

MODULE 1: ARCHITECTURE

Module Overview

Microsoft Dynamics NAV 2013 is built on a three-tiered architecture model that improves security, scalability, and flexibility of Microsoft Dynamics NAV. Microsoft Dynamics NAV 2013 supports different client types and multiple configurations. To install the Microsoft Dynamics NAV 2013, you can choose from several predefined setup options.

Objectives

The objectives are:

- Understand the Microsoft Dynamics NAV 2013 architecture and its core components.
- Understand the client options supported in Microsoft Dynamics NAV 2013.
- Understand the different setup options.

Microsoft Dynamics NAV 2013 Architecture

The Microsoft Dynamics NAV 2013 architecture is a three-tiered architecture that uses three core components:

- The **client tier**: A client user interface that provides the front end (presentation logic layer).
- The **middle tier** or **server tier**: A multithreaded middle-tier server that manages the business logic and all communication.
- The **data tier**: The SQL Server™ database server that provides the data layer. It is augmented by Microsoft Dynamics NAV 2013 database components.

For every deployment of Microsoft Dynamics NAV 2013 you must install these three core components.



Note: *All RoleTailored components in an organization must be from the same version and build of Microsoft Dynamics NAV for the software to run correctly.*

You can have multiple instances of any of the core components in a production environment. The diagram

The Three Tiers of the RoleTailored Architecture shows a simple installation that has two SQL Server database computers, each associated with a single Microsoft Dynamics NAV Server computer, each of which in turn supports two Microsoft Dynamics NAV RoleTailored clients:

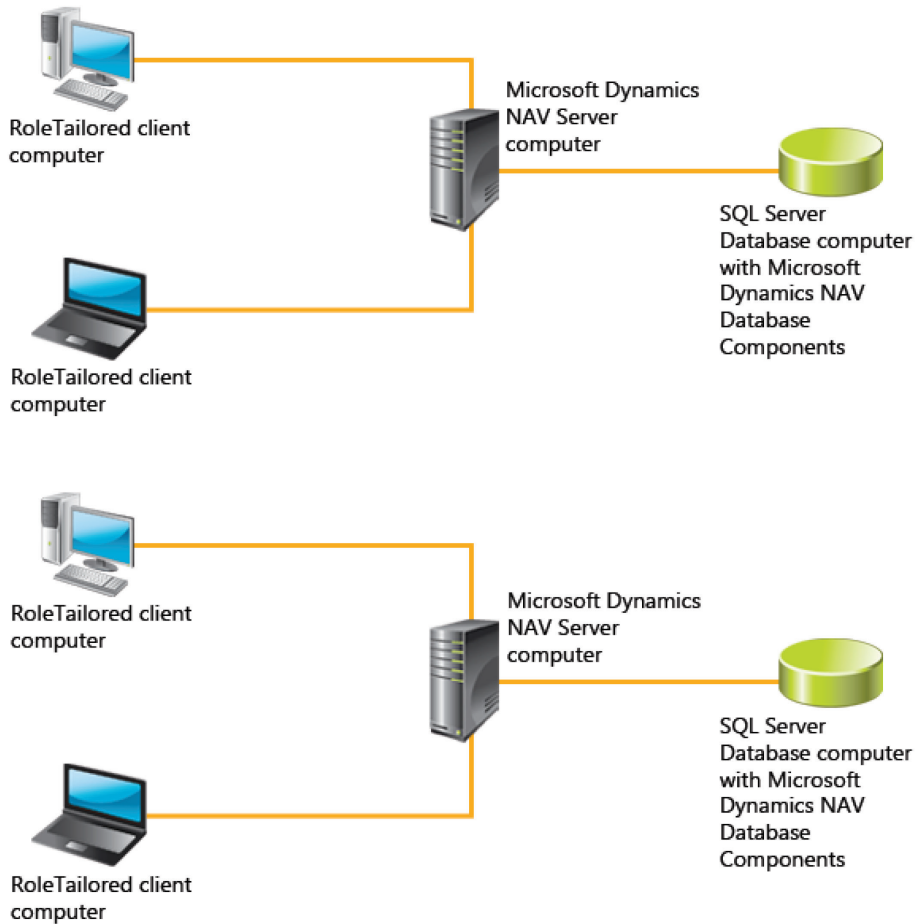


FIGURE 1.1: THE THREE TIERS OF THE ROLETAILORED ARCHITECTURE

Each Microsoft Dynamics NAV Server computer can run several Microsoft Dynamics NAV server instances. Each server instance can be connected to one Microsoft Dynamics NAV database at a time. You can connect multiple server instances to one and the same Microsoft Dynamics NAV database.

In addition to the three core components, the Microsoft Dynamics NAV architecture can include various additional tools and components that enhance or supplement the core components.

Component	Purpose
Microsoft Dynamics NAV Server Administration Tool	A tool for configuring and managing Microsoft Dynamics NAV Server and Microsoft Dynamics NAV sites.
Microsoft Dynamics NAV Portal Framework for Microsoft SharePoint®	A set of components that you use to build SharePoint web applications that display Microsoft Dynamics NAV pages and reports.

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Component	Purpose
Microsoft Dynamics NAV Web client	The Microsoft Dynamics NAV Web client enables you to access Microsoft Dynamics NAV data over the Internet.
Development Environment	The development environment for creating and modifying Microsoft Dynamics NAV applications in C/AL.
Microsoft Office Outlook® Integration	A component for synchronizing data, such as to-dos, contacts, and tasks, between Microsoft Dynamics NAV 2013 and Outlook.
Automated Data Capture System	A Microsoft Dynamics NAV tool for accurately capturing data for inbound, outbound, and internal documents, primarily for warehouse activities. With ADCS, company employees use handheld devices and radio frequency technology to continuously validate warehouse inventories.

The Data Tier

The data tier in the Microsoft Dynamics NAV 2013 architecture consists of a computer that is running the SQL Server database with which Microsoft Dynamics NAV interacts. It also contains the SQL Server database components. SQL Server database components configure Microsoft SQL Server to work with Microsoft Dynamics NAV 2013.

The data tier can be installed as part of the Microsoft Dynamics NAV setup, or you can use an instance of SQL Server.

In production environments, it is recommended to use SQL Server 2012, SQL Server 2008 R2, or SQL Server 2008. However, you can also use SQL Server 2012 Express Edition, SQL Server 2008 R2 Express Edition, or SQL Server 2008 Express Edition for prototyping, developing, and testing.

In Microsoft Dynamics NAV setup, SQL Server database components are a default component for the developer option. You can add the components to the server option or as part of a custom installation.

The Server Tier

Microsoft Dynamics NAV Server is a .NET-based Windows service application that manages communications between Microsoft Dynamics NAV clients and Microsoft Dynamics NAV databases in SQL Server. It uses the Windows Communication Framework (WCF) as its communication protocol.

Microsoft Dynamics NAV Server also hosts and executes all business logic. The SQL Server interface from Microsoft Dynamics NAV Server is rewritten for Microsoft Dynamics NAV 2013. It uses an ADO.NET interface (instead of ODBC) which is a managed data access layer that does not provide an interface or an access point to the user (improving security and scalability) and that supports SQL Server connection pooling. The redesign of data access offers different advantages:

- Decreased resource consumption
- Simplified deployment
- Improved performance

SQL Server connection pooling helps reduce memory consumption by Microsoft Dynamics NAV Server. There is no longer a one-to-one correlation between the number of client connections and the number of SQL Server connections. A single SQL Server connection can consume up to 40 MB of memory. Additionally, memory allocation is now in managed memory, which is generally more efficient than unmanaged memory. In Microsoft Dynamics NAV 2013, caching applies across users.

In addition, SQL Server connection pooling simplifies deployment of the Microsoft Dynamics NAV three-tier architecture for deployments where the three tiers are installed on separate computers. Specifically, administrators are not required to manually create SPNs or to set up delegation when the client, Microsoft Dynamics NAV Server, and SQL Server are on separate computers.

Microsoft Dynamics NAV 2013 offers improved performance for the following reasons:

- Cursors are no longer used to retrieve records. Instead, records are retrieved by using multiple active result sets (MARS). Functions such as **Next**, **Find('-')**, **Find('+')**, **Find('>')**, and **Find('<')** are generally faster with MARS.
- SIFT indexes have also been improved. For example, COUNT formulas can now use SIFT indexes. MIN and MAX formulas now use SQL Server **MIN** and **MAX** functions exclusively.
- RecordIds and SQL Variant columns in a table no longer prevent the use of BULK inserts, which you can now use for more table types. For more information, see Bulk Inserts in the online help (**press F1**).

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- In most cases, filtering on FlowFields issues a single SQL statement. In earlier versions of Microsoft Dynamics NAV, filtering on FlowFields issued an SQL statement for each filtered FlowField and for each record in the table in order to calculate the filtered FlowFields. There are two exceptions in Microsoft Dynamics NAV 2013 in which filtering on FlowFields does not issue a single SQL statement:
 - The **ValuelsFilter** option is used on a field, and the field has a value.
 - A second predicate is specified on a source field, and the field that is used for the second predicate has a value.

For more information about the **ValuelsFilter** option, see How to: Create, View, and Edit a Calculation Formula in the online help.

- In most cases, calling the **FIND** or **NEXT** functions after you have set the view to include only marked records issues a single SQL statement. In an earlier version of Microsoft Dynamics NAV, calling **FIND** or **NEXT** functions that use marked records issued an SQL statement for each mark. There are some exceptions if many individual records are marked. For more information, see **MARKEDONLY** Function (Record) in the online help.



Note: Because Microsoft Dynamics NAV 2013 no longer uses cursors to retrieve records, the Record Set property under **Caching** on the **Advanced** tab of the **Alter Database** page is no longer needed and has been removed.

Microsoft Dynamics NAV Server supports a range of different client types. You administer Microsoft Dynamics NAV Server by using either Microsoft Dynamics NAV Server Administration Tool or Microsoft Dynamics NAV Windows PowerShell API.



Note: Microsoft Dynamics NAV Server can only be installed on 64-bit operating systems.



Note: Installing Microsoft Dynamics NAV Server on encrypted drives is not supported. You may encounter issues if the server runs as a user that does not have permissions to the encrypted files.

Microsoft Dynamics NAV Server is installed when you select either the **Server** option or the **Developer** option in Microsoft Dynamics NAV Setup.

The Client Tier

The client tier provides the client interface to the user and is responsible for data presentation. It consists of the following components:

- The **Microsoft Business Framework** (MBF).
- The **Microsoft Windows Forms**. This set of classes in the .NET Framework enables the rapid development of powerful smart client applications. This logical form is a device-independent representation of forms/UI parts and web parts.
- The **User Interface (UI)**. Found in the client, the UI determines the user experience (UX). Content is delivered to the client from the data-binder layer in MBF. End-users can customize their user experience.
- The **Data Binder**. The data-binding layer transports data, data state, and notifications about data from the underlying business logic to forms and controls in the display target client. It also has reverse functionality and transports input data, data state, and notifications from the client to the underlying business logic.
- The **Form Builder**. This requests reading metadata for a form and builds a logical form with data binding, controls, and behavior. The logical form provides the functionality that is shared by all display targets: data binding, input validation, navigation, and possible business logic.
- The **UX Controls**. These are necessary because the MBF client will not deliver all the Microsoft Dynamics NAV 2013 controls. Therefore, native controls, or managed Windows Forms controls, are wrapped in a thin abstraction. This is the physical control.

In addition to the client for Windows, Microsoft Dynamics NAV 2013 also supports additional client types.

The following can be considered Microsoft Dynamics NAV clients because they interact with the Microsoft Dynamics NAV database through Microsoft Dynamics NAV Server:

- RoleTailored client for Windows
- Microsoft Dynamics NAV Portal Framework
- Microsoft Dynamics NAV Web client
- SOAP web services
- OData web services
- NAS services

Although SOAP web services, OData web services, and NAS services are considered clients, they must be installed and configured through Microsoft Dynamics NAV Server.

The client options will be discussed more in the next lesson.

Multiple Configurations

Microsoft Dynamics NAV 2013 supports multiple configurations of the three-tiered architecture. A common characteristic for each Microsoft Dynamics NAV 2013 configuration is that all three core components are installed. There can however be differences in the number of instances of each core component, the client types, the additional components installed, and the hardware configuration (number of computers) used.

Common Microsoft Dynamics NAV configurations are as follows:

- All three core components on the same computer. This is the configuration for a demo install and is also typical for a development environment so that a developer can work on Microsoft Dynamics NAV applications without worrying about network connections and inter-component security.
- RoleTailored client for Windows and Microsoft Dynamics NAV Server on the same computer; data tier on a separate computer.
- Microsoft Dynamics NAV Server and data tier on the same computer, RoleTailored client for Windows on a separate computer
- Each of the three tiers on a separate computer.

Although an existing configuration can always be changed, we recommend you thoroughly analyze both software and hardware requirements for each component before you start to install the components.

The Client Options

In addition to the RoleTailored client for Windows, Microsoft Dynamics NAV 2013 also supports additional client types, including web service clients, Microsoft Dynamics NAV Web client, a SharePoint client through Microsoft Dynamics NAV Portal Framework, and a NAS services client for programmatic access. The different client options are not mutually exclusive: you can have different client options on the same computer.

RoleTailored Client for Windows

The RoleTailored client for Windows, which is a Windows Forms-based client, is designed as the front end for the three-tiered architecture. It is an intuitive and versatile Windows application that developers, partners, administrators, and super users can customize to support the job functions of a full range of work roles in an organization.

For each role, the Microsoft Certified Partner or developer creates a customizable Role Center that displays key information that is required for relevant employees and makes their day-to-day tasks easier to complete. Users run the RoleTailored client for Windows to find the information and data entry points their jobs require.

The following figure shows the role-oriented interface in the RoleTailored client for Windows.

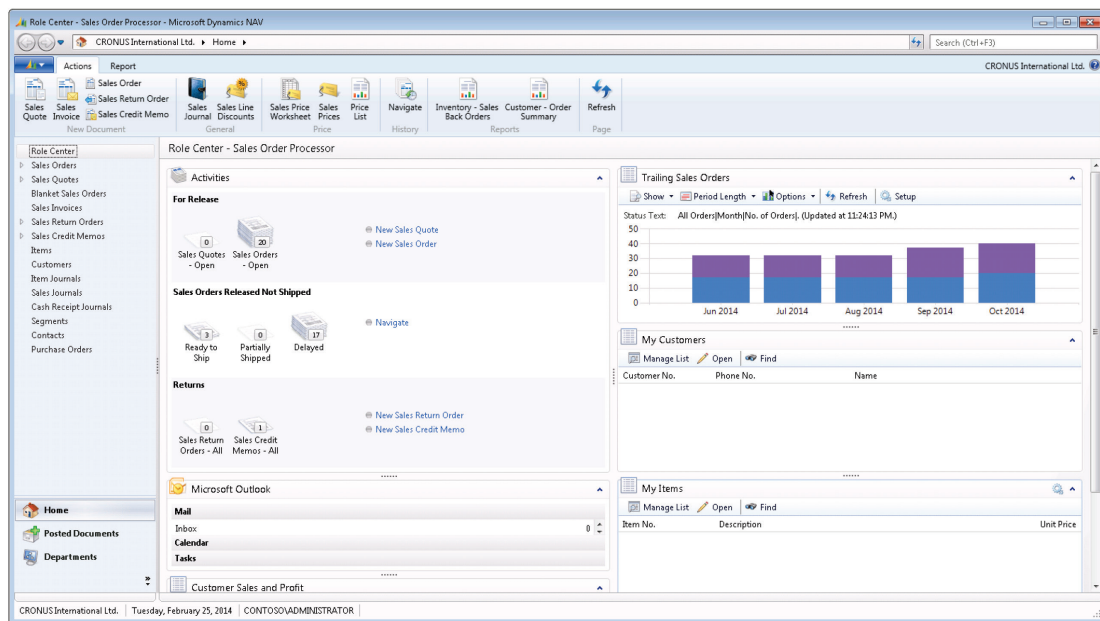


FIGURE 1.2: THE SALES ORDER PROCESSOR ROLE CENTER

A key feature of the RoleTailored client is the role-oriented, task-focused user interface. To support this user interface, Microsoft Dynamics NAV displays data in the RoleTailored client in a model-driven way and relies on metadata to display this data. This enables Microsoft Dynamics NAV pages to be consumed by different client types and devices without being constrained by layout limitations, because each client can display the page in a different way.

A RoleTailored client in a specific Active Directory® domain can connect to a Microsoft Dynamics NAV Server that is in another Active Directory domain.

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The RoleTailored client for Windows is installed when you select either the **Client** option or the **Developer** option in Microsoft Dynamics NAV Setup.

Microsoft Dynamics NAV Portal Framework for SharePoint

Microsoft Dynamics NAV Portal Framework for Microsoft SharePoint 2010 is a set of components that can be used to build Microsoft SharePoint web applications that display Microsoft Dynamics NAV pages and reports.

Using the Microsoft Dynamics NAV Portal Framework for Microsoft SharePoint, a Microsoft Dynamics NAV administrator can create a browser application that provides access to specific Microsoft Dynamics NAV features, applications, and pages.

The Microsoft Dynamics NAV Portal Framework for SharePoint diagram shows the tiers and components of the Microsoft Dynamics NAV Portal Framework network architecture.

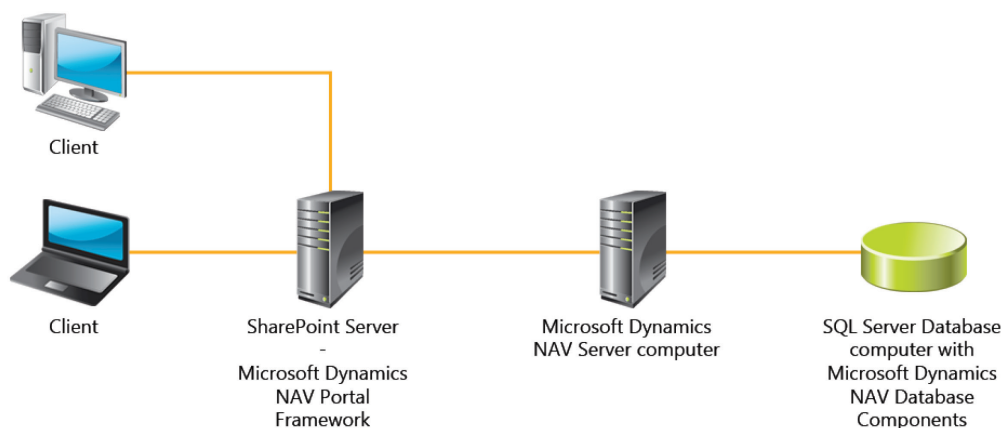


FIGURE 1.3: MICROSOFT DYNAMICS NAV PORTAL FRAMEWORK FOR SHAREPOINT DIAGRAM

Tier	Description
Client	A computer or computers for accessing SharePoint sites from Internet Explorer®.
SharePoint Server	A server farm or stand-alone server running SharePoint Foundation 2010 or Microsoft SharePoint Server 2010 that hosts multiple web applications and sites. Microsoft Dynamics NAV Portal Framework is installed on one or more web applications.

Tier	Description
Microsoft Dynamics NAV Server	A Microsoft .NET Framework–based Windows service that manages communications and provides a security layer between clients and Microsoft Dynamics NAV databases in SQL Server.
SQL Server database	A SQL Server that contains Microsoft Dynamics NAV data.



Note: *The SharePoint Server, Microsoft Dynamics NAV Portal Framework, and SQL Server tiers can be on the same computer or separate computers.*

Developer Experience

Developers of solutions for Microsoft Dynamics NAV Portal Framework will have the same experience as with RoleTailored client. Developers create Microsoft Dynamics NAV objects in the development environment and implement the same metadata and business logic as RoleTailored client. A page or report that can be displayed in the RoleTailored client can also be displayed on a SharePoint site.

End-user Experience

End-users will find Microsoft Dynamics NAV data familiar as it shares the same appearance as SharePoint. Working with Microsoft Dynamics NAV pages and reports in SharePoint resembles working with the pages and reports in RoleTailored client.

Microsoft Dynamics NAV Portal Framework is designed for occasional users who typically need an overview of their daily work status and perform fairly simple or light data entry.

Microsoft Dynamics NAV Business Web Services

Web services are a lightweight, industry-standard way to make application functionality available to many different external systems and users. Microsoft Dynamics NAV 2013 supports creation and publishing of Microsoft Dynamics NAV functionality as business web services. You can expose pages, codeunits, or queries as web services, and even enhance a page web service with an extension codeunit. When you publish Microsoft Dynamics NAV objects as web services, they are immediately available on the network.

Developers can publish two types of web services from Microsoft Dynamics NAV objects:

- SOAP web services: You can publish either pages or codeunits as SOAP services.
- OData web services: You can publish either pages or queries as OData services.

Microsoft Dynamics NAV 2013 web services are stateless and do not preserve the values of global variables or single-instance codeunits between calls.

SOAP Web Services

SOAP web services provide full flexibility for building operation-centric services. This includes industry standard interoperability, in addition to channel and host plug-ability. For web services that must interoperate with Java or use channels other than HTTP, SOAP services are the only option. Windows Communication Framework (WCF) has supported SOAP services since its initial release in the .NET Framework 3.0, and .NET 4 adds more support and default bindings to make it easier to build SOAP services that use WCF. You define and publish Microsoft Dynamics NAV 2013 SOAP web services in the RoleTailored client, and manage them from the Microsoft Dynamics NAV Server Administration Tool.

OData Web Services

We recommend OData services for client applications requiring a uniform, flexible, general purpose. They are less suited for applications that are primarily method oriented or in which data operations are constrained to certain prescribed patterns. OData supports Representational State Transfer (REST)-based data services, which enable resources, identified by using Uniform Resource Identifiers (URIs), and defined in an abstract data model (EDM), to be published and edited by web clients within corporate networks and across the Internet by using simple Hypertext Transfer Protocol (HTTP) messages. OData services are lightweight, with functionality frequently referenced directly in the URI. You define and publish Microsoft Dynamics NAV 2013 OData web services in the RoleTailored client, and manage them from the Microsoft Dynamics NAV Server Administration Tool.

Microsoft Dynamics NAV Application Server

NAS (Microsoft Dynamics NAV Application Server) is a middle-tier server component that executes business logic without a user interface or user interaction. NAS is re-engineered in Microsoft Dynamics NAV 2013 to be one of the client services in Microsoft Dynamics NAV Server.

The Microsoft Dynamics NAV Application Server can run both as a Windows service and from a command prompt. It provides access from external clients to the Microsoft Dynamics NAV database. Microsoft Dynamics NAV Application


Server runs key components of the business logic. Therefore, it can start processes to produce refined results exactly as if one were requesting information from the Windows client.

You manage NAS services from the Microsoft Dynamics NAV Server Administration Tool.

Microsoft Dynamics NAV Web Client

The Microsoft Dynamics NAV Web client enables you to access Microsoft Dynamics NAV data from a web browser, even over the Internet. You can view and edit data by using an interface that resembles the RoleTailored client for Windows. Microsoft Dynamics NAV Web client does not replace the Windows client but complements it by enabling scenarios that are not possible or difficult with the Windows client.

You develop solutions for Microsoft Dynamics NAV Web client by using the Microsoft Dynamics NAV Development Environment - implementing the same objects and business logic as you would with the Windows client.

 **Note:** Microsoft Dynamics NAV Web client supports most of the same Microsoft Dynamics NAV objects and features as the Windows client. But there are some small differences. For more information about these differences, see the online Help topic *Feature Limitations of Microsoft Dynamics NAV Web Client*.

The Microsoft Dynamics NAV Web Client Architecture diagram shows the tiers and components in the network architecture for the Microsoft Dynamics NAV Web client.

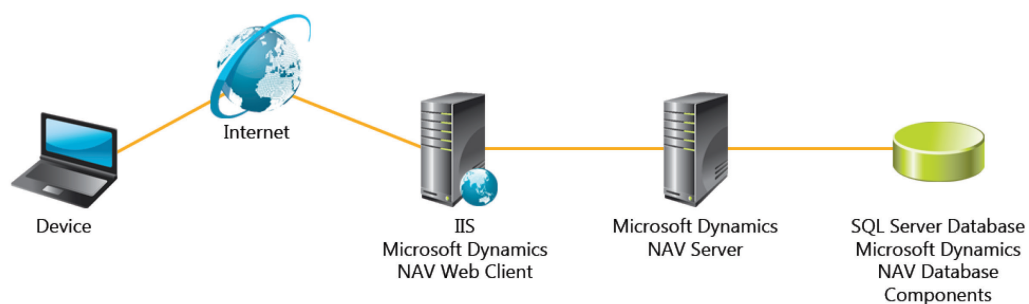


FIGURE 1.4: MICROSOFT DYNAMICS NAV WEB CLIENT ARCHITECTURE DIAGRAM

Tier	Description
Client	A computer or device that has access to the Internet with a browser.
Internet Information Server	A computer that is running Internet Information Services (IIS) 7.0. Microsoft Dynamics NAV Web client is installed on a website on IIS.
Microsoft Dynamics NAV Server	A Microsoft .NET Framework–based Windows service that manages communications and provides a security layer between clients and Microsoft Dynamics NAV databases in SQL Server.
SQL Server database	A SQL Server that contains Microsoft Dynamics NAV data.

Installation Options

After you have analyzed and prepared the hardware and software requirements for the Microsoft Dynamics NAV 2013 deployment, you can start to install the core components.

Microsoft Dynamics NAV 2013 Setup allows you to install the components individually. In addition it offers several predefined component packages called Installation Options, each designed for a typical use or type of user. When you select a predefined installation option, you can always customize the list of installed components.

Microsoft Dynamics NAV 2013 Setup can also be used to capture and save a set of custom setup settings in a setup configuration file. You can use this configuration file together with Setup, either when you or another user runs Setup or when you run a silent installation.

The first installation option, which is the **Install Demo** option, appears on the first page after you accept the license agreement in Setup. The other options are available if you click **Choose an installation option**.

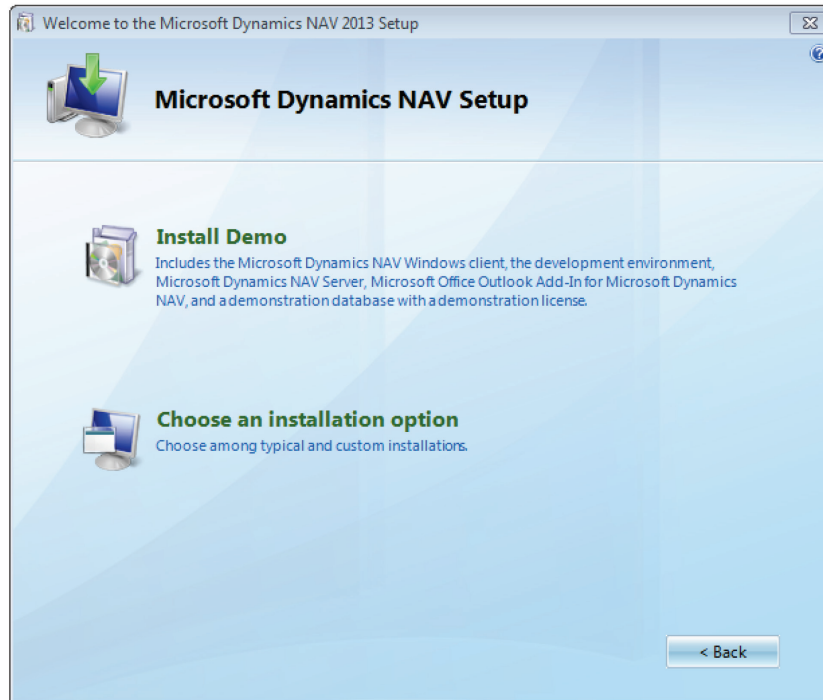


FIGURE 1.5: THE SETUP WIZARD

Setup does not provide a **Cancel** button on all pages. But you can cancel an installation from any page by clicking **Close** in the upper-right corner. All Microsoft Dynamics NAV components are removed from the computer. The only components that Setup installs but cannot remove are as follows:

- Database files, such as the Demo database.
- Prerequisites for Microsoft Dynamics NAV components that Setup can install, such as the .NET Framework.

Install Demo

The **Install Demo** option is intended for users who want to try the features of Microsoft Dynamics NAV. It can also be used to install a stand-alone development environment. Therefore, a developer can work on Microsoft Dynamics NAV applications without worrying about network connections and inter-component security. We do not recommend it as the foundation for an actual production environment.

With this option, Setup installs all three core components to the local computer. Because the Microsoft Dynamics NAV Server can only be installed on a 64-bit operating system, you can only use this option on a 64-bit operating system.

Installed Components

When you choose the Install Demo option, Setup installs the following components:

- RoleTailored client for Windows.
- Microsoft Dynamics NAV Server.
- Development Environment (C/SIDE).
- Microsoft Office Outlook Add-in for Microsoft Dynamics NAV.
- SQL Server Express, a smaller-scale version of SQL Server. If a valid version of SQL Server is already present on the computer where you are installing the Demo version, Setup does not install SQL Server Express.
- The Microsoft Dynamics NAV Demo database, with a demo license.



Note: *The development environment is discussed in the "Microsoft Dynamics NAV Server" module later in this course.*

Demo Install Notes

When you click **Demo Install**, Setup begins to copy files. After this, you have no more interaction with Setup (except to click **Close** to exit Setup when it is finished copying files).

Setup cannot install an .mdf file (the data file for a database) to the local computer if the destination folder or drive is compressed.

Setup creates a new instance of SQL Server—NAVDEMO—and installs the Demo database—Demo Database NAV (7-0)—in this instance. (Earlier Versions of Microsoft Dynamics NAV installed the Demo database in the default instance of SQL Server.) The first time that you install Microsoft Dynamics NAV 2013, the new instance of SQL Server and the Demo database are created automatically. If you later delete Microsoft Dynamics NAV 2013 and then run Setup to install the Demo version again, Setup prompts you to replace the existing database. Your options are **Yes** and **Cancel**.

Server Option

The **Server** option is available on the **Choose an installation option** page in Microsoft Dynamics NAV 2013 Setup. It can be used to install the server tier in a Microsoft Dynamics NAV 2013 environment.

Installed Components

When you choose the **Server** option, Microsoft Dynamics NAV 2013 Setup installs the following component:

- Microsoft Dynamics NAV Server. This forms tier two in the Microsoft Dynamics NAV three-tier product architecture. (RoleTailored client is tier two, and SQL Server Database Components, together with SQL Server or SQL Server Express, is tier three.)
- Microsoft Dynamics NAV Server Administration Tool. This tool is discussed more in the "Microsoft Dynamics NAV Server" module in this course.

You can configure the **Server** option to add or remove components by clicking **Customize** under the **Server** option on the **Choose an installation option** pane.

Additional components available under the **Server** option are as follows:

- SQL Server Database Components
- Demo database
- Microsoft Dynamics NAV Portal Framework for Microsoft SharePoint
- Automated Data Capture System
- Microsoft Dynamics NAV Web client

Client Option

The **Client** option is available on the **Choose an installation option** page in Microsoft Dynamics NAV 2013 Setup. This option can be used to install additional instances of the Windows client in an existing or a new Microsoft Dynamics NAV 2013 environment.



FIGURE 1.6: THE PREPACKAGED INSTALLATION OPTIONS

Installed Components

When you choose the Client option, Microsoft Dynamics NAV Setup installs the following component:

- RoleTailored client for Windows

The RoleTailored client forms tier one in the Microsoft Dynamics NAV three-tier product architecture. (Microsoft Dynamics NAV Server is tier two, and SQL Server Database Components, together with SQL Server or SQL Server Express, is tier three.)

You can configure the **Client** option to install additional components by clicking **Customize** under the **Client** option on the **Choose an installation** option pane.

Additional components available under the **Client** option include the Development Environment, Microsoft Dynamics NAV Server Administration Tool, and the Microsoft Office Outlook Add-In.

If you install the Windows client by using any installation option other than the **Install Demo** option, you must provide some initial configuration information to enable the client to establish a connection with an instance of Microsoft Dynamics NAV Server. Configuring the Windows client during and after installation will be discussed later in this course.

Developer Option

The **Developer** option is available on the **Choose an installation option** page in Microsoft Dynamics NAV 2013 Setup.

The set of components installed with the **Developer** option includes components a developer would typically use in designing Microsoft Dynamics NAV applications for a customer company. It can also be used for administrative tasks such as creating a database, managing users, and creating and assigning permission sets.

Installed Components

When you choose the **Developer Environment** option, Setup installs the following components:

- RoleTailored client for Windows
- Development Environment (C/SIDE)
- Microsoft Dynamics NAV Server
- SQL Server Database Components
- Microsoft Dynamics NAV Portal Framework for Microsoft SharePoint

You can configure the **Developer Environment** option to install additional components by clicking **Customize** under the **Developer Environment** option on the **Choose an installation** option pane.

Custom Components Option

The **Custom Components** option is available on the **Choose an installation option** page in Microsoft Dynamics NAV 2013 Setup.

Installed Components

This option differs from the other installation options that are available on the **Choose an installation option** page in Setup. It is not a subset of the complete list of available components for a particular type of user or configuration. Instead, it is the full list of Microsoft Dynamics NAV components from which you can select individual components to install. You can use this list to design your own installation option.

Choose Components to Install

When you run Microsoft Dynamics NAV 2013 Setup, you can install a predefined component package. These packages are called Installation Options. If you have to modify the set of components that are included in an existing installation option, then you can click **Customize** under any installation option. If you want to install components that are not all available in a predefined installation option, then you can click **Custom Components**.



Note: You can customize the component list for the **Client, Server, or Developer** installation options. However, only with the **Developer** option can you choose from the complete set of Microsoft Dynamics NAV components. The range of available components for the other two installation options is limited to components that are relevant for that option.

The following procedure describes how to select the components to install.

Choosing Components to Install

In this procedure, you use the **Component Selection** page to select what to install.

To identify the components that you want to install:

1. In Setup, on the Choose an installation option page, decide which Installation Option you want to customize, and then click Customize below the name of the installation option.
This opens the Customize the installation page with one or more components already selected. You can also click the Custom Components option on the Choose an installation option pane. This opens the Customize the installation pane without preselected components.

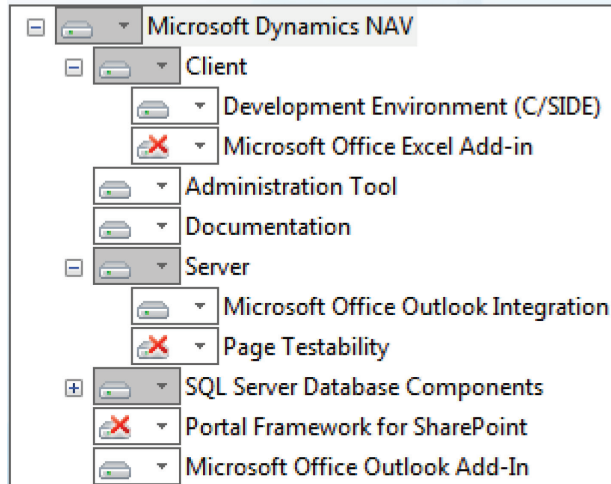





FIGURE 1.7: THE LIST OF COMPONENTS TO INSTALL DURING SETUP

Note: To install Microsoft Dynamics NAV to a location other than the default location, on the **Customize the installation** page, click **Destination folder**.

2. Select the components that you want to install on the Customize the installation page.
Options are presented in a tree view. The tree has three levels:
 - The top level shows only a single node, which is Microsoft Dynamics NAV.
 - The second level shows additional nodes that each identify a component such as Client and Server. Some second-level nodes have a plus sign on the left. Click the plus sign to expand the third level of the hierarchy.
 - The third level shows subcomponents for the selected second-level component.

Each node has one of three statuses as indicated by its appearance.

Component Node	Description
 <p>FIGURE 1.8: COMPONENT NODE SELECTION STATUS</p>	The component and all its subcomponents are selected for installation.

Component Node	Description
 <p>FIGURE 1.9: COMPONENT NODE SELECTION STATUS</p>	<p>The component is selected for installation. Some or none but not all of the subcomponents are also selected. Only items on the top or second level can be inactive because only these nodes can have subcomponents.</p>
 <p>FIGURE 1.10: COMPONENT NODE SELECTION STATUS</p>	<p>Neither the component nor any of its subcomponents are selected for installation.</p>

3. Click a component to open a menu of options for that component. You must click in the box. The following options are available:

Node Option	Description
Run from My Computer	Select this component for installation.
Run all from My Computer	Select this component and all subcomponents for installation.
Not Available	Cancel installation of this component and all subcomponents.

4. After you have selected the set of components and subcomponents that you want to install, click **Next** to continue to the **Specify parameters** page.

Preconfigure Components

With Microsoft Dynamics NAV Setup, you can preconfigure components before you install Microsoft Dynamics NAV so that you do not have to configure them after. You can use the **Specify parameters** page to associate configuration settings with a component before installation.

1. In Setup, on the **Specify parameters** pane, supply all settings for the listed components.
2. When you have finished configuring a component, click **Apply** to validate your settings. If there are issues with the settings that you have selected, then information about these issues is displayed on the **Problems were identified for this configuration** pane.

The following components can be preconfigured:

- RoleTailored client for Windows
- Microsoft Dynamics NAV Server
- SQL Server Database Components
- Automated Data Capture Systems
- NAS services

After you have solved possible problems displayed on the **Specify parameters** page, you can continue Microsoft Dynamics NAV Setup with the configuration settings applied. The settings will only be valid for the current installation. When you run Setup again, you will have to re-enter the settings.

Create and Load Configuration Files

After you finish customization and configuration of the components to install, you can save this information to a Setup configuration file. You can use this file together with Setup, either when you or another user runs Setup or when you run a silent installation.

Saving a Setup Configuration File

You can create a new setup configuration file or save a modified setup configuration file on the **Specify parameters** page in Microsoft Dynamics NAV Setup. This page is available when you run Setup unless you select Install Demo, which skips all other Setup pages.

To save a setup configuration file:

1. In the **Specify parameters** page, click **Save**.
2. Type a file name for the configuration file. An .xml extension is added automatically.

3. Click **Save**.

You now return to the **Specify parameters** page, where you can continue with installing software. You can also close Setup if you only have to create a Setup configuration file.

Loading a Setup Configuration File

The option to load a Setup configuration file is located on the **Choose an installation option** page in Microsoft Dynamics NAV Setup. This option is also available with a command-line install.



Note: A Setup configuration file contains information about which components to install and which settings to apply to each component. Therefore, you should not customize the list of components or configure components in Setup before you load a Setup configuration file because loading the configuration overwrites all prior customization and configuration.

To load a Setup configuration file in Setup:

1. In the **Choose an installation option** page, click **Load Configuration**. This option is located under Custom Components.
2. In the **Open** dialog box, select or browse to the Setup configuration file that you want to open, and then double-click the file. Setup now shows the **Customize the installation** page that was modified according to the component selection in the loaded Setup configuration file.
3. Modify the list of components to install, or click **Next** to go to the **Specify parameters** page, where settings from the Setup configuration file are shown.
4. Configure these settings, or click **Apply** to accept these values and continue.

Using a Setup Configuration File in a Silent Installation

Instead of using the Setup wizard, you can run Microsoft Dynamics NAV 2013 Setup at a command prompt. You can do this by starting the Setup.exe on the Microsoft Dynamics NAV installation media. (Setup.exe is in the root directory.)

If you want to use a Setup configuration file when you run Setup.exe from the command prompt, you can add the /config parameter:

```
Setup.exe /config <Setup config file>
```

The /config parameter includes the path and file name information for a Microsoft Dynamics NAV 2013 Setup configuration file to load.

Modifying a Setup Configuration File

To edit a Setup configuration file, you can either use an XML editor or you can load it into Microsoft Dynamics NAV Setup, make the desired modification, and then save the file. You do not have to install any software during this process.

Module Review

Module Review and Takeaways

Microsoft Dynamics NAV 2013 is built on a multithreaded three-tier architecture that supports different client types and deployment scenarios. Understanding the Microsoft Dynamics NAV 2013 architecture, the clients, and the installation options enables IT professionals, system implementers, and developers to efficiently install and customize Microsoft Dynamics NAV 2013 to fit the customer's needs.

Test Your Knowledge

Test your knowledge with the following questions.

1. How many core components does the Microsoft Dynamics NAV 2013 architecture contain?
 - 2
 - 3
 - 4
 - unlimited
2. Which tiers does a Microsoft Dynamics NAV 2013 deployment include?
 - Database, RoleTailored Client for Windows, Web Client
 - Database, SQL Server, RoleTailored Client for Windows
 - Database, RoleTailored Client for Windows, Business Web Services
 - Database, Server, Client
3. What is not true about Microsoft Dynamics NAV Server?
 - It executes all business logic.
 - It provides an open interface to the user.
 - There can be multiple instances in a Microsoft Dynamics NAV 2013 deployment.
 - It handles communication between the data and the client tiers.

4. What is the role of the Data Binder component in the Microsoft Dynamics NAV 2013 architecture?
- It determines the user experience.
 - It saves input data, data state, and data notifications only on the client
 - It sends data, data state, and notifications from the business logic to the client and back again.
 - It builds a logical form with data binding, controls, and behavior.
5. What is true about Microsoft Dynamics NAV business web services in Microsoft Dynamics NAV 2013?
- You can use Microsoft Dynamics NAV business web services only to read data from the Microsoft Dynamics NAV database.
 - You can generate SOAP web services and OData web services from Microsoft Dynamics NAV page objects.
 - Microsoft Dynamics NAV business web services do not allow execution of the Microsoft Dynamics NAV business logic.
 - Microsoft Dynamics NAV business web services are stateless except when they are published from a single-instance codeunit.
6. Which installation option will install all core components without additional interaction with Setup?
- Developer Option
 - Server Option
 - Custom Components Option
 - Client Option
 - Install Demo Option

Test Your Knowledge Solutions

Module Review and Takeaways

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