MICROSOFT® BUSINESS SOLUTIONS

NAVISION® 4.0

COURSE 8366A: BUSINESS NOTIFICATION TRAINING

INTRODUCTION TO BUSINESS NOTIFICATION

Welcome

We know training is a vital component of retaining the value of your Microsoft® Business Solutions investment. Our quality training from industry experts keeps you up-to-date on your solution and helps you develop the skills necessary for fully maximizing the value of your solution. Whether you choose Online Training, Classroom Training, or Training Materials, there's a type of training to meet everyone's needs. Choose the training type that best suits you so you can stay ahead of the competition.

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Look for a complete list of manuals available for purchase on the Microsoft Business Solutions website: www.microsoft.com/BusinessSolutions or call: 1-800-456-0025.

Target Audience

The course is designed for employees of Microsoft Business Solutions (MBS) Partners who will work with Business Notification. Target trainees can be divided into three groups: partner consultants, partner customization developers, and partner salespeople.

Course Organization

The Business Notification course is an instructor-led training course. It provides you with in-depth knowledge of the new functionality in Microsoft® Business Solutions–Navision® 4.0 that makes it possible to automatically send e-mail notifications to employees and business partners about changes within Microsoft Navision. The recommended duration of the course is one day. The course consists of the Training Manual, Instructor Notes, and PowerPoint presentation.

Course Prerequisites

Course participants must have:

Course participant	Prerequisite qualifications
MBS partner consultant	Microsoft Navision features
MBS partner customization developer	Knowledge of: - XMLports and XMLport Events - C/AL code - SQL Server
MBS partner salesperson	Familiarity with Microsoft Navision sales

Course Objectives

The course in designed to build product knowledge of Business Notification.

Course participant	Key goals when participating in the course
MBS partner consultant	Understand the overall concepts Know how to make daily use of the product Learn about security Learn about licensing
MBS partner customization developer	Learn in detail how to install and set up the solution Troubleshoot the installed solution (learn about architecture and the logging extension) Learn to create new out-of-the-box solutions Know all system requirements Learn about security
MBS partner salesperson	Learn about selling points Learn about licensing

Course Overview

The chapters in this Training Manual consist of instructional text, which introduce the area of functionality and provide examples of how it works. Where relevant, the chapters contain questions and exercises that allow course participants to test the knowledge that they have gained and practice using this knowledge.

Chapter 1, “Business Notification Overview” concentrates on the purpose of Business Notification, the way it works, and the basic concepts behind the solution.

Chapter 2, “Setup Procedures,” concentrates on the Navision side of the Business Notification process. The chapter tells you where business notifications come from, how to set up the Navision part of Business Notification, how to run a query to generate notifications, and how to send all or some of the found notifications to Business Notification Manager. The chapter also includes information about what Navision granules you will need to run Business Notification.

Chapter 3, “Using Business Notification Manager,” explains how Business Notification Manager works, how to set it up, and how to design and send notifications to your recipients.

Chapter 4, “Power User Setup Procedures,” describes how to connect to the server containing supplementary Business Notification files, manage templates in Business Notification Manager, and give permissions to users. It also addresses potential security problems related to the business notification process.

Chapter 5, “End-User Subscription,” describes the end-user subscription process for Business Notification.

Chapter 6, “Installation and Administration,” concentrates on design, installation, and administration of Business Notification.

Chapter 7, “Development and Customization,” describes a number of development and customization details about how to enable new events to be raised in Microsoft Navision and how to connect an event to a business entity.

In addition to the aforementioned chapters, there are three appendices, “Answers to Questions and Exercises,” “Terminology,” and “Business Notification Installation Guide.”

Demonstration Data

The examples and exercises in this course are based on the fictitious company CRONUS International Ltd., the same company on which the demonstration data in Microsoft Navision is based.

Student Objectives

What do you hope to learn by participating in this course?

List three main objectives below.

1.

2.

3.

CHAPTER 1: BUSINESS NOTIFICATION OVERVIEW

This section of the manual concentrates on the purpose of Microsoft® Business Solutions – Navision® Business Notification, the way it works, and basic concepts of the solution.

Training Objectives

At the end of this section, you will be able to:

- Identify the business needs that Business Notification provides a solution for.
- Describe the way the solution works.
- Explain the benefits of Business Notification.
- Define the main concepts of the solution.
- Give examples of the concepts.
- Tell the difference between the concepts.

Introduction to Business Notification

What Is Business Notification?

Business Notification is a new functionality in Microsoft® Business Solutions – Navision® 4.0 that makes it possible to automatically send e-mail notifications to employees and business partners about changes within Microsoft Navision.

For example, if a bill of materials (BOM) is changed by a product designer, other departments need to be aware of the changes: purchasing needs to adjust to the new or changed components; sales may need to inform customers about delays; and so on.

Another example would be when you place an order and receive some of the purchased items, but you are waiting for delivery of the rest of the order. Sending a notification will alert your suppliers that some of the goods have not yet been delivered. Without an automatic process, this important information is easily lost.

Why Do You Need Business Notification?

With Business Notification you can:

- Track and monitor critical business data, while at the same time limiting the need to print and compare reports, such as those on inventory level.
- Alert the appropriate employees or business partners in the following cases:
  - When an action is required in accordance with normal business procedure—for example, when a BOM has changed, or you need to send the inventory status to your suppliers or remind them about upcoming deliveries.
  - When an exception occurs—for example, when a supplier has not confirmed your purchase order or has not delivered goods as expected, or when a production order has been delayed.
- Keep employees and business partners informed. For example, you can use Business Notification to inform them when a new BOM item has been created.

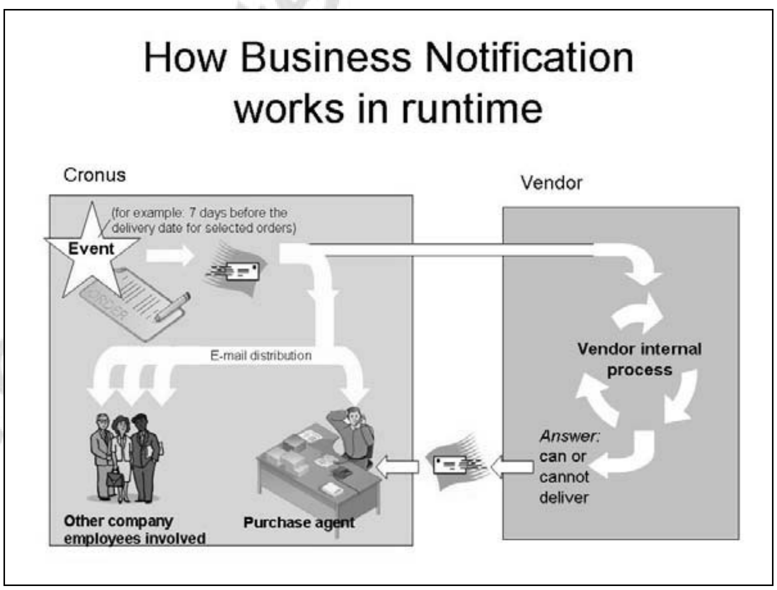
What Are the Benefits of Using Business Notification?

There are a number of benefits of using Business Notification:

- Business Notification enables companies to monitor their business processes in a cost-efficient way. Sending business notifications automatically reduces the amount of time spent on manual work and eliminates the possibility of human error in such standard procedures as printing and comparing inventory level reports.
- Business Notification is easy to use and allows customers to choose what information to include in notifications sent to company employees and external recipients.
- Business Notification can be extended to cover more of customers' existing business processes by creating new events in Microsoft Navision. This will allow you to notify your company employees and business partners about different changes within Microsoft Navision, other than the ones covered in the current version of Business Notification. For example, you may want to send a notification to your sales manager when a sales order exceeds $10,000 and thus need to be approved by the manager.

How Does Business Notification Work?

How does Microsoft Navision and Business Notification know what to notify users about and when to do it? The answer to this is that something needs to happen in Microsoft Navision and something needs to happen in Business Notification. The following diagram presents the information flow in Business Notification:



Microsoft Navision supports Business Notification by providing business entities and events. A business entity is, for example, a sales order or a BOM. Each business entity has one or more events attached. Events for a sales order could be “Order amount is greater than 10,000” or “Customer credit limit exceeded.” For a BOM, events could be “BOM changed” or “BOM status changed.”

When something happens in Microsoft Navision that causes an event (for example, when a certified BOM version has been modified), a document is sent to Business Notification. This document contains data from the business entity. For the “Production BOM Changed” event for a production BOM, this data would include the production BOM number, version code, description of the BOM, date from which this production BOM is valid, unit of measure, last date modified, and status of the BOM.

NOTE: *Field change-based events, like the “Production BOM Changed” event, do not require a query. The corresponding notifications are sent every time the appropriate field is changed.*

Time-based events, like the “Notify About Upcoming Delivery” event, shown on the picture above, require running a query in Microsoft Navision to check if any notifications should be sent to your recipients. For more information about how to run a query in Microsoft Navision, see “Setup Procedures.”

Business Notification will read this document received from Microsoft Navision and then send a notification in the form of an e-mail to all internal users (as a rule, your company employees), that have subscribed to this event on this business entity or to external recipients (your business partners) who have been added in Business Notification to receive this notification. The data in the document can be merged into the e-mail message, so the notification does not just tell the recipient that something has happened—it can inform the recipient exactly what happened.

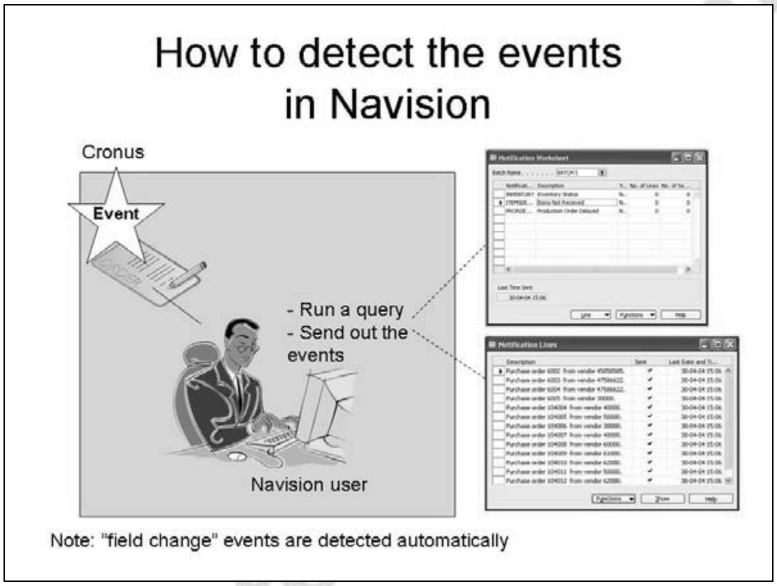
In order for Business Notification to work, XML ports and events have to be set up in Microsoft Navision, and rules and schemes have to be set up in the Business Notification Manager. To be able to receive notifications, internal recipients need to subscribe to them via a Web browser-based subscription management application. You will learn in detail how to do this in the following chapters.

For information on the technical architecture and on how to install Business Notification, refer to “Installation and Administration.”

Who Are the Users of Business Notification and What Are Their Roles?

There are a number of people with different technical skills and job responsibilities involved in setting up and working with Business Notification at different stages.

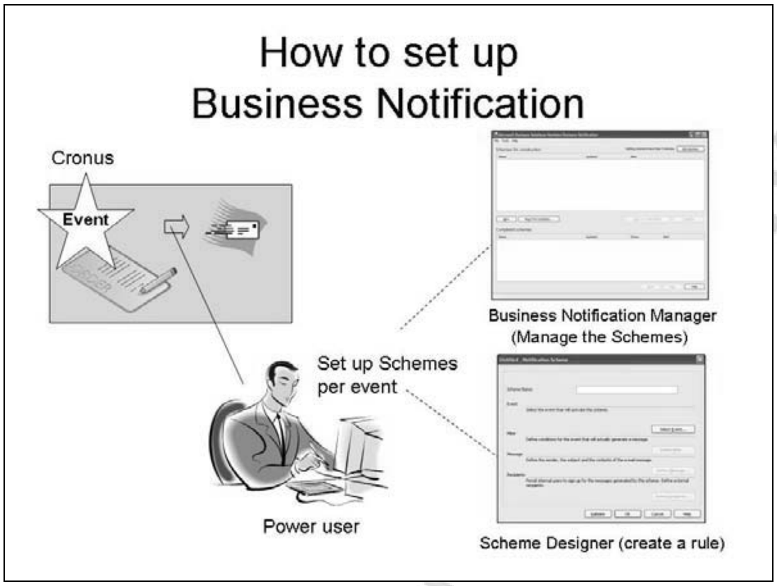
First of all, Business Notification must be set up in Microsoft Navision, and an event must be raised and detected:



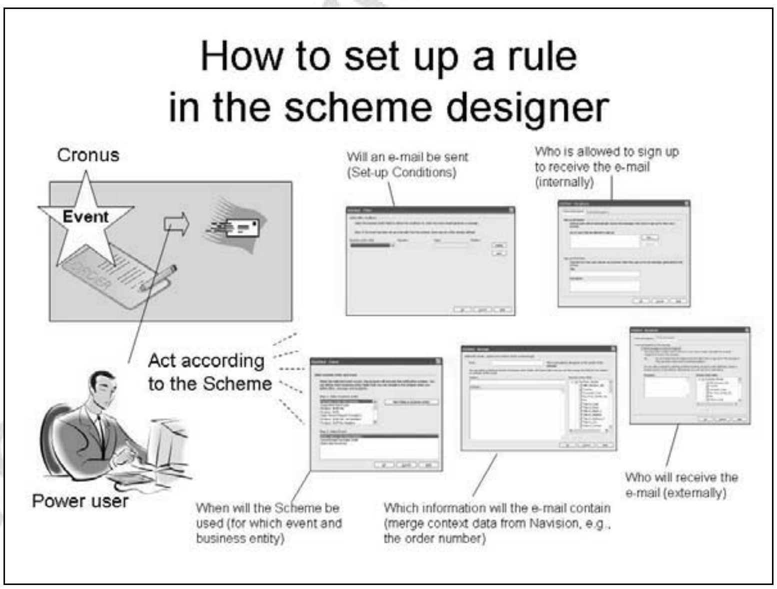
A Microsoft Navision user must set up the Microsoft Navision part of Business Notification, run a query to generate notifications, and send all or some of the found notifications to the Business Notification Manager.

There are a number of predefined business entities and events available for setup in Microsoft Navision. To be able to add new business entities and events, you need to have a Microsoft Navision developer license and possess the respective skills.

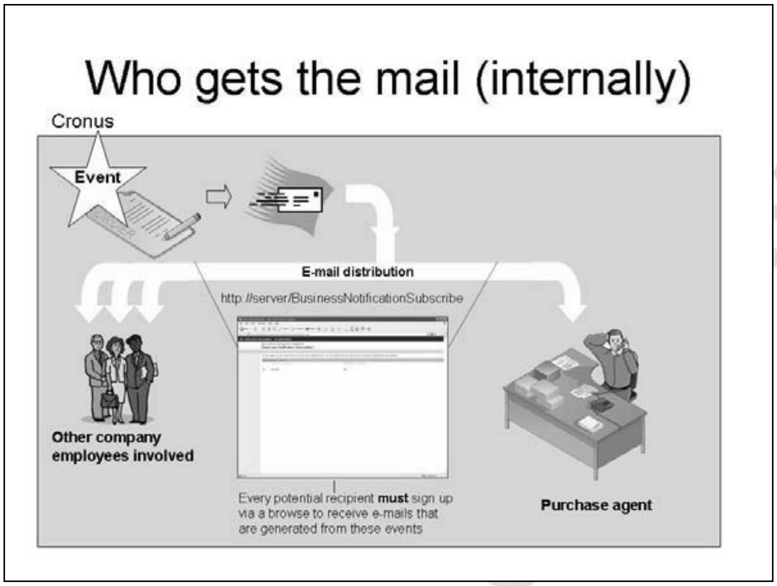
Then, a power user will set up the Business Notification Manager, that is, set up schemes per Microsoft Navision event, manage the schemes, and create rules to decide how and when to send notifications:



The following figure shows how a power user sets up and when, how, and whom will receive notifications. A power user does this in the scheme designer:



Internal recipients, that is, company employees who are local network users, need to subscribe via a Web browser-based subscription management application:



External recipients, such as business partners, will receive notifications if a power user added their e-mail addresses to the respective schemes when designing them.

Questions: Introduction to Business Notification

1. What is Business Notification?

2. What can you use it for?

3. What are the benefits of using Business Notification?

4. How does the information flow in Business Notification: Where does the information originate from and who receives it?

5. What has to be set up in Microsoft Navision and Business Notification Manager in order for Business Notification to work?

The Main Concepts of Business Notification

In this section, we will review in detail the main concepts of Business Notification.

Business Entity

A business entity is a representation of a real-world object. In an ERP system, relevant business entities could be, among many other things, "Customer," "Sales Order," "Purchase Order," or "Invoice."

A business entity (or, to be more specific, an instance of a business entity) contains data fields (such as "John Smith," the name of a customer) and metadata that describes the data fields (for example, the name of the data field, such as "Customer Name," and the type of the data field, such as "Text").

In the integration between Business Notification and Microsoft Navision, a business entity has one more feature: an event. For example, a "Purchase Order" business entity has these events: "Unconfirmed Purchase Order" and "Items Not Received." When one of these events is *raised* in Microsoft Navision, a document containing both the name of the event and the business entity is sent to Business Notification. For example, if "something happens" (or something that should have happened does not happen), such as a purchase order confirmation has not been received within a certain number of days after the order has been released or the items have not been delivered in due time, a document, containing the name of the event, (such as "Unconfirmed Purchase Order" or "Items Not Received") and the name of the business entity, (such as "Purchase Order") is sent to Business Notification.

Event

The best way to understand events is to see an event as the mechanism that connects Microsoft Navision and Business Notification. An event is tied to a business entity, and every notification is based on one event from one business entity. An event is raised in the Microsoft Navision business logic (the C/AL code), as decided by a Microsoft Navision developer, when "something" happens.

For example:

- You want notifications sent when a customer is being blocked.
- The developer creates a business entity (such as, "Customer").
- The developer adds an event (such as, "Customer Blocked") to this business entity.
- The developer tests if the blocked status of a customer in Microsoft Navision has changed from not blocked to one of the blocked states (either "Ship," "Invoice," or "All") whenever the customer table is updated.
- If the Blocked status has changed, the "Customer Blocked" event of the "Customer" business entity is raised.

- This event causes a document to be sent to Business Notification. The document contains the name of the event, as well as the data for the customer that is included in the "Customer" business entity.
- Business Notification will now process the information in the document. Depending on the filters set up in Business Notification, one or more e-mail messages may be sent.

There are two approaches to raising events: time-based and field change-based. In the time-based approach, you must run a batch job to check if any notifications should be sent to your recipients. The program then searches through your orders, inventory, and so on. After the program has found the desired notifications, you can send them to Business Notification. Using the time-based approach, in this version of Business Notification, shipped with Microsoft Navision 4.0, you can alert the recipients about upcoming deliveries, items that were not received after the promised receipt date, unconfirmed purchase orders, delayed production orders, and current inventory status.

In the field change-based approach, a notification is sent every time the status in a certain field changes. In the current version of the solution, the program uses this approach for tracking changes in the production BOM status and sending a notification to your recipients when the status in the Status field of a production BOM changes.

External Recipient

External recipients are the ones that are not registered as Windows users in your company and do not (or do not normally, at least) have access to your Intranet. These are, for example, your business partners.

External recipients cannot subscribe to notifications themselves. Therefore, they must explicitly be added in the Notification Designer. This means you must clearly include the names of these recipients into the schemes. To ensure that the notifications are sent to the relevant business partner, the e-mail address of this partner must be part of the data that Microsoft Navision sends (the business entity) when it raises an event. For customers, for example, the standard field is the **E-Mail** field in the Microsoft Navision Customer table.

Internal Recipient

Internal recipients are, as a rule, your company employees. They have access to your Intranet and are registered as Windows users in your company. In order to receive notifications, they need to subscribe to the notifications themselves. They subscribe via a Web browser.

Filter

When an event is raised in Microsoft Navision, Business Notification receives a document that contains the corresponding business entity. It is now possible to use a filter in Business Notification to decide whether a notification should be sent.

For example:
For the business entity “Product. BOM Ver.,” there is an event called “Production BOM Changed.” The event is raised when the status of a production BOM is changed to “Certified” or “Closed.” However, you only want notifications sent if the new status is “Certified.” You can use a filter in Business Notification to achieve this.

You can also base more than one notification on the same event. Continuing the example from above, you could create two different notifications by using two distinct filters set on the Status field, to filter by the status of the BOM: one that selects the option “Certified” and one that selects the option “Closed.”

Beyond the Basics

When creating e-mail message content using option fields, you should be aware of the following: If you select an option field for filtering, it will not be possible to use the field values that you see in Microsoft Navision as filter values. Option fields will be represented by the corresponding integer values in e-mail messages sent from Business Notification. For example, the values of the Status field of a production BOM will be represented as follows:

Field Value Shown in Microsoft Navision	Integer Value Shown in Outgoing E-mails
New	0
Certified	1
Under development	2
Closed	3

Therefore, setting up filter in Business Notification requires knowledge of the integer value of the option you want to filter on. If you want to use the option text (from version W1 or localized option text) that the user could see in the corresponding form in Microsoft Navision, you need to make some changes in Microsoft Navision in C/AL code. To do this, follow the steps shown in Chapter 7, “Business Notification–Advanced,” ”e Exporting field values of data type” from Microsoft Navision.

NOTE: *Filters in Business Notification does not in any way query or re-query Microsoft Navision: Microsoft Navision sends a document, containing the data that the developer of the business entity in Microsoft Navision has selected. A filter in Business Notification can only be used to further “refine” this data: it cannot extend or change the data sent from Microsoft Navision.*

This means that you cannot create a “time-calculation” filter in Business Notification, that is: you cannot create a filter that would evaluate an expression such as “today plus 7 days”. Dates that you get from Microsoft Navision are already “finalized”, and the only filtering you can do is to evaluate against the exact date you get from Microsoft Navision (such as: “if Order Date is after December 24th, 2004”).

Notification

Notification is the core concept of Business Notification. Broadly speaking, a notification consists of:

- Some business logic in Microsoft Navision
- A "document" that Microsoft Navision sends to Business Notification
- Some business logic in Business Notification
- An e-mail message

The **Microsoft Navision business logic**: the starting point for notification is the Microsoft Navision business logic (the program code that makes Microsoft Navision work). A Microsoft Navision developer creates a test that will send a "document" to Business Notification when some predefined condition is fulfilled. This is called "raising an event." An example would be a test, which determines if the total amount of a sales order is above a certain figure. If it is, the event is raised.

A "document" sent to Business Notification: When the event is raised, Microsoft Navision automatically sends a "document" to Business Notification. This "document" contains information about the event, as well as data that the Microsoft Navision developer has decided is useful to have access to in Business Notification.

Business logic in Business Notification: when Business Notification receives a document from Microsoft Navision, it will use its own, internal business logic to see if a notification e-mail should be sent, and to whom it should be sent. This business logic, or collection of "rules," is set up in the Business Notification Designer.

Finally, a **notification e-mail message** is sent when:

1. The Microsoft Navision business logic raises an event.
2. Business Notification has a (started) scheme that responds to this event.
3. For this specific event, and with the data in this actual instance, a notification has been set up to be sent.
4. There is at least one internal user subscribed to the scheme, or at least one external recipient has been set up.

NOTE: *It is true, however, that once the system is running, the end-user may view the actual e-mail "message" as the "notification" itself, and will often simply refer to it as such.*

Scheme

A scheme is the collection of "rules" that Business Notification uses to decide when, how, and to whom to send notifications. A scheme is created in the Business Notification Designer, and schemes are managed in the Business Notification Manager.

Information about the following is stored in a scheme:

1. The name of the scheme
2. The business entity and event that will activate it
3. The filters that are applied to business entities that are received
4. The text of the e-mail message that is sent to notify users
5. The permissions that describe which users can subscribe to the notification
6. A title and a description of the notification that is used in the browser-based end-user subscription interface
7. Information about external recipients

A scheme which has not yet been finalized can be "for construction," meaning that it is being developed or changed. When it is ready for use, it is "completed." A completed scheme can be Started or Stopped. As long as it is started, users can subscribe to it and will receive notifications when appropriate.

Subscription

Subscription has been designed for internal users, that is, users in your own company that have access to your Intranet, who are not sent notification e-mail messages automatically. They have to actively subscribe to a notification in order to receive notifications. It is very important to note that:

- When designing a notification in the Notification Designer, you give users or groups of users permission to subscribe to notifications.
- The users themselves will have to use the browser-based subscription management application to subscribe to notifications (and also to delete subscriptions).
- Users are not automatically informed of new notifications they have permission to subscribe to. If you need to distribute such information, you must do it yourself.

Notifications can also be sent to external recipients, such as business partners. These recipients are, contrary to the internal ones, set up explicitly.

Template

A template is a complete notification solution that is almost ready to use. It consists of:

- The Microsoft Navision object, or objects, that define business entities and events
- The business logic in Microsoft Navision that raises the events
- A read-only scheme of the template on the basis of which you can create a new scheme

A template has a pre-selected business entity and event appropriate for the template.

Since the scheme of a template is read-only, when you have imported a template, you can create a new scheme based on the scheme in the template, but you cannot change the template itself.

When Business Notification is installed, there are already a number of templates available. Both the Business Notification part (the schemes) and the Microsoft Navision part (the Microsoft Navision objects) are already installed and can be used.

When working in the Notification Manager or in the Notification Designer, it is *almost* as if a scheme and a template are the same thing. There are some important differences though:

- The scheme of a template is based on a specific business entity and event and on a specific condition in the Microsoft Navision business logic that raises the event.
- The scheme of a template is read-only: when you have imported a template, you can create a new scheme based on the scheme in the template, but you cannot change the template itself.

When Business Notification is installed there are already a number of templates available. Both the Business Notification part (the schemes) and the Microsoft Navision part (the Microsoft Navision objects) are already installed and can be used.

Questions: The Main Concepts of Business Notification

1. What are the main concepts involved in Business Notification?

2. What is a business entity? Give a few examples of business entities in an ERP system.

3. Explain the differences between the following concepts: event, notification, and scheme.

4. What are the preconditions for sending a notification e-mail message?

5. What is the subscription used for and who uses it?

6. How does filtering in Business Notification work? What information can you filter?

7. What are the differences between a scheme and a template?

Quick Interaction: Lessons Learned

Take a moment to write down three Key Points you have learned from this chapter:

1.

2.

3.

CHAPTER 2: SETUP PROCEDURES

This chapter of the manual concentrates on the Microsoft® Business Solutions—Navision® 4.0 side of the Microsoft® Business Solutions—Navision® Business Notification process. The chapter tells you where business notifications come from, how to set up the Microsoft Navision part of Business Notification, how to run a query to generate notifications, and how to send all or some of the found notifications to the Business Notification Manager. The chapter also includes information about what Microsoft Navision granules you will need to run Business Notification.

The first part of the chapter, describing how to set up and run Business Notification in Microsoft Navision, is intended for Microsoft Navision users who will run queries to generate notifications and send the notifications to Business Notification. The second part, listing the Business Notification-related Microsoft Navision granules, is intended for Microsoft Business Solutions partners who will install the solution at the customer's site and/or customize it.

Training Objectives

At the end of this section, you will be able to:

- Describe the Microsoft Navision side of the Business Notification process.
- Set up Business Notification in Microsoft Navision.
- Create notification batches.
- Assign report IDs to notifications.
- Work with notification worksheets.
- Name Microsoft Navision granules necessary to work with Business Notification according to different scenarios.

The Microsoft Navision Side of the Business Notification Process

Where Do the Events Come From?

Business notifications are only sent if some event in Microsoft Navision and in Business Notification occurs. The information flow of Business Notification originates in Microsoft Navision. To start the process of sending business notifications, something must happen in Microsoft Navision that causes an event, for example, a change in a production BOM status. Then, provided the setup procedure has been performed, and, if you want to send time-based notifications, a query has been run for them, and a document containing data from a business entity, for example, a production BOM, is sent to Business Notification.

In this section, we will look closer at what happens in Microsoft Navision and what you must do in order to send notifications to Business Notification for further processing and sending to your recipients.

If Business Notification is enabled in Microsoft Navision, that is, if the **Send Notifications** check box in the Notification Setup window is selected, Microsoft Navision will know that users must be notified about:

- Upcoming deliveries
- Items that were not received after the promised receipt date
- Purchase order confirmations which have not been received
- Delayed production orders
- Inventory status
- Production BOM status

These events can be divided into two main categories: time-based and field-change-based. This means that if a certain field has been changed or a certain deadline has been reached, then an event is raised. In order to understand why Microsoft Navision reacts to these events and how, look at each of the listed events.

To read more about activating the sending of notifications, refer to "Setting Up Business Notification in Microsoft Navision" in this chapter.

Question: Introduction to the Microsoft Navision Side of the Business Notification Process

1. When are events raised in Microsoft Navision?

   ____

   ____

   ____

Types of Notifications

In version 1 of Business Notification solution, which has been implemented in version 4.0 of Microsoft® Business Solutions–Navision®, six predefined built-in notifications are included. These notifications are called out-of-the-box notifications. They have been selected based on customer interviews. The out-of-the-box notifications focus on Supply Chain Management-related business processes and help optimize and increase effectiveness of the Supply Chain Management-related workflow. Besides the already available out-of-the-box notifications, MBS partners can add new notifications, based on other business scenarios, to the solution.

The out-of-the-box notifications can be divided into two main categories: time-based and field-change-based. When we say that a notification is time-based, what we mean is that the notification will be sent when a certain predefined moment in time is reached. For field-change-based notifications, the primary criteria are changes in the status of certain fields. We will now discuss each form of notification in depth.

Time-Based Notifications

There are five types of the time-based notifications:

- Upcoming deliveries
- Items that were not received after the promised receipt date
- Purchase order confirmations which have not been received
- Delayed production orders
- Inventory status

The notification about upcoming delivery reminds suppliers and purchasers about upcoming deliveries within a specified period indicated in the promised receipt date for the purchase order. For this notification, the promised receipt date is the criterion that raises the event (to read about events refer to Chapter 1 “Overview of Business Notification”). To be able to send this type of notification, you must create at least one purchase order. The supplier should confirm the delivery of the specified products on the date inserted into the **Promised Delivery Date** field on the **Shipping** tab in the Purchase Order window.

The notification about items not received after the promised receipt date is used to check if suppliers have delivered their products on time and to warn purchase managers of delayed deliveries within a defined number of days after the promised receipt date. To be able to send this type of notification, you must create and release at least one purchase order. The supplier should confirm the delivery of the specified products on the date inserted into the **Promised Delivery Date** field on the **Shipping** tab in the Purchase Order window.

The notification about unconfirmed purchase orders is sent to let a purchase manager know if a purchase order confirmation has not been received within a specified number of days after it was created. To be able to send this type of notification, you must create and release at least one purchase order. The supplier should confirm the delivery of the specified products on the date inserted into the **Promised Delivery Date** field on the **Shipping** tab in the Purchase Order window.

The notification about delayed production orders is send to inform managers if a production order has been delayed. You can send this notification in one of two situations. The first is if there are any production orders that were released before the current date but still have the Planned or Firm Planned status. The second is if there are any production orders which should have received the Finished status before the current date but still have the released status. To be able to send this type of notification, you must create at least one planned production order and/or released production order. The staff should confirm the release and ending date by filling in the **Starting Date**, **Starting Time**, **Ending Date**, and **Ending Time** fields on the **Schedule** tab in the Planned Production Order or Released Production Order window.

The notification about inventory status is send to notify suppliers about the quantity of items in stock and the quantity of items ordered. To be able to send this type of notification, there must be items registered in the inventory that are not blocked, that is, for which there is no check mark in the **Blocked** check box on the Item card.

Examples in this chapter will show you how to generate and send notifications of these types.

Field-Change-Based Notifications

Microsoft Navision offers only one type of field-change-based notification: production BOM status. For this type of notification, the factor that raises an event is a change in an option in an appropriate field. This type of notification is sent every time the status in the **Status** field of the production BOM changes to Certified or Closed.

Sending Notifications

As previously mentioned, field-change-based notifications are sent every time the status in the **Status** field of the production BOM changes to Certified or Closed if the Send Notifications option is selected. Time-based notifications need more of your attention and participation. Have a look at the process of sending of one of them.

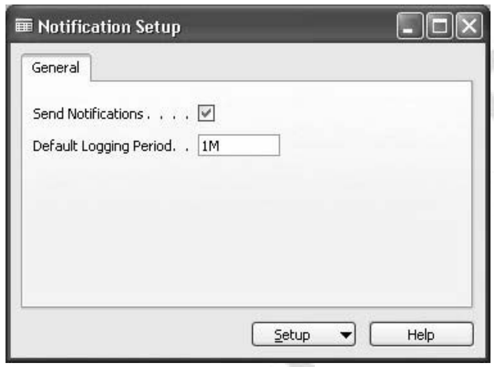
Notifying Purchase Managers About Unconfirmed Purchase Orders

This notification is sent to let a purchase manager know if a purchase order confirmation has not been received within a specified number of days after it was created.

To be able to send these notifications, you must create and release at least one purchase order. The supplier should confirm the delivery of the specified products on the date inserted into the **Promised Delivery Date** field on the **Shipping** tab in the Purchase Order window.

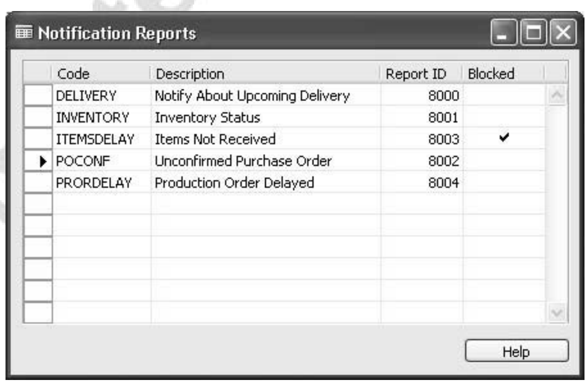
You can send this notification in the following way:

1. Click IT ADMINISTRATOR→GENERAL SETUP→BUSINESS NOTIFICATION SETUP. The Notification Setup window appears. In this window, select the **Send Notifications** check box.



2. In the Notification Setup window, click **Setup**, **Notification Reports**. Make sure that there is no check mark in the **Blocked** check box for the POCONF notification.

   The Notification Reports window looks like this:



NOTE: *If you select the* ***Blocked*** *check box for a notification, the corresponding notification line will neither be visible in the Notifications window, nor will it be sent from the Notification Worksheet window. If you have created the notification worksheet line in the Notification Worksheet window and run the Suggest Notification Lines batch job for this line, but the corresponding notification has later been blocked, two things will occur. First, the corresponding notification lines will not be sent. Second, a message will appear, informing you that the notification has been blocked.*

3. Click PURCHASE→ORDER PROCESSING→BUSINESS NOTIFICATION WORKSHEET. The Notification Worksheet window appears.

4. In the **Batch Name** field, click the **Assist**Button to the right of the field. In the Notification Worksheet Batches window that appears, select your batch job name.

5. In the **Notification Code** field, click the **Assist**Button to the right of the field. From the Notifications window for your batch job, select the POCONF notification to be sent to Business Notification.

6. To generate notification lines to be sent to your recipients, go to the notification line you have just added and click **Line, Suggest Notification Lines**. On the **Purchase Header** tab in the Unconfirmed Purchase Order window, specify what filters you want to set on purchase headers.

7. On the **Options** tab of this window, specify the number of days since orders were created. Click **OK**.

8. In the Notification Worksheet window, click **Functions**, **Send to Business Notification**.

The rest of the time-based notifications are generated and sent the same way.

Questions: Types of Notifications

1. What are the main groups that notifications can be divided into?

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2. Under what conditions will a time-based notification be sent?

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3. What is the primary criterion that raises an event in a field-change-based notification?

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Setting Up Business Notification in Microsoft Navision

In order to be able to send business notifications, you have to activate this feature in the Notification Setup window by selecting the **Send Notifications** check box. To set up Business Notification, follow these steps:

1. Click IT ADMINISTRATOR→GENERAL SETUP→BUSINESS NOTIFICATION SETUP. The Notification Setup window appears.
2. Select the **Send Notifications** check box.
3. In the **Default Logging Period** field, specify how long notification lines sent will be stored in the Notification Log Entry table. The default logging period is automatically set to one month.

***NOTE:** If the **Send Notifications** check box is selected, a field-change-based notification is sent every time a certain field is changed. For the out-of-the-box field-change-based notification, this means that a notification is sent every time the status in the **Status** field of a production BOM changes to Certified or Closed.*

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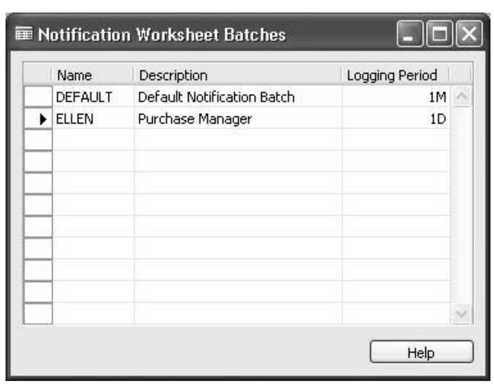
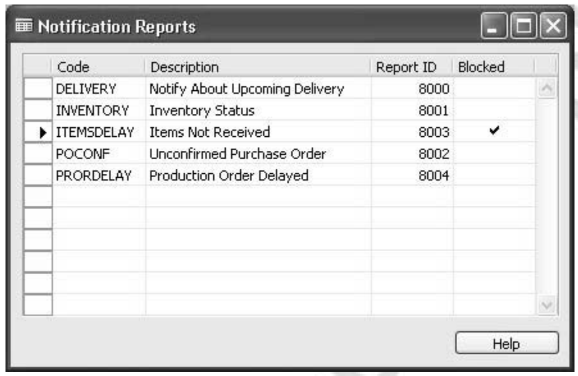
4. In the Notification Setup window, click **Setup** and then **Notification Worksheet Batches**. Specify the name of a batch you want to work with in the Notification Worksheet window.



5. In the **Logging Period** field, enter how long the notification lines sent within this batch job will be stored in the Notification Log Entry table.

6. In the Notification Setup window, click **Setup** and then **Notification Reports**.

   The Notification Reports window appears, containing a list of predefined notifications.



7. In the **Report ID** field, for each notification, specify the report ID of the corresponding batch job that will collect data for sending.

Questions: Setting Up Business Notification in Microsoft Navision

1. What do you have to do to be able to send different types of business notifications?

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2. What will happen to field-change-based notifications if the **Send Notifications** check box is selected?

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Creating Notification Batches

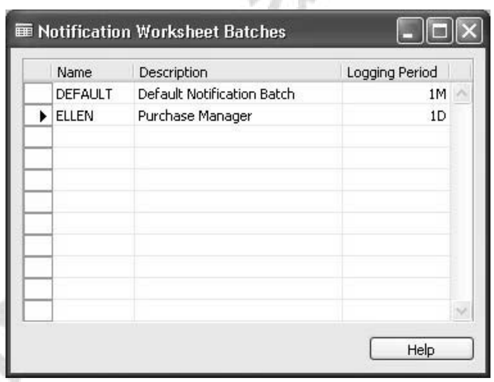
If several users work with Notification Worksheet, each of them can create his or her own notification batch to manage a specific set of notifications. Notification batches contain a batch name that you can choose in the Notification Worksheet window. Each one collects notifications to be sent for the chosen batch.

You can create batches in the Notification Worksheet Batches window.

With a single batch, you can choose to send up to five time-based notifications.

You can create a batch in the following way:

1. Click IT ADMINISTRATOR→GENERAL SETUP→BUSINESS NOTIFICATION SETUP. The Notification Setup window appears.
2. Click **Setup** and then **Notification Worksheet Batches**.
3. In the Notification Worksheet Batches window, go to the new line and, in the **Name** field, specify a new batch name. This batch name will be used in the Notification Worksheet window to define which types of notification you would like to work on within the batch.



4. In the **Description** field, write a brief description of the new batch.
5. In the **Logging Period** field, enter a date formula to specify how long you want notification lines sent within this batch to be stored in the Notification Log Entry table.

Questions: Creating Notification Batches

1. What can you use notification batches for?

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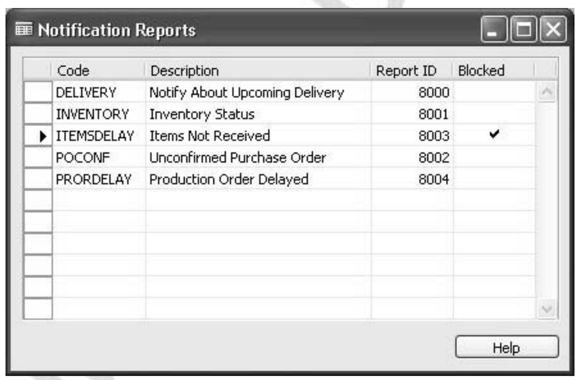
Assigning Report IDs to Notifications

Reports are used for collecting data that should be sent. Reports search throughout Microsoft Navision to check if an event has occurred that would make a notification a candidate for sending.

Every notification must correspond to a batch job that will search through orders and items looking for notifications to be sent to your recipients. In the Notification Reports window, you can assign report IDs to corresponding notifications if you have a BN Setup user role.

You can assign corresponding report IDs in the following way:

1. Click IT ADMINISTRATOR→GENERAL SETUP→BUSINESS NOTIFICATION SETUP. The Notification Setup window appears.
2. Click **Setup**, and then **Notification Reports**. The Notification Reports window appears:



3. In the **Code** field, specify the notification code.
4. In the **Description** field, enter a description for this notification.
5. Click the **Assist**Button to the right of the **Report ID** field, and select the report ID of the corresponding batch job, which will collect data for sending.

NOTE: *If you have created a notification worksheet line in the Notification Worksheet window and run the Suggest Notification Lines batch job for this line, but the corresponding notification has later been blocked, two things will occur. First, the corresponding notification lines will not be sent. Second, a message will appear, informing you that the notification has been blocked.*

Questions: Assigning Report IDs to Notifications

1. What do batch jobs do?

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2. Under what condition will notification lines not be sent?

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3. What are the consequences of a blocked notification in the Notification Reports window?

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Working with the Notification Worksheet

The Notification Worksheet window provides a user with a flexible and convenient interface for sending business notifications.

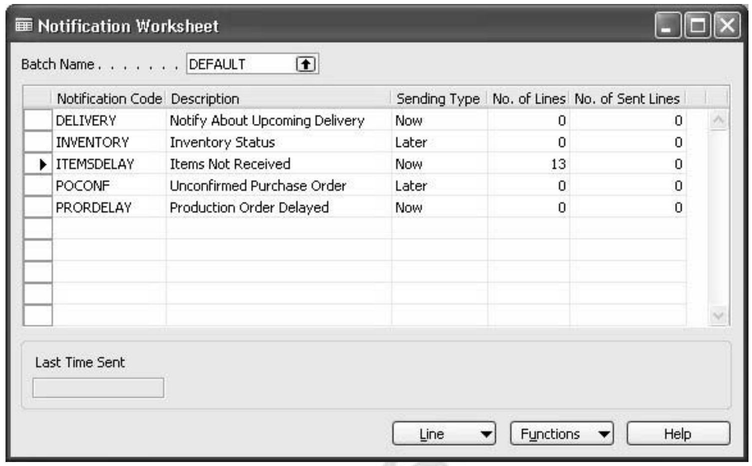
If you select the **Send Notifications** check box in the Notification Setup window, you can generate and send time-based notifications any time you want, provided they are not blocked. Field-change-based notifications will be sent every time the status of a certain field is changed in Microsoft Navision. For the out-of-the-box field-change-based notification included in version 1 of Business Notification, this means that a notification is sent every time the Production BOM is changed to Certified or Closed.

You can send notifications in the following way:

1. Click IT ADMINISTRATOR→GENERAL SETUP→BUSINESS NOTIFICATION SETUP. The Notification Setup window appears.
2. Click **Setup**, and then **Notification Reports**. In the Notification Reports window, make sure that there is no check mark in the **Blocked** check box for the notification that you want to send.
3. Click PURCHASE→ORDER PROCESSING→ BUSINESS NOTIFICATION WORKSHEET. The Notification Worksheet window appears.

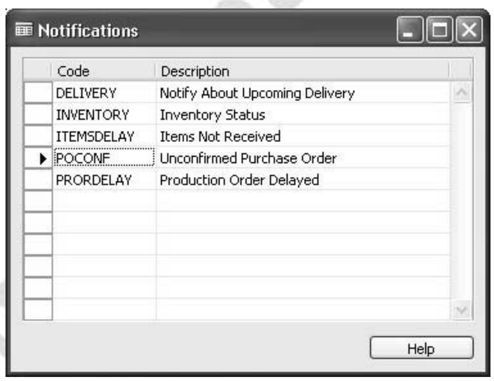
   Alternatively, you can open the Notification Worksheet window by clicking MANUFACTURING→PRODUCTION & PROCUREMENT→BUSINESS NOTIFICATION WORKSHEET.

4. Click the **Assist**Button to the right of the **Batch Name** field. In the Notification Worksheet Batches window that appears, select your batch job name.



5. Click the **Assist**Button to the right of the **Notification Code** field. In the Notifications window, select the notifications you want to send. Click **OK**.

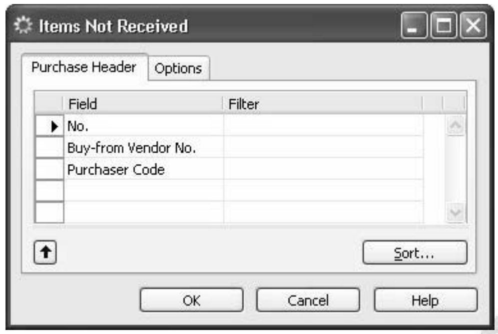
   The Notifications window looks like this:



6. In the Notification Worksheet window, in the **Sending Type** field, select whether you want to send this notification now or later.

7. To generate lines, click LINE→SUGGEST NOTIFICATION LINES and apply field and time filters if needed.

The batch job request window that appears after you click LINE→SUGGEST NOTIFICATION LINES, looks like this:

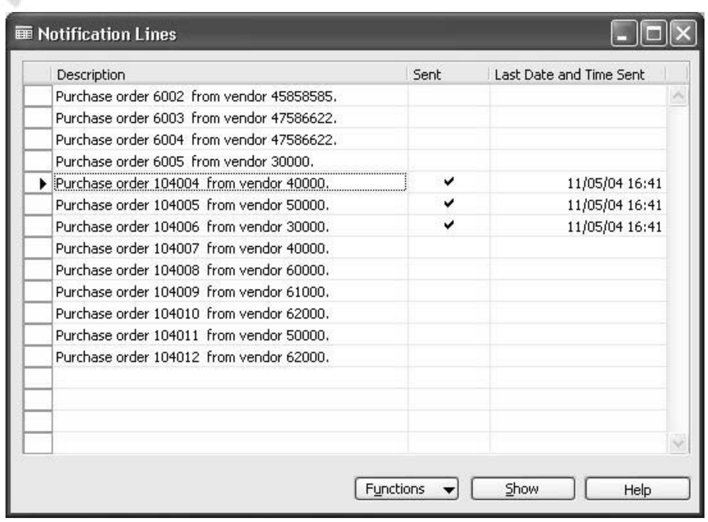


8. You can review the lines generated. To do this, click the **Assist**Button to the right of the **No. of Lines** field. The Notification Lines window appears.

9. If you do not want to send some of the notification lines found by the program, you can delete them in the Notification Lines window manually by pressing **F4** for each line. You can also refine the list of notification lines by applying the Date and Time Sent Filter to pick out lines with the last date and time sent within a specified filter criterion.

NOTE: *For notification that the lines that were sent earlier but did not match the filter criterion, the check mark in the* ***Sent*** *check box will be deleted. After clicking LINE→DELETE SENT LINES, only the lines with the* ***Sent*** *check box selected will be deleted. The remaining lines can be sent once again. This will ensure that only the lines you want to send are left in this window. If you do not delete the lines that were sent earlier, they can be sent once again.*

After you have completed the steps above, the Notification Lines window should look like this:



10. After you have made all the necessary changes to this list, in the Notification Worksheet window, click LINE→SEND TO BUSINESS NOTIFICATION. In the message box that appears, select whether you want to send only new notification lines or send all notification lines and click **OK**.

NOTE: *It is difficult to view the Notification Lines window when generating lines for the very first time. This list has been generated in several steps. To get such view, you must first click LINE→SUGGEST NOTIFICATION LINES, and generate all notification lines. Then you must delete some of them in the Notification Lines window and send the remained ones by clicking LINE→SEND TO BUSINESS NOTIFICATION, in the Notification Worksheet window. After that you have to generate notification lines by clicking LINE→SUGGEST NOTIFICATION LINES once again.*

Questions: Working with the Notification Worksheet

1. What do you use the Notification Worksheet window for?
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2. How do you generate lines and prepare them for sending?
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3. How do you resend lines that were sent earlier?
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4. How do you send only those lines that were not sent earlier from a list of notification lines in which some were and some were not sent earlier?
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Granules/Licenses

In order to be able to work with Business Notification, you must have appropriate Microsoft Navision granules. In the following table you will find granules based on the different user scenarios in Business Notification Manager.

Scenarios	**Description**	**Required Microsoft Navision granule IDs**
Scenario 1: Using the Notification Worksheet in Microsoft Navision	You can open the notification worksheet set up form. You can open the worksheet form.	7011 Business Notification Worksheet Required granule: 7010 Business notification manager See the note below
Scenario 2: Running worksheet - Out-of-the-Box notification: Purchase order – Ensure delivery of goods	The user can select the out-of-the-box event Notify About Upcoming Delivery in the work sheet and run a batch.	7011 Business notification worksheet 3530 Purchase order management 3780 Salespeople/Purchasers
Scenario 3: Running worksheet – Out-of-the-Box notification: Purchase order – Purchase order not confirmed	The user can select an out-of-the-box event Unconfirmed Purchase Order in the work sheet and run a batch.	7011 Business notification worksheet 3530 Purchase order management 3780 Salespeople/Purchasers
Scenario 4: Running worksheet - Out-of-the-Box notification: Purchase order – Goods not received from vendor	The user can select the out-of-the-box event Items Not Received in the work sheet and run a batch.	7011 Business notification worksheet 3530 Purchase order management 3780 Salespeople/Purchasers

Scenarios	Description	Required Microsoft Navision granule IDs
Scenario 5: Running worksheet - Out-of-the-Box notification: Production order – production order delayed	The user can select the out-of-the-box event Production Order Delayed in the work sheet and run a batch.	7011 Business notification worksheet 5410 Production orders
Scenario 6: Running worksheet - Out-of-the-Box notification: Inventory - Item quantity status	The user can select the out-of-the-box event Inventory Status in the work sheet and run a batch.	7011 Business notification worksheet 3510 Basic payables 4010 Basic inventory
Scenario 7: Running worksheet - Out-of-the-Box notification: Production BOM – Items updated	The user can change the relevant status in the Production BOM, and the out-of-the-box event creates a XML-file that is exported through the Production BOM - XML port.	7011 Business notification worksheet 5420 Production bill of materials
Scenario 8: Running worksheet - Out-of-the-Box notification: Production BOM version – Items updated	The user can change the relevant status in the Production BOM version, and the out-of-the-box event creates a XML-file that is exported through the Production BOM version - XML port.	7011 Business notification worksheet 5430 Version management

Scenarios	**Description**	**Required Microsoft Navision granule IDs**
Scenario 9: Sending out an E-mail notification	The user has created a minimum of one scheme from an out-of-the-box template, and he or she runs the worksheet with the corresponding out-of-the-box event (scenarios 3-7). The BN-manager sends out notification(s) to recipients.	7010 Business notification 7011 Business notification worksheet One or more of the following granules: included in scenarios 2-8
Scenario 10: Crete new Scheme based on out-of-the-box templates	The user selects New from template in Notification Manager. He or she then selects the template and modifies it.	7011 Business notification worksheet
Scenario 11: Define a new XML-port	The partner wants to create a new XML-port in Microsoft Navision.	7140 XML port designer
Scenario 12: Template Administration	The Partner wants to create a new event in Microsoft Navision.	7011 Business notification worksheet

NOTE:

Granule 7011 Business Notification Worksheet relates to granule 7010 Business Notification Manager.

Granule 7010 can be used without 7011, if the partner defines its own XML-ports and events.

Granule 7011 cannot be used without 7010, because the exported XML-files from Microsoft Navision would not be handled.

For all scenarios, the 3010 General ledger and 7010 Business notification manager are required.

Exercises

Exercise 1: Creating a Notification Batch

You are Ellen, a purchase manager at Cronus. Your job is to create batches and assign report IDs to notifications you will be working with in the Notification Worksheet window.

Enable Business Notification. Create a new batch called "Ellen" to work with in the Notification Worksheet window. The logging period for this batch should be 1 day. In the Notification Worksheet window choose the Ellen batch name. For this batch, the Notification Worksheet window should include at least two notification lines: Production Order Delayed and Inventory Status. Make sure that these two lines are not blocked. Generate notification lines for the Production Order Delayed line. Send them all to Business Notification.

Exercise 2: Notifying about Upcoming Deliveries

You are Ellen, a purchase manager at Cronus. Your job is to send notifications to suppliers and to the production department.

Make sure that the **Send Notifications** option is selected. For the batch you created in the previous exercise, Ellen, generate notification lines to notify suppliers about inventory status. First send notifications for items 1100, 1110, and 1120, and then send the remained notifications.

Quick Interaction: Lessons Learned

Take a moment to write down three Key Points you have learned from this chapter:

1.

2.

3.

CHAPTER 3: USING BUSINESS NOTIFICATION MANAGER

This section of the manual explains how Microsoft® Business Solutions—Navision® Business Notification Manager works, how to set it up, and how to design and send notifications to your recipients. It also addresses alerts that may appear when working with Business Notification and the reasons why these alerts occur.

This section is intended for power users who will set up the Business Notification Manager, set up schemes for Microsoft® Business Solutions—Navision® 4.0 events, manage the schemes, and create rules to decide how, to whom, and when to send notifications.

Training Objectives

At the end of this section, you will be able to:

- Explain the purpose of Business Notification Manager and Business Notification Designer.
- Work with schemes in Business Notification Manager.
- Create new and change existing schemes in Business Notification Designer.
- Configure and set up the event, the message, the condition filters, and the recipients for a scheme.

Overview of Business Notification Manager

When Business Notification Manager receives a document from Microsoft Navision that contains data from a business entity for which an event has occurred in Microsoft Navision, it does two things: First it reads the document, and then it sends a notification in the form of an e-mail both to internal recipients that have subscribed to this notification and to external recipients who have been signed up to receive this notification in Business Notification Manager.

Before Business Notification Manager can process and send notifications, you need to create schemes or collection of rules that it will use to decide when, to whom, and how to send notifications. Then you must manage the schemes in the Business Notification Manager. To do this, you must first start the solution.

Starting Business Notification Manager

Business Notification Manager is used for managing schemes (installing new schemes and starting installed ones), importing templates, receiving business notifications as documents from Microsoft Navision, and sending business notifications as e-mail messages to recipients. Most of the work is done in the main form of Business Notification Manager.

Start Business Notification Manager from the Start menu:

START→ALL PROGRAMS→MICROSOFT BUSINESS SOLUTIONS–MICROSOFT NAVISION →MICROSOFT BUSINESS SOLUTIONS–MICROSOFT NAVISION BUSINESS NOTIFICATION

NOTE: *Before you start the Notification Manager, you must install and configure a number of products on both the client and server sides. To learn about these products, prerequisites for installing the client and server sides, and the order of installation, refer to "Installation and Administration." The Microsoft Navision client must be started, and a database and a company must have been selected in Microsoft Navision.*

Schemes

A scheme is a rule that Business Notification Manager uses to decide when, to whom, and how to send notifications. A scheme is created in Business Notification Designer and managed in Business Notification Manager.

A scheme stores the following information:

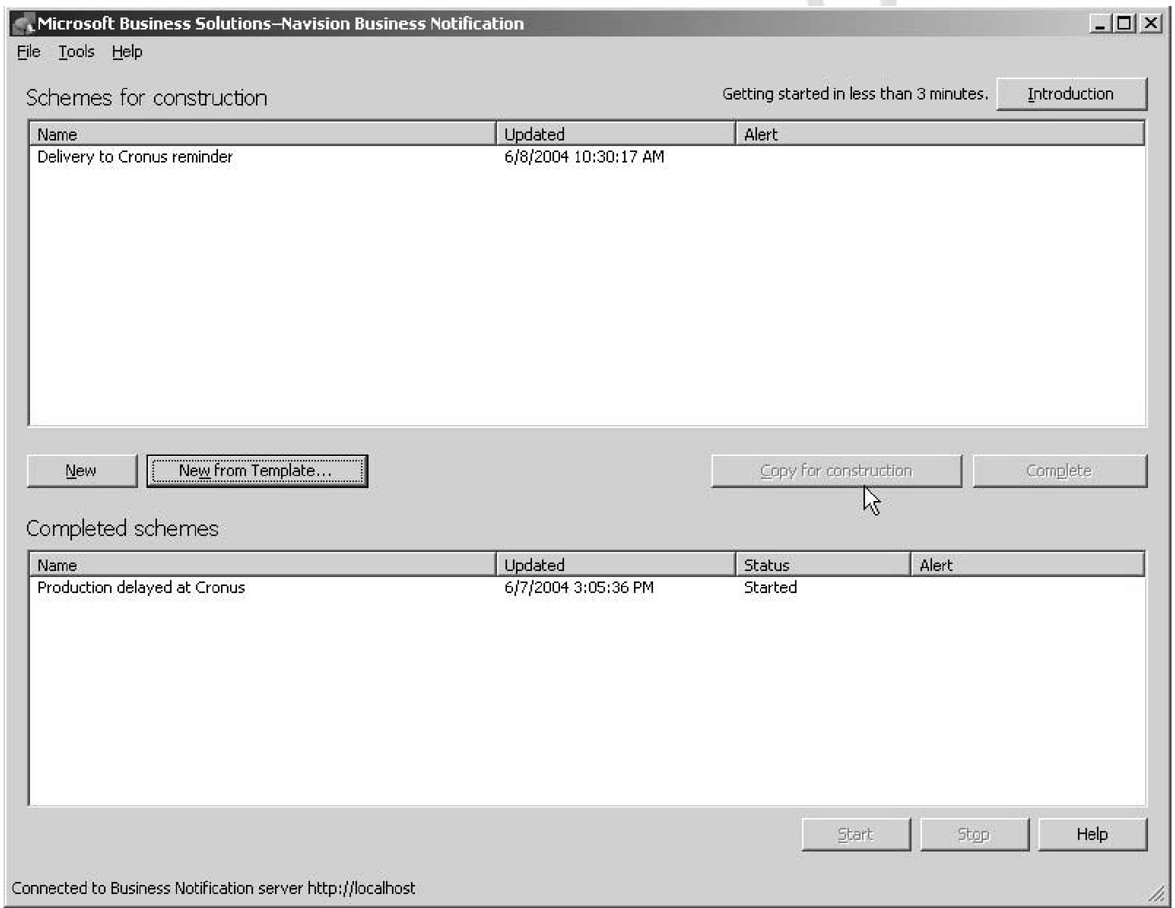
- The name for the scheme
- The business entity and event that will activate it
- The conditions under which the scheme should send a message
- A Filter applied to business entity fields
- The text of the e-mail message that is sent to notification recipients
- Permissions that describe the users that subscribe to the notification

- A title and a description of the notification, used in the browser-based end-user subscription interface
- E-mail accounts of external recipients

Location of Schemes in the Notification Manager Main Form

Schemes can be found in two parts of the window: Schemes for construction and Completed Schemes. When a scheme is under construction, this means that it is being developed or modified. You can create or modify schemes in the upper part of the Business Notification Manager window.

The Notification Manager main form with completed schemes and schemes for construction looks like this:



A recipient cannot subscribe to a scheme that is in the Schemes for construction part of the window nor can notifications be sent from it.

A scheme in the Completed schemes list is ready to use. If it has also been started (the status is Started), users can subscribe to it and will receive notifications based on the rule in the scheme. A scheme on this list, whether it is started or not, cannot be opened or modified from the list.

Working with Schemes in the Notification Manager Window

In order to perform certain actions, you must move schemes from one part of the Business Notification Manager window to another.

To modify a scheme, copy it from the Completed schemes list to the Schemes for construction list by selecting it and clicking **Copy for construction**.

The original scheme stays in the Completed schemes list and will not be affected when you make a copy.

To activate a scheme, move it from the Schemes for construction list to the Completed schemes list by selecting it and clicking **Complete**.

If you finish modifying a scheme that has been copied for construction, then the original scheme will be affected by the changes. However, the subscriptions will be retained.

To activate a completed scheme, select the scheme in the Completed Schemes part and click the **Start** button. To stop the active scheme, select the scheme and click **Stop**.

Questions: Overview of Business Notification Manager

1. What do you use Business Notification Manager for?

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   ____

2. What are schemes?

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   ____

3. What should you do to a scheme before starting it?

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Creating a New Scheme

Creating a New Scheme from a Template

A template is a complete notification solution that is almost ready to use. When working in the Notification Manager a scheme and a template are almost the same thing. The main and only difference between a scheme created from scratch and one created using a template is that one created from a template has a pre-selected event.

***NOTE:** In version 1 of Business Notification, seven predefined templates for out-of-the-box notifications are included. These templates can be customized to achieve one's goals. The user can modify a template by adding or deleting an event, a message text, a filter, and a recipient. New templates supporting new business entities and events can be created by Microsoft Business Solutions partners.*

To create a scheme from a template, in the Business Notification Manager window, click FILE→NEW FROM TEMPLATE or click the **New from template** button. The Notification Designer window appears. When creating a new scheme, you need to:

1. Give the scheme a meaningful name.
2. Apply any necessary filters.
3. Enter or change e-mail messages.
4. Define internal and external recipients.
5. For internal recipients, you enter a title and a description that will appear on the end user subscription interface, where internal users decide whether they want to receive notifications about what this scheme prescribes.

***NOTE**: Use the Template Administration form to work with templates. In this window, you can import templates from the file system and delete previously installed templates.*

Creating a New Scheme from an Existing Scheme

To create a scheme from an existing scheme, select an old scheme you want to create a new scheme from, and click FILE→NEW FROM EXISTING SCHEME. Alternatively, you can right-click on a scheme from which you want to create a new scheme, and select **New from existing Scheme** from the shortcut menu that appears.

***HINT:** Remember to change the sign-up information—title and description—to avoid identical notification titles in the end-user subscription interface.*

Creating a New Scheme from Scratch

To create a scheme from scratch, click **File** and then **New**. The Notification Scheme window appears. Enter a scheme's name in the **Scheme Name** field, and make all the settings as described in the following section.

NOTE: *The maximum number of schemes you can have varies between 25 and 49, depending on the number of different events that are used by the schemes. If the schemes each use a different event, you can have up to 25 schemes. If all the schemes are for the same event, you can have as many as 49 schemes.*

Questions: Creating a New Scheme

1. What are the three main ways of creating a scheme?
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2. What is the difference between a scheme created from scratch and one created using a template?
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   ____
   ____

Setup and Configuration of Notification Schemes

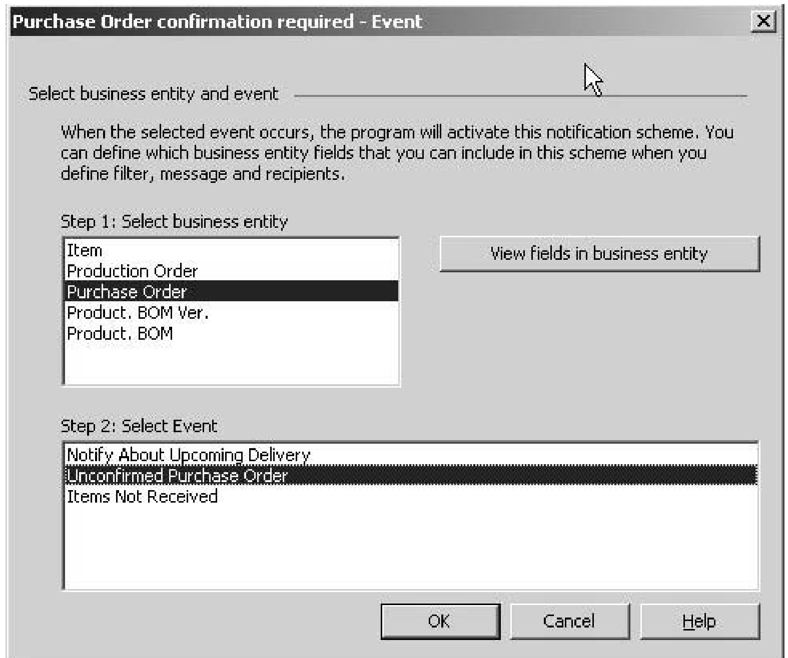
You can apply all the modifications to events, filters, messages, or recipients from the Notification Scheme window. It contains buttons that will lead you through the rest of the modification process.

Selecting a Microsoft Navision Event

If you have created a scheme from a template or from another scheme, your new scheme will already have an event defined for it.

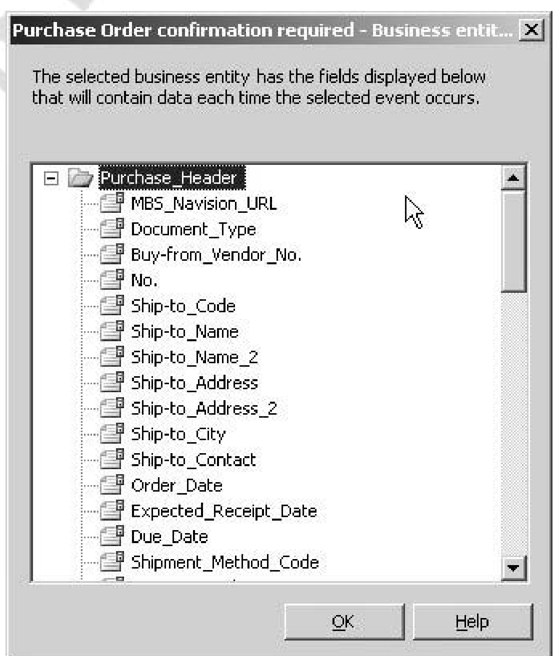
If you create a scheme from scratch, first of all, you need to define a business entity and event for the scheme. To define an event in the Notification Scheme window, follow these steps:

1. Click **Select Event** to open the Event window. In this window, select the business entity connected with this event.



2. In the Event window, you can click the **View fields in business entity** button if you want to see all the fields in the business entity. These fields will be populated with actual data and included in the document sent from Microsoft Navision when the event occurs.

   The Business entity fields window looks like this:



3. After all the options are configured, the event has been set up.

NOTE: *When you have selected an event for the scheme, you cannot change it without deleting information in the rest of the scheme.*

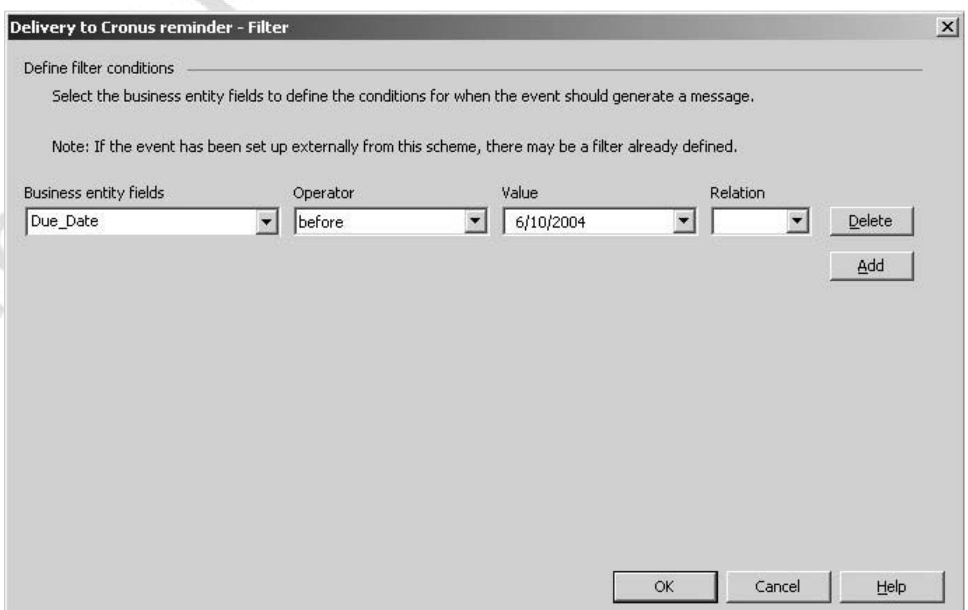
Filter Setup and Configuration

When an event is raised in Microsoft Navision, Business Notification Manager receives a document that contains the corresponding business entity with the pre-selected data from Microsoft Navision. Now you can set up a filter in Business Notification Manager to further refine this data and set conditions for the program to check whether a notification should be sent.

Note that filters in Business Notification do not in any way query or re-query Microsoft Navision. Filters applied in Microsoft Navision do not correlate with filters in the Business Notification Manager. In Microsoft Navision you can use field filters, table filters, and flowfilters. To read more about filter in Microsoft Navision and how to use them, refer to Microsoft® Business Solutions–Navision® Help.

If you want to apply a date filter, you should know that you cannot create a “time-calculation” filter in Business Notification, that is: you cannot create a filter that would evaluate an expression such as “today plus 7 days” or “7 days before delivery date.” Dates that you get from Microsoft Navision are fixed, and the only filtering you can do is to evaluate against the exact date you get from Microsoft Navision (such as: “if Order Date is after December 24th, 2004” or “if Due Date is before June 10th, 2004”).

In the latter case, the filter set on the scheme will look like this:



You can add more lines with additional filter settings in the Filter window by clicking **Add**.

The Filter form contains the following elements on each line:

- **Business entity fields**: A list of fields from the business entity, for example: “Country Code.”

- **Operator**: How the parameter (business entity field) should be compared to the value. The options that are available depend upon the type (Date/Time, Text, Number or Boolean) of the parameter:

Type of field	Operators
Date/Time fields (such as the Order Date field)	is equal to after is equal to or after before is equal to or before
Text fields (such as the Vendor Name field)	is exactly
Number fields (such as the Amount field)	is equal to is greater than is greater than or equal to is less than is less than or equal to is not equal to
Boolean fields (having only two values: Yes of No)	is is not

- **Value**: The actual value from Microsoft Navision that the parameter should be compared against.

  For example: The event is “Sales order amount above 10,000,” but you are only interested in sending notifications if the customer in this case is in the United States.

  Select “Country Code” as the parameter. Because this is a text value, you can choose between the operators that are applicable for text fields.

  You want an exact match for a specific country code, so select “Is exactly” as the operator.

  Finally, enter “U.S.” as the value, because you want to only send notifications for customers in the United States.

*NOTE: If you select an option field for filtering, such as the **Status** field, it will not be possible to use the field values that you see in Microsoft Navision as filter values. Option fields in Business Notification will be represented by the corresponding integer values, and you must enter integer values in the **Value** field when setting a filter. For more information about option fields in Business Notification, refer to "Business Notification Overview," The Main Concepts of Business Notification, Filter, Beyond the Basics and "Power User Setup Procedures," Exporting field values of data type Option from Microsoft Navision.*

NOTE: You cannot look up the value in the Microsoft Navision database from the Notification Designer. You may want to check the possible values in Microsoft Navision if you are in doubt about spelling and so on (by using the regular Microsoft Navision client interface).

- **Relation**: The relation is only relevant if you add lines to the filter. You add a line by clicking **Add**. When you add a line, you must specify the relationship between business entity fields, values, and the operator. You can choose between AND and OR in the Relation drop-down list. The description of each of these operators is represented in the following table:

Relation	Description
AND	Results in True if both of the terms on either side of it are True and, otherwise, results in False. If lines are connected by an AND relation, a notification will only be sent if all the conditions are met at the same time. For example, if you want to create a filter that sends notifications only when the "Country Code" parameter is "U.S." and the "Location Code" is 1, you create these two lines as described above and join them with an AND relation.
OR	Results in False if both of the terms on either side of it are False and, otherwise, results in True. If lines are connected by an OR relation, a notification will be sent if either one of the conditions is met. For example, if you want to create a filter that sends notifications only when the "Country Code" is "U.K." or when the "Country Code" is "DK" you create these two lines as described above and join them with an OR relation.

HINT: *If you want to use the same relation to join all the lines, then you can do so with no problems. For example, using only the AND relation, you could express that "Country Code" must be "U.S.," and "Location Code" must be "1," and "Status" must be "Open," and "Project Code" must be "Blue" all at the same time.*

A series of AND relations is most often (but not exclusively) used when you want to filter on a set of different fields.

If you want to express that "Country Code" could be either "U.S.," "DK" or "U.K.," you would use the OR relation to join these three lines.

A series of OR relations is almost exclusively used to pick certain values out of the set of possible values for the same field.

The problem arises when you want to combine AND and OR. Briefly, AND has precedence over OR, and relations are evaluated from left-to-right (and from top to bottom in the form as it is laid out). Using a mixed set of relations can be confusing but can often be avoided be creating more than one scheme.

Defining Messages

You can use the Message window to create notification e-mail messages for a scheme. To open this window, click **Define Message** in the Notification Scheme window.

On the top of this window, in the **From** field, you must enter a valid e-mail address. The message will appear as if it is sent from this e-mail address. If somebody replies to a notification e-mail, the replies will be sent to this address. (The mail will **not** be in "sent mails" on the account used as From.)

On the left side of the Message window, there are two fields: the **Subject** field and the **Contents** field. In the **Subject** field, you define the subject of the e-mail message. In the **Contents** field, you fill out the body of the e-mail message.

On the right side of the window is a list of all the fields received from Microsoft Navision. It is organized as a tree, similar the tree in Windows Explorer. You can insert a field in either the subject or the body of the e-mail message by placing the cursor where you want to insert the field, selecting the field, and clicking **Insert field**. The field will be inserted in the position where the cursor was when you selected the field. Alternatively, you can drag a field to the subject line or body of the e-mail message.

There are three different kinds of items in the list: fields, repeating groups, and groups.

Field Items

Field items are fields as received from Microsoft Navision, for example, "Promised Receipt Date." After you have inserted a field, you can write text around it, move it around, and so on. For example, you can insert fields into the body of an e-mail message like this:

Dear [Buy_from_contact]

When real data starts arriving from Microsoft Navision, the program will insert text such as:
Dear Mrs. Alana Lemlin
Dear Mr. James Day

Repeating Group Items

Repeating group items are groups of fields that occur repeatedly (or not at all). For example, on a production order, there can be a repeating group called Production Order Lines. When this group is inserted into an e-mail message (and it is probably only relevant to put it in the body of the message, not in the subject line), the fields in the group are repeated as many times as there is actual data in the document received from Microsoft Navision.

Group Items

Group items are "headings" used to assemble fields together. For example, for a production order, all fields that are related to dates could be in a group called "Production Order Dates." If a group is inserted, all fields in this group (and any subgroups of this group) are inserted into the e-mail message. It is not recommended to add a group to the subject of a message.

***NOTE:** If you choose to include in a message an option field, such as the **Status** field, this field will be represented by the corresponding integer values in e-mail messages sent from Business Notification. You can either include a key stating which integers correspond to which option field values or customize the solution so that text values are passed from Microsoft Navision to Business Notification.*

***NOTE:** If you want to send messages to, for example, business partners in different countries in their native languages, you must create a scheme for each language, and then use filters to make sure the desired scheme is used to send each message.*

Specifying Recipients

Specify recipients for notifications in the Recipients window. The Recipients window is used for three tasks:

- Giving internal users permissions to subscribe to notifications.
- Creating a title and description that internal users will see when they use the browser-based subscription application.
- Adding external recipients (like business partners).

To define each of these tasks, use the appropriate tabs in the Recipients window.

Internal Recipients

In order for internal users to be able to use the browser-based subscription interface to sign up for notifications, you must give them explicit permission to do so.

Use the upper part of the **Sign-up permissions** tab to do this.

Click **Add** to add a user. This opens the standard Windows window for selecting users from the Active Directory. This is the same window you see when you click CONTROL PANEL→USER ACCOUNTS→ADD→BROWSE.

The easiest way to find a user is to type the full name (for example "John Smith") in the "Enter the object name to select" text box, and then click **Check Names**. Verify that you have found the correct user, and click **OK**. The user will be added to the list of users that are allowed to sign up. You can add individual users as well as groups.

To delete a user (revoke the permission to sign-up), select the user in the list of users, and then click **Remove**.

External Recipients

If you want to let an external recipient (such as a business partner) receive notification e-mail messages, you must explicitly add this external recipient to the notification scheme in the Recipients window.

Ultimately, external recipients do not subscribe, they just receive e-mails with notifications. External recipients' e-mail addresses are registered in a scheme that sends notifications each time a certain event in Microsoft Navision is raised. To send notifications to an external recipient, add that external recipient's e-mail address to the scheme for this particular type of notifications.

To Add an External Recipient:

1. In the Recipients window, on the **External Recipients** tab, select the **Send message to external recipients** check box to enable the sending notifications to external recipients.
2. Place the cursor in the Recipients text box, select a field of an e-mail address in the Business entity fields list, and click **Insert field**. By doing this, you choose to have the e-mail sent to the recipient included in the purchase order for which the event has occurred.

   In order to set up the external e-mail address this way (2.), you must include the e-mail address in the Business Entity field data that Microsoft Navision provides.

3. You can also enter "hard-coded" addresses directly in the Recipients text box, but if you do so, the external recipient(s) will receive all notifications based on the scheme.

In either case, semi-colons must separate multiple addresses.

NOTE: *The actual e-mail message sent to external recipients will be the same as the one used for internal subscribers. If you want to create a different message for an external recipient, you must create a separate scheme for this purpose. If you have already created a scheme for internal subscribers, you can copy this scheme, and edit the message.*

Questions: Setup and Configuration of Notification Schemes

1. What options can be set when configuring a notification scheme?
2. What are filters in Business Notification Manager used for?
3. How do filters in Microsoft Navision and Business Notification Manager correlate with each other and where can they be applied?
4. What information do you enter in the **Sign-up information** area?

Deleting a Scheme

If you are not using an existing scheme any more, you can delete it. To do so, select a scheme in the list in the Business Notification Manager window and click FILE→DELETE. This option can also be accessed from the shortcut menu, which appears when you right-click the scheme.

Opening a Scheme

To open a scheme in the Schemes for construction list, select the scheme and click FILE→OPEN, or double-click the selected scheme.

Starting and Stopping Completed Schemes

A scheme in the Completed schemes list is ready to use. After a scheme has received the “Started” status, it becomes available for subscription, and notifications will be sent.

To stop a scheme, select it and click **Stop**. When a scheme is stopped, new subscriptions are not accepted and notifications are not sent. When the scheme is started again, earlier subscriptions will become active again.

Modifying a Completed Scheme

If a scheme that has previously been completed is copied to the **Schemes for construction** list and then modified, it can be moved back to the **Completed schemes** list and act like a brand new scheme. In this situation, there are two different options:

1. As part of the modification, you can give the scheme a new name. When you try to complete the scheme, you will receive a message informing you that you are replacing the existing completed scheme with the new one.
2. You do not change the name of the scheme as part of the modification. If you move the new scheme back to the Completed schemes list, it will overwrite the “old” scheme. A confirmation dialog box will appear before the move is completed.

After the modified scheme has been moved back to the Completed schemes list, the **Updated** field will show the exact date and time modifications were made to this scheme.

Importing a Scheme

You can import a scheme to work with. This could be a scheme that a partner had prepared for the customer in order to update one of the customers existing schemes.
To do this, in the Business Notification Manager window, click TOOLS→IMPORT. In the Open system window that appears, select the scheme you want to import and click **Import**.

You can choose to import a new scheme or replace an already existing and completed scheme.

Replacing an already existing, completed scheme allows you to transfer the subscriptions from the existing scheme to the new one. In this way the recipients will continue to receive notifications when the new scheme is completed, and they will not have to re-subscribe to it.

Exporting a Scheme

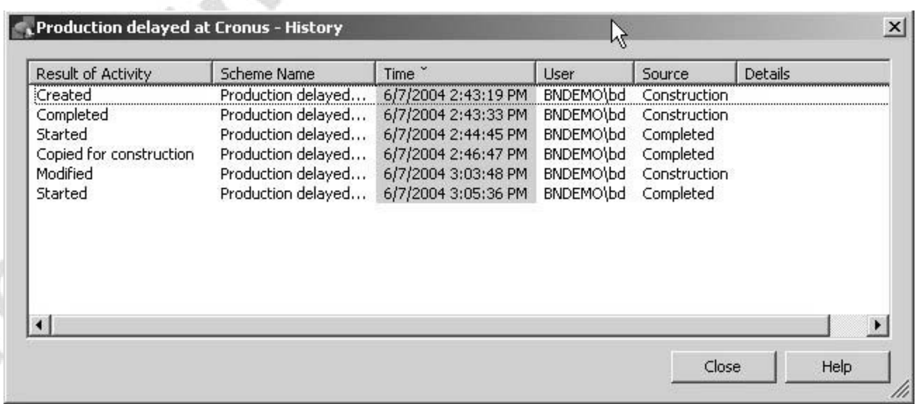
An existing scheme can be exported. To export a scheme, in the Business Notification Manager window, select the scheme you want to export and click TOOLS→EXPORT. In the Save As system window that appears, select the location you want to save the file to, and enter a new file name, if needed.

Viewing the History

The View History dialog shows a history log for a particular scheme from Business Notification Manager. The information displayed includes:

- The result of activity (such as Created or Completed).
- The name of the scheme.
- The time when the activity took place.
- The user that performed the activity.
- The source of the activity – Completed or Construction (this distinction is necessary because a scheme that has been completed can be copied back to construction, carrying the same name in both places).
- Details: for some activities, especially when an error occurs, there will be some information in this field.

To view the history log for a scheme, select this scheme in the Business Notification Manager window and click FILE→VIEW HISTORY. The History window for the selected scheme appears:



The list can be sorted by a particular column by clicking the column's label.

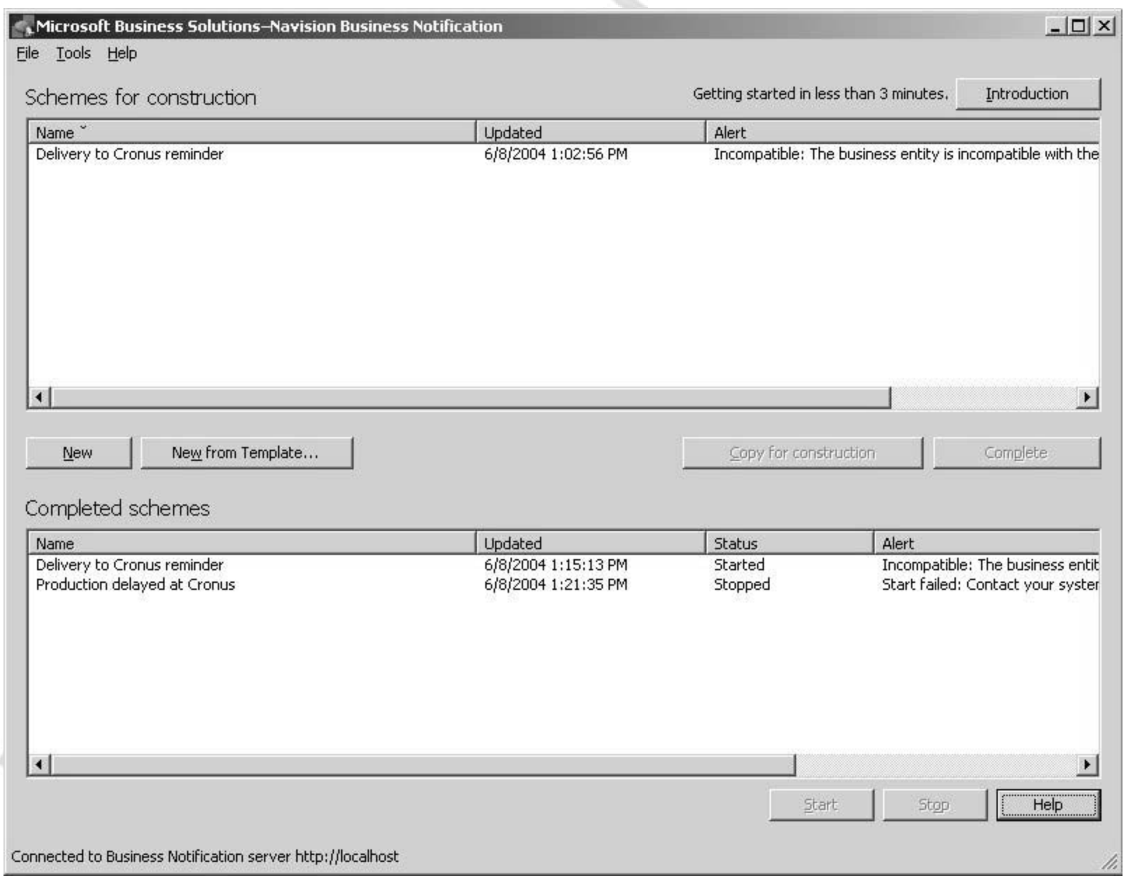
Alerts

Alerts are used to show that an error has occurred that needs attention. Alerts are displayed for two types of lists: Schemes for Construction and Completed Schemes.

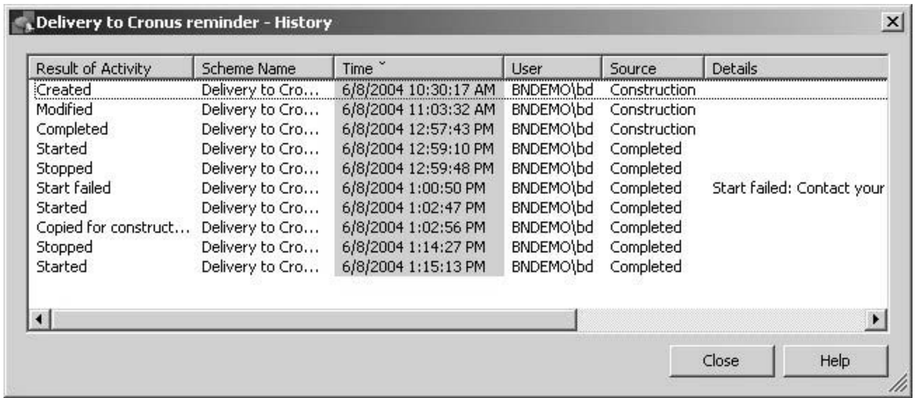
For example, for a scheme in the Schemes for Construction list, an alert means that the business entity has been changed (in Microsoft Navision), so that business entity fields have either been removed or modified. (Adding fields does not pose a problem.). When such an alert occurs, it will not be possible to open the scheme before the inconsistency is removed. It will require knowledge of Microsoft Navision XMLports to resolve this inconsistency.

Alerts may also appear if a failure occurred during an action you performed with a scheme—for example, when completing, starting, stopping, or modifying a scheme.

The Business Notification Manager window containing schemes for which alerts appeared may look like this:



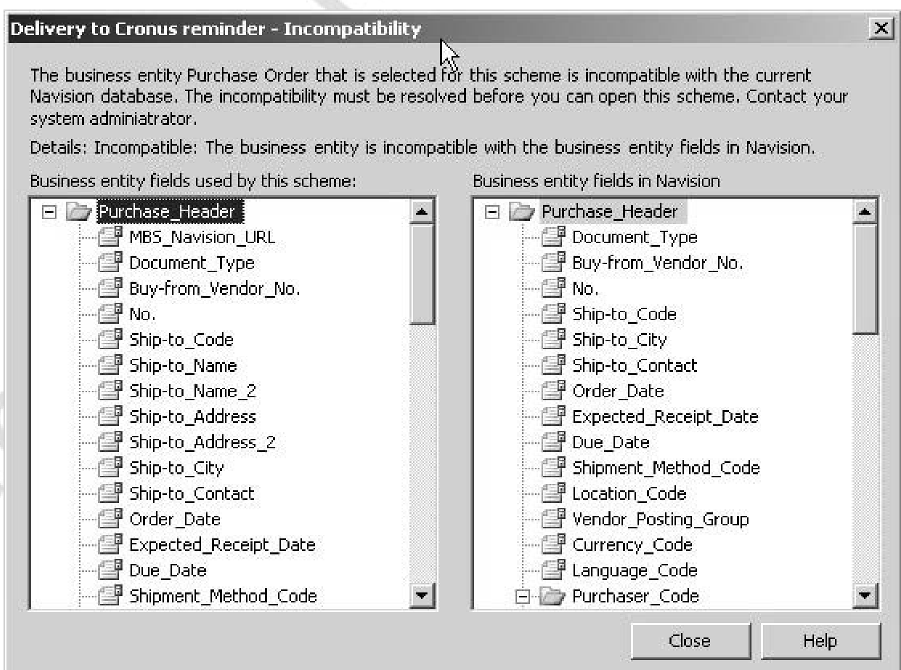
You can also view alerts that appeared for a certain scheme in the history log for this scheme. To open the History window, click FILE→VIEW HISTORY. You can see information about alerts logged for the scheme in the Details column:



Take a look at different reasons why incompatibility between a scheme and a business entity may arise.

Business Entity Incompatibility

A business entity can become "incompatible" for various reasons. The meaning of "incompatible" used here is: when a business entity (XMLport) in Microsoft Navision is no longer the same as when it was used to design a scheme in Business Notification Manager.



There are three reasons why incompatibilities occur:

1. The business entity continues to exist as it did when the scheme was created, but the fields are no longer the same. In other words, the fields have been deleted from, or renamed in, the underlying XMLport in Microsoft Navision. (Note that adding a field does not cause a problem.) Should you attempt to delete or rename a field, an alert appears, informing you that the selected business entity is incompatible with the business entity fields in Microsoft Navision.

   The picture above illustrates this incompatibility. On the left side of the window, you can see the business entity used for the scheme, and on the right side you can see how the business entity with the same name looks in Microsoft Navision.

2. The event that was used for the scheme has been deleted from or renamed in the business entity in Microsoft Navision. If you attempt to delete or rename this event in Business Notification Manager, an alert appears, informing you that the selected business entity is incompatible because the selected event is not available in Microsoft Navision.

3. The business entity itself has been deleted from or renamed in Microsoft Navision. If you attempt to delete or rename the business entity in Business Notification Manager, an alert appears telling you that the business entity is incompatible because the selected business entity is not available in Microsoft Navision.

There is currently no way to correct the problem in Business Notification Manager. The underlying problem must be solved in Microsoft Navision.

BEYOND THE BASICS: *To learn how to solve incompatibility problems by modifying XML ports, refer to "Development and Customization."*

Questions: Managing an Existing Scheme

1. How can you open or delete an existing scheme?

   ____
   ____
   ____

2. What do the "Started" and "Stopped" statuses for completed schemes mean?

   ____
   ____
   ____

3. How do you import and export schemes?

   ____
   ____
   ____

4. What is the View History window used for?

5. What are the conditions under which alerts arise?

Exercises

Exercise 3: Creating Notification Schemes

You are Ellen, a purchase manager at Cronus. Your job is to create notification schemes and message text to send to subscribed recipients.

1. Open the Business Notification Manager. From the Production Order Delayed template, create a new scheme called, for example, "Production Delayed at Cronus."
2. Set the filter so that only notifications about production orders with the Released status are sent out.

   Note that since **Status** is an option field, its value will be represented by an integer in Business Notification. In this case, the value that represents the Released status is 3.
3. Create a message with a subject, greeting, and body text to send to subscribed recipients. The body text must include the following information:
   - Production order number
   - Production order description
   - Starting date
   - Due date
4. Give permission to subscribe to this notification to your account manager, and enter the address of your business partner, the external recipient who should also receive this notification.
5. Start the newly created scheme.

Exercise 4: Modifying an Existing Scheme

You have received a request from your account manager, stating that he would also like to receive notifications about delayed Planned and Firm Planned production orders. In addition, he would like other accounting department employees to have permission to subscribe to this notification.

1. Copy for construction the scheme you have created in the previous exercise.
2. Change the filter settings so that the message text also includes information about delayed production orders with the statuses Planned and Firm Planned.

   These statuses will be represented by the following integers:

   Planned – 1

   Firm Planned – 2

3. The body text of the message should now also include information about the status of the production order. Add this information to the message text. Make sure the message includes a key stating which integers correspond to which production order statuses, so recipients have something to refer to.
4. Give other accounting department employees permission to subscribe to this notification as well as the account manager.
5. Start the scheme.

Quick Interaction: Lessons Learned

Take a moment to write down three Key Points you have learned from this chapter:

1.

2.

3.

CHAPTER 4: POWER USER SETUP PROCEDURES

This section of the manual describes how to connect to the server containing supplementary Business Notification files, manage templates in Business Notification Manager, and give permissions to users. It also addresses potential security problems related to the business notification process.

This section is intended for power users who will set up the Business Notification Manager, manage templates, and manage user permissions.

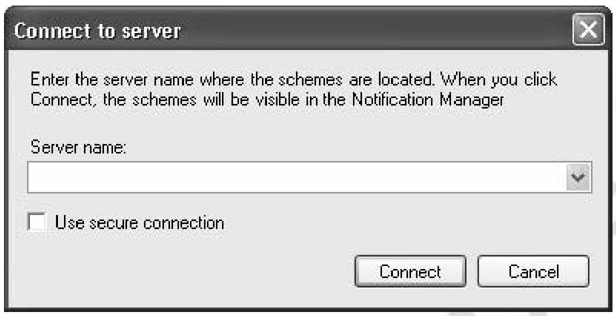
Training Objectives

At the end of this section, you will be able to:

- Connect to the server containing supplementary Business Notification files.
- Work with templates in Business Notification Manager.
- Configure permissions for sending Business Entity information.
- Administrate the security of information in Business Notification Manager.

Connecting to the Server

As soon as you start Microsoft® Business Solutions—Navision® 4.0 Business Notification Manager, the application asks you to connect to the server where supplementary documents are located. Supplementary documents are the templates you will work with and schemes for sending sets of business notifications. The window that gives you the option to connect to the server, the Connect to server window, looks as follows:



To connect to the server manually, in the Business Notification Manager main window click TOOLS→CONNECT TO SERVER, and select the server you want to connect to. After you connect to this server once, you do not need to do so again. Business Notification Manager will automatically connect to this server whenever it is started.

If you select the **Use secure connection** check box in the Connect to server window, you will use the secure https protocol to access the server instead of the standard http, provided an https protocol is available on your system. The secure protocol opens a secure hypertext transfer session with the specified site address.

Managing Templates

A template is a complete notification solution that is ready for you to use in Business Notification Manager. It consists of:

- The Microsoft Navision object, or objects, that define business entities and events, and the business logic that raises the events.
- One or more schemes in Business Notification that are activated by the event, or events, in Microsoft Navision.

To read more about schemes in Business Notification Manager refer to "Using Business Notification Manager."

Using Templates

Before using a template, you must carry out the following tasks in Business Notification Designer:

1. Give the scheme a meaningful name.
2. Apply any necessary filters.
3. Enter a new e-mail message or change the existing one.
4. Define recipients and enter a title and a description for the end-user subscription.

NOTE*: Every template has a pre-selected event. In the scheme, you can see a text that indicates which event and business entity has been pre-selected for this template.*

Importing Templates

To work with templates, you must use the Template administration window. In this window, you can import templates from the file system or delete existing templates. To access the Template Administration form, start with the Notification Manager main form, and click TOOLS→TEMPLATE ADMINISTRATION.

To import a template, you must first locate where you can access the template from your computer (in a local folder, on a network server, or in a similar location). To import a template, follow these steps:

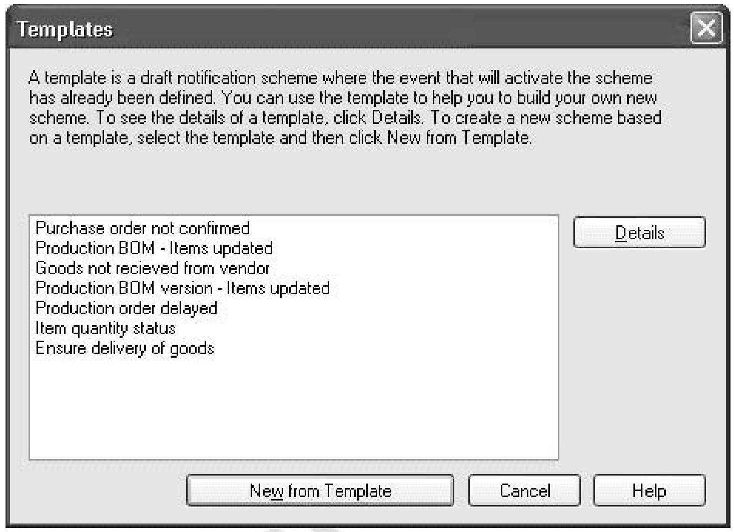
1. Open the Template administration window by clicking TOOLS→TEMPLATE ADMINISTRATION.

   The Template administration window looks like this:

2. Click **Add**. The Open system window appears.

3. In the Open window, locate and select the file that contains the template, and then click **Open**.

   The template is imported and is displayed on the Templates list, which means it is available for use and new schemes can be created from it:



NOTE*: If the selected file is not a valid template file, it will not be imported, and an error message will be shown instead. If the name of the template (inside the file - not the name of the file itself) conflicts with an existing template, the template must be changed. This cannot be done in the Notification Manager.*

Deleting Templates

If you do not need an existing template any longer, you can delete it.
To delete a template, do the following:

1. Open the Template administration window by clicking TOOLS→TEMPLATE ADMINISTRATION.
2. In the Template administration window, select the template you want to delete.
3. Click **Delete**.
4. A confirmation dialog box will appear. Click **Yes** to confirm your intention to delete the template. The template is removed from the Templates list.

If you delete a template in the Template administration window, this template will not be available for any users of Business Notification Manager.

You may restore all the templates that were included when installing Navision, Business Notification client. If you saved these templates in the suggested location during installation, you can find and import them from C:\PROGRAM FILES\MICROSOFT BUSINESS SOLUTIONS-NAVISION\BUSINESSNOTIFICATIONMANAGER\TEMPLATES. Note that in this way you can only restore the templates included in the Microsoft Navision installation. If MBS partners added more templates to the solution, you will need to know their location to be able to restore them.

Managing Permissions with Active Directory

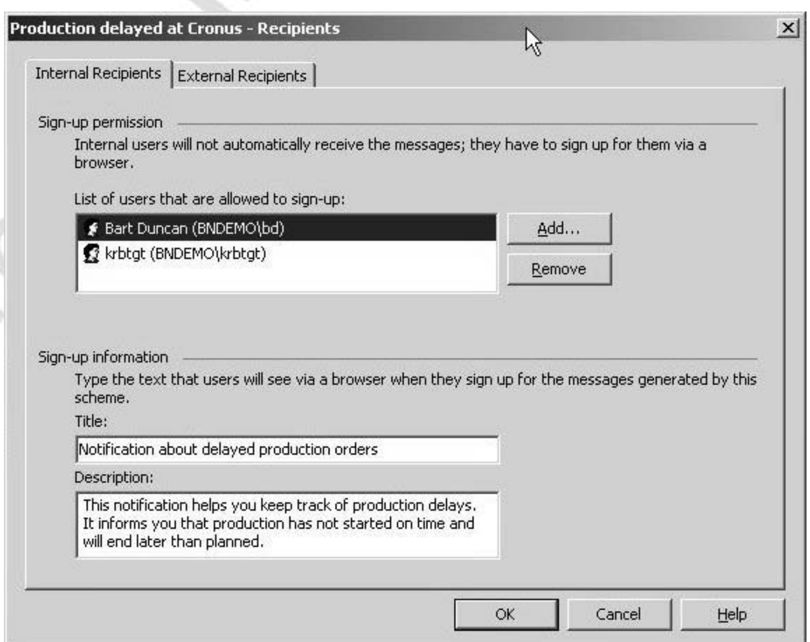
All users of Business Notification Manager must be registered in Active Directory. Active Directory allows internal user to subscribe for business notifications.

In order to allow users to sign up for notifications using the browser-based subscription interface, you must give them explicit permission to do so when creating or modifying a scheme. You do this in the Recipients window, on the **Internal Recipients** tab. The upper part of this tab, **Sign-up permission**, is used for this purpose.

Click **Add** to add a user. This opens a Windows form in which you can select users from the Active Directory.

When the users' e-mail address is defined in Active Directory, this e-mail address will be used when Business Notification Manager sends e-mails to the user.

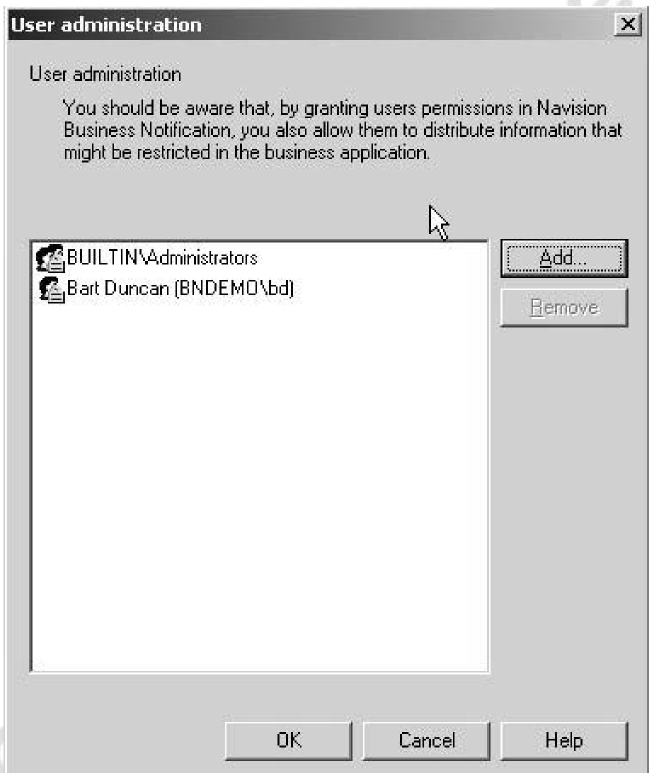
After you have granted permission to sign-up for a notification to some users, the **Internal Recipients** tab of the Recipients window will look like this:



If a user has not been given an e-mail address in Active Directory, then the user will have an opportunity to write his or her e-mail address in the end-user subscription interface.

Power users of Business Notification Manager must also be registered in Active Directory. It is from Active Directory that the administrator chooses Power users. The first power user has to be added to Business Notification by the administrator. The administrator is defined as the user that installs the Business Notification Server. The administrator adds a new power user by clicking Tools and then Security in the Business Notification Manager window. Then, in the User administration window that appears, click **Add** and select from Active Directory users or groups to be added to Business Notification.

After a power user has been added to the list of Business Notification users, the User administration window should look something like this:



Any user defined as power user of Business Notification can add other users as power users.

Security

Different users are given different levels of access to information in Business Notification Manager by the administrator and power user:

- End-users can only receive information if a power user has given them permission to receive the information.
- Power users only have access to information from Microsoft Navision that is included in business entities.
- The administrator manages which users have permission to become power users of Business Notification and thereby regulates which users are allowed to create schemes and give the permission to new power users.

User Permissions in Business Notification and Navision

When sending business notifications from Microsoft Navision to Business Notification Manager, you must be aware of the privacy issues involved in this process.

Power users have permission to create schemes, and hence they have access to all data that is available in the business entities. These users can, therefore, include that data in the e-mails they send, thus giving other individuals access to this data.

Power users are given permission to create schemes independent of the permissions they have in Microsoft Navision. A user can gain access to data via Business Notification Manager that he or she might not have permission to access in Microsoft Navision.

Users are given permission to receive e-mails, which may include Microsoft Navision data, regardless of their rights in Microsoft Navision.

Potential Security Problems

Business Notification Manager allows users to send e-mails to external recipients. This means power users who can create schemes can also add external e-mail accounts as recipients. If a power user were fired, he or she could set up a scheme to send e-mails to a personal e-mail account. This would give the power user access to important or secret company information after leaving the company.

To prevent this from happening, all schemes must be checked to see if any external mail accounts have been included in the **TO** field against company interests.

Another potential leak to be aware of is if the end user defines his own external e-mail account in the My Information area in the end-user subscription interface. This can only happen if no accounts are defined for internal e-mail recipients in Active Directory. If an employee is fired, he or she might still receive notification e-mails in the specified external account.

To prevent this problem from occurring, fired employees must be removed from the Active Directory immediately.

Exercises

Exercise 5: Deleting and Restoring Templates

1. You think you are not going to use the Item quantity status template in the future. Delete it from the Template administration window.
2. It appears the Item quantity status template, which you have deleted, is needed again. Restore this template from your hard drive so that it is available for use in Business Notification again.

Quick Interaction: Lessons Learned

Take a moment to write down three Key Points you have learned from this chapter:

1.

2.

3.

CHAPTER 5: END-USER SUBSCRIPTION

This section of the manual concentrates on the Microsoft® Business Solutions—Navision® 4.0 Business Notification end-user subscription.

It is intended for company employees (internal recipients) who need to subscribe to notifications in order to receive them.

Training Objectives

At the end of this section, you will be able to:

- Describe the purpose of the end-user subscription.
- Define access rights to the subscription application.
- View the list of subscriptions.
- Subscribe to and unsubscribe from notifications.

Purpose and Overview of the End-User Subscription

Internal users or users in your own company that have access to your Intranet, are not sent notification e-mail messages automatically. They need to subscribe to notifications in order to receive them. In order for them to be able to subscribe, they must either be given permission individually, or they must be members of a group that has permission to subscribe.

All windows users in the company can access the web application via a browser. On the site, end users can see the started notification schemes they can subscribe to.

NOTE: *In the Notification Subscription interface, end-users can only see the subscriptions corresponding to schemes that are Completed and Started. If a scheme has been Stopped, they will not be able to see the respective subscriptions in their Web interface.*

Location of the Web Application

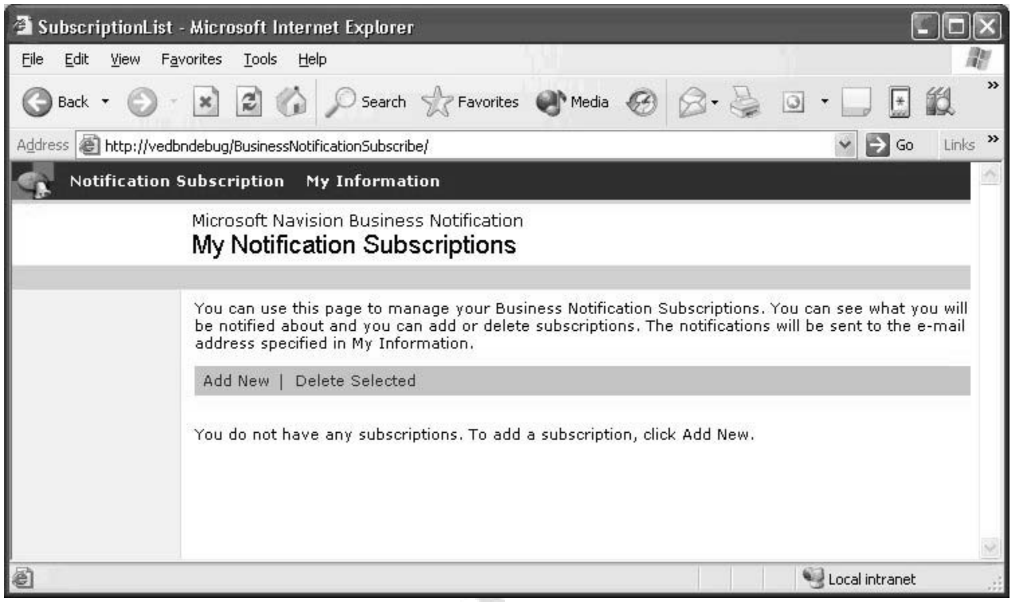
Internal users subscribe through a Web browser. The site is hosted on the company server. The URL to use is "http://<servername>/BusinessNotificationSubscribe," where <servername> is the name of the server where the Business Notification server component is installed.

Accessing the Web Application and Viewing the List of Subscriptions

To access the Web-based subscription interface, do the following:

1. In the Address field of your Web browser, type the URL of the subscription application, "http://<servername>/BusinessNotificationSubscribe," where <servername> is the name of the server where the Business Notification server component is installed.

The first page you will see will be the My Notification Subscriptions page. This page contains a list of existing subscriptions, if any.



2. By clicking **My Information**, you can check the e-mail address your notifications are sent to. This is the e-mail address that is registered for you in Windows.

NOTE: *Users cannot open the My Information page and view their details there if they have never had permission to subscribe to at least one notification. My Information contains the details from the Active Directory, which are non-editable. If the Active Directory does not include e-mail accounts of users, the users will be allowed to enter and change their account information in the My Information area.*

End-User Subscription Access Rights

To access the site on which the end-user Web browser-based subscription management application is located, you must have permission to access this site. You must also be a Windows user in the company who is registered in the Active Directory.

To see the list of notifications that you can subscribe to via the Web browser application, you or your user group must have permission to subscribe to the notifications that have been Completed and Started. Otherwise, the system will display an empty list of notifications.

Subscribing to and Unsubscribing from Notifications

The first page you see is the My Notification Subscriptions page. This page contains a list of existing subscriptions (if any). You can check to see the e-mail address your notifications are sent to by clicking **My Information**. This is the e-mail address that is registered for you in Windows/Active Directory.

If you are working on a system where the e-mail addresses are not registered in Active Directory, this interface will provide you with the option to enter the e-mail address where you want to receive the notifications.

To Add a New Subscription

1. On the My Notification Subscriptions page, click **Add New**.
2. On the Select New Notification Subscription page that appears, click the option button to select the notification that you want to subscribe to. Then, click **Add Selected**. Note that you can only select one notification at a time.

You are automatically returned to the subscription list and can see the notification you just added to the list.

To Delete an Existing Subscription

1. On the My Notification Subscriptions page, select one or more subscriptions in the list.
2. Click **Delete Selected**.
3. A confirmation dialog box will appear. Click **Yes** to confirm that you want to delete the selected subscriptions.

NOTE: *Users are not automatically informed of new notifications they have permission to subscribe to. If you as a power user need to distribute such information, you must do it yourself.*

If a scheme has been Completed but not Started, the respective subscription will not be visible in the end-user interface, nor will any notifications be sent.

A power user can update the scheme even if it is Completed and Started and thereby visible in the end-user subscription interface. If the power user updates the title and description, the visible title and description will change in the end-user subscription interface when he or she completes the updates. End users will continue receiving notifications with the updates made by the power user and will not have to re-subscribe to the notification. The update will be seamless, and no notifications will be lost.

A power user cannot change a user's subscription in the end-user interface nor view who is subscribed to which notifications. If a power user does not want a certain user to continue receiving notifications, the power-user should edit the scheme in the Notification Designer and remove the user from the internal recipients list.

Receiving Messages

Once you have subscribed to a notification, you will start getting e-mail notification messages when the respective event occurs in Microsoft Navision and the conditions in the scheme are met. The message will contain the text defined for the respective scheme in the Notification Designer.

HINT: *You may want to create a rule in Outlook so that business notifications you receive are delivered to a separate folder in your mailbox.*

Tracking Sent E-Mails

As a power user, you may want to track which e-mail notifications have been sent to recipients. Since you cannot do this in Business Notification, you may want to set it up so that copies of the messages are sent to your mailbox. In order to receive these copies, you must subscribe to the respective notifications.

Questions: End-User Subscription

1. What is the purpose of the end-user subscription?

   ___
   ___
   ___

2. Who can access the subscription application?

   ___
   ___
   ___

3. What is the precondition for you to be able to see a list of notifications available for subscription?

   ___
   ___
   ___

4. How can you subscribe to a new notification?

   ___
   ___
   ___

5. How can you unsubscribe from a notification?

   ___
   ___
   ___

Exercises

Exercise 6: Adding a Subscription

You are an account manager at Cronus. You want to receive notifications if production orders in your company are delayed. Go to the Business Notification subscription service, find the respective scheme, and subscribe to it. Make sure the subscription has been added to your subscription list.

Quick Interaction: Lessons Learned

Take a moment to write down three Key Points you have learned from this chapter:

1.

2.

3.

CHAPTER 6: INSTALLATION AND ADMINISTRATION

This section of the manual describes the installation and administration of Microsoft® Business Solutions—Navision® 4.0 Business Notification.

It is intended for partners who will install Business Notification at the customer's site and system administrators who will administer the solution.

Training Objectives

At the end of this section, you will know how to:

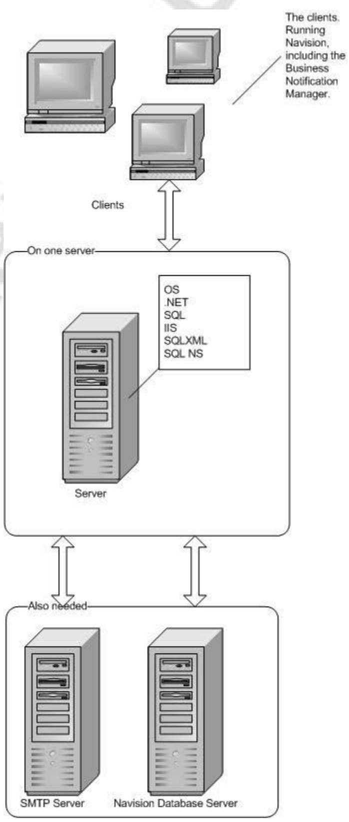
- Install the prerequisite products and perform the prerequisite configuration necessary for Business Notification to work.
- Install and configure Business Notification.
- Administer Business Notification, that is, change passwords, run backups, and change settings of configuration files.

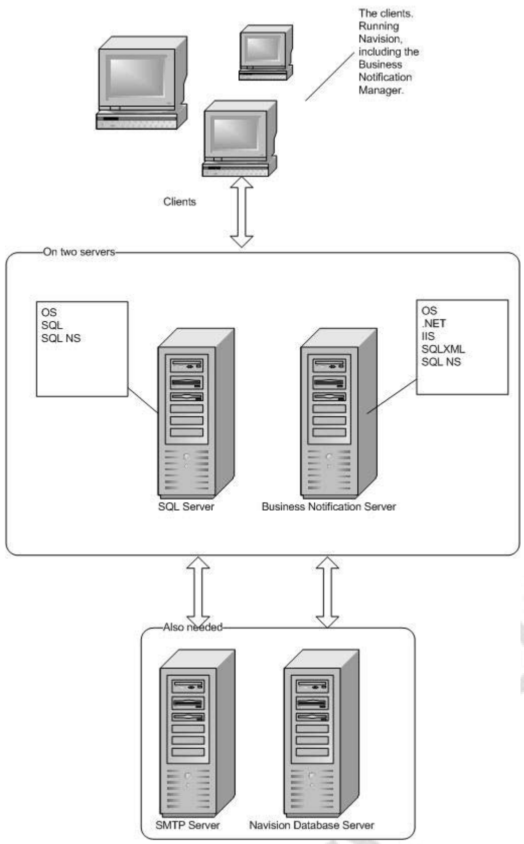
Business Notification Installation

The Business Notification Server is installed by its own installation program. The Business Notification client is installed by the Microsoft Navision's Client installer. It is important to note that the Business Notification client must be installed on all clients where Microsoft Navision is installed to ensure that business notifications function properly.

For detailed instructions on how to install and configure Business Notification and the prerequisite products necessary for it to work, see the Business Notification Installation Guide.

The diagram below shows the two main scenarios for deployment: one in which the Business Notification Server is installed on one computer; and one in which the Business Notification Server is installed on two computers. The specific prerequisites and procedures are described in the Business Notification Installation Guide. You should also always check the "Known Issues" section of the Release Notes and the Microsoft Knowledge Base for the latest information.





Business Notification Administration

After Business Notification has been installed, you must pay attention to the following:

- Password change

  If the password of the user account that Business Notification is running under is changed, you must perform the procedures described in this topic. If you do not, Business Notification will stop working.

- Backups

  As part of your normal backup routine, you should make a backup of Business Notification. This topic describes what needs to be backed up.

- Configuration files

  You may need to change some values in a configuration file after you have installed and started using Business Notification. If the SMTP server you use for sending e-mail messages changes, it is absolutely necessary to inform Business Notification of this. You may also want to change the logging level.

Changing Passwords

During installation of the Business Notification Server, you must enter the name and password of a Windows user (domain user). This user will:

- Provide its user account for the Business Notification server-side applications and services to run under.
- Log on to the SQL Server.

If, or when, the password is changed, perhaps because your company has a policy of enforcing password changes at set intervals, you must perform the following procedure to ensure that the new password is used by Business Notification applications and services:

- On the computer that runs the Business Notification Server components, locate the folder where these components are installed. (the default is "PROGRAM FILES\MICROSOFTBUSINESSSOLUTIONS\MICROSOFT NAVISION\BUSINESSNOTIFICATION\INSTALLUTILITY.") There is a small utility in this folder, called "aspnet_setreg.exe."
- Open the Command Prompt window in this folder.
- At the command prompt type:
  ```
  "aspnet_setreg.exe -
  k:SOFTWARE\Microsoft\BusinessSolutions\BN\iden
  tity -u:domain\username -p:password"
  ```
  where you replace "domain\username" and "password" with the domain and username of the account in question and the new password.

This will replace the cached password that the server components are using with the new one.

For more information on how to use the ASP.NET utility to encrypt credentials and session state connection strings, refer to the following Microsoft Knowledge Base article: http://support.microsoft.com/default.aspx?scid=kb;en-us;329290.

Furthermore, you must manually set the new password for two services on the computer that is running the Business Notification Server components:

- Open the Services application (click START→CONTROL PANEL→ADMINISTRATIVE TOOLS→SERVICES or the equivalent command; the location in the menus varies from one operation system to another).
- Locate the service called "Notification Service Deployment Manager."
- Right-click the name, and then click **Properties**.
- Click the **Log On** tab, and change the password.
- Locate the service called "NS$BusinessNotificationInstance."
- Right-click the name, and then click **Properties**.
- Click the **Log On** tab and change the password.

Making Backups of the Business Notification Server

You should regularly make backups of the data storage that Business Notification uses regularly (or work these into your existing backup schedule).

When making a backup, it is recommended that you first stop the following services on the computer that is running the Business Notification Server:

- NS$BusinessNotificationService
- Notification Service Deployment Manager

You must back up the following three databases:

- BusinessNotification
- BusinessNotificationInstanceMBSBN
- BusinessNotificationInstanceNSMain

If you have installed the program in the default location, the files you need to back up are in the following locations:

- C:\PROGRAM FILES\MICROSOFTBUSINESSSOLUTIONS-MICROSOFT NAVISION\BUSINESSNOTIFICATIONSERVICES\APPCONFIG.XML
- C:\PROGRAM FILES\MICROSOFTBUSINESSSOLUTIONS-MICROSOFT NAVISION\BUSINESSNOTIFICATION\DEPLOYMENTSERVER\WEB.CONFIG
- C:\PROGRAM FILES\MICROSOFTBUSINESSSOLUTIONS-MICROSOFT NAVISION\BUSINESSNOTIFICATIONSERVICES\APPDEFINITION\APPADF.XML
- Any files with an .xslt extension under C:\PROGRAM FILES\MICROSOFTBUSINESSSOLUTIONS-MICROSOFT NAVISION\BUSINESSNOTIFICATIONSERVICES\FORMATTERS

If you did a custom installation and installed to a non-default location, adjust the paths accordingly.

You can back up Business Notification server using an administrator account or under a special backup operator account. The backup operator needs to be granted the following privileges:

- db_backupoperator role for the three Business Notification databases.
- Read access to C:\PROGRAM FILES\MICROSOFTBUSINESSSOLUTIONS-MICROSOFT NAVISION\BUSINESSNOTIFICATION\DEPLOYMENTSERVER folder and read and write access to the Web.config file in this folder (this permission is revoked for all users during installation.)
- Read and write access to C:\PROGRAM FILES\MICROSOFTBUSINESSSOLUTIONS-MICROSOFT NAVISION\BUSINESSNOTIFICATIONSERVICES folder.

If you need to restore a backup, and have changed the password after performing the backup, you must perform the procedure for handling password changes described in the Changing Passwords section above again.

NOTE: *The list of users who have been given permission to use the Notification Manager ("power users") is not stored by Business Notification, and therefore this list is not backed up in any of these procedures. This list is kept as a standard Windows ACL (access control list).*

Changing Settings in the Configuration Files

In the file called Web.config, there are two settings that you may need to change. You can find the file on the computer where the Business Notification Server is installed. If you installed the file in the default location, it will be in the folder: \PROGRAM FILES\MICROSOFTBUSINESSSOLUTIONS-MICROSOFT NAVISION\BUSINESSNOTIFICATION\DEPLOYMENTSERVER. Otherwise, it will be in the equivalent folder on your system.

If you change your SMTP server after installation:

In the <appSettings> section, change "localhost" to the name of your (new) SMTP server:

```
<add key="SmtpServer" value="localhost"/>
```

If you used another name than "localhost" for the SMTP server during installation, this name will be the "value" instead of "localhost."

In order for the new server to be used, the Business Notification server needs to be forced to parse the configuration file again. This will happen if the server is restarted, but that is not always an option.

The same effect can also be achieved by stopping and then starting one scheme in the Notification Manager. It does not matter which scheme is used, nor do you need to do it for more than one scheme, even if you have more than one scheme started.

If you want to change the logging level

In the <appSettings> section, change the "value" in the following:

```
<add key="applicationLogLevel" value="debug"/>
```

to one of the following:

- Debug: everything is logged
- Error: only errors are logged
- None: no logging is done at all

Use “debug” unless you have a compelling reason to use another setting, for example, when the log gets very large.

Changing Time on the SQLNS Server

You must not manually change the system time on the computer that is running the Microsoft SQL Server Notification Services. If you do, Microsoft SQL Server Notification Services can lose data (it can lose notifications.)

Therefore, you should set this computer up to automatically adjust for daylight savings time. Follow this procedure:

1. Click START→CONTROL PANEL→DATE AND TIME.
2. Click the **Time Zone** tab.
3. Check that the **Automatically adjust clock for daylight savings changes** check box is selected.

Question: Business Notification Administration

1. After installing Business Notification, what administrative procedures must you pay attention to?
   ____
   ____
   ____

Exercises

Exercise 7: Business Notification Installation

Based on the Business Notification Installation Guide, answer the following questions:

1. What are the prerequisites for installing the Business Notification client?
2. What two scenarios can be followed when installing Business Notification server?
3. What are the prerequisites for installing the Business Notification server?
4. How do you make sure that Business Notification client is installed when installing Microsoft Navision?
5. What are the steps for installing the Business Notification server?

Quick Interaction: Lessons Learned

Take a moment to write down three Key Points you have learned from this chapter:

1.

2.

3.

CHAPTER 7: DEVELOPMENT AND CUSTOMIZATION

This chapter describes how to raise events in Microsoft® Business Solutions—Navision® 4.0 and how to create schemes in Microsoft Navision Business Notification that use these events.

This chapter is intended for C/AL developers who will add new events or modify existing events in Microsoft Navision.

Training Objectives

At the end of this section, you will be able to:

- Use your knowledge about XMLports to create XMLports to use with Business Notification.
- Add events to XMLports.
- Raise events from the C/AL business logic.
- Describe the difference between the two basic event types in Microsoft Navision—field-change-based and time-based—and learn how to handle the specific challenges in creating time-based events.
- Convert schemes into templates for distribution.

Background and Terminology

This section outlines some of the background and terminology used, describes how to raise events from the Microsoft Navision business logic, and describes how Microsoft Navision interacts with Business Notification at run time and design time.

Business Entities

In Business Notification, a business entity is a representation of a "real-world" object, such as a sales order. The data that is sent from Microsoft Navision to Business Notification is a business entity.

In Microsoft Navision, however, a business entity, such as a sales order, is typically represented as a number of tables. These tables will always include both a header table and a lines table. Furthermore, some of the data that would be on a traditional, paper-based sales order, is stored in related tables. For example, in a Microsoft Navision sales order, the header table contains a Payment Terms Code. This field has a table relation to the Payment Terms (in relational database terms it is a foreign key). Yet on the printed order confirmation (a report) the text from the related table is used in order to print a more readable version of the payment terms ("1 Month/2% 8 days" instead of "1M(8D)").

The business entities relevant for Business Notification are created as XMLports in Microsoft Navision. Like a Microsoft Navision report, an XMLport can combine data from a number of tables.

XMLports

XMLports are a new feature in Microsoft Navision 4.0. The XMLport feature provides a way to produce an XML document from one or more tables, somewhat equivalent to what you can do when designing a report. The Microsoft Navision documentation contains all the details about how to design XMLports.

Events

For the purpose of Business Notification, an extension has been made to XMLports: events. An event is defined for an XMLport, and it can be called just like a function. However, an event does not have a function body. When an event is called, an XML document that the XMLport produces is sent to Business Notification.

At design-time, events serve to communicate between the C/AL developer and the Business Notification scheme developer. Choosing good names for events, ones that clearly communicate the circumstances under which the event is raised in the C/AL code, makes it a lot easier for the scheme developer to decide how to handle the event. Doing so helps developers know what filters to set, what permission internal users must have to subscribe, what title and description to give the scheme on the subscription application internal users will use, and what external recipients it would be relevant to send the notification message to.

Interaction Between Microsoft Navision and Business Notification

Here is a complete interaction between Microsoft Navision and Business Notification:

At run time:

1. A condition is met in the C/AL business logic, according to which an event should be "raised." (The event is called like a function of an XMLport.)
2. The XMLport is populated with the current data.
3. The XML document produced by the XMLport is sent to Business Notification.
4. Business Notification finds the matching scheme and performs the actions defined in this scheme.

At design time:

1. The Business Notification Designer queries Microsoft Navision for metadata about business entities and events.
2. A scheme is created in Business Notification Manager based on the metadata retrieved from Microsoft Navision.

A Basic Example

The following is a basic example of how to raise an event from the Microsoft Navision business logic immediately when a field is changed. Since the example is very simple, you will need to take a few things into consideration. These considerations are described further in the Notes section following the example.

Raising an Event in Microsoft Navision

For this example you will be trying to send out notifications when the Blocked status of a customer is changed. Microsoft Navision simply detects a condition and raises an event immediately.

1. Decide what data should be in the XMLport. For example, the data could include the ID and Name of the customer, the date when the change happened, and the salesperson code. (The salesperson code can then be used for filtering in Business Notification so that each salesperson can get notifications about their own customers.)
2. Create an XMLport that contains the data you need. The Application Designer's Guide and the C/SIDE Help provide the information you need. In this example, it is called "Customer." Remember that this is the name that will be visible as the business entity in the Notification Designer.

NOTE: *TagNames should not contain spaces and the Format/Evaluate property of the XMLport must be set to "XML Format/Evaluate" (this is not the default, so you must change it yourself.)*

3. Add an event to the XMLport by using the Events Designer (accessed by clicking View and then XMLports Events). In this example, it could be called "BlockedChanged." This name is also visible in the Business Notification Designer.

Now you must determine where to raise the event in the business logic. In this example, this would be in the `OnModify` trigger in the Customer table.

4. To raise the event in the business logic, you must declare the XMLport you have created as a local variable. It could, for example, be called "CustXMLDoc" (this name is not visible in the Notification Designer).
5. Next, add the following to the `OnModify` trigger:

```
IF Blocked <> xRec.Blocked THEN
CustomerXMLDoc.BlockedChanged();
```

Now you have a complete event and can use the Notification Designer to create a scheme that handles this event. The event will be available as the "BlockedChanged" event for the "Customer" business entity.

NOTE: *To read more about creating XMLports, refer to the "Creating XMLports" section later in this chapter.*

Creating a Scheme for the Event

This following example will show how to create a scheme from scratch, using Business Notification Manager, for the `BlockedChanged` event of the Customer business entity.

1. In the Business Notification Manager main window, click **New** to create a new scheme. The Notification Scheme window appears.
2. In the **Scheme Name** field, enter a name for your new scheme. Click **Define Event** to specify the event, which will occur and activate the scheme.
3. In the Event window, select the Customer business entity and BlockedChanged event. To see the fields that are included in the XMLport, click the **View fields in business entity** button.
4. After defining the business entity and an event, you may click **Define Filter**, **Define Message** or **Define Recipients** to specify conditions for when the event must generate a notification, what notification message the recipients will read, and who will receive notifications.

Notes

There are a few things you need to pay attention to when you create XMLports and events in Microsoft Navision:

XML Compliancy for XMLports

When you create an XMLport in Microsoft Navision, you must make sure the tag names of the elements do not contain spaces, brackets, or other characters not permissible in standard XML. If they do, the XMLport will not be visible in the Business Notification Designer. Instead, an error will be reported in the application event log on the client side, where the Notification Designer is running.

Depending on the nature of the error in the XML Schema from Microsoft Navision, the messages in the event log may differ. This is one example:

```
Schema of xml port Illegal element is not valid!
Message: Invalid 'name' attribute value: The ' ' character,
hexadecimal value 0x20, cannot be included in a name..
Severity: Error
Exception: System.Xml.Schema.XmlSchemaException: Invalid
'name' attribute value: The ' ' character, hexadecimal
value 0x20, cannot be included in a name..
```

To remedy this situation, you must open the appropriate XMLport in the Microsoft Navision Object Designer, and rename elements as needed.

The XMLport Format/Evaluate Property

There is an XMLport property called Format/Evaluate. The default value is "`C/SIDE Format/Evaluate`." You must change this value to XML Format/Evaluate by right-clicking an empty line in the XMLport and selecting **Properties**.

If you do not do this, Business Notification will not interpret the XML documents sent from Microsoft Navision properly, and schemes may not work as expected.

Exporting Field Values of Data Type Option from Microsoft Navision

When defining a filter on a field where the Microsoft Navision type is "Option," it is not possible to use the values seen inside Microsoft Navision as the filter values. The option field will be represented by the corresponding integer value in Business Notification. For example:

Option Field Value	Integer value
New	0
Certified	1
Under development	2
Closed	3

If you insert one of these fields in an e-mail in Business Notification, you need to be aware of the following. When an option field is used, the integer value will be inserted, and the recipient might not be able to interpret this value meaningfully.

More useful text can be provided, but to do so, you must use some C/AL code in Microsoft Navision – this is not something that can de done in Business Notification. Adding text will also make the filter more understandable.

The following techniques can be used:

The change is made in the Microsoft Navision XMLport.
We will presume that the **Option** field is called **Status**.

1. Add a new text element (SourceType is set to Text) to the XMLport. It could be called "StatusText."
2. Add code similar to the code below to the "Export – OnBeforePassField" trigger of the new element ("StatusText" in this example):

```
StatusText := FORMAT(Status);
```

Now you can use "StatusText" to merge in a readable version of the **Option** value into the e-mail content and use readable values in the filter (keeping in mind that the field is a **Text** field – not an **Option** field.)

Be aware that the textual representation of the Option value will be in the language of the Microsoft Navision client that raised the event.

The Notification Process in Detail

Conceptually, there are two broad classes of notifications: time-based and field-change-based.

A field-change event happens instantly when a field is changed (it is most often called from the OnModify trigger of a record).

A time-based event addresses a scenario like the following:

- You want to send a notification out when there are fewer than seven days left until the expected delivery of some goods.

You cannot solve the problem by using a field-change-based event (because no field is changing). The solution is to periodically search through the relevant records and find the ones that should raise this event.

There is, however, no timer, or similar functionality, useful for this purpose in Microsoft Navision. Therefore, time-based events must be invoked. A report can be run manually at defined intervals, for example, every morning.

Solving the Problem of Timed-Based Events

Five predefined time-based notifications are included as part of Business Notification. They notify the user about:

- Upcoming deliveries
- Items that were not received after the promised receipt date
- Purchase order confirmations that have not been received
- Delayed production orders
- Changes in the inventory status

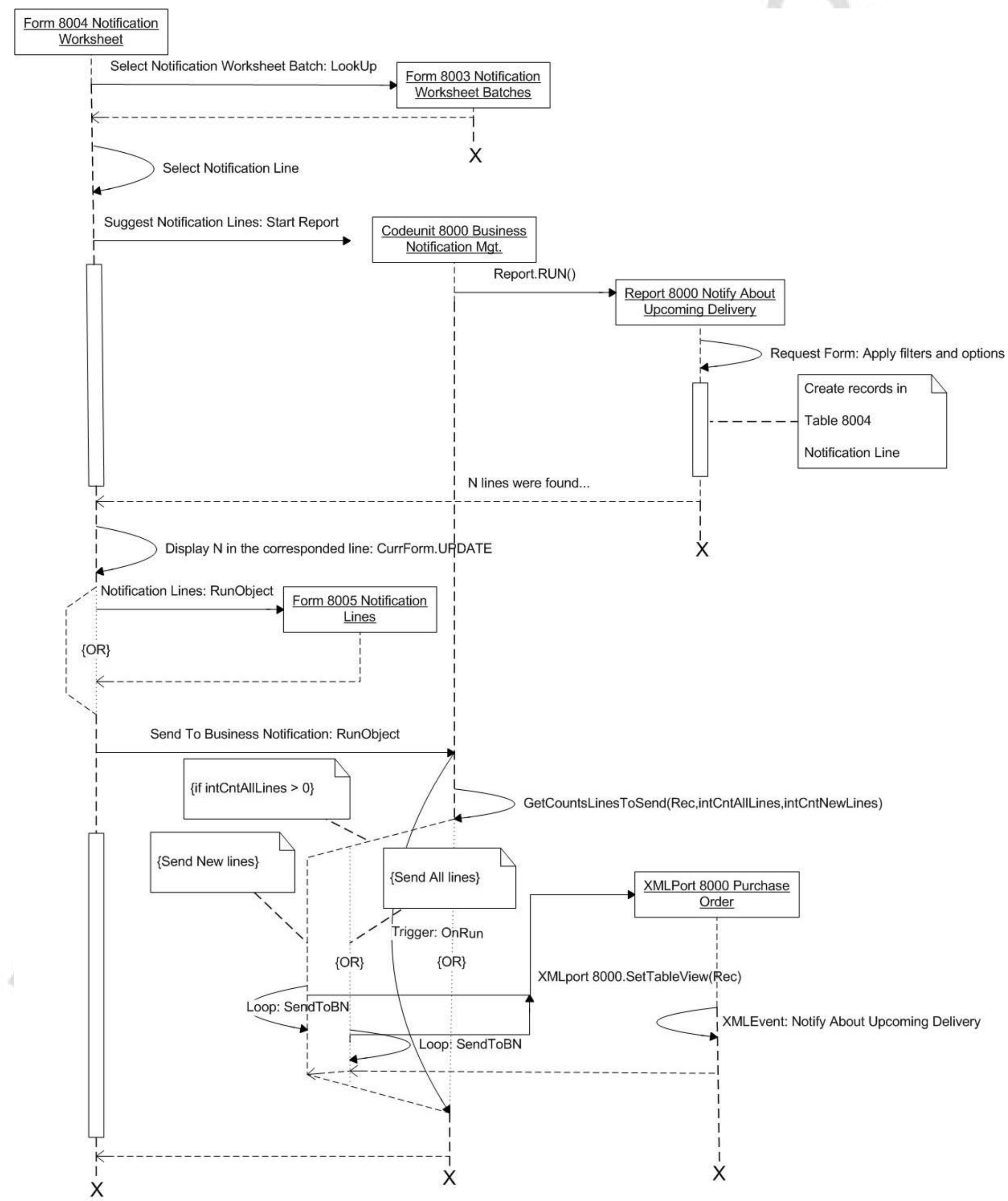
NOTE: *You can use any of the predefined notification types as a starting point for creating new notifications. Reviewing the code used in these notifications would be a good first step towards understanding the programming and business logic that is used in them. You can use the predefined notifications as a framework for developing your own solutions.*

The way the time-based event problem has been solved in these notifications is this: To send any of these time-based notifications, you must run a batch job to check if any notifications should be sent to the Business Notification Manager for further processing. The program then searches through your orders, inventory, and so on, looking for notifications that match the criteria in the batch job. After the desired notifications have been found, you can send them to Business Notification. Notifications will be distributed from there depending on how the rules in the schemes are defined.

From the technical point of view, any time-based notification consists of:

1. An internal Microsoft Navision part, including:
   – A report.
   – An XMLport.
   – A routine responsible for establishing a link between the standard Business Notification and the new notification.
2. A Business Notification part, including:
   – A scheme (see “Using Business Notification Manager”).

The diagram shows how time-based event is raised in Microsoft Navision.



From this diagram, you can see the whole process involved in sending time-based notifications from searching for candidates that can be sent to sending them to recipients. Take a look at each step of this process:

1. In the Notification Worksheet window, click the **Assist**Button to the right of the **Batch Name** field. In the Notification Worksheet Batches window, select a batch to work with.
2. In the Notification Worksheet window, click LINE→SUGGEST NOTIFICATION LINES to start a report. In Codeunit 8000 Business Notification Mgt., the Start Report function is called. Next, Report 8000 Notify About Upcoming Delivery is started. The report processes the request form with the applied filters and options, if any, and creates records in Table 8004 Notification Line. The number of lines found is returned to the Notification Worksheet form.
3. If you want to see the generated lines, click LINE→NOTIFICATION LINES. Form 8005 Notification Lines is activated.
4. To send the notification lines that were generated, click FUNCTIONS→SEND TO BUSINESS NOTIFICATION. This will activate Codeunit 8000 Business Notificaiton Mgt. and the OnRun trigger will be executed. This trigger calls the GetCountLinesToSend() function, which calculates the number of generated and sent lines. You will be prompted to send new generated lines to Business Notification. If among these lines there are lines that were sent earlier, you may not send them now. If no lines have been found, you will get a message informing you of this failure.

***NOTE:** Be aware that the most important part of organizing time-based notifications is keeping track of who has already received a notification. You must track the vendors who already received a notification to avoid sending them inappropriate e-mail messages.*

How to Use the Framework for Time-Based Events

We will now use one of the predefined business notifications in Microsoft Navision 4.0 as an example to illustrate how a new type of notification can be introduced and sent to customers. This example will be used throughout this section on time-based notifications.

Imagine that your company needs to remind its suppliers about upcoming deliveries seven days before the delivery date. By doing this, you want to give suppliers the ability to react to any delays.

To address this example issue, you must first create a report that runs throughout Microsoft Navision and searches for candidates for sending. The report will search among notifications about purchase orders with defined promised receipt dates. To search for candidate orders to send to these suppliers, you should use the Notify About Upcoming Delivery report in Microsoft Navision.

Creating Reports for Business Notification

For general information about designing reports in Microsoft Navision, refer to the Application Designer's Guide. In this section, we will cover specifics that must be considered while designing reports for Business Notification.

A report must be created based on the specification requirements covering each situation in Microsoft Navision that initiates the sending of a notification. While the main functionality of the report is defined by these requirements, there are technical details, which must be followed in order to integrate the report into basic Business Notification functionality. These details are:

- The report must include the data item Notification Worksheet Line.
- The report must create records in Table 8004 Notification Line.

To return to our example in Business Notification, open Object Designer and find Report 8000 Notify About Upcoming Delivery, which may be used as a template for creating a new report.

This report runs through the Purchase Header and Purchase Line tables, checks whether any deliveries are expected within the period that you specified on the **Options** tab of the report's request form, and collects the records that fit this criterion. Then the report places the IDs of the records in the Notification Line table. The purpose of collecting the IDs in this table is to give the user the ability to see what was found and to possibly delete entries or refine the list of entries before sending them to the Business Notification Manager.

The last data item, Notification Worksheet Line, must be the same for all reports used for sending business notifications. This will make sure that information about sending a notification will be registered in the Notification Line table. The other data items must be customized to fit each individual report.

NOTE: *The Notification Line table stores information about business notifications to be sent. IDs from records are placed in this table so the user can see what was found and possibly delete entries or refine the list of entries. Notification lines are stored in the database constantly. They remain in the database until the user deletes them manually or starts a new batch job for which new lines will be collected for the current notification. Using the Date and Time Sent Filter, it is possible to see which of the entries have already been sent in the current notification. This is accomplished by searching the Notification Log Entry table within the period specified.*

Creating XMLports

An XMLport must be created which complies with the requirements on the output format of the notification. Creating a new XMLport involves the following tasks:

- Designing the structure of the XML content.
- Choosing a data model for the XMLport tags.
- Creating XMLport events.

For information about how to design the structure of the XML content and choose a data model for the XMLport tags, refer to the Application Designer's Guide. Here we will only review the last task, creating XMLport events.

Creating XMLport Events

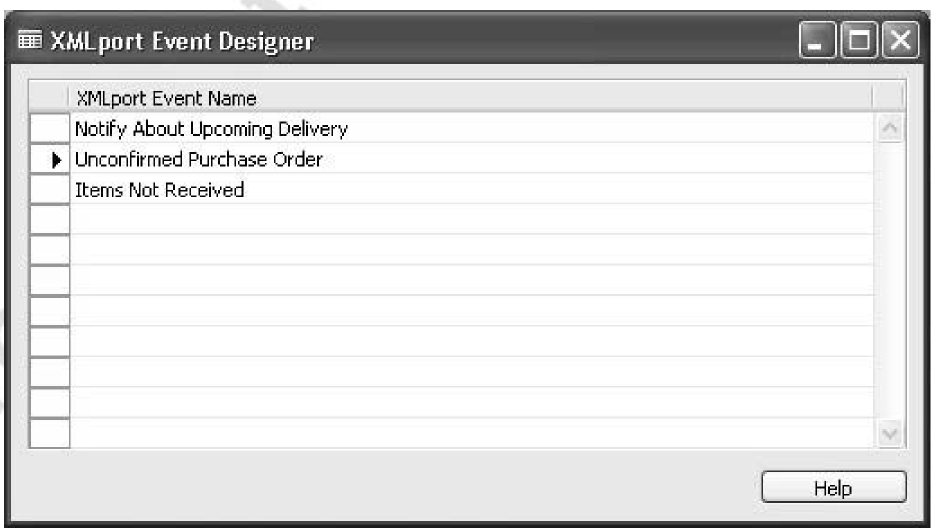
In Microsoft Navision, an event can be called just like a function when it is defined for an XMLport. However, an event does not have a function body—when it is called, the XML document is sent to Business Notification Manager using the corresponding XMLport the event "belongs to." Below you can find a more detailed description of how to create an event.

To create an event for the existing XMLport 8000:

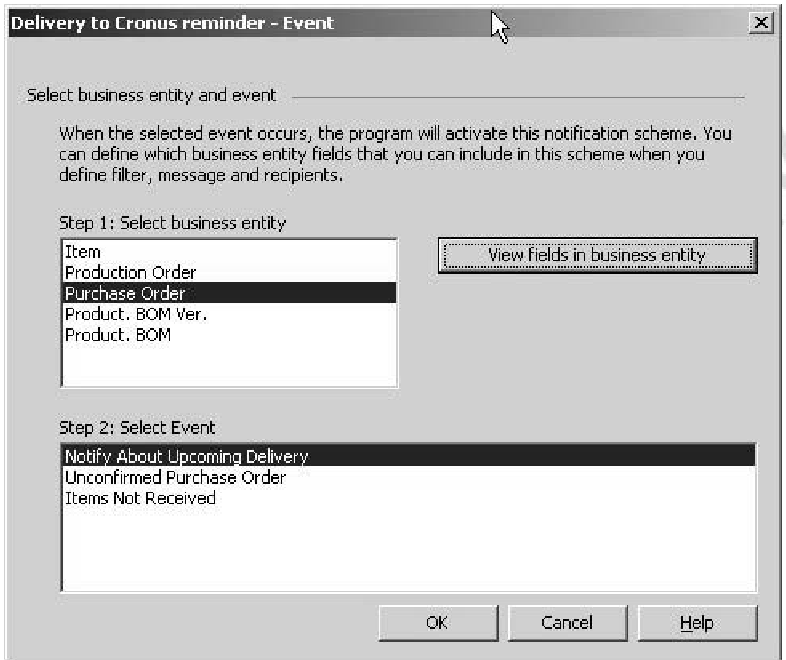
1. Open Object Designer.
2. Click the **XMLport** button.
3. Choose the Purchase Order XMLport with ID 8000.
4. Click the **Design** button.
5. Click **View** and then **XMLport Events**.
6. In the XMLport Event Designer form, define the event called Notify About Upcoming Delivery.

This form allows you to add new and modify or remove existing XMLport events.

The XMLport Event Designer window should look as follows:

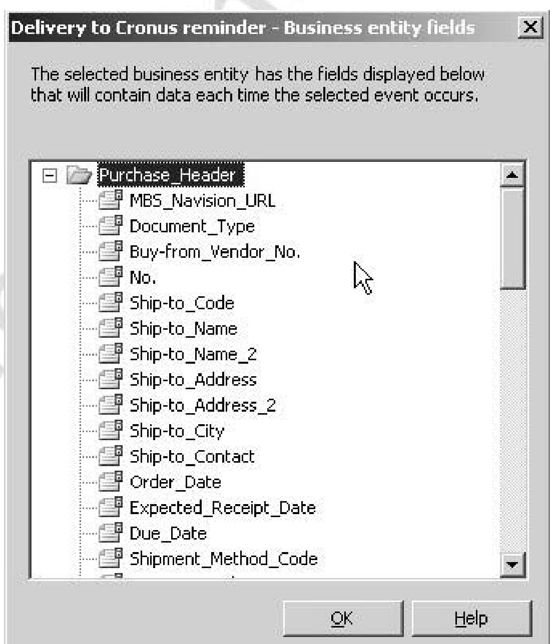


XMLport event names can be used in Business Notification Manager.
In the Event window, opened in Business Notification Manager, you can select a business entity and an event:



If you click the **View fields in business entity** button, you will see what fields this business entity consists of.

The list of the available fields looks as follows:



NOTE: *For the pre-defined XMLports shipped with Microsoft Navision 4.0, the business entity fields are in English. If you want these fields and the business entity to be in another language, you must define a new XMLport in the following way:*

1. Copy an existing XMLport.

2. Give it a new name and number.

3. Translate the TagNames.

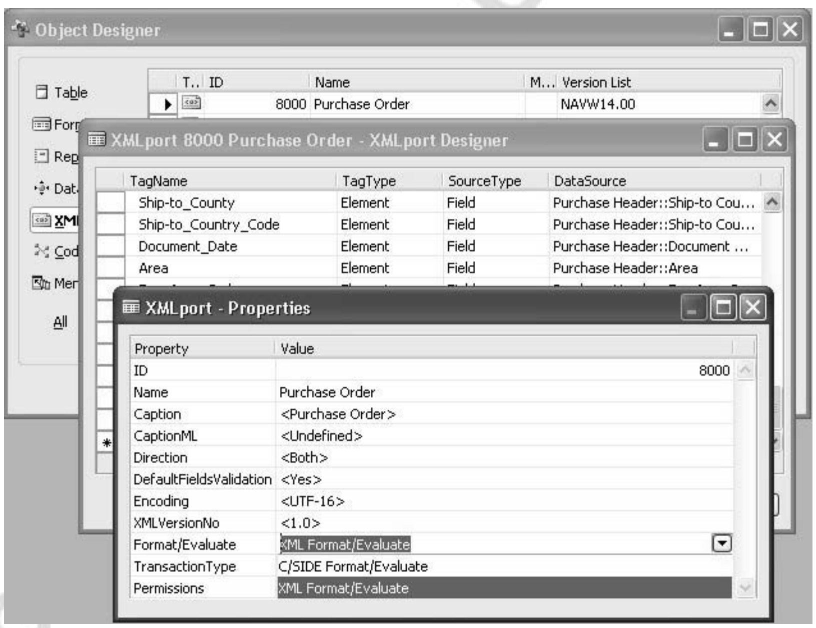
4. Add the same events to the new XMLport that were in the old one.

New schemes and templates in Business Notification Manager must be created where you select the new business entity and event.

In these schemes the business entity and fields will appear translated.

The event will still be in English. To translate the event name, you must change all the places used in C/AL code (not recommended). This must be done because the TagName does not support multiple languages.

When developing a new XMLport from scratch, change the XMLPort property "Format/Evaluate" to the value "XML Format/Evaluate." This is required since Business Notification is using XML data types.



Linking Business Notification to New Notifications

In order to establish a link between the standard Business Notification functionality and a new notification, Codeunit 8000 Business Notification Mgt. must also be modified. For information about how to create codeunits, refer to the Application Designer's Guide.

Continuing with our example, you should now add two new local variables in the `SendToBN` function. The first should have the data type XMLport and will be for the XMLport you have just created. The other should have the data type Record and will be for the table upon which the report you created is based.

Next, you should add some lines of code allowing the function to call the defined event for your XMLPort.

NOTE: *The code for all predefined business notifications is, of course, already in Microsoft Navision. Below, you can see what modifications were made to the existing codeunit to prepare it for sending notifications.*

For adding the XMLport event Unconfirmed Purchase Order, we must add

```
  REPORT::"Notify About Upcoming Delivery",
```

after the line

```
…
CASE Notification."Report ID" OF
…
```

And add the following lines:

```
     REPORT::"Notify About Upcoming Delivery":
        PurchaseOrderXML."Notify About Upcoming Delivery";
```

And after the line

```
…
    CASE Notification."Report ID" OF
…
```

As a result of carrying out these steps, we will get the following:

```
SendToBN(VAR NotificationLine2 : Record "Notification
Line")
Notification.GET(NotificationLine2."Notification Code");
Notification.TESTFIELD("Report ID");
CurrRecordID := NotificationLine2."Record ID";
RecRef := CurrRecordID.GETRECORD;
CASE Notification."Report ID" OF
  REPORT::"Notify About Upcoming Delivery",
  REPORT::"Unconfirmed Purchase Order",
  REPORT::"Items Not Received": BEGIN
    RecRef.SETTABLE(PurchaseHeader);
    PurchaseHeader.SETRECFILTER;
    PurchaseOrderXML.SETTABLEVIEW(PurchaseHeader);
    CASE Notification."Report ID" OF
      REPORT::"Notify About Upcoming Delivery":
        PurchaseOrderXML."Notify About Upcoming Delivery";
      REPORT::"Unconfirmed Purchase Order":
        PurchaseOrderXML."Unconfirmed Purchase Order";
      REPORT::"Items Not Received":
        PurchaseOrderXML."Items Not Received";
    END;
    LineSent := TRUE;
  END;
```

```
REPORT::"Inventory Status": BEGIN
    RecRef.SETTABLE(Item);
    Item.SETRECFILTER;
    ItemXML.SETTABLEVIEW(Item);
    ItemXML."Inventory Status";
    LineSent := TRUE;
  END;
  REPORT::"Production Order Delayed": BEGIN
    RecRef.SETTABLE(ProductionOrder);
    ProductionOrder.SETRECFILTER;
    ProductionOrderXML.SETTABLEVIEW(ProductionOrder);

    ProductionOrderXML."Production Order Delayed";
    LineSent := TRUE;
  END;
END;
IF LineSent THEN BEGIN
  LogNotificationLine(NotificationLine2);
  LineSentCount := LineSentCount + 1;
END;
NotificationLine2.DELETE(TRUE);
...
```

NOTE: *Lines in bold were added when creating a new XMLport event Notify About Upcoming Delivery.*

All sent notifications are stored in the Notification Log Entry table. Here you can see information about what notification batch name was used for sending notifications, the code used for sent notifications, the search record ID, the date and time when notifications were sent, and the ID of the user who sent the notifications.

You should add a new local variable to the `Show()` function with the datatype Record for the table used by the report. Then you should add some lines of code that the function will use to construct the correct view of the data selected by the newly created report when suggesting notification lines:

```
...
CASE RecordID.TABLENO OF
...
  DATABASE::"Purchase Header": BEGIN
    RecRef.SETTABLE("Purchase Header");
    FORM.RUN(FORM::"Purchase Order","Purchase Header");
  END;
...
```

Questions: Time-Based Notification

1. What do time-based notifications consist of?

   ____
   ____
   ____

2. What Microsoft Navision object must be modified in order to establish a link between the standard Business Notification functionality and a new notification?

   ____
   ____
   ____

3. What steps must be taken in order to create an XMLport?

   ____
   ____
   ____

Using the Framework for Field-Change-Based Event

For field-change-based notifications, a notification is sent every time the contents of a certain field changes. This is based on a trigger that is included directly in the C/AL code and raises an event when the code is executed.

With the out-of-the-box field-change-based notifications, Production BOM – Items updated and Production BOM version – Items updated, you can track when changes occur in the **Status** field of a production BOM, and send a notification to your recipients whenever the **Status** field of the production BOM changes to Certified or Closed.

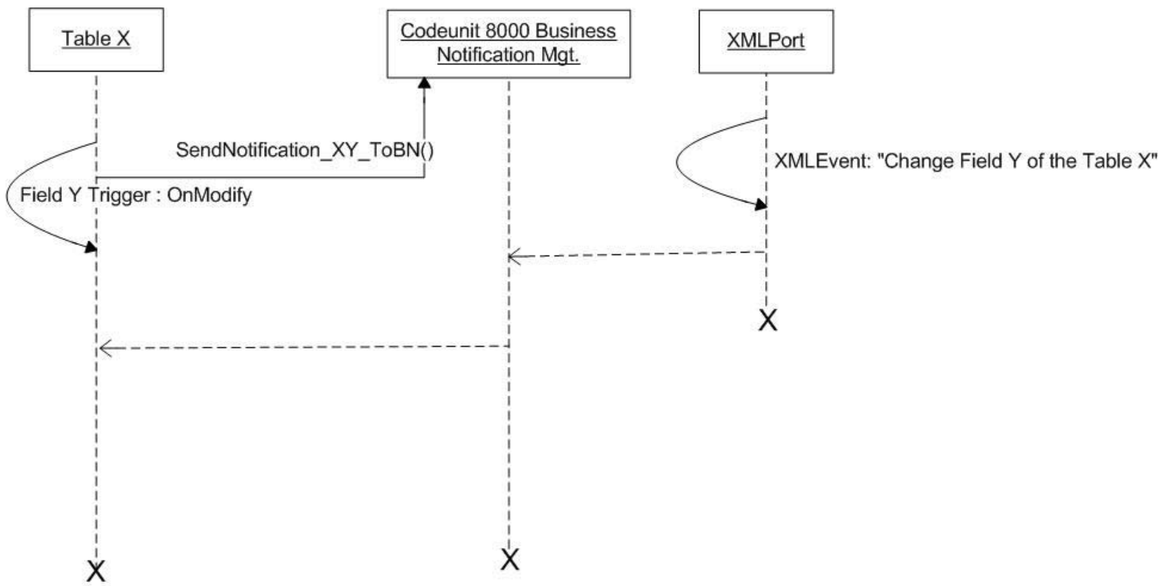
The benefit of field-change-based notifications is that they are sent without user intervention. In other words, after Send Notifications is enabled in the Notification Setup in Microsoft Navision, a user does not need to run reports or send notifications to the Business Notification Manager because the notifications are sent automatically as soon as the field contents change.

You may use the existing framework to develop new field-change-based notifications.

When preparing to send either time-based or field-change-based notifications, you must edit the code of the XMLport and the routine for connecting with the Business Notification logic.

Any field-change-based notification consists of an XMLport and a routine, which is responsible for calling the XMLport events. The following steps in this chapter provide information on how to create a notification of this type.

The following diagram shows what happens in Microsoft Navision when a field-change-based event is raised.



When changing values in Field **Y** of Table **X**, the `SendNotification_XY_ToBN()` function is called from Codeunit 8000 Business Notification Mgt. If Send Notification is enabled in the Notification Setup, this function calls XMLEvent Change Field Y for Table X. The function and the corresponding XMLport must be created in advance.

For more detailed information on how to create and modify Microsoft Navision objects, refer to the section, "Modifying Microsoft Navision Objects."

Creating XMLports and Defining Events

All the steps required to create XMLports and define events are the same for field-change-based notifications as those described for time-based notifications.

Modifying Microsoft Navision Objects

For example, the field-change-based notification "Changed Production BOM status" is sent every time the value of the **Status** field of a production BOM changes to Certified or Closed. The necessary condition that initiates the sending of the notification is the modification of the OnValidate trigger in the **Status** field in the Table 99000771 Production BOM Header. The modifications come to call the corresponding event of the newly designed XMLport. The following code includes the abovementioned trigger:

```
Status - OnValidate()
BEGIN
OldStatus := xRec.Status;
IF (Status <> xRec.Status) AND (Status = Status::Certified)
THEN BEGIN
  IF RECORDLEVELLOCKING THEN BEGIN
    MfgSetup.LOCKTABLE;
    MfgSetup.GET;
  END;
```

```
  ProdBOMCheck.ProdBOMLineCheck(“No.”,'');
  “Low-Level Code” := 0;
  MODIFY;
  ProdBOMCheck.RUN(Rec);
  GET(“No.”);
  PlanningAssignment.NewBOM(“No.”);
END;
IF Status = Status::Closed THEN BEGIN
  IF CONFIRM(
       Text001,FALSE)
  THEN BEGIN
    ProdBOMVersion.SETRANGE(“Production BOM No.”,”No.”);
    IF ProdBOMVersion.FIND('-') THEN
      REPEAT
        ProdBOMVersion.Status :=
ProdBOMVersion.Status::Closed;
        ProdBOMVersion.MODIFY;
        BNManagement.SendProdBOMVerToBN(ProdBOMVersion);
      UNTIL ProdBOMVersion.NEXT = 0;
  END ELSE
    Status := xRec.Status;
END;

IF (Status <> OldStatus) AND (Status IN [Status::Certified,
Status::Closed]) THEN
  BNManagement.SendProdBOMToBN(Rec);

MODIFY(TRUE);
COMMIT;
END;
```

The lines formatted as bold and italic above are added in order to send notifications about the changes of the Production BOM status. The code for the `SendProdBOMToBN` function is depicted below:

```
SendProdBOMToBN(ProductBOMHeader : Record “Production BOM
Header”)
BEGIN
NotificationSetup.GET;
IF NOT NotificationSetup.”Send Notifications” THEN
  EXIT;
ProductBOMHeader.SETRECFILTER;
ProductBOMXML.SETTABLEVIEW(ProductBOMHeader);
ProductBOMXML.”Production BOM Changed”;
END;
```

The functionality connected with Business Notification should be implemented in the Business Notification Mgt codeunit. The event is not raised directly in the code, but rather by calling the codeunit according to the programming style and design. However, you must first select the **Send Notifications** check box in order to activate the sending feature in Microsoft Navision.

Design of XMLports for field-changed-based notifications is similar to the design of XMLports for time-based notifications described earlier in this chapter in the Creating XMLports section.

Conclusion: The way in which the decision that triggers the target table should be changed depends on the requirements covering the business situation in Microsoft Navision that initiates the sending of the notification and may be different from the one shown above.

Questions: Field-Change-Based Notification

1. What do field-change-based notifications consist of?

   ____
   ____
   ____

2. When deciding which trigger of a table should be changed, what should you base your decision on?

   ____
   ____
   ____

Creating Templates

When you have created a solution that consists of one or more Microsoft Navision objects and created a scheme that uses the event defined in the Microsoft Navision part of the solution, you can distribute the scheme as a template. When a scheme is distributed as a template, it cannot be edited directly. Instead, a copy of the scheme can be created, and this copy can be edited.

In order to create a template, you must first create a scheme. To learn more about creating schemes, refer to Chapter 3, “Working with Business Notification Manager.” When you have done this, follow these steps to convert the scheme into a template:

1. Select the scheme in Business Notification Manager.
2. Click TOOLS→EXPORT.
3. Enter a file name in the dialog that appeared, and click **Save**.
4. Locate the file in the Windows Explorer, and open it in an editor. You can use, for example, Microsoft FrontPage or a plain text editor. Do not use Microsoft Word.

Continuing with our example, create a template for sending notifications about upcoming deliveries.

The exported scheme file is in XML format. Everything in this file is enclosed between these two tags:

```
<NotificationScheme Name="Ensure delivery of goods
">
…
</NotificationScheme>
```

Between the quotation marks you can see the name of the template used for this type of business notification. Do not edit anything between these tags – if you do, the scheme will not work anymore. The `Name` attribute is the only thing you can change in this part of the file; changing this attribute sets the name of the scheme.

To continue, follow these steps:

1. Add this exact text above the `<NotificationScheme …>` opening tag:

```
<?xml version="1.0" encoding="utf-8" ?>
 <Templates>
 <Template>
  <Description> </Description>
 <LicenseKeys>
  <Microsoft NavisionGranuleId></Microsoft
NavisionGranuleId>
  </LicenseKeys>
```

Between the `<Description>` and `</Description>` tags you can see the description of the template. For example:

```
"Ensure delivery of goods: This notification template can
help you ensure that the goods you have ordered have been
delivered. You can set up the program to send a reminder
about an upcoming delivery to recipients that you select
(for example, your supplier). After you have set up this
notification template, you define the number of days before
the promised receipt date that you want the program to send
a notification. When you initiate the check on purchase
orders, the program sends notifications to all the selected
recipients with released purchase orders within the number
of days that you have specified in the Business
Notification Worksheet. Prerequisites: In order for the
program to check promised receipt dates and send
notifications, two prerequisites must be met. First you
must fill in the Promised Delivery Date field on each item
line for purchase orders. Second, the status of the
purchase order must be "Released.""
```

The purpose of the `<LicenseKeys> </LicenseKeys>` tags is to specify the required ERP license key for using the template. The license check is made to assist the user of Business Notification, since the user can only see and use templates if the ERP license contains the required license key.

The <Microsoft NavisionGranuleId> </Microsoft NavisionGranuleId> tags are for checking the granule in the Microsoft Navision license. In version 1 of Business Notification, only these tags are supported.

You can put any (but only one) granule ID in the <Microsoft NavisionGranuleId> tag. The format of the Granule ID must be the same as displayed in the License Information window in Microsoft Navision (Tools, License Information), for example 7,011 for Business Notification Worksheet.

2. After the </NotificationScheme> closing tag, add this exact text:

```
  </Template>
</Templates>
```

3. Save the file with a new name (so you do not overwrite the exported scheme file).

The XML template is defined by the <Template> tag. You can create more than one template by adding templates between the <Template> tags.

Questions: Creating Templates

1. What do you use templates for?

2. What do you need to have in order to create a template?

Quick Interaction: Lessons Learned

Take a moment to write down three Key Points you have learned from this chapter:

1.

2.

3.

APPENDIX A: ANSWERS TO QUESTIONS AND EXERCISES

Chapter 1: Business Notification Overview

Introduction to Business Notification

1. **What is Business Notification?**

   Business Notification is a new functionality in Microsoft® Business Solutions–Navision® 4.0 that makes it possible to automatically send e-mail notifications to employees and business partners about changes within Microsoft Navision.

2. **What can you use Business Notification for?**

   You can use Business Notification to:
   - Track and monitor critical business data, while at the same time limiting the need to print and compare reports, such as those on inventory level.
   - Alert the appropriate employees or business partners when:
     – An action is required in accordance with normal business procedure, for example, when a BOM has changed, or you need to send the inventory status to your suppliers or remind them about upcoming deliveries.
     – An exception occurs, for example, when a supplier has not confirmed your purchase order or has not delivered goods as expected or when a production order has been delayed.
   - Keep employees and business partners informed. For example, you can use business notification to inform them when a new BOM item has been created.

3. **What are the benefits of using Business Notification?**

   There are a number of benefits of using Business Notification:
   – Business Notification enables companies to monitor their business processes in a cost-efficient way. Sending business notifications automatically reduces the amount of time spent on manual work and eliminates the possibility of human error in such standard procedures as printing and comparing inventory level reports.
   – Business Notification is easy to use and allows customers to choose what information to include in notifications sent to company employees and external recipients.

– Business Notification can be extended to cover more of customers' existing business processes by creating new events in Microsoft Navision. This will allow you to notify your company employees and business partners about different changes within Microsoft Navision, other than the ones covered in the current version of Business Notification.

4. **How does the information flow in Business Notification: Where does the information originate from and who receives it?**

   The information originates in Microsoft Navision, which provides business entities, for example, sales orders and events. When something happens in Microsoft Navision that causes an event, a document is sent to Business Notification. This document contains data from the business entity. Business Notification will read the document and then send a notification, in the form of an e-mail, to all internal users that have subscribed to the event on this business entity.

5. **What has to be set up in Microsoft Navision and Business Notification Manager in order for Business Notification to work?**

   In order for Business Notification to work, XML ports and events have to be set up in Microsoft Navision, and rules and schemes have to be set up in the Business Notification Manager.

The Main Concepts of Business Notification

1. **What are the main concepts involved in Business Notification?**

   The main concepts of Business Notification are:

   – Business entity
   – Event
   – External recipient
   – Internal recipient
   – Filter
   – Notification
   – Scheme
   – Subscription
   – Template

2. **What is a business entity? Give a few examples of business entities in an ERP system.**

   A business entity is a representation of a real-world object. In an ERP system, relevant business entities could be, among many other things, "Customer," "Sales Order," or "Invoice."

3. **Explain the differences between the following concepts: event, notification, and scheme.**

   An event is the mechanism that connects Microsoft Navision and Business Notification. An event is tied to a business entity, and every notification is based on one event from one business entity. An event is raised in the Microsoft Navision business logic (the C/AL code), as decided by a Microsoft Navision developer, when "something happens."

   Notification is the core concept of Business Notification. Broadly speaking, a notification consists of:

   – Some business logic in Microsoft Navision
   – A "document" that Microsoft Navision sends to Business Notification
   – Some business logic in Business Notification
   – An e-mail message

   A scheme is the collection of "rules" that Business Notification uses to decide when, to whom, and how to send notifications. A scheme is created in the Business Notification Designer, and schemes are managed in the Business Notification Manager.

4. **What are the preconditions for sending a notification e-mail message?**

   A notification e-mail message is sent when:

   1. The Microsoft Navision business logic raises an event.
   2. Business Notification has a (started) scheme that responds to this event.
   3. For this specific event, and with the data in this actual instance, a notification has been set up to be sent.
   4. At least one internal user is subscribed to the scheme or at least one external recipient has been set up.

5. **What is the subscription used for and who uses it?**

   Subscription has been designed for internal users, that is, users in your own company that have access to your Intranet. These users are not sent notification e-mail messages automatically. They must actively subscribe to a notification in order to receive notifications.

6. **How does filtering in Business Notification work? What information can you filter?**

   When an event is raised in Microsoft Navision, Business Notification receives a document that contains the corresponding business entity. It is then possible to use a filter in Business Notification to decide whether a notification should be sent.

   A filter in Business Notification can only be used to further "refine" the data received from Microsoft Navision, that is, a document, containing the data that the developer of the business entity in Microsoft Navision has selected. It cannot extend or change the data sent from Microsoft Navision: A filter in Business Notification does not in any way query or re-query Microsoft Navision.

7. **What are the differences between a scheme and a template?**

   The important differences between a scheme and a template are:

   – The scheme of a template is based on a specific business entity and event, and on a specific condition in the Microsoft Navision business logic that raises the event.
   – The scheme of a template is read-only: when you have imported a template, you can create a new scheme based on the scheme in the template, but you cannot change the template itself.

Chapter 2: Setup Procedures

The Microsoft Navision Side of the Business Notification Process

1. **When are events raised in Microsoft Navision?**

   An event is raised in Microsoft Navision when an appropriate field has been changed or a certain deadline has been reached.

Types of Notifications

1. **What are the main groups that notifications can be divided into?**

   All notifications sent to the Business Notification Manager can be divided into two main categories: time-based and field-change-based.

2. **Under what conditions will a time-based notification be sent?**

   A time-based notification will be sent when a specific deadline is reached or an assigned time limit expires.

3. **What is the primary criterion that raises an event in a field-change-based notification?**

   For a field-change-based notification, the primary criterion is a change in the status of certain fields.

Setting Up Business Notification in Microsoft Navision

1. **What do you have to do to be able to send different types of business notifications?**

   In order to be able to send business notifications, you must go to the Notification Setup window and select the **Send Notifications** check box.

2. **What will happen to field-change-based notifications if the Send Notifications check box is selected?**

   If the **Send Notifications** check box is selected, a field-change-based notification will be sent every time the status in the **Status** field of a production BOM changes to Certified or Closed.

Creating Notification Batches

1. **What can you use notification batches for?**

   Notification batches help you manage specific sets of notifications.

Assigning Report IDs to Notifications

1. **What do batch jobs do?**

   Batch jobs search through orders and items looking for notifications to be sent to your recipients.

2. **Under what condition will notification lines not be sent?**

   Generated notification lines will not be sent if you have generated them in the Notification Worksheet window for a notification that has previously been blocked.

3. **What are the consequences of a blocked notification in the Notification Reports window?**

   If a notification is blocked in the Notification Report window, the notification lines for this notification will not be sent after being generated. You will receive a message informing you that this notification has been blocked.

Working with the Notification Worksheet

1. **What do you use the Notification Worksheet window for?**

   The Notification Worksheet window is used for generating and sending notification lines.

2. **How do you generate lines and prepare them for sending?**

   To generate notification lines, you must click LINES→SUGGEST NOTIFICATION LINES. To prepare them for sending you must do the following: In the Notification Worksheet window remember to choose the **Now** option in the **Sending Type** field for notification lines you want to send now. Remember that if the notification for the generated notification lines is blocked, the generated notification lines will not be sent.

3. **How do you resend lines that were sent earlier?**

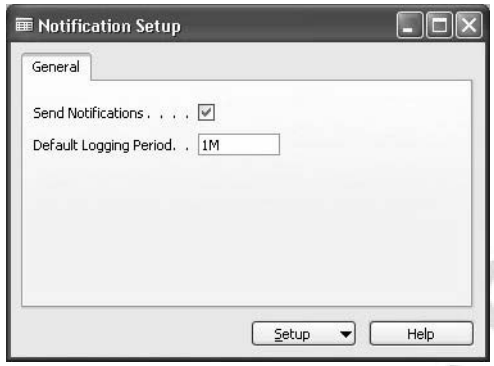
   If some notification lines were already sent earlier and you want to send them once more, generate notification lines for that type of notification. Click the **Assist**Button to the right of the **No. of Lines** field for that notification. In the Notification Lines window you will see generated lines as well as those that were sent earlier. They will have check marks in the **Sent** field. If you do not want to send the newly generated lines, select them and press **F4** to delete. Close this window, and in the Notification Worksheet window click FUNCTIONS→SEND TO BUSINESS NOTIFICATION. A message appears offering you the choice of whether to send only new notification lines or send all notification lines. Choose the second option and click **OK**.

4. **How do you send only those lines that were not sent earlier from a list of notification lines in which some were and some were not sent earlier?**

   If the Notification Lines window contains lines that both were and were not sent earlier, and you want to send only newly generated lines, you can delete the lines that were sent earlier. To do so, in the Notification Lines window click FUNCTIONS→DELETE SENT LINES. The remaining notification lines will then be sent for the first time.

Exercise 1: Creating a Notification Batch

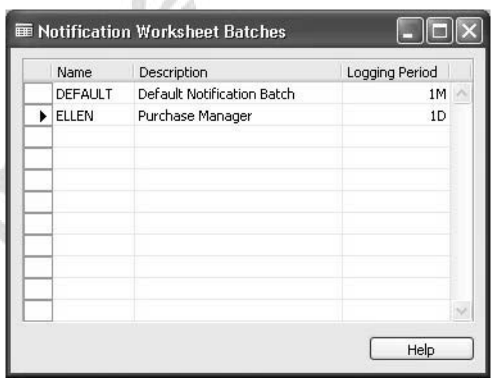
1. The Notification Setup window should look like this:



2. To create a new batch, open the Notification Setup window and click SETUP→NOTIFICATION WORKSHEET BATCHES.

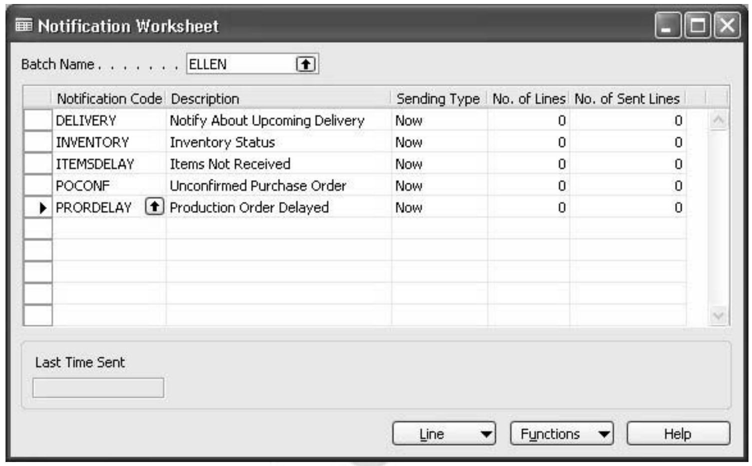
3. Go to the new line and type the name of the new batch: ELLEN. In the **Description** field, specify a brief description of the batch, such as Ellen's Name. In the **Logging Period**, specify a logging period of 1 day.

4. The Notification Worksheet Batches window should now look like this:



5. In the Notification Worksheet window click the **Assist**Button to the right of the Batch Name field. In the Notification Worksheet Batches window, choose your new batch, ELLEN. Click **OK**.

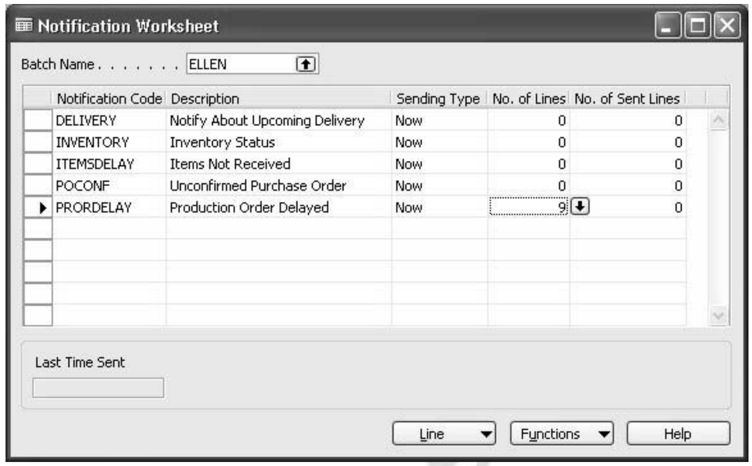
6. Click the **Assist**Button to the right of the **Notification Code** field of the Notification Worksheet window and choose one-by-one at least two notification lines to work with: PRORDELAY and INVENTORY. We decided to add all the available notification lines. The Notification Worksheet window should now appear as follows:



7. Go to the Production Order Delayed line and click LINE→SUGGEST NOTIFICATION LINES.

8. Do not set any filters in the Production Order Delayed batch job request window. It should look as follows:

9. The Notification Worksheet window will change to the following:



10. To send generated notification lines, click FUNCTIONS→SEND TO BUSINESS NOTIFICATION.

After the lines have been sent, you will get a message informing you that 9 lines were sent.

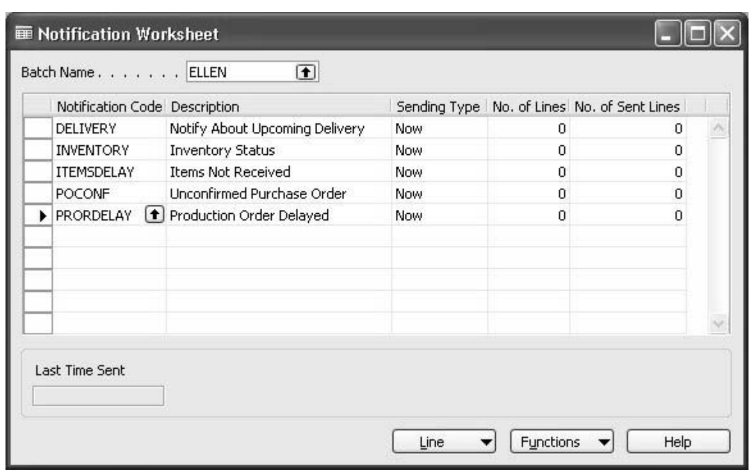
Exercise 2: Notifying about Upcoming Deliveries

1. In the Notification Setup window, click SETUP→NOTIFICATION REPORTS. Make sure there is no check mark in the **Blocked** field for the INVENTORY notification.

2. In the Notification Worksheet window, click the **Assist**Button to the right of the **Batch Name** field and select your batch called ELLEN.

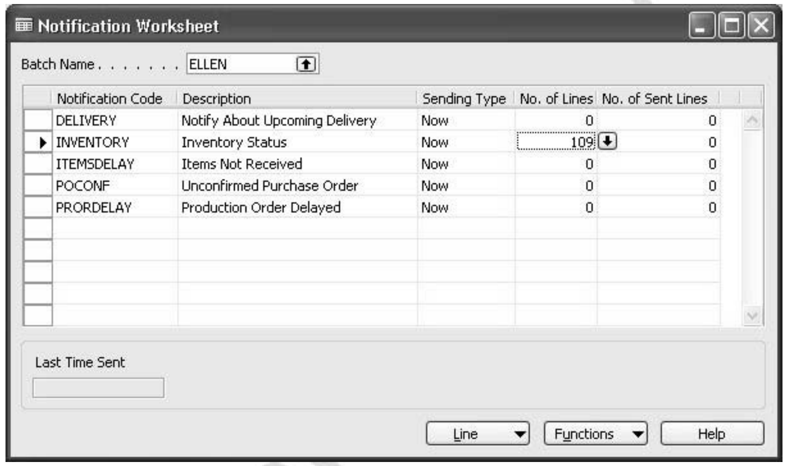
3. In the Notification Worksheet window go to the INVENTORY notification line.

   Notification Worksheet should now look as follows:



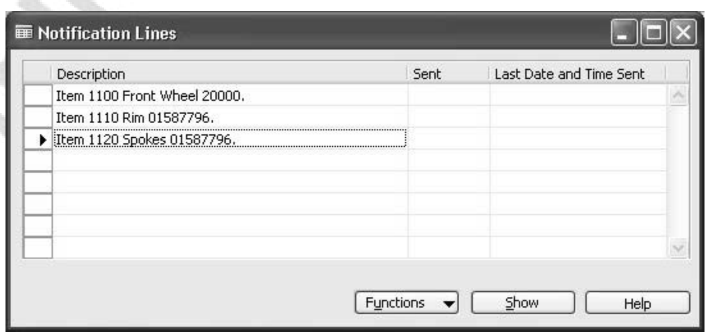
4. Click LINE→SUGGEST NOTIFICATION LINES, to generate lines for sending. You can leave the Inventory Status batch job without any filters. Click **OK**.

5. After generating notification lines, you will get a message informing you that 109 lines were found. The Notification Worksheet window now looks like this:



6. Click the **Assist**Button to the right of the **No. of Lines** field. The Notification Lines window appears. Select and delete all the generated lines except the notification lines for items 1100, 1110, and 1120.

   The Notification Lines window should now look like this:

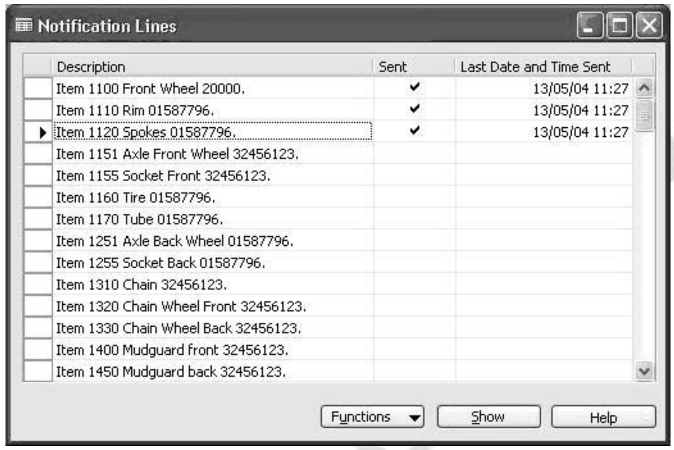


7. To send the generated notification lines, click FUNCTIONS→SEND TO BUSINESS NOTIFICATION. A message appears informing you that 3 lines were successfully sent.

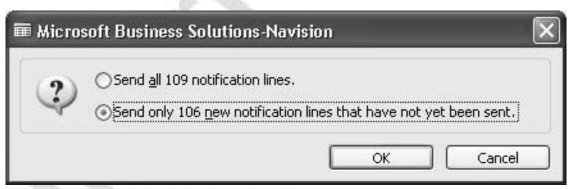
8. In the Notification Worksheet window, click LINE→SUGGEST NOTIFICATION LINES. In the Inventory Status window, click **OK**. A message appears informing you that 109 lines were found for this notification.

9. If you click the **Assist**Button to the right of the **No. of Lines** field, you will see that the lines sent earlier are visible here too.

   Now the Notification Lines window will look like this:



10. In the Notification Worksheet window, click FUNCTIONS→SEND TO BUSINESS NOTIFICATION to send the notification lines that were found. A message appears, asking you to choose whether you want to send all generated lines or only those lines that have not been sent yet.



11. Choose to send only those notification lines that have not yet been sent and click **OK**.

After sending the notification lines, you will get a message informing you that the lines have been sent.

Chapter 3: Using Business Notification Manager

Overview of Business Notification Manager

1. **What do you use Business Notification Manager for?**

   Business Notification Manager is used for creating and managing schemes, importing templates, receiving business notification from Microsoft Navision, and sending business notifications to recipients.

2. **What are schemes?**

   A scheme is the name for the "rules" that Business Notification uses to decide when and how to send notifications.

3. **What should you do to a scheme before starting it?**

   After making all the necessary changes to the scheme in the Scheme window, you must make a scheme active. In order to start a certain scheme, first you must move the scheme from the **Schemes for construction** part of the Business Notification Manager window to **Completed Scheme.** To activate the scheme, select it and click **Complete** to move the scheme from the Schemes for construction list to the Completed schemes list and click **Start**.

Creating a New Scheme

1. **What are the three main ways of creating a scheme?**

   There are three main ways of creating a scheme are: from a template, from another existing scheme, and from scratch.

2. **What is the difference between a scheme created from scratch and one created using a template?**

   The difference between a scheme created from scratch and one created using a template is that one created from a template has a pre-selected event.

Setup and Configuration of Notification Schemes

1. **What options can be set when configuring a notification scheme?**

   When configuring a notification scheme, you can define an event that activates the scheme, set up filters to ensure that only a specific set of business notifications is sent, define the recipient who will receive these business notifications, and write the notification text, which will let recipients know about the event.

2. **What are filters in Business Notification Manager used for?**

   Filters in Business Notification Manager help you define the set of notifications which will be sent to recipients. Using filters you can choose the exact situations for which you want to send business notifications.

3. **How do filters in Microsoft Navision and Business Notification Manager correlate with each other and where can they be applied?**

   Filters in Microsoft Navision and Business Notification Manager are applied separately without any connect between these two applications. Filters for Microsoft Navision can be applied in any grid form. They can be field filters, table filters, or flowfilters. In Business Notification Manager, filters can be applied in the Filter window when defining a scheme for sending notifications.

4. **What information do you enter in the Sign-up information area?**

   In the Sign-up information area, you enter a title and a description of the notification that a recipient sees in the browser when he or she selects notifications to subscribe to.

Managing an Existing Scheme

1. **How can you open or delete an existing scheme?**

   To open an existing scheme, click FILE→OPEN. The scheme you want to open must be on the Schemes for construction list in the Business Notification Manager main window. To delete a scheme you no longer need, select it from the list in the Business Notification Manager window and click FILE→DELETE.

2. **What do the Started and Stopped statuses for completed schemes mean?**

   A scheme in the Completed schemes list is ready to use. When a scheme has received the Started status, it has become available for subscription, and notifications will be sent. When a scheme receives the Stop status, new subscriptions will not accepted and notifications will not be sent.

3. **How do you import and export schemes?**

   To import a scheme you want to work with, in the Business Notification Manager window, click TOOLS→IMPORT. In the window that appears, select the scheme you want to import and click **Import**.

   To export a scheme, in the Business Notification Manager window, select the scheme you want to export and click TOOLS→EXPORT. In the window that appears, select the location you want to save the file to.

4. **What is the View History window used for?**

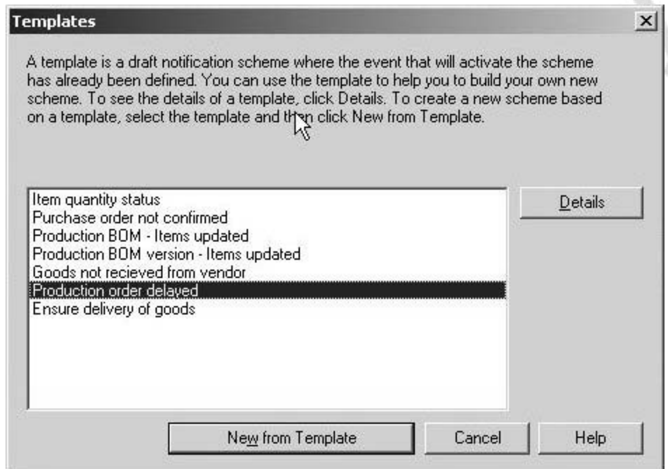
   The View History dialog shows a history log for a particular scheme from Business Notification Manager. This log displays the result of activity, the name of the scheme, the time when the activity took place, the user that performed the activity, the source of the activity – Completed or Construction*,* and details on the activity.

5. **What are the conditions under which alerts arise?**

   Alerts are used to show that an error has occurred that needs attention. When a scheme in the list is flagged with an alert, you can click FILE→VIEW HISTORY to open the log file and get more information.

Exercise 3: Creating Notification Schemes

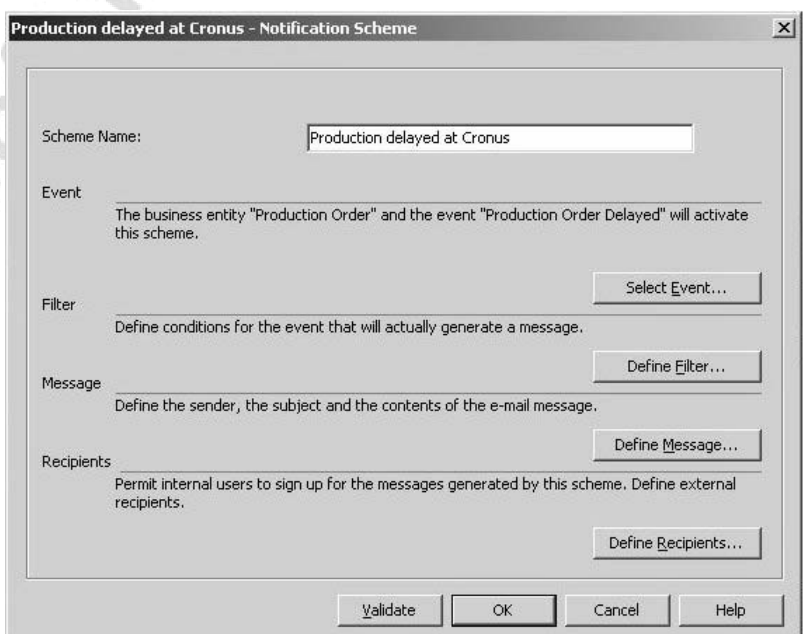
1. To create a new scheme based on the existing template, open the Business Notification Manager main window, and then click the **New from template** button. In the Templates window, select the Production order delayed template:



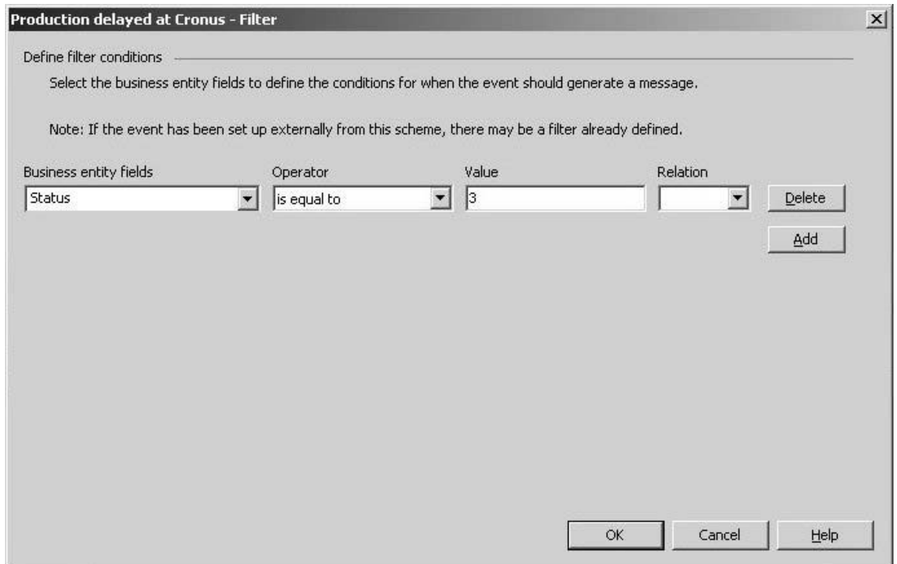
   Then click the **New from Template** button.

2. In the Notification Scheme window, in the **Scheme Name** field, enter a name for the scheme, for example, Production delayed at Cronus.

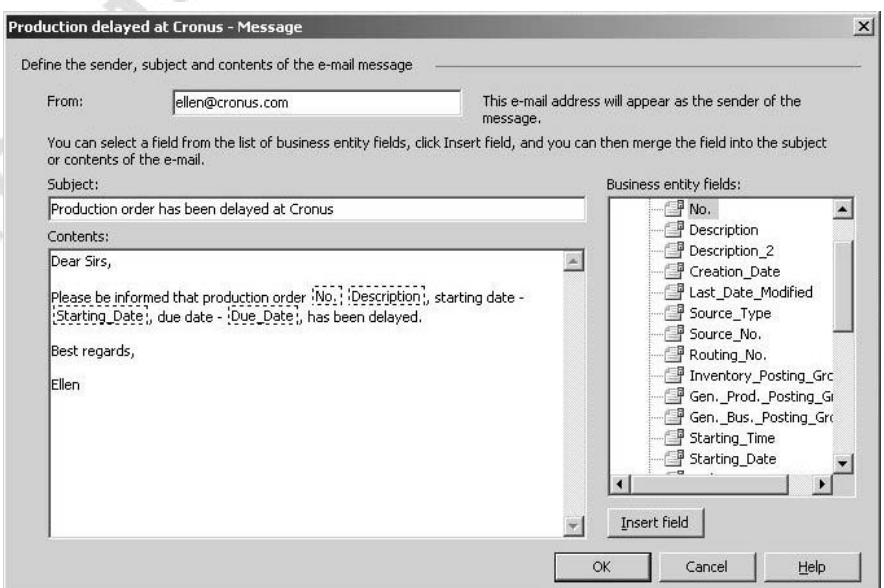
   The Notification Scheme window should now look like this:



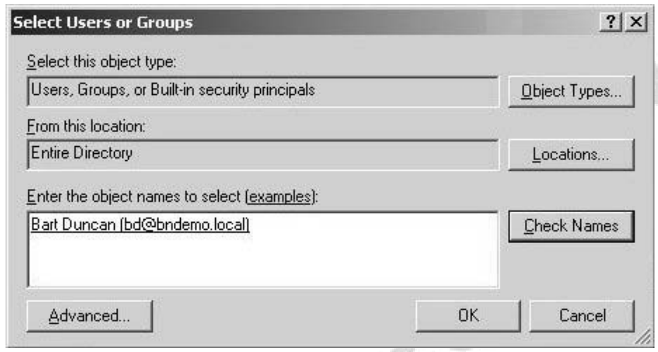
3. To define a filter for the notification, click the **Define Filter** button. After you have set a filter so that notifications are sent only for Released production orders, the Filter window for the scheme should look like this:



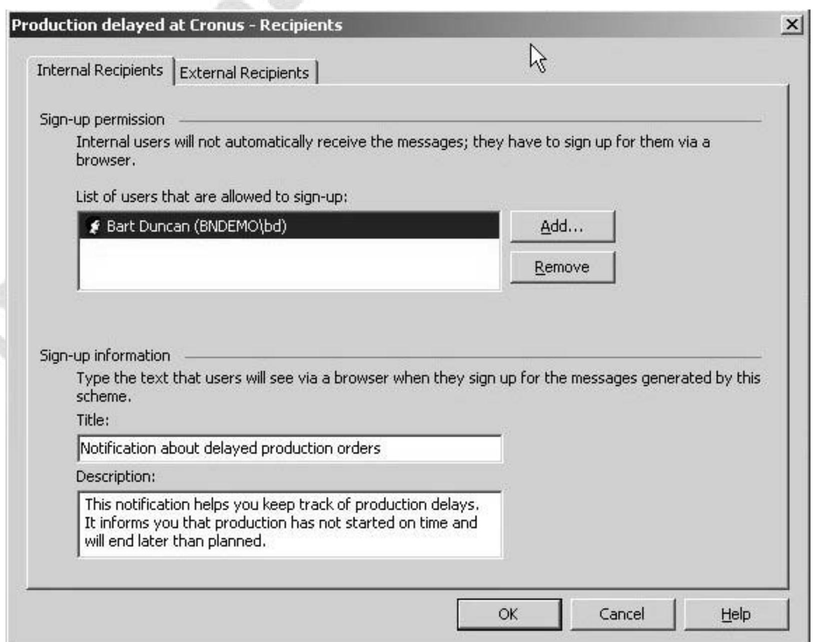
4. To define a message, click the **Define Message** button in the Notification Scheme window. In the Message window that appears, enter an e-mail address in the **From** field. On the left side of the Message window there are two fields: the **Subject** field and the **Contents** field. In the **Subject** field, define the subject of the e-mail message. In the **Contents** field, define the body of the e-mail message. Use the list of business fields to complete you message body. At the end, after you have completed your message, the Message window should look like this:



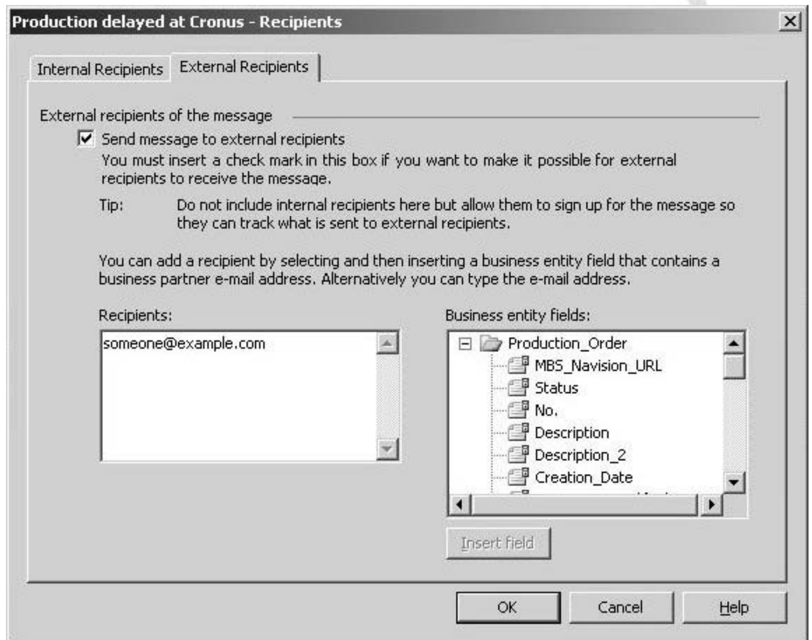
5. To define who will receive this notification, open the Notification Scheme window and click the **Define Recipients** button. On the **Internal Recipients** tab, click **Add**, and then, in the Select Users or Groups window, select the internal recipient whom you want to grant permission to subscribe to the notification:



After you have added an internal recipient in the Sign-up permission section and entered the title and description of the notification in the Sign-up information section, the **Internal Recipients** tab of the Recipients window should look like this:

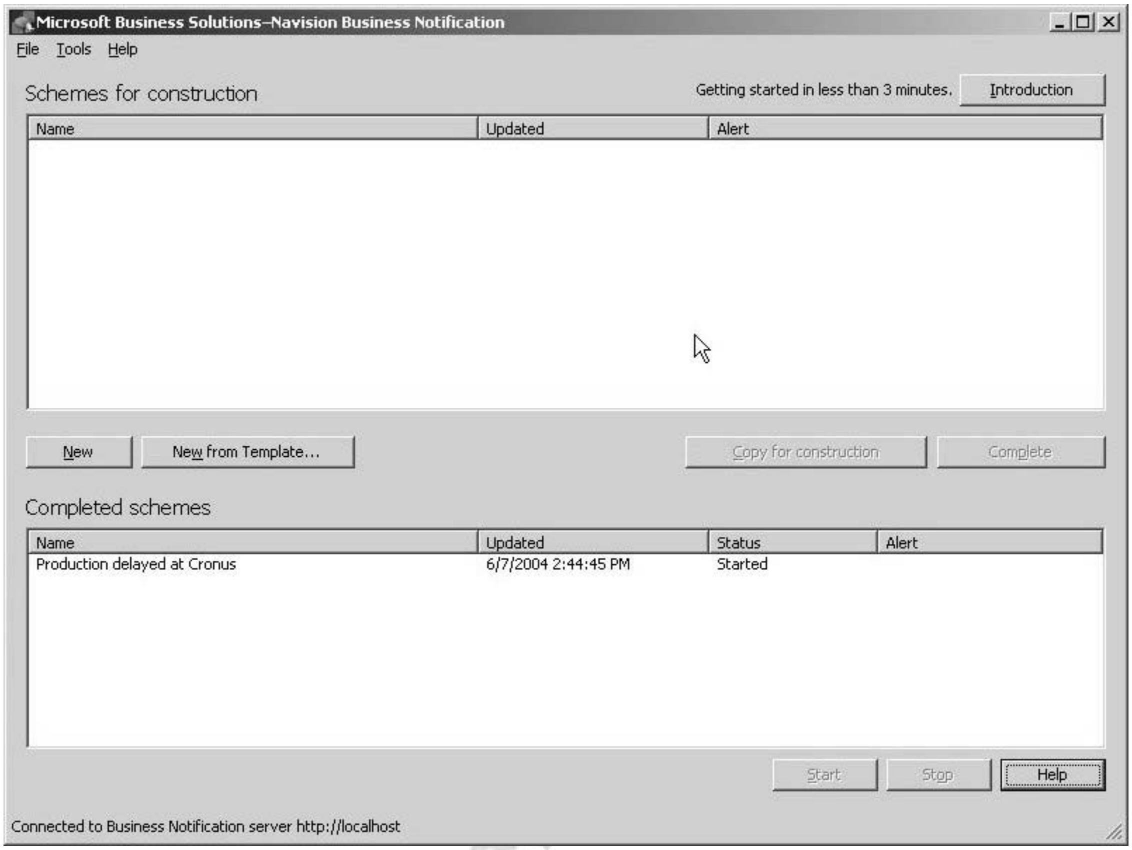


6. To define external recipients, open the Recipients window and go to the **External Recipients** tab. There you must enable the sending notifications to external recipients by selecting the **Send message to external recipients** check box, and then enter the addresses of external recipients in the **Recipients** field. After you do this, the **External Recipients** tab of the Recipients window should look like this:



7. To start the scheme open the Business Notification Manager window, select this scheme in the Schemes for construction area, and click **Complete**. After the scheme is moved to the Completed schemes area with the status Stopped, select it and click **Start**.

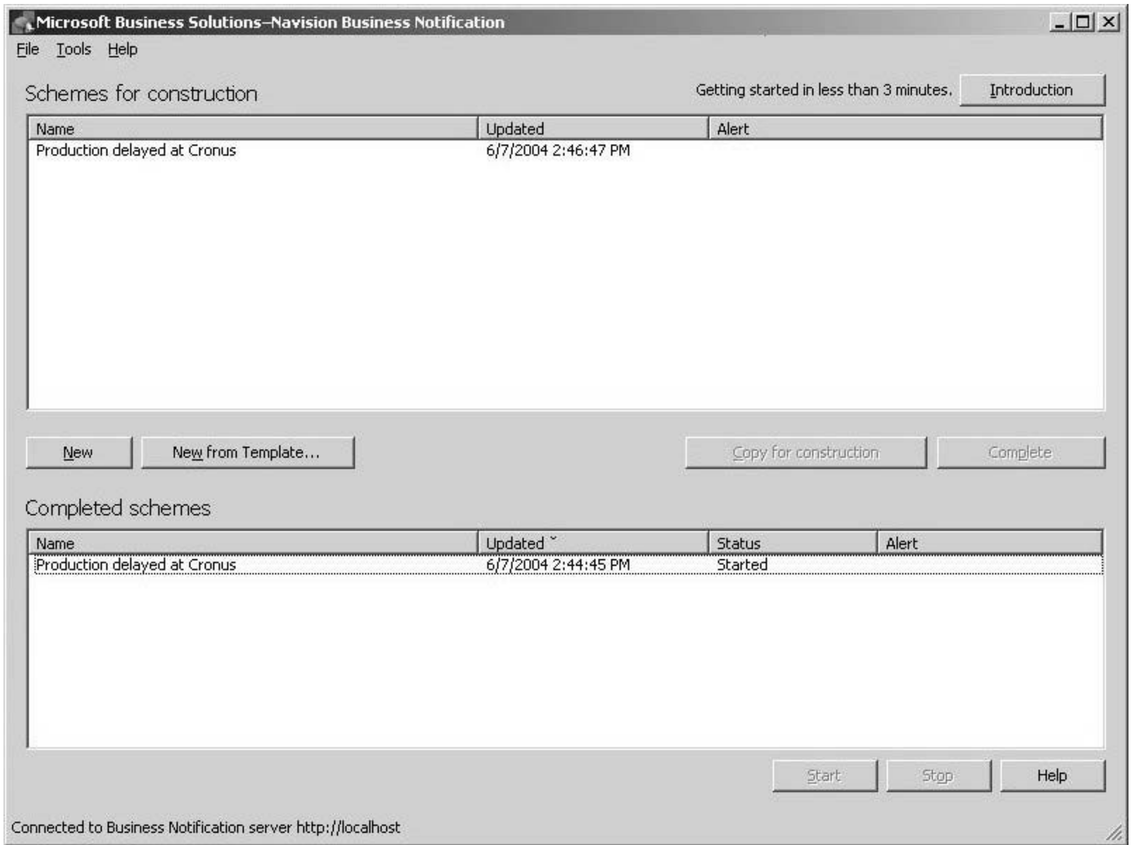
The Business Notification Manager window should now look like this:



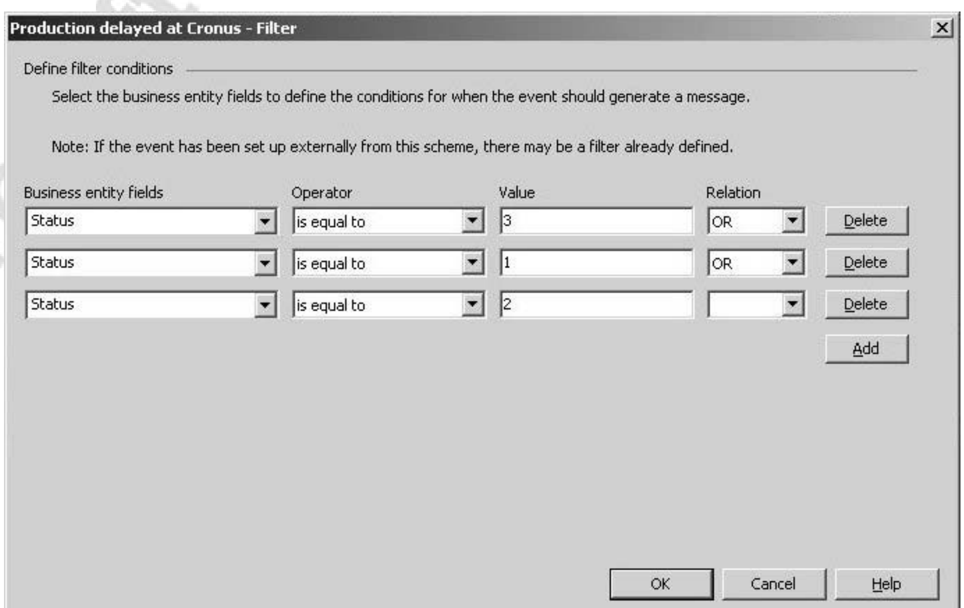
Exercise 4: Modifying an Existing Scheme

1. To be able to modify the scheme you have just created, select this scheme from the Completed Schemes list in the Business Notification Manager window and click **Copy for construction**.

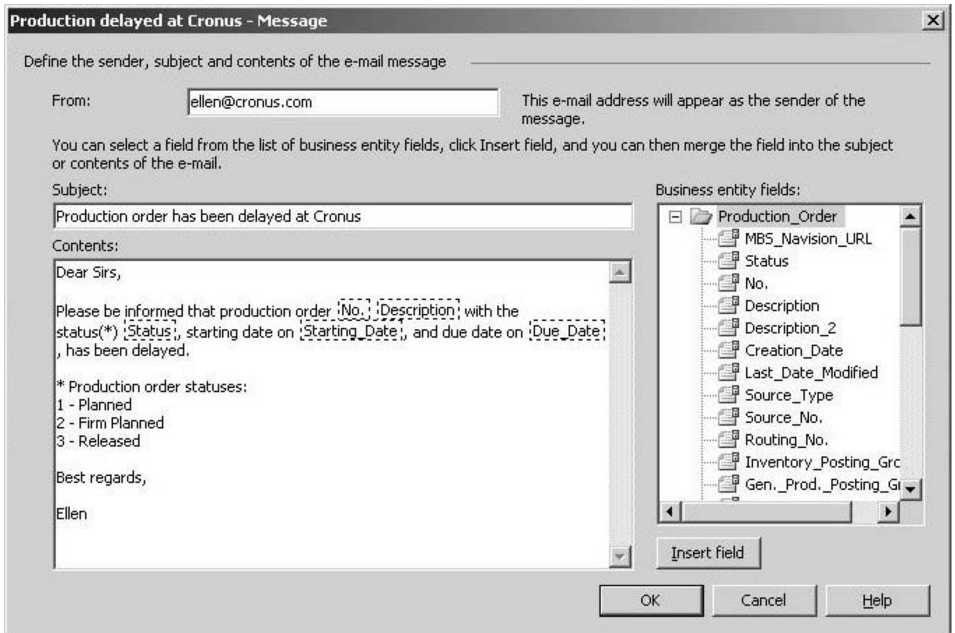
The Business Notification Manager window should look as follows:



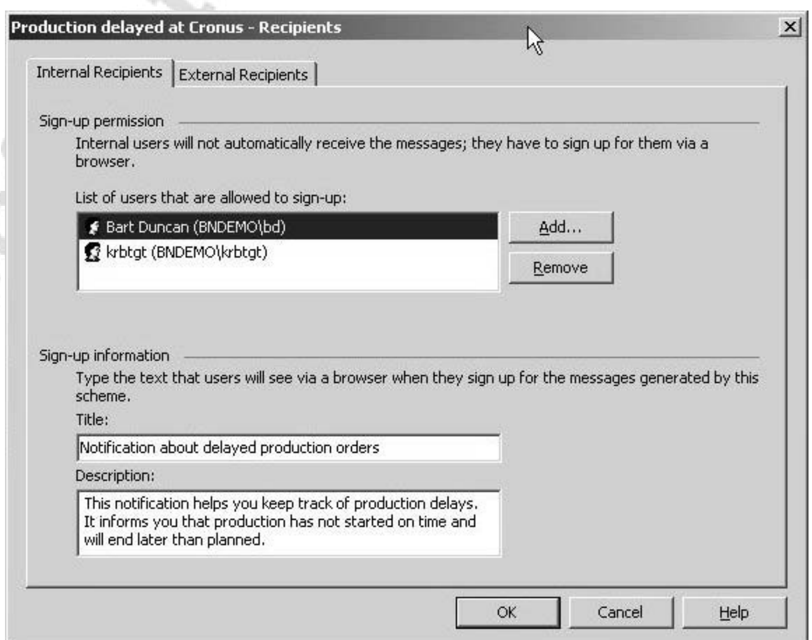
2. After you have updated the filter settings, the Filter window for the scheme should look like this:



3. After you have modified the notification message, the Message window for the scheme should look something like this:

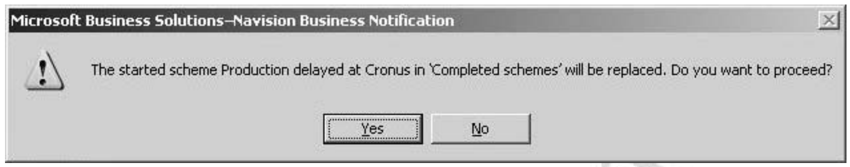


4. After you have added the additional users to the list of those allowed to subscribe to the notification, the Recipients window, **Internal Recipients** tab, should look like this:

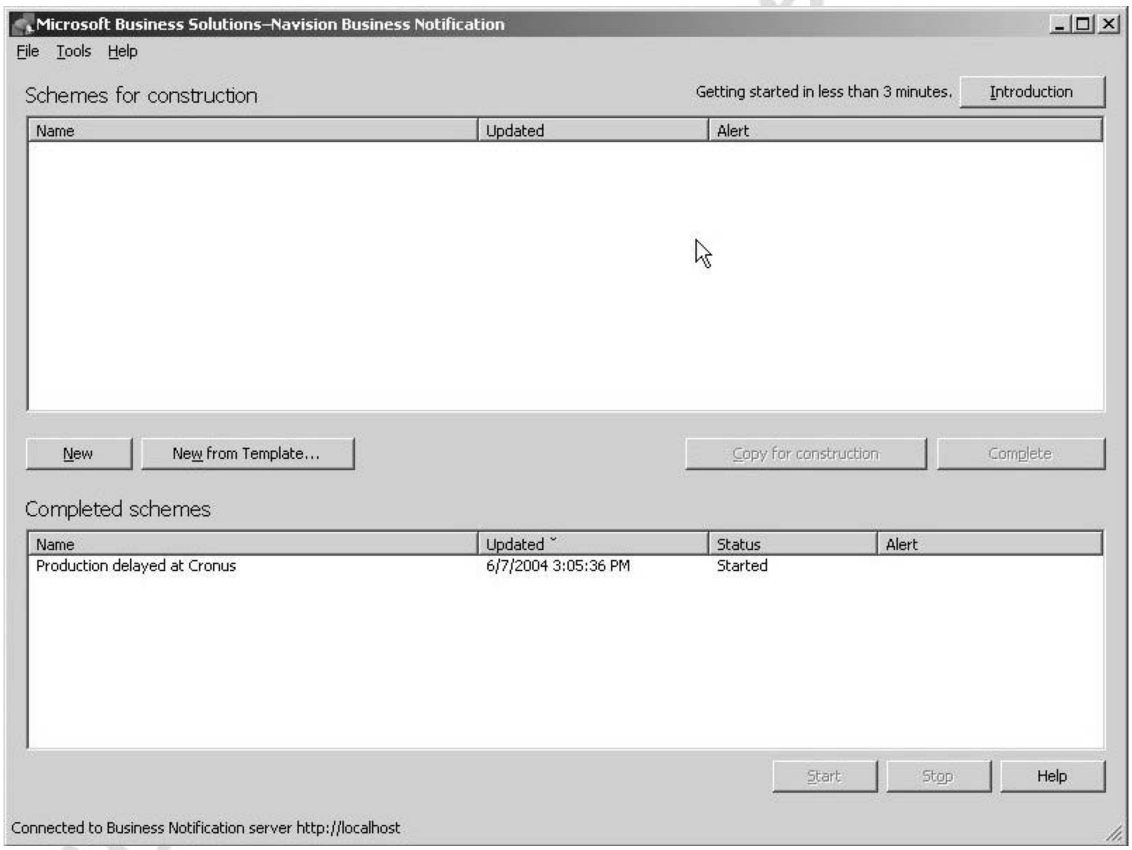


5. After you have finished modifying the scheme, in the Business Notification Manager window, select the scheme in the Schemes for construction area and click **Complete**.

   The following message will appear:



   Click **Yes** to replace the existing scheme with the modified one. Now the Business Notification Manager window should look like this:



Note that the time in the **Updated** field in the Completed schemes area has changed.

Chapter 4: Power User Setup Procedures

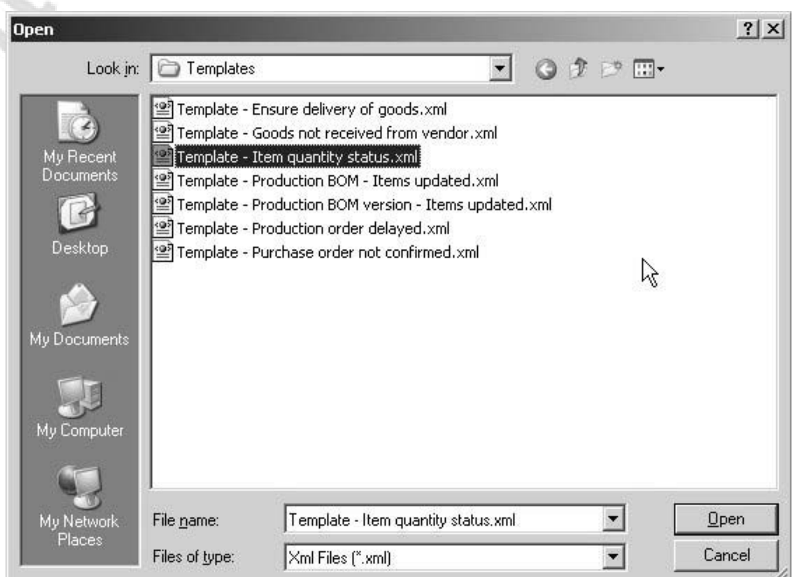
Exercise 5: Deleting and Restoring Templates

To work with templates, start in the Business Notification Manager window, and then open the Template Administration window by clicking TOOLS→TEMPLATE ADMINISTRATION.

1. To delete a template, do the following: In the Template administration window, select the template you want to delete:

   Click **Delete** and confirm the subsequent message. The template is removed from the list of available templates.

2. To restore the deleted template, do the following: In the Template administration window, click **Add** and locate the template you want to import. By default, all out-of-the-box templates are stored in C:\PROGRAM FILES\MICROSOFT BUSINESS SOLUTIONS-MICROSOFT NAVISION\BUSINESSNOTIFICATIONMANAGER\TEMPLATES.



Select the template you want to import and click **Open**. The template appears again in the Template administration window, on the available templates list.

Chapter 5: End-User Subscription

Answers to Questions

1. **What is the purpose of the end-user subscription?**

   The end-user subscription was developed to give internal users the ability to subscribe to notifications. They need the ability to subscribe to notifications because they are not sent notifications automatically.

2. **Who can access the subscription application?**

   Internal users can access the subscription application if they have permission to access the site where the subscription application is located and are Windows users in the company registered in the Active Directory.

3. **What is the precondition for you to be able to see a list of notifications available for subscription?**

   To see a list of notifications you can subscribe to via the Web browser application, you or your user group must have permission to subscribe to any of the notifications that have been Completed and Started.

4. **How can you subscribe to a new notification?**

   To subscribe to a new notification, do the following: On the My Notification Subscriptions page, click **Add New**. Then, on the Select New Notification Subscription page that appears, click the option button to select the notification that you want to subscribe to. Then click **Add Selected**.

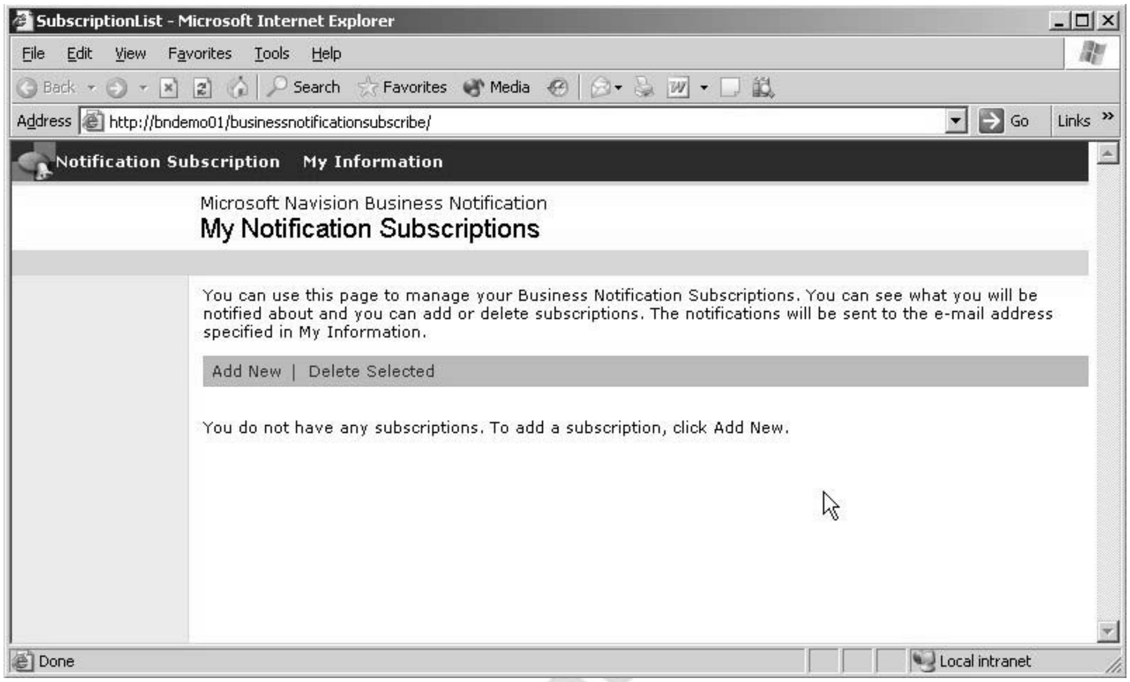
5. **How can you unsubscribe from a notification?**

   To unsubscribe from a notification, do the following: On the My Notification Subscriptions page, insert a check mark to select one or more subscriptions in the list. Then, click **Delete Selected**. Finally, Click **Yes** in a dialog box that appears to confirm that you want to delete the selected subscriptions.

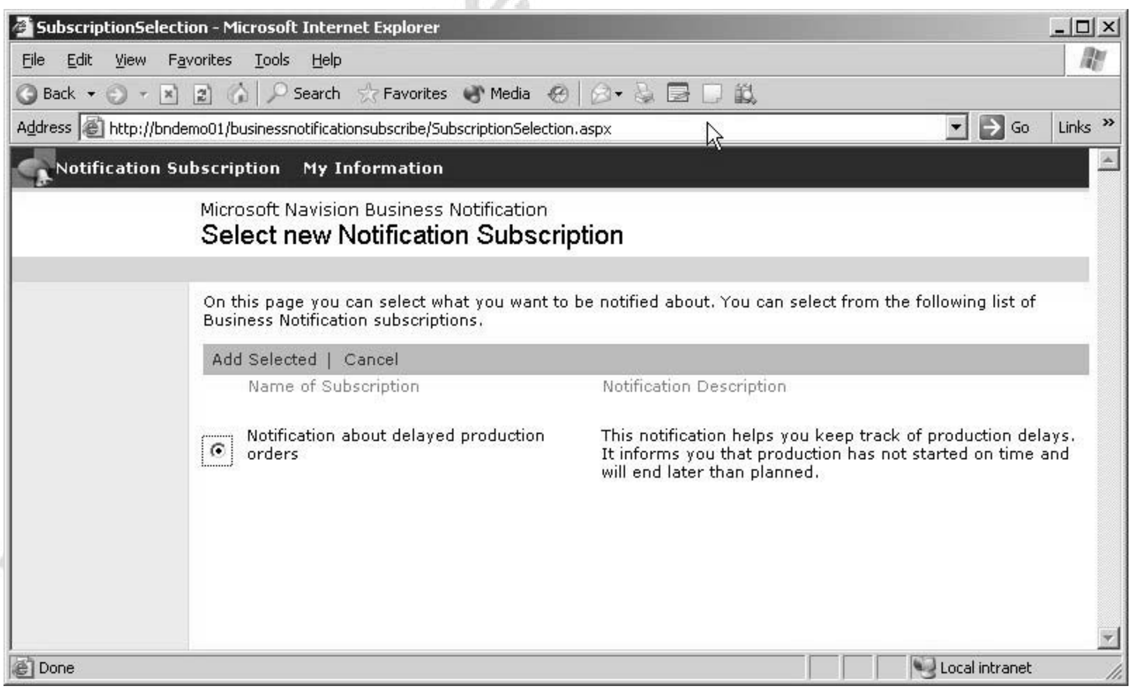
Exercise 6: Adding a Subscription

1. To subscribe to the notification, go to the Business Notification subscription service located at http://<servername>/BusinessNotificationSubscribe, where <servername> is the name of the server where the Business Notification server component is installed.

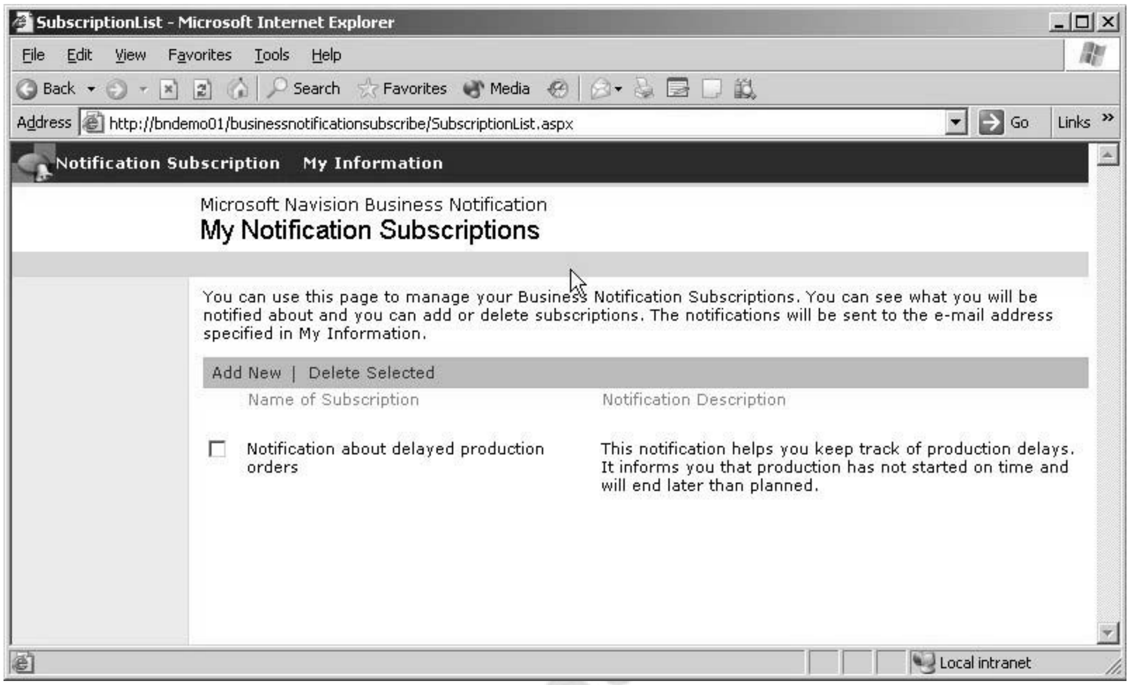
You will see the list of your notification subscriptions, which is empty so far:



2. Click **Add New** and select the notification you want to subscribe to:



3. Click **Add Selected**. Now the list of your notification subscriptions includes the newly added notification:



Chapter 6: Installation and Administration

Answers to Questions: Business Notification Administration

1. **After installing Business Notification, what administrative procedures must you pay attention to?**

   After Business Notification has been installed, you must pay attention to the following:
   - Changing passwords
   - Making backups
   - Changing settings in the configuration files
   - Changing the time on the SQLNS Server

Exercise 7: Business Notification Installation

To answer questions in Exercise 7, follow the Business Notification Installation Guide.

Chapter 7: Development and Customization

Time-Based Notification

1. **What do time-based notifications consist of?**

   Any time-based notification consists of: a report, an XML port, and a routine responsible for establishing a link between the standard Business Notification functionality and the new notification (when talking about an internal Microsoft Navision part). In a Business Notification part a time-based notification consists of a scheme.

2. **What Microsoft Navision object must be modified in order to establish a link between the standard Business Notification functionality and a new notification?**

   In order to establish a link between the standard Business Notification functionality and a new notification, **Codeunit 8000 Business Notification Mgt.** must also be modified.

3. **What steps must be taken in order to create an XML port?**

   Creating a new XML port involves the following tasks:

   - Designing the structure of the XML content.
   - Choosing a data model for the XML port tags.
   - Creating events.

Field-Change-Based Notification

1. **What do field-change-based notifications consist of?**

   Any **field-change-based** notification consists of an XML port and a routine which is responsible for calling the XML port events.

2. **When deciding which trigger of a table should be changed, what should you base your decision on?**

   When deciding which trigger of the target table should be changed and how it should be changed, you should base your decision almost exclusively on the specification requirements covering the business situation in Microsoft Navision that initiates the sending of the notification.

Creating Templates

1. **What do you use templates for?**

   When you have created a solution, consisting of one or more Microsoft Navision objects, and a scheme that uses the event defined in the Microsoft Navision part of the solution, you can distribute the scheme as a template. The template is a predefined set of elements that can be used in a scheme: events, filters, e-mail message text, and recipients. Having specified all these tools in the template, you can then use it to create schemes, rather than reentering all the information for each scheme.

2. **What do you need to have in order to create a template?**

   In order to create a template, you must first have a scheme to work from.

APPENDIX B: TERMINOLOGY

business entity

This is a representation of a real-world object in an ERP system, containing data fields and metadata that describes the data fields.

event

This mechanism connects Microsoft® Business Solutions—Navision® 4.0 and Business Notification. An event is tied to a business entity such that every notification is based on one event from one business entity. An event is raised in the Navision business logic (the C/AL code), as decided by a Microsoft Navision developer, when "something happens."

external recipient

This is a recipient that is not registered as a Windows user in your company and does not (or does not normally, at least) have access to your Intranet.

internal recipient

This is a recipient that has access to your Intranet and is registered as a Windows user in your company. In order to receive notifications, an internal recipient needs to actively subscribe to the notifications via a Web browser.

filter

This pattern is set in Business Notification against which data is compared to determine if a certain notification should be sent to a certain recipient or group of recipients.

notification

This is the core concept of Business Notification. A notification consists of some business logic in Microsoft Navision, a document that Microsoft Navision sends to Business Notification, some business logic in Business Notification, and an e-mail message.

scheme

This is a collection of rules that Business Notification uses to decide when, to whom, and how to send notifications. A scheme is created in the Business Notification Designer, and schemes are managed in the Business Notification Manager.

subscription

This Web application has been designed for internal users, that is, users in your own company that have access to your Intranet. This application is necessary because internal users are not sent notification e-mail messages automatically.

template

This is a complete notification solution that is almost ready to use. It consists of the Microsoft Navision object or objects that define business entities and events, the business logic in Microsoft Navision that raises the events, and a read-only scheme of the template upon which you can create a new scheme. A template includes a pre-selected business entity and event appropriate for the template.