



Microsoft Dynamics NAV

# Interactive Timeline Visualization for Microsoft Dynamics NAV 2009 R2

White Paper

The Interactive Timeline Business Data Visualization is a RoleTailored client control add-in that provides a unique way to view and analyze business data in Microsoft Dynamics NAV.

This guide walks through the setup and explains how to use the visualization in the Supply Planning business scenario.

December 2010

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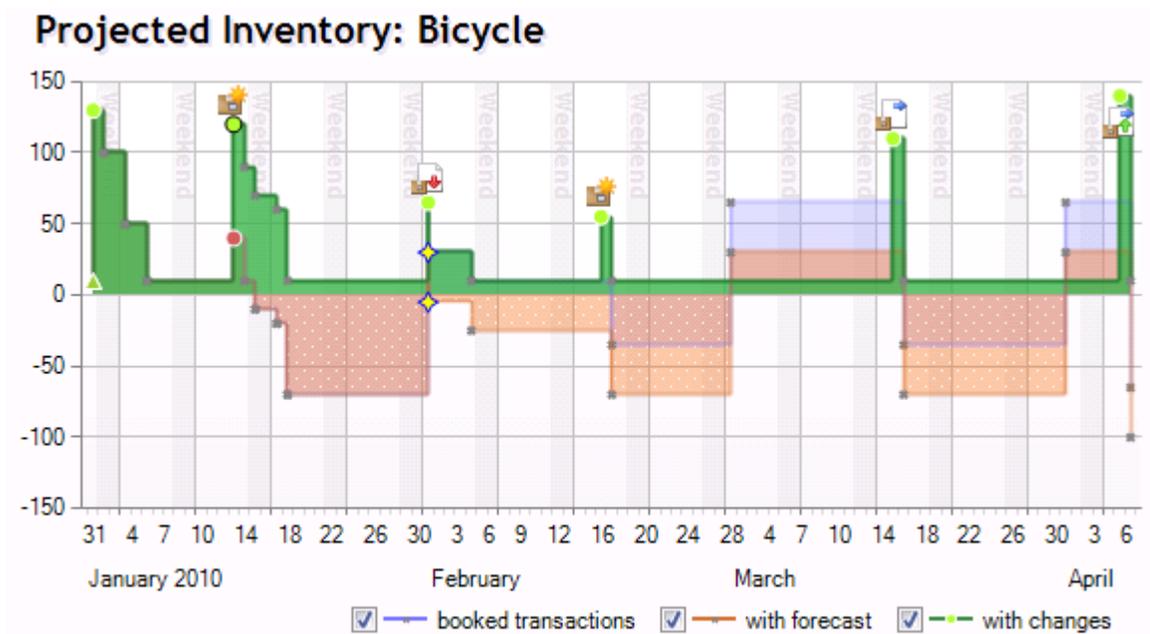
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## OVERVIEW

The Interactive Timeline Business Data Visualization for Microsoft Dynamics NAV provides a unique view on business data with an interactive user interface (UI) to change the business data. It targets the class of business data that represents a series of changes that measures value over time, such as:

- The amount of an item or item group in the inventory that is based on inventory transactions over time.
- The balance of an account over time, as influenced by the account-related transactions.

The visualization helps identify periods of time during which the value falls below zero. You can add multiple horizontal target lines to the visualization for further visual comparison with target levels. You can also visually mark special dates, such as today or a work date.



One of the strongest values of the visualization is the comparison of multiple what-if scenarios, for example, by taking a certain forecast into consideration.

However, what really differentiates this visualization from classic charts is the interactivity option – this allows a user to change the amount and date of a transaction directly in the visualization by simply dragging the visual point of a transaction to the new amount or new date. The changed transaction will be tagged visually with the nature of the changes. The projected consequence of the change will be shown immediately.

## BUSINESS DATA VISUALIZATION OVERVIEW

Business data visualizations are characterized by the following five pillars.

- Picture your business (delivers mental models).  
Visualizations provide a mental model for business data and data dependencies. This can be characterized by the saying, “A picture is worth a thousand words.” By seeing a visual representation of data and data dependencies, even non-expert users can more easily understand business data.
- Understand your business; know state and trends (provides insight).  
Visualizations are an entry point for understanding the current state of a business and trends. Users can drill down and filter data to provide intuitive, *ad hoc* analysis.
- Know how to act (identifies actionable items and tasks).  
Users can use business data to find items of interest and outliers that are based on certain objectives or measures. These outliers can be converted into high-priority actionable tasks and possible actions.
- Act wisely (provides decision support, problem solvers, and optimization).  
Problem solvers and optimizers help users decide on a strategy. They can provide suggestions for an action strategy that can lead to an optimal result for one or more objectives.
- Understand consequences (visualizes consequences before acting).  
Visualizations help users to understand the impact of actions before they are committed. Visualizers can account for dependencies, predict the outcome of actions, and provide visualizations to users.

## INTERACTIVE TIMELINE BUSINESS DATA VISUALIZATION

The Interactive Timeline visualization provides a visual representation of the data that is transformed into a mental model. This allows users to grasp the influence of transactions over time, on a certain measure.

The visualization provides insight into business transactions by showing their projected aggregated consequences over time. It visually highlights problematic situations, such as time periods and amounts that go below zero. It optionally provides visual comparisons with certain application defined amounts throughout the time period.

The visualization provides interactive access to amounts and schedule of transactions in the graphical presentation. It also allows you to create new transactions and delete existing ones.

The visualization shows the projected consequences on the observed measure when you modify the transactions in the visualization, before the changes have been posted to the business logic.

## APPLICATION SCENARIO: INVENTORY VISUALIZATION FOR INTERACTIVE SUPPLY PLANNING

The Interactive Timeline visualization is delivered with integration to an application scenario. In this scenario, the visualization shows the inventory level for one item or a variant over time. You can compare multiple scenarios, such as core transactions only, core transactions together with a forecast, and core transactions with a forecast and with changes that are suggested by the planning engine. These suggested changes are called *action messages*.

You can also edit and apply manual changes by supplying transactions interactively in the chart. You can do this by dragging data points to change supply quantity or by moving them in time to suggest a rescheduling action. You can then transmit these changes back to the application code for processing and validation, where the changes can be applied or rejected.

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You can also interact with the visualization by zooming, scrolling, creating and deleting supply, reverting supply changes, and automating adjustments for individual supply to balance the inventory until the next planned supply.

## INTERACTIVE TIMELINE VISUALIZATION COMPONENTS

The installation components are located in the *Extras\Item Availability Timeline Visualization* folder on the Microsoft Dynamics NAV 2009 R2 installation media, from [PartnerSource](#), or from [CustomerSource](#).

The *Setup Item Availability Timeline Visualization.msi* file installs the binary components and includes a .fob file with application objects to install in a Microsoft Dynamics NAV database.

## REDISTRIBUTABLE COMPONENTS

Interactive Timeline visualization control add-in and language resource assemblies for the RoleTailored client. Language resource assemblies for the following languages are included: Danish (Denmark), Dutch (Netherlands), English (United States), French (France), French (Canada), German (Germany), Italian (Italy), and Spanish (Spain).

These files are used to add the Interactive Timeline visualization on RoleTailored client pages and can be redistributed to all computers running the RoleTailored client. These files are located in the *Add-ins* folder of the RoleTailored client installation. By default, this folder is *C:\Program Files\Microsoft Dynamics NAV\60\RoleTailored Client\Add-Ins\Interactive Timeline Visualization*.

## SAMPLES

The Interactive Timeline visualization comes with the Item Inventory Planning sample business data integration scenario.

You install this scenario with a .fob file, several picture files, and a static demonstration data file. By default, these files are located in the *C:\Program Files\Microsoft Dynamics NAV\60\Item Availability Timeline Visualization* folder.

## SOFTWARE LICENSE TERMS – INTERACTIVE TIMELINE BUSINESS DATA VISUALIZATION.RTF FILE

This file contains the terms for using the Interactive Timeline visualization. By default, this file is located in the *C:\Program Files\Microsoft Dynamics NAV\60\Item Availability Timeline Visualization* folder.

# INSTALLING AND RUNNING THE INVENTORY VISUALIZATION FOR INTERACTIVE SUPPLY PLANNING

## QUICK INSTALLATION GUIDE

This procedure describes how to install the Interactive Timeline visualization components and samples on a single computer running a three-tier installation of Microsoft Dynamics NAV 2009 with the demo database. The installation includes the following high-level steps:

1. Run the *Setup Item Availability Timeline Visualization.msi* file to install the components.
2. Import the *Item Availability Timeline 1.1.0.0.fob* file.
3. Run codeunit 64001, Item Avail. Timeline Setup, once.
4. Run the following pages from Page Designer or from an action on another page:
  - Page 64004, Timeline Visualization, on application data.
  - Page 64005, Timeline Visualization, on static demo data.

## DETAILED INSTALLATION GUIDE

1. On the computer with Microsoft Dynamics NAV, run the *Setup Item Availability Timeline Visualization.msi* file.

By default, the files on a 32-bit edition of Windows are installed at:

*C:\Program Files\Microsoft Dynamics NAV\60\Item Availability Timeline Visualization\*

On a 64-bit edition of Windows, the files are installed at:

*C:\Program Files (x86)\Microsoft Dynamics NAV\60\Item Availability Timeline Visualization\*

2. In the Classic client, on the **Tools** menu, click **Object Designer**.
  - a. On the **File** menu, click **Import**.
  - b. Locate the *Item Availability Timeline 1.1.0.0.fob* file, and then click **Open**.
  - c. If no conflicts are found, then click **Yes** to import all objects.
  - d. In the **Import Objects** dialog box, click **OK**.
  - e. Recompile the imported objects.
3. Run codeunit 64001, Item Avail. Timeline Setup. This registers the visualization control add-in in the **Client Add-in** table and imports several icons and a demo data file.

To manually register the visualization control add-in, run the **Client Add-in** table, and then add a row that has the following values:

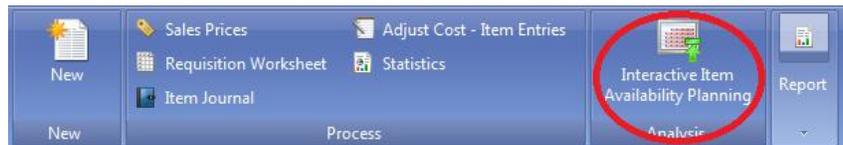
- **Control Add-in Name:** Interactive Timeline Visualization Add-in
- **Public Key Token:** 31bf3856ad364e35
- **Version** (optional): 1.1.0.0

**Note** If you set a version number, you must use 1.1.0.0. Otherwise, leave the field blank. If you use a different version number, then the control add-in will not work on the page.

- **Description** (optional): Interactive visualization for a timeline of events.

4. To view the Timeline visualization, do the following:

- To view the Interactive Timeline visualization on demo data, run page 64005, Item Avail. Timeline Demo, from Page Designer, or open the following URL:  
DynamicsNAV:///RunPage?Page=64005.
- To view the Interactive Timeline visualization on application data, run page 64004, Item Availability Timeline, from Page Designer, or open the following URL:  
DynamicsNAV:///RunPage?Page=64004.
- You can also run page 64004 or 64005 from an action on another page. The following procedure creates an action on page 31, Items List, which opens the Interactive Timeline visualization demo page 64005. You promote the action to the Action Pane of the Item List page, as shown in the following illustration.



- In Object Designer, open page 31, Items List.
- Add an action that opens page 64005, Item Avail. Timeline Demo. Set the following properties on the action.

Property	Value	Remarks
CaptionML	ENU= Interactive Item Availability Planning	Defines a caption for the action in English (United States). Add values for other languages as needed.
Image	ReopenPeriod	Assigns an icon called ReopenPeriod to the action.
Promoted	Yes	Promotes the action to the Action Pane.
PromotedCategory	Category4	Assigns the action to the fourth category in the Action Pane.
PromotedIsBig	Yes	Assigns a large icon to the action.
RunObject	Page Item Avail. Timeline Demo	Runs page 64005.

For information about adding actions to the page, see [Walkthrough: Adding Actions to a Customer List Page](#) in the MSDN Library.

- To define the captions for the promoted categories in English, set the **PromotedActionCategoriesML** property on page 31, Items List, to **ENU=New,Process,Report,Analysis**.

**Note** If you want to define captions that support all of the language resource files that are provided with the Interactive Timeline visualization, then set the value to the following:

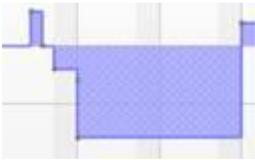
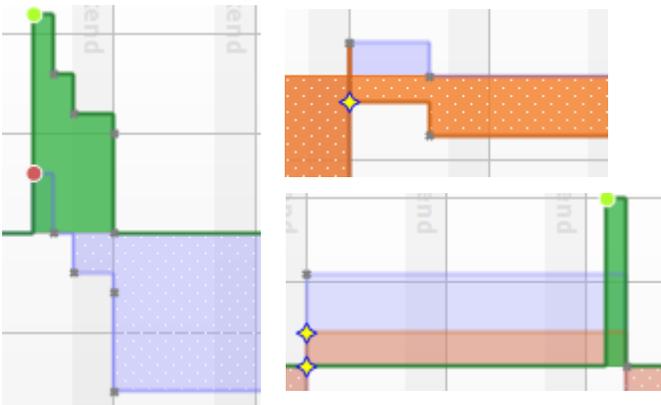
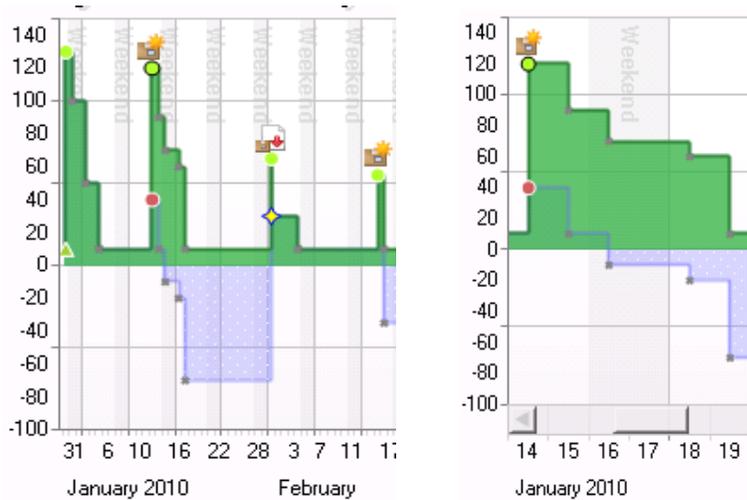
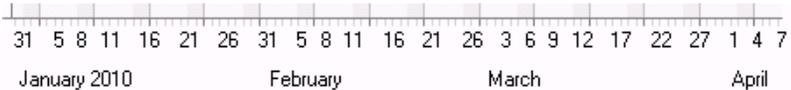
DAN=Ny,Proces,Rapport,Analyse;DEU=Neu,Vorgang,Bericht,Analyse;ENU=New,Process,Report,Analysis;ESP=Nuevo,Proceso,Informe,Análisis;FRA=Nouveau,Processus,État,Analyse;ITA=Nuovo,Processo,Report,Analisi;NLD=Nieuw,Proces,Lijst,Analyse;FRC=Nouveau,Processus,Rapport,Analyse

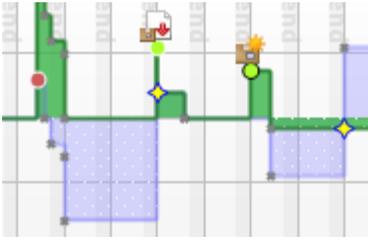
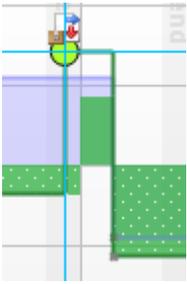
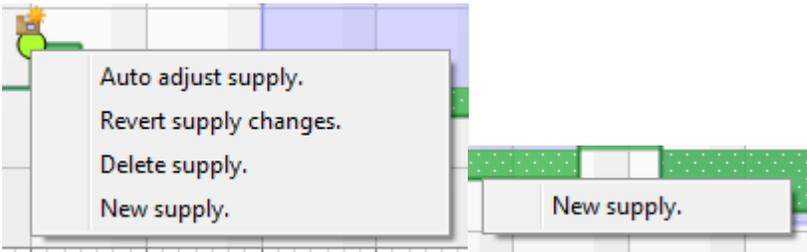
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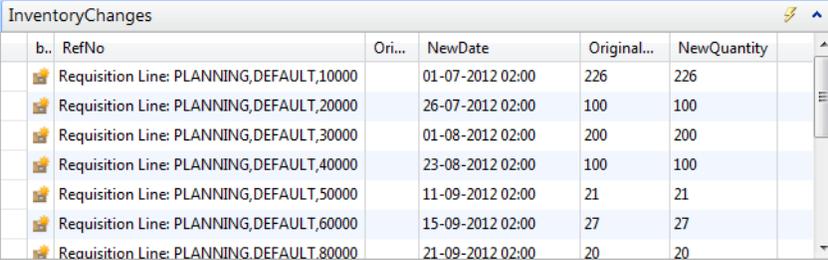
For more information about defining promoted action categories, see [How to: Define Promoted Action Categories](#) in the MSDN Library.

- d. Open page 31, Items List, and then click the **Interactive Item Availability Planning** action in the Action Pane to run page 64005, Item Avail. Timeline Demo.

## VISUALIZATION AND INTERACTION FEATURES OF THE INTERACTIVE TIMELINE BUSINESS DATA VISUALIZATION

Feature	Visual representation
<p>Shows filled step lines that indicate quantity over time. Low quantity is shown with a dotted fill.</p> <p>Place the mouse pointer over the corner points of steps to see the information about transactions.</p>	
<p>Shows three inventory scenarios that can be compared in any combination, such as booked transactions, forecast, and changes from planning activities.</p> <p>The color saturation automatically changes for visual comparison but still maintains consistency.</p>	
<p>Use your mouse or keyboard to scroll and zoom in on data.</p> <p>Each transaction is marked by a green circle. To see information about the transaction, place the mouse pointer over the circle. Icons above the green circles indicate that the transaction has changed from its original state, for example, an amount has decreased or a date has changed.</p> <p>To zoom in on a range, drag the mouse pointer over the range and release. To return to the initial view, press Ctrl+0 (zero).</p>	
<p>Shows the chart axis label rendering with date anchor, dynamic month, and day label density.</p>	

Feature	Visual representation																																													
<p>Provides a reusable set of supply transaction types (initial/supply/demand; fixed/adjustable/expected).</p> <p>You can use this visualization for other application scenarios.</p>																																														
<p>Uses interactive charting so that you can change supply quantity and schedule within the chart by dragging data points. Other levels affected by changes are automatically adjusted.</p> <p>The chart visualizes the combination of changes to each transaction that result from interactions, such as, rescheduling to an earlier or later date, increasing or decreasing supply/demand, deleting, or creating a new transaction.</p>																																														
<p>Shows how right-clicking the chart gives access to macro functions for interactive charting. These are create, read, update, and delete (CRUD) operations. An automatic adjustment function automatically changes a supply to balance the inventory until the next supply.</p>																																														
<p>Provides a set of application objects for stand-alone testing and for integration with real application scenarios.</p> <p>The data communication is achieved over XMLports. No special server-side extension objects are needed for data handling.</p> <p>Page 64005 is a stand-alone demo page that uses static demo data.</p> <p>Page 64004 visualizes the actual item inventory in Microsoft Dynamics NAV.</p>	<table border="1"> <thead> <tr> <th>Name</th> <th>Modified</th> <th>Version List</th> </tr> </thead> <tbody> <tr><td>64000</td><td>Timeline Event</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64001</td><td>Timeline Event Change</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64002</td><td>Timeline Event Icon</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64530</td><td>Item Avail. Event Buffer</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64531</td><td>Item Avail. Page Event Buffer</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64000</td><td>Timeline Event Demo Editor</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64000</td><td>Calc. Item Avail. Timeline</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64001</td><td>Item Avail. Timeline Setup</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64530</td><td>Calc. Item Avail. Event Buffer</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64531</td><td>Calc. Item Avail. Page Event</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64000</td><td>Export Timeline Events</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64001</td><td>Import Timeline Event Changes</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64004</td><td>Item Availability Timeline</td><td>TimelineViz 1.1.0.0,R2</td></tr> <tr><td>64005</td><td>Item Avail. Timeline Demo</td><td>TimelineViz 1.1.0.0,R2</td></tr> </tbody> </table>	Name	Modified	Version List	64000	Timeline Event	TimelineViz 1.1.0.0,R2	64001	Timeline Event Change	TimelineViz 1.1.0.0,R2	64002	Timeline Event Icon	TimelineViz 1.1.0.0,R2	64530	Item Avail. Event Buffer	TimelineViz 1.1.0.0,R2	64531	Item Avail. Page Event Buffer	TimelineViz 1.1.0.0,R2	64000	Timeline Event Demo Editor	TimelineViz 1.1.0.0,R2	64000	Calc. Item Avail. Timeline	TimelineViz 1.1.0.0,R2	64001	Item Avail. Timeline Setup	TimelineViz 1.1.0.0,R2	64530	Calc. Item Avail. Event Buffer	TimelineViz 1.1.0.0,R2	64531	Calc. Item Avail. Page Event	TimelineViz 1.1.0.0,R2	64000	Export Timeline Events	TimelineViz 1.1.0.0,R2	64001	Import Timeline Event Changes	TimelineViz 1.1.0.0,R2	64004	Item Availability Timeline	TimelineViz 1.1.0.0,R2	64005	Item Avail. Timeline Demo	TimelineViz 1.1.0.0,R2
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