying code. For an example, see Displaying Charts Using the Chart Control Add-in in Help.
- For .NET Framework interoperability, describe the functionality, its usage, and any configuration or customization. Explain underlying code and C/AL variables.

A description of how the VAR can customize the solution. You should provide an overview that explains the customization and extensibility strategy and detailed information about each API, web service, and other components that your solution exposes. Include conceptual information and procedures.

**TEST METHODOLOGY**
The test vendor will review your documentation to verify that you have included adequate implementation information.

**Note** The test vendor will only validate that the required information is included. The vendor will not verify the quality or technical accuracy of the information.

**CRITERIA FOR PASSING**
This requirement is mandatory. If the ISV solution does not pass this requirement, then it will fail the test.

### 2.4 Solution Help should follow the style guidelines that are described in the Microsoft Dynamics NAV Help Guide.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
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<td></td>
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<td>Complex</td>
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<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**
The documentation for your solution should follow Microsoft Dynamics NAV Help style guidelines. It should tell the user how to perform specific tasks, and it should be easy for the user to understand. Documentation for a Microsoft Dynamics NAV–certified solution should provide a user experience that is consistent, in writing style and depth of information, with the documentation that is provided with Microsoft Dynamics NAV.

In Microsoft Dynamics NAV 2013 and subsequent releases, to improve customer experience, Microsoft has created a number of application walkthroughs, overview topics, and task-oriented topics as part of the help contents. You should customize these topics to match your solution and add additional walkthroughs, overview topics, and task-oriented documentation that explain how users should use your solution to accomplish their business goals.

**RESOURCES**
- The Help Guide section in the Microsoft Dynamics NAV 2015 documentation in the MSDN Library provides updated guidelines for deploying Help to the Help Server.

To satisfy this recommendation, you should use the information that is provided in the Help Guide section in the MSDN Library and the Microsoft-provided Help that is included in Microsoft Dynamics NAV 2015 to create your Help and deploy it to a Microsoft Dynamics NAV Help Server.

**HOW TO COMPLY**
Ensure that you have Help that provides meaningful information. The guidelines in the Help Guide section in the MSDN Library help you create appropriate content.
TEST METHODOLOGY
The test vendor will review your Help documentation for style, accuracy, and usability. The vendor will review a representative sample of application modules to ensure that Help topics are appropriate, easy to understand, correct, and adhere to style and user interface guidelines.

CRITERIA FOR PASSING
This is a recommendation only. Failure to comply with this recommendation will not cause the solution to automatically fail the test.
USER EXPERIENCE REQUIREMENTS

Your solution must comply with the following requirements:

- Requirement 3.1: The ISV solution must comply with core Windows and Microsoft Dynamics NAV user experience guidelines.
- Requirement 3.2: The ISV solution that restricts the functionality of Microsoft Dynamics NAV must document the restriction.

For more information, see Microsoft Dynamics NAV user experience guidelines in the MSDN Library.

3.1 The ISV solution must comply with core Windows and Microsoft Dynamics NAV user experience guidelines.

<table>
<thead>
<tr>
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<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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<td></td>
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<td>✓</td>
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</tbody>
</table>

SUMMARY AND INTENT

User experience requirements are part of the test requirements review.

Users of your solution must have a user experience that is consistent with Microsoft Dynamics NAV. It is important that users can reuse the knowledge they build from using standard Microsoft Dynamics NAV and expect to complete similar tasks in your solution by using the same user interface elements and the same interaction steps as in the standard application. Therefore, the user interface for your application must comply with the Microsoft Dynamics NAV user experience guidelines and with the Windows user experience guidelines.

Note: This requirement does not apply to user interfaces that are designed for special devices, such as handheld scanners or cash registers. Additionally, there may be other justifications for deviating from the standard user experience guidelines. You must include these justifications with the application when you submit it for testing. The justifications will be evaluated during the test process.

RESOURCES

See the Microsoft Dynamics NAV user experience guidelines and Learn About the RoleTailored Design in the MSDN Library. For topics that are not covered by these guidelines, see the Microsoft Windows User Experience Interaction Guidelines in the MSDN Library.

HOW TO COMPLY

Observe the following user experience requirements. If your user experience deviates from these requirements, then you must prepare a justification for the deviation. Include this justification in your software submission package. Some requirements are specific to the Microsoft Dynamics NAV Windows client, the Microsoft Dynamics NAV Web client, or the Microsoft Dynamics NAV Tablet client. If not client is specified, the requirement applies to all deployments.

1. Keyboard Access
   1.1. (Windows client only) Users must be able to operate the solution using keyboard only.

2. Screen Resolution
   2.1. (Windows client and Web client only) The solution must run optimally on a screen resolution of 1280 x 1024 pixels:
      2.1.1. At this resolution, the Role Center must not have horizontal or vertical scrollbars when all parts displaying business data are expanded. If secondary parts such as Report Inbox and Microsoft Connect do not fit without scrolling, the solution still passes this requirement.
      2.1.2. Grids, maps, and similar elements may still show their own local scrollbars.
      2.1.3. The solution must be able to run on a screen resolution of 1024 x 768 pixels (with scrollbars where needed) without causing the users problems.
   2.2. (Tablet client only) The solution must only provide the user access to pages that work well in a minimum screen resolution of 960x600

3. RoleCenter pages added or modified by the solution
   3.1. There must be no more than 5 cue groups (i.e. titled containers for cues) on the Role Center.
      3.1.1. (Tablet client only) A Role Center must have exactly one part that contains at least one cue group.
   3.2. Each cue group must contain 1 to 6 cues.

Software Solution Test Guidelines for Microsoft Dynamics NAV 2015
3.3. The Role Center must show at least one chart part.
   
   3.3.1. A justification can be provided stating why a specific Role Center should not show any chart parts. For example: “The service technician user profile will only give access to basic workflows involving time registration and therefore only needs to show a list part with the list of time registered this week.”
   
   3.3.2. If no chart part is shown, there must be at least one part of another type.
   
   3.3.3. (Tablet client only) Role Center parts must be sequenced to show a chart part first (vertically from top to bottom).
   
3.4. (Tablet client only) Role Center parts must not have more than 7 actions and action groups at first level, and must not have more than 12 actions and action groups in total.
   
3.5. All links in the navigation pane must open a list place or filtered view.
   
   3.5.1. (Windows client and Web client only) The links must open the page embedded in the Navigation window and not in a pop-up window.
   
3.6. (Windows client and Web client only) There must be a Home activity button in the navigation pane with the most frequently used lists/views.
   
3.7. (Windows client and Web client only) The navigation pane must contain no more than 8 activity buttons, not counting the Home and Departments activity buttons.
   
3.8. (Windows client and Web client only) The Home button and each (optional) activity button must show a list of navigation items that is short enough to not introduce a vertical scrollbar in the navigation pane when it displays with all list place views expanded, in a window with a height of 1024 pixels.
   
3.9. (Windows client and Web client only) There must be a Departments button to provide access to infrequently used links.
   
   3.9.1. A justification can be provided stating why a specific user profile should not show the Departments button. For example: “The user profile warehouse temp is intended for people in short-term employment who will only be allowed to access the few pages that are displayed in their navigation pane”.
   
4. Ribbon on pages added or modified by the solution (Windows client and Web client only)
   
   4.1. The Home ribbon tab must contain promoted actions, related information, and reports when such are defined by the page. Only Role Center pages do not have a Home ribbon tab.
   
   4.1.1. If a page has “New Document” items defined, at least one and up to 5 of the most frequently used items must be promoted to the New group.
   
   4.1.2. If a page has application actions defined, at least one and up to 5 of the most frequently used actions must be promoted to the Process group or a custom category.
   
   4.1.3. If a page has related information items defined, at least one and up to 5 of the most frequently used items must be promoted to the Process group or a custom category.
   
   4.1.4. If a page has reports defined, at least one and up to 5 of the most frequently used reports must be promoted to the Reports group or a custom category.
   
   4.2. At least one action in each group must be set to prefer large icon size (the PromotedIsBig property.)
   
   4.3. The New and New Document groups must contain only actions that open up a new window from which the user can create a new entity.
   
   4.4. No group on the Home tab must contain more than 9 items, not counting items placed inside dropdown menus.
   
5. List & Worksheet Pages added or modified by the Solution
   
   5.1. (Tablet client only) Actions that act in relation to a specific row must not appear in the page’s action pane. To ensure this, the action property ‘Scope’ must be set to ‘Repeater’.
   
6. Card, Document, and ListPlus pages added or modified by the solution
   
   6.1. The Document page type must be used only for entities that have a transactional or statutory aspect
   
   6.1.1. Documents must have a single “Lines” grid in the second section.
   
   6.2. The Card page type must be used only for pages that display master, reference, or setup data
6.2.1. Card pages may have sections (FastTabs) with a grid to represent a repeating field. To avoid confusion with the lines on Document pages, such section must be named to reflect the data it shows, and not be titled "Lines".

6.3. The ListPlus page type must not be used for entities for which the Card or Document page type are designed

6.3.1. A ListPlus page may—as needed—contain any number of sections with fields or grids

6.4. All top-level sections on a page (FastTabs) must show a title. Field groups within a section need not be titled.

6.5. A page section with fields (and not a grid) must by default show a maximum of 16 fields.

6.5.1. (Windows client only) A FastTab with fields must have between 1 and 5 fields displayed as Summary Values in the FastTab’s header. This shows up when the FastTab is collapsed.

6.5.2. (Windows client only) Within a FastTab, fields that are rarely needed by the user must be marked ‘Additional’ and so made available via the “Show more fields” option.

6.6. (Windows client only) Card and Document pages must not show Limit Totals To by default.

6.7. Pages of type Card, Document, and ListPlus must not directly contain a Repeater group, but may contain a subpage that in turn has a Repeater group.

TEST METHODOLOGY
To verify this requirement, the test vendor will use the screenshots that are provided by the ISV as part of the Documentation Requirements. Role Centers and pages that are designed for tablets must be documented using screenshots from a tablet.

The test vendor will confirm that the page screenshots of Role Centers, list places, and task pages follow the full set of applicable requirements.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution does not follow user experience requirements, then it will fail the test.

3.2 The ISV solution that restricts the functionality of Microsoft Dynamics NAV must document the restriction.

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<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
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SUMMARY AND INTENT
End users expect that the underlying Microsoft Dynamics NAV solution is fully functional. In addition, other ISVs will expect that a Microsoft Dynamics NAV environment will be fully functional.

RESOURCES
None

HOW TO COMPLY
If your solution limits or breaks existing Microsoft Dynamics NAV 2015 functionality or cannot coexist with Microsoft Dynamics NAV 2015 functionality, then you must include documentation that explains the conflict and states that the Microsoft Dynamics NAV feature or function will not be available after the user installs your solution. For example, if a reporting solution is designed for customers who do not use inventory and will not work for a customer who uses standard inventory functionality, then you must explain this limitation.

TEST METHODOLOGY
The test vendor will confirm that you have provided the required documentation.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution limits or breaks existing Microsoft Dynamics NAV 2015 functionality and does not document the limitation, then it will fail the test.
TRANSLATION AND LOCALIZATION REQUIREMENT

Your solution must comply with the following requirement:

- Requirement 4.1: The ISV solution must separate strings from source code.

### 4.1 The ISV solution must separate strings from source code.

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#### SUMMARY AND INTENT

ISV solutions must be able to be localized in the same markets that the underlying Microsoft Dynamics NAV product serves. Therefore, your solution must be globalized and follow localization best practices.

#### RESOURCES

For more information, see the following websites:

- Microsoft Global Development and Computing Portal
- MSDN Library: Globalization

#### HOW TO COMPLY

Microsoft Dynamics NAV includes multilanguage features. Therefore, a Microsoft Dynamics NAV user can switch languages within the application. To provide a consistent user experience, your solution must have multilanguage properties set on all captions and user interface fields. All text constants must be multilanguage enabled unless they refer to computer-to-computer communication, such as building XML documents or integrating with other applications.

Even if you are not localizing your application into other languages, you must consider how your application will operate with other language configurations. For example, if you use English (United States) names and locations for standard system directories, then your solution may not install or run correctly.

Your solution must be shipped with English language strings in addition to the target language or languages for your solution. If it is clearly documented in your sales and marketing materials that your solution only targets one language or country/region, then you may choose to ship it with language strings for that language only.

#### TEST METHODOLOGY

To verify this requirement, the test vendor will follow these steps:

1. Install the language module for the targeted language.
2. Check that the pages and error messages run in the selected language.
   a. On the Application menu, choose Select Language.
   b. Select a language from the list.

#### CRITERIA FOR PASSING

This requirement is mandatory unless it is clearly documented that your solution targets only one language or country/region. If the solution does not meet the multilanguage requirements, then it will fail the test.
TECHNOLOGY CONFIGURATION AND PLATFORM REQUIREMENT

Your solution must meet the following requirement:

- Requirement 5.1: The ISV solution must support the infrastructure that Microsoft Dynamics NAV supports.

5.1 The ISV solution must support the infrastructure that Microsoft Dynamics NAV supports.

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SUMMARY AND INTENT
Your solution must run on the specified infrastructure (browser, database, operating system, and other software) versions on which the latest version of Microsoft Dynamics NAV runs. Additionally, your solution must run on the latest service pack version of Microsoft Dynamics NAV if it has been available for the local version of Microsoft Dynamics NAV that is being tested for more than two months.

RESOURCES
For more information, see the Microsoft Dynamics NAV Requirements in the MSDN Library. This document lists the versions of various infrastructure components that are supported by Microsoft Dynamics NAV.

HOW TO COMPLY
Test your solution on the infrastructure that Microsoft Dynamics NAV supports. In your user guide, include a system requirements section that identifies the supported operating system or systems, database, browser, and other environment requirements. Specify the required versions for all required infrastructure software. If your in-product solution will always run in Microsoft Dynamics NAV on whatever infrastructure Microsoft Dynamics NAV runs, then state this.

TEST METHODOLOGY
The test vendor will perform a qualitative review to determine whether your solution runs on the specified infrastructure (browser, database, operating system, and other software). The vendor will review the user guide and compare the listed requirements to the latest list of supported components for Microsoft Dynamics NAV.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution does not run on the prescribed infrastructure, then it will fail the test.
INSTALLATION AND SETUP REQUIREMENTS AND RECOMMENDATIONS

Your application must meet the following requirements:

- **Requirement 6.1**: The ISV solution installation procedure must be compatible with Microsoft Dynamics NAV.
- **Requirement 6.2**: The ISV solution must correctly register DLLs and COM components.
- **Requirement 6.3**: The ISV solution must correctly deploy COM components to Microsoft Dynamics NAV Server and to client computers.
- **Requirement 6.4**: The ISV solution must correctly register Windows client control add-ins in Microsoft Dynamics NAV and deploy add-in assemblies to client machines.
- **Requirement 6.5**: The ISV solution must correctly register control add-ins in Microsoft Dynamics NAV and import control add-in resource.
- **Requirement 6.6**: After the ISV solution is installed, the Microsoft Dynamics NAV database must compile without errors.
- **Requirement 6.7**: The ISV must document the required versions and service packs of all dependent software programs, including Microsoft Dynamics NAV.
- **Requirement 6.8**: The ISV must document the Microsoft Dynamics NAV license that is required for their solution installation.
- **Requirement 6.9**: The ISV must document uninstallation procedures.
- **Requirement 6.10**: The ISV solution must include installable demonstration data.
- **Requirement 6.11**: Microsoft Dynamics NAV must start without errors after the ISV solution is installed.
- **Requirement 6.12**: The ISV solution must use the RapidStart Services to increase setup speed.
- **Requirement 6.13**: The ISV solution must correctly deploy .NET Framework add-in components to computers running Microsoft Dynamics NAV Server and Microsoft Dynamics NAV.

6.1 The ISV solution installation procedure must be compatible with Microsoft Dynamics NAV.

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**SUMMARY AND INTENT**

All ISV-certified solutions must have complete application installation instructions, and the instructions must be clear and easy to follow. The installation instructions must include procedures for installing and configuring Microsoft Dynamics NAV so that it functions with the ISV solution. You do not need to duplicate Microsoft Dynamics NAV installation procedures, but you may add to them by explaining any special steps that are required for your solution. The instructions can be in a plain text file or part of the standard user documentation. They must list all necessary steps, including working with the FOB import, system settings, and instructions for using any automated installation executable files.

**RESOURCES**

None

**HOW TO COMPLY**

You must provide instructions for installing your solution. The installed components will be the components that will be tested. Add-on solutions that are intended to be installed on top of other solutions must be shipped and installed with .fob files. Complete solutions that are not intended to be installed on top of another solution can be installed with .fob files or in another way, such as installing a custom database or restoring from database backup files.

You must provide detailed instructions on how to perform the installation. These should be written in a format that allows a VAR consultant to install the solution for a customer with minimal effort and without consulting technical support or contacting you.

**Note** This requirement does not apply to the installation of dynamic-link library (DLL) files.

Because of licensing restrictions of the Microsoft Dynamics NAV installation that is included in the ISV solution, this test is designed for situations where the ISV solution is the only solution that interoperates with a new Microsoft Dynamics NAV database.
TEST METHODOLOGY

The test vendor will use one of the following methods to confirm that the ISV has provided a complete list of resources.

To install with a .fob file:

1. Open Microsoft Dynamics NAV, and then connect to the database.
2. Install the Microsoft Dynamics NAV license file.
3. To open Object Designer, on the Tools menu, choose Object Designer.
4. To import the .fob file, on the File menu, choose Import.
5. Locate the import file, and then choose Open.
6. The .fob file includes modified objects. When prompted, open the import worksheet.
7. Verify that no objects are to be skipped. Objects are skipped if the version of the object in the database is later than the one in the .fob file.
8. Choose the OK button to import the .fob file. The file should be imported without producing any errors.

To test with another method:

The test vendor will follow the installation instructions that are provided by the ISV. In this case, the version consistency is tested by Requirement 1.4.

CRITERIA FOR PASSING

This requirement is mandatory. If the solution does not install correctly, then it will fail the test. If the solution produces FOB import errors, then it will fail the test.

6.2 The ISV solution must correctly register DLLs and COM components.

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<tr>
<td>Required</td>
<td>In-lab review</td>
<td>External</td>
<td>Simple, Complex, Hosted</td>
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</table>

SUMMARY AND INTENT

If your solution installs any DLLs or COM components, including ActiveX controls, then you must provide a setup program. The setup program must record the COM components in the registry database of the operating system. The registry serves as a central configuration database for user, application, and computer-specific information.

RESOURCES

None

HOW TO COMPLY

Check the registry to ensure that your setup program functions correctly. Document the correct registry settings and include this information with your solution when you submit it for testing.

TEST METHODOLOGY

During the in-lab review, the test vendor will install your application and review the registry to verify that the setup program registers all DLLs and COM components.
CRITERIA FOR PASSING
This requirement is mandatory. If the solution does not correctly register the necessary DLLs and COM components, then it will fail the test.

6.3 The ISV solution must correctly deploy COM components to client machines.

<table>
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<th>Type</th>
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<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>External</td>
<td>Simple, Complex, Hosted</td>
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</table>

SUMMARY AND INTENT
You can author DLLs that extend your application with COM and can be called from application code. These DLLs can be set up to run on Microsoft Dynamics NAV Windows clients. You should consider this when authoring your solution deployment and deploy the DLLs to the computers running client. Also, you should consider always deploying these DLLs to the same locations in the same order.

RESOURCES
For more information, see Using COM Technologies in Microsoft Dynamics NAV on the MSDN Library.

HOW TO COMPLY
Ensure that you only deploy components to the Windows client. Document the external components and include this information with your solution when you submit it for testing.

TEST METHODOLOGY
The test vendor will install your solution on a two-computer setup and ensure that the DLLs are deployed correctly to the Microsoft Dynamics NAV Windows client.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution does not correctly deploy necessary DLLs and COM components, then it will fail the test.

6.4 The ISV solution must correctly register Windows client control add-ins in Microsoft Dynamics NAV and deploy add-in assemblies to client machines.

<table>
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<th>Type</th>
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<tr>
<td>Required</td>
<td>In-lab review</td>
<td>External</td>
<td>Simple, Complex, Hosted</td>
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</table>

SUMMARY AND INTENT
Client control add-ins are used to extend the Microsoft Dynamics NAV Windows client with custom functionality. A Windows client control add-in is a custom control or visual element for displaying and modifying data on Windows client pages.

Windows client control add-ins are delivered as.NET Framework–based assemblies, which are .dll files. A single assembly can contain one or more control add-ins.

For the computer running the Microsoft Dynamics NAV Windows client:
The ISV solution must provide an external install package that copies one or more assemblies to the Add-ins directory.

On the computer running the Microsoft Dynamics NAV Windows client, copy the assemblies that contain the control add-ins to the Add-ins directory of the client installation or any subdirectory of that installation. The default path to this folder is:

C:\Program Files (x86)\Microsoft Dynamics NAV\71\RoleTailored Client\Add-ins

You can also place assemblies in a subfolder of the Add-ins folder. This can be useful when you have multiple assemblies and dependencies.

In Microsoft Dynamics NAV:
Register the control add-ins that are found in the assemblies in page 9820 Control Add-ins.

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RESOURCES
- For more information about control add-ins, see Extending the Windows Client Using Control Add-ins in the MSDN Library.
- For more information about control add-in registration, see How to: Register a Windows Client Control Add-in in the MSDN Library.

HOW TO COMPLY
A Windows client control add-in must be registered in table 2000000069, Client Add-in, with at least its name and the public key token of its signature. Optionally, the file version of the Windows client control add-in assembly and a description text can be added.

The ISV solution must provide an external install package that installs one or more assemblies to the Add-ins directory or a subdirectory of that the Add-ins directory.

TEST METHODOLOGY
The test vendor will verify that the Windows client control add-ins that are listed in the documentation have been correctly deployed to the computers running the Microsoft Dynamics NAV Windows client, and that they are correctly registered in Microsoft Dynamics NAV.

In Microsoft Dynamics NAV:
1. In the Windows client, in the Search box, enter Control Add-ins, and then choose the related link.
2. Verify that all the control add-ins from the list have been included in the Control Add-ins window and the underlying table.

For the computer running the client:
1. Open the Add-ins directory at C:\Program Files\Microsoft Dynamics NAV\80\RoleTailored Client\Add-ins.
2. Verify that all Windows client control add-ins from the list have been included in this folder and all listed assemblies are present in the directory or subdirectories.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution does not correctly register and deploy necessary Windows client control add-in components, then it will fail the test.

6.5 The ISV solution must correctly register control add-ins in Microsoft Dynamics NAV and import control add-in resource

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SUMMARY AND INTENT
Client control add-ins are used to extend the Microsoft Dynamics NAV Windows and Web client with custom functionality. A client control add-in is a custom control or visual element for displaying and modifying data on Windows and Web client pages. The same client control add-in will be used on both Windows and Web client pages.

Client control add-ins are delivered as .ZIP packages containing a manifest and optionally JavaScript, style sheets, and images. A single .ZIP package can contain only one client control add-in.

In Microsoft Dynamics NAV:
Register the client control add-in in page 9820 Control Add-ins and import its resource (.zip file).

RESOURCES
For more information about client control add-ins, see Extending Any Microsoft Dynamics NAV Client Using Control Add-ins in the MSDN Library.

HOW TO COMPLY
A client control add-in must be registered in table 2000000069, Client Add-in, with at least its name, the public key token of its signature, and its resource (.zip file). Optionally, the file version of the client control add-in assembly and a description text can be added.
The client control add-in must work as expected when used from the Microsoft Dynamics NAV Windows client as well as from the Microsoft Dynamics NAV Web client on all browsers supported by Microsoft Dynamics NAV. For more information, see System Requirements for Microsoft Dynamics NAV 2013 R2 in the MSDN Library.

**TEST METHODOLOGY**

The test vendor will verify that the client control add-ins that are listed in the documentation have been properly registered in Microsoft Dynamics NAV and its resource (.zip file) has been imported.

**In Microsoft Dynamics NAV:**

1. In the Windows client, in the Search box, enter **Control Add-ins**, and then choose the related link.
2. Verify that all the client control add-ins from the list have been included in the **Control Add-ins** window and the underlying table.
3. Verify that all the client control add-ins from the list have a valid resource by exporting the client control add-in resource. Save the resource to a file on the hard drive and examine the file from Windows Explorer. The resource must be a valid .zip file.
4. Extract the .zip file and verify that it contains one file and the following three optional subfolders:
   - `manifest.xml` (mandatory)
   - `Script`\/*.js (optional)
   - `StyleSheet`\/*.css (optional)
   - `Image`\/*.png (optional)

   Files in the three subfolders (Script, StyleSheet, Image) are optional and the subfolders can be omitted when empty.
5. If a `Script` folder is present in the .zip file, verify that it contains only .js files (JavaScript), and that the .js files have been minified. For more information, see minification.
6. If a `StyleSheet` folder is present in the .zip file, verify that it contains only .css files (stylesheet), and that the .css files have been minified. For more information, see minification.
7. If an `Image` folder is present in the .zip file, verify that it contains only .png files.
8. Verify that all files found in the `Script`, `StyleSheet`, and `Image` subfolders in the .zip file are referenced from the `<Resources>` section of the `manifest.xml` file.

**CRITERIA FOR PASSING**

This requirement is mandatory. If the solution does not correctly register client control add-in and import a valid client control add-in resource, then it will fail the test.

### 6.6 After the ISV solution is installed, the Microsoft Dynamics NAV database must compile without errors.

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<td>C/SIDE</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**

After your ISV solution is installed, the Microsoft Dynamics NAV database must compile and function correctly.

**RESOURCES**

None

**HOW TO COMPLY**

You should install your solution and compile the Microsoft Dynamics NAV database to verify the integrity of the newly installed code.

**Note** If your solution registers external DLLs or COM components, then these should be installed on the computer before you install the solution.

**TEST METHODOLOGY**

To verify this requirement, the test vendor will follow these steps:

1. Open Object Designer, and then choose the **All Objects** button.
2. When all objects are displayed, select all Microsoft Dynamics NAV objects that were modified by the ISV.
3. Compile the database. On the **Tools** menu, choose **Compile**. The compilation process should take 15 to 30 minutes.
4. The compilation process should report no errors and return you to Object Designer. If errors are reported, then on the View menu, choose Marked Only. The Error List window also contains all errors and warnings that occur during compilation. If any errors or warnings occur during compilation, then the Error List window opens automatically. To manually open the window, on the Tools menu, choose Error List.

5. Note the objects that are reported as errors. Report the compilation errors to the ISV before continuing.

Note: The objects that compiled before the solution was imported must also be able to compile after the import.

It is acceptable that the following standard Microsoft Dynamics NAV objects will not compile when installed on a clean system:

<table>
<thead>
<tr>
<th>Tables</th>
<th>Codeunits</th>
</tr>
</thead>
<tbody>
<tr>
<td>370</td>
<td>5302</td>
</tr>
<tr>
<td>5302</td>
<td></td>
</tr>
<tr>
<td>5303</td>
<td></td>
</tr>
<tr>
<td>5305</td>
<td></td>
</tr>
<tr>
<td>5312</td>
<td></td>
</tr>
<tr>
<td>7152</td>
<td></td>
</tr>
<tr>
<td>7700</td>
<td></td>
</tr>
<tr>
<td>8610</td>
<td></td>
</tr>
<tr>
<td>8611</td>
<td></td>
</tr>
</tbody>
</table>

CRITERIA FOR PASSING

This requirement is mandatory. If the solution causes the database to produce errors after the solution is installed, then it will fail the test unless an acceptable written explanation is provided for why this happens.

6.7 The ISV must document the required versions and service packs of all dependent software programs, including Microsoft Dynamics NAV.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT

Your solution may have software dependencies. Additionally, Microsoft Dynamics NAV requires specific software and service pack versions to be installed. You must document these requirements and include the documentation in your test submission.

RESOURCES

None

HOW TO COMPLY

Provide the test vendor with a list of the software, including version numbers and service packs that your solution requires.

TEST METHODOLOGY

The test vendor will review the documentation to verify that the required software list is provided.

CRITERIA FOR PASSING

This requirement is mandatory. If the solution does not include documentation for the software and service pack requirements, then it will fail the test.

6.8 The ISV must document the Microsoft Dynamics NAV license that is required for their solution installation.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT

If your solution requires a specific Microsoft Dynamics NAV license configuration, such as the Extended Pack, you must document the license requirements. Also, if your solution is based on the Limited User license, you must specify this and the specific scenarios that the Limited User license will be used for.

RESOURCES

Microsoft Dynamics NAV 2013 R2 and Microsoft Dynamics GP 2013 Pricing and Licensing (requires PartnerSource access).

HOW TO COMPLY

Provide the test vendor with information about which Microsoft Dynamics NAV license configuration that your solution requires.
TEST METHODOLOGY
The test vendor will review the documentation to verify that the required license information is provided. If you have specified Limited User scenarios in Appendix B, the test vendor will test those scenarios with a Limited User license.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution does not include information on the required Microsoft Dynamics NAV license, then it will fail the test.

6.9 The ISV must document the uninstallation procedures.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT
Customers must be able to uninstall an ISV solution. If your solution cannot be removed, then you must state this in your documentation. This applies to components that are external to Microsoft Dynamics NAV. For the part of the ISV solution that is implemented in Microsoft Dynamics NAV objects, these changes must be identifiable through versioning. For more information, see 1.4 The ISV solution must follow standard Microsoft Dynamics NAV version conventions and provide code comments for changed Microsoft Dynamics NAV objects.

RESOURCES
None

HOW TO COMPLY
Provide a complete list of all resources that your solution adds to Microsoft Dynamics NAV. You must also provide complete instructions for uninstalling your solution, including removing any imported code, DLL or ActiveX components, and registry entries. If it is not possible to uninstall your solution, then you must state this in your documentation. After the solution is uninstalled from the test system, Microsoft Dynamics NAV may not be functional.

TEST METHODOLOGY
The test vendor will confirm that the ISV has provided a complete list of all resources that are added to Microsoft Dynamics NAV. This list will be used to verify the removal of the solution.

If uninstallation is possible, then the test vendor will follow each step in the uninstallation instructions in the order that they are presented. The test vendor must be able to remove the solution without consulting the ISV. After un-installing the solution, Microsoft Dynamics NAV may not be functional.

The test vendor will then review the list of components that the ISV solution installed to verify that the entire ISV solution has been removed.

Note
The following user data must not be removed:

- **Customer data**, such as the database, configuration files, and other files that are placed in the installation folder after installing the product.
- **Prerequisites**, such as external components that are required by the solution to work.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution can be uninstalled and does not uninstall completely, then it will fail the test unless you have a valid reason for not supporting uninstallation.

6.10 The ISV solution must include installable demonstration data.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT
Demonstration data is useful for many purposes, such as sales demonstrations, training, and application testing. Therefore, you must deliver at least one demonstration company with your solution. Microsoft recognizes that some datacenters do not allow installing demonstration data on production servers. You can deliver demonstration data as part of the main installation or as a separate installation, such as in a VHD image. You must provide instructions that describe how to add the demonstration data to demonstrate the entire solution and all components.

RESOURCES
None

HOW TO COMPLY
The demonstration data must populate new tables or fields in your solution. You can provide data in the following ways:

- Supply XMLports so that users can import the demonstration data. You should include the XMLports in .fob file format with the data files. You can include the XMLports with the main application objects or as a separate .fob file.
- Provide a Microsoft Dynamics NAV object, such as a codeunit that populates the demonstration data for the ISV solution when it is run.

You must include complete instructions for adding the data to Microsoft Dynamics NAV.

TEST METHODOLOGY
To verify this requirement, the test vendor will use one of the following procedures:

If the demonstration data is provided in a .fob file with XMLports or in a Microsoft Dynamics NAV object:
1. Verify that the ISV provides XMLports or codeunits with the solution, and then use Object Designer to import the objects.
2. Compile the objects. Follow the instructions supplied by the ISV to install the demonstration data.

To verify that table changes are consistent with the demonstration data, the test vendor will run a consistency test after your solution is installed:
3. Open the development environment.
4. Open the database, and then open the company.
5. On the File menu, point to Database, and then choose Test.
6. Select a test for Primary Keys and Data, Secondary Keys, and Field Relationships Between Tables.

The test vendor will run this test before and after the solution is installed and compare results.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution does not include demonstration data, then it will fail the test. If the database and demonstration data are not consistent, then the solution will fail the test.

6.11 Microsoft Dynamics NAV must start without errors after the ISV solution is installed.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT
This requirement is designed to eliminate poor end-user experiences that result from new installations that produce errors the first time that Microsoft Dynamics NAV with an installed ISV solution is started. This requirement was implemented in response to specific feedback that some ISV solutions result in errors that require manual intervention when starting Microsoft Dynamics NAV with the installed solution for the first time.

RESOURCES
None

HOW TO COMPLY
Your installation guidance or setup must be sufficient to avoid these errors.

TEST METHODOLOGY

Software Solution Test Guidelines for Microsoft Dynamics NAV 2015
After installation, inspect for a problem-free solution launch and perform some typical operations as defined in the Microsoft Dynamics NAV Consistency Verification Test. For more information, see Appendix B.

CRITERIA FOR PASSING
This requirement is mandatory. If the solution causes the system to stop responding or if other serious errors are reported, then it will fail the test.

6.12 The ISV solution must use the RapidStart Services to increase setup speed.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT

In earlier versions of Microsoft Dynamics NAV, the Rapid Implementation Methodology (RIM) toolkit addressed the issue of automation and simplifying recurrent processes in implementation (setup) projects and helps identify the exact information that is required to set up solutions and allow them to run smoothly.

RIM is replaced by RapidStart Services for Microsoft Dynamics NAV 2015. RapidStart Services is a tool designed to shorten deployment times, improve quality of implementation, and enable productivity by automating and simplifying recurring tasks. In the current release, Microsoft Dynamics NAV 2015 includes a mixture of RIM and RapidStart Services. The following instructions apply until RapidStart Services are fully available.

RESOURCES
See the Set Up a Company With RapidStart Services for Microsoft Dynamics NAV section in the Microsoft Dynamics NAV Help that is included on the product media.

Additionally, see the readiness material for RapidStart Services for Microsoft Dynamics NAV in the Microsoft Dynamics NAV 2013 R2 Product Readiness Library on PartnerSource.

HOW TO COMPLY
For all solutions, the RapidStart Usage Questionnaires must be completed. See Appendix C.

Additionally, for solutions that only use RapidStart Services, ISVs should follow the instructions in the Set Up a Company With RapidStart Services for Microsoft Dynamics NAV section in the Microsoft Dynamics NAV Help.

Pay particular attention to the following:

- **Setup questionnaire updates**: To update an existing setup questionnaire, create a new question line that contains a field from the related setup table that is not included in the present questionnaire.
  
  If the vertical solution includes setup tables that are not included in Microsoft Dynamics NAV, then create a new questionnaire header for each table and link the header to each database table.
  
  Use the Update Questions function to create questionnaire lines. The information will appear in the lines with a question number, the question (which is the same as the field name followed by a question mark), and the valid options for the setup field.

- **Changes to core tables**: If you make changes to existing core Microsoft Dynamics NAV tables, then implement the changes throughout the entire hierarchy of posting groups and in the master data templates.

  You can add new ISV-related tables and data.

- **Changes to the master data**: If your solution contains information to be added to the five master data types that are covered by the master data templates, or it requires a new master data template, perform the following steps.
  
  1. To add the information, add a new line to the existing master data template. Selecting the Mandatory field is for informational purposes only, and the data is not validated.
  
  2. You can create a new master data template that is related to the master data table and add the necessary fields and possible default values.

If the new master data template is to be used in the daily operations from a master data record, then you may need to add a function to the relevant page.
Data templates are useful if you need to transfer data from another system, such as when doing data migration from the customer's legacy system.

- **Changes to ISV-specific data:** When you add ISV-specific data, you can export the contents from the Config. Packages window (page 8615) to an ISV-specific .xml file. You should include any additional ISV-related tables in the Configuration Worksheet window. If you want to make it possible to create a lookup to the data tables from the Configuration Worksheet window, then enter the page number in the Page ID field.

  Create one .xml file per industry segment, and then use the .xml file format. We recommend that you do not use the Excel format. The new .xml file can be an update of the core .xml files or a new file.

  Update core files in the Company Setting\ENU folder, and then update the .xml configuration file manually if there are changes to the data links.

  The new .xml file is placed in the Company Settings\Culture folders. For example, you can put a German version in the Company Settings\DEU folder.

**TEST METHODOLOGY**

For all solutions, the test vendor will validate that the RapidStart Usage Questionnaires in appendix C have been completed. Additionally, for solutions that only use RapidStart Services, the test vendor will:

1. Create a new company, and then import the configuration package provided with the solution.
2. Open the Configuration Worksheet window (page 8615), and then validate that the new company contains the following information:
   - Questionnaires
   - Setup data
   - Master data template header and lines
3. Apply the package – no errors should occur during this process.
   - The test vendor will also verify that no errors are reported on the page.
   - The vendor will use the list of all modified or new XML company types that the ISV provides and repeat this process.

**CRITERIA FOR PASSING**

This requirement is mandatory. If the questionnaires in Appendix C have not been completed, then the solution will fail the test.

6.13 The ISV solution must correctly deploy .NET Framework add-in components to computers running Microsoft Dynamics NAV Server and Microsoft Dynamics NAV.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>External</td>
<td>Simple, Complex, Hosted</td>
</tr>
</tbody>
</table>

**SUMMARY AND INTENT**

You can use the .NET Framework to author add-ins as assemblies that extend your application with .NET Framework features and can be called from application code. These assemblies can be set up to target Microsoft Dynamics NAV Server, the development environment, and the Microsoft Dynamics NAV client. When you author your solution deployment, you must deploy assemblies to the correct computers depending on where the code must be run. Deployment to the development platform is optional and is only required if the assembly is part of a development toolkit that is provided to end users.

**RESOURCES**

For more information, see [Extending Microsoft Dynamics NAV with .NET Framework Interoperability](#) in the MSDN Library.

**HOW TO COMPLY**

Ensure that you only deploy components to the computer running Microsoft Dynamics NAV Server that target the server and deploy components to the computer running Microsoft Dynamics NAV that target the client. Document the external components and include this information with your solution when you submit it for testing.
**TEST METHODOLOGY**
The test vendor will install your solution on a two-computer setup and ensure that the assemblies are deployed correctly to the computers running Microsoft Dynamics NAV Server and Microsoft Dynamics NAV. The assemblies must be deployed to a subfolder of the product’s Add-Ins folder.

**CRITERIA FOR PASSING**
This requirement is mandatory. If the solution does not correctly deploy necessary assemblies and components, then it will fail the test.
BACKUP AND RESTORE REQUIREMENT

Your application must meet the following requirement:

- **Requirement 7.1**: The ISV must include procedures to back up and restore both the ISV solution and the data if the standard Microsoft Dynamics NAV backup is insufficient.

7.1 The ISV must include procedures to back up and restore the ISV solution and data if the standard Microsoft Dynamics NAV backup process is insufficient.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
</tbody>
</table>

✔️ ✔️ ✔️

**SUMMARY AND INTENT**

A customer or partner must be able to back up and restore your solution and all associated data. Therefore, if your solution requires any special backup or restore procedures, then you must include documentation that describes what should be backed up, how to back it up, and how to restore data.

Backup procedures should also include any solution data that is stored outside Microsoft Dynamics NAV.

**RESOURCES**

None

**HOW TO COMPLY**

If your solution requires the user to perform any special steps to backup or restore data that is not a part of a standard Microsoft Dynamics NAV backup process, then you must prepare a document that describes the backup process. Include the following information:

- What to back up
- How to back it up
- How to restore the data, including data that is stored outside Microsoft Dynamics NAV

Solutions that store data outside the Microsoft Dynamics NAV database must have additional documentation.

**TEST METHODOLOGY**

The test vendor will verify that you have included appropriate backup and restore procedures. The test vendor will perform the backup and restore processes to make sure that it functions correctly. The test vendor may use your demonstration data to perform this test.

**CRITERIA FOR PASSING**

This requirement is mandatory. If the solution does not include appropriate backup and restore procedures, then it will fail the test.
SOFTWARE SOLUTION TEST GUIDELINES
FOR MICROSOFT DYNAMICS NAV 2015

UPGRADE AND MAINTENANCE REQUIREMENTS

Your solution must meet the following requirements:

- Requirement 8.1: The ISV must provide database upgrade scripts.
- Requirement 8.2: The ISV must use file versioning for DLLs and COM components.
- Requirement 8.3: The ISV must use file versioning, company, and product metadata for .NET Framework add-ins components.

8.1 The ISV must provide database upgrade scripts.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required*</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

*Required if the ISV solution has been updated.

SUMMARY AND INTENT

This requirement ensures that upgrades are easier for partners by providing scripts that support database upgrades.

RESOURCES

None

HOW TO COMPLY

Prepare and document your upgrade scripts. Your documentation must list the names of the upgrade scripts and the tables that each script affects. You should provide more in-depth documentation, but it is not required.

TEST METHODOLOGY

The test vendor will verify that you have included the required upgrade script documentation, which lists the scripts and the affected tables.

CRITERIA FOR PASSING

This requirement is mandatory. If the solution does not include upgrade scripts and documentation, then it will fail the test.

8.2 The ISV must use file versioning for DLLs and COM components.

<table>
<thead>
<tr>
<th>Type</th>
<th>Test method</th>
<th>Technology</th>
<th>Solution category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>In-lab review</td>
<td>All</td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Complex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hosted</td>
</tr>
</tbody>
</table>

SUMMARY AND INTENT

All executable files, such as DLLs and COM components including ActiveX controls, must have versioning metadata that is associated with them. Installation programs use this metadata to confirm that correct versions are in place before applying an upgrade, service pack, or hotfix. Without this versioning information, an installation program could potentially corrupt the system by applying changes that cannot be synchronized with the files that are currently installed. Additionally, if a shared component fails, then correct file version information helps a customer identify the associated solution and file producer. The file’s producer is the only entity that can regress the file. Therefore, the metadata must also include the company name.

RESOURCES

None

HOW TO COMPLY

Examine the file information for each DLL and COM component to verify that it includes the product name, company name, and file version number.

TEST METHODOLOGY

The test vendor will review submitted code to determine if files contain metadata with the following elements:

- Product name
- Company name
- File version number

Software Solution Test Guidelines for Microsoft Dynamics NAV 2015

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8.3 The ISV must use file versioning, company, and product metadata for .NET Framework add-in components.

**SUMMARY AND INTENT**

All assemblies must have file versioning metadata. Installation programs use this metadata to confirm that correct versions are installed before applying an upgrade, service pack, or hotfix. Without this information, an installation program can potentially cause data corruption by applying changes that cannot be synchronized with the files that are currently installed.

Assemblies must also include the product name and company name in the metadata. If a shared component fails, then correct file version information can help a customer identify the associated solution and file producer. The file producer can provide support.

**RESOURCES**

None

**HOW TO COMPLY**

Examine the file information for each assembly to verify that it includes the product name, company name, and file version number.

**TEST METHODOLOGY**

The test vendor will review submitted code to determine if files contain metadata with the following elements:

- Product name
- Company name
- File version number

**CRITERIA FOR PASSING**

This requirement is mandatory. If the solution does not use file versioning and include the product name and company name, then it will fail the test.
APPENDIX A: STANDARD MICROSOFT DYNAMICS NAV VERSION CONVENTIONS

This section describes the object version number syntax that is used when labeling the Microsoft Dynamics NAV base product and all products that are used with the Microsoft Dynamics NAV base product.

The following illustration demonstrates the Version List labeling of all objects that are provided in Microsoft Dynamics NAV.

Note that labeling hotfixes is a recommended approach when applying hotfixes in an installation and does not exist in objects that are provided by Microsoft.

When an existing object is modified, such as when a standard object is modified by localization, the labeling of the modification is added to the Version List and is separated by a comma. The following illustration demonstrates the labeling for a standard object that has been modified by local functionality changes:

The following information is contained in the Version List column:

- The object is affected by W1 functionality and local functionality, where the object is based upon a W1 object and modified with local functionality.
- The W1 object was last changed or the object was created in connection with Microsoft Dynamics NAV W1 version 7.10, Microsoft Dynamics NAV 2013 R2.
- The local functionality that is contained in the object was last changed or the local functionality was created in connection with Microsoft Dynamics NAV SE 7.10.

Objects that are modified multiple times during the localization process are also tagged with one reference for each modification, and the reference always refers to when the object was changed or created.
PARTNER FUNCTIONALITY OBJECTS

When you modify objects that are provided by Microsoft Dynamics NAV, you must add a comma-separated reference to the partner version list for local or cross-localization modifications.

We recommend that you do not use Microsoft Dynamics NAV and other product codes that are used by Microsoft Dynamics NAV. Partners can use any other conventions for versioning of their objects. We recommend aligning your versioning conventions with the Microsoft versioning conventions for major and minor version and hotfix references. There are no restrictions to the number of characters that can be used to reference the Product Code or Region/Country values in the Version List.
APPENDIX B: MICROSOFT DYNAMICS NAV CONSISTENCY VERIFICATION TEST

Company:
Solution:
Version:
Prepared by:
Date Prepared:

1. **Identify the intended purpose of the product.**

Specify what fundamental service that the product is supposed to provide. To the extent possible, define the audience for the product. Write a paragraph that briefly explains the purpose of the product and describes its intended audience.

**Example:**

*Test Solution* is a solution for managing data warehouse that enables the user to define the data warehouse strategy in a multifacility and multiuser environment.

Describe the product purpose:
2. **Identify the most representative User Profiles for your solution.**

List the User Profiles that you are designing your product for. For each User Profile please include the Role Center ID and a description of the User Profile's work. Also indicate with a Yes or No if this User Profile performs transactions such as processing documents, filling journals or maintaining reference data.

**Example:**

<table>
<thead>
<tr>
<th>User Profile</th>
<th>Role Center ID</th>
<th>Description</th>
<th>Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>9051</td>
<td>A Project Manager will typically be responsible for Project Initiation,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scheduling, Resource Management and Project Budget management.</td>
<td></td>
</tr>
</tbody>
</table>
3. **Identify the most representative primary functions for each User Profile of your solution**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary function</td>
<td>Main usage of the product — the function that is so important that, in the estimation of a typical user, its inoperability or impairment would make the product unfit for its purpose.</td>
<td>A function is <em>primary</em> if you can associate it with the purpose of the product and it is essential to that purpose. Primary functions define the product. For example, the function of adding text to a document in Microsoft Office Word is so important that the product would be useless without it. Groups of functions that are taken together could be a primary function. For example, although no single function on the drawing toolbar of Word is primary, the complete toolbar might be primary. If the toolbar is primary, most functions on that toolbar should be operable for the product to pass the test.</td>
</tr>
</tbody>
</table>

Examples of primary functions:
- Manage cross-docking operations.
- Manage stock environment.
- Manage IT interoperability with a fast carrier company.

List all primary functions:
4. Identify the most representative contributing functions for each role.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributing function</td>
<td>Any function that contributes to the utility of the product but is not a primary function.</td>
<td>Although contributing functions are not primary, their inoperability could be a reason for failure. For example, users may be able to do useful things with a product, even if it has an Undo function that never works, but most users will find that unacceptable. Such a failure would violate fundamental expectations about how products should work.</td>
</tr>
</tbody>
</table>

*Example of a contributing function:*

- Generate a 3-D report.

List all contributing functions:
5. **Specify potential instabilities and challenging data.**
   1. List five to 10 functions or groups of functions (preferably primary functions) for focused instability testing.
   2. Specify challenging data for each selected function. Think of large, complex, or otherwise challenging input.

Examples:
- Functions that interoperate with other products (for example, object linking and embedding, file conversion).
- Functions that interoperate with other products (for example, object linking and embedding, file conversion).
- Functions providing data through Web Part Connections.
- Functions that make intensive use of memory.
- Functions that interact extensively with the operating system.
- Functions of unusual complexity.
- Functions that change operating parameters (for example, preference settings).
- Functions that manipulate operating system configuration.
6. Design and record a consistency verification test.

**Prerequisites:**
List any action that must be performed before the consistency verification test can be executed.

**Examples:**
- Install Microsoft SQL Server 2008.
- Import XML files with end-user configuration for key User Profiles.
- Use radio frequency identification (RFID) to identify hardware.

**Required Information:**
List any information that a user must know to perform the consistency verification test.

**Examples:**
- User must log on as User *username*.
- User must know the product serial number.
- User must know the account passwords.

**Test Procedure:**
Complete the following procedure to test each primary function of the application. You must describe each step that is required to test a primary function. You can combine similar functions, if appropriate.

**Example:**
- Manage cross-docking operations.
  1. Define the goods involved.
  2. Determine the delivery locations.
  3. Determine the transport company.

- Manage the stock environment.
  1. On the **File** menu, choose **Save**.
  2. Type the file name in the field, select the location for the file, and then choose the **OK** button.

- Manage IT interoperability with a fast carrier company.
  1. Configure database access.
  2. Define user rights and circuit approval.
APPENDIX C: USE OF RAPIDSTART SERVICES

Configuration Questionnaire

RapidStart Services for Microsoft Dynamics NAV provides you with tools that you can use to set up companies and migrate legacy data for tables in Microsoft Dynamics NAV. Examples of the types of data that you can migrate include information about existing customers and vendors.

The Configuration Questionnaire is a collection of industry-specific questions and suggested answers that help you update the contents of Microsoft Dynamics NAV setup tables (for example, tables 79, 98, 311, 312, 313, and so on).

The questionnaires help structure and document business information and data based on a detailed discussion about specific solutions. The information collected helps reduce the implementation workload by streamlining the repetitive tasks any implementation requires, such as setting up local address formats, posting of discounts, automatic cost postings, and number series.

The questionnaire guides the user and the implementation consultant through the Microsoft Dynamics NAV setup requirements from a business perspective to ensure that the setup reflects the customer’s business rules. The questionnaire can be presented as an Excel Workbook, so the user needs no prior Microsoft Dynamics NAV training to be able to work with the questionnaire.

For more information, see How to: Create Configuration Questionnaires in the Microsoft Dynamics NAV 2015 Help.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Have you used the Configuration Questionnaire in your solution?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Have you added information to the Configuration Questionnaire? (IF YES, please describe the additions in column Comments)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 If you have answered NO in 1.0 Please describe the reason for not using the Configuration Questionnaire in column Comments</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**RapidStart Services Configuration Packages**

With RapidStart Services for Microsoft Dynamics NAV, you can create configuration packages with most of the setup tables already filled in, so that customers only have to change a few settings after the package is applied. The configuration packages are built on a preconfigured company. After you have setup a company that meets your needs, you can create a configuration package that contains relevant data from this company. You can then use it when you create a new company that is to be configured in the same way.

Reusing common data saves implementation time and makes a more industry-specific setup possible.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Have you used RapidStart Services configuration packages in your solution?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Have you created one or more industry-specific configuration packages?</td>
<td>(If YES, please describe the type of data you have added in the column Comments)</td>
<td></td>
</tr>
<tr>
<td>1.2 If you have answered NO in question 1.0.</td>
<td>(Please describe the reason for not using configuration packages in the column Comments)</td>
<td></td>
</tr>
</tbody>
</table>
Using Configuration Templates

Nearly all implementation projects include the task of migrating the customer’s legacy master data.

The templates included in RapidStart Services for Microsoft Dynamics NAV can make this task easier. Rather than having to build a specific function to transfer master data for each individual project, RapidStart Services make it possible to only have to transfer a limited amount of information, as illustrated in the following example:

In Table 18, you can select customer master data by selecting general information fields such as: Name, Address, Postcode, and City; and communications fields, such as: Phone, Fax, E-mail, and Homepage. You can then link to the configuration template which contains mandatory information for that customer group. You then apply the data to the database and the program transfers customer master data ready for use.

The configuration templates also make it easier to create specific master data to train end-users and to use in daily operations. Once implemented, you only have to enter, for example, the item description, (Microsoft Dynamics NAV provides the item number automatically – depending on the setup) and then apply the appropriate template; and the mandatory fields are correctly copied from the template to the actual master data record.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Have you used configuration templates in your solution?</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Have you added configuration templates? (If YES, please describe which master data types in the column Comments)</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>If you have answered NO in question 1.0. Please describe the reason for not using configuration templates in the column Comments.</td>
<td></td>
</tr>
</tbody>
</table>