



QAD Enterprise Applications  
Enterprise Edition

# Training Guide QAD .NET UI Administration

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# QAD .NET UI Administration Change Summary

The following table summarizes significant differences between this document and the last published version.

<b>Date/Version</b>	<b>Description</b>	<b>Reference</b>
April 2016/v2016 EE	Rebranded for QAD 2016 EE, added links to Preface and book	--
April 2015/v2015 EE	Rebranded	--
March 2014/v2014 EE and SE	Rebranded	--
March 2013/v2013 EE and SE	Rebranded	--
Sept 2012/2012.1 EE and 2012 SE	Rebranded for QAD 2012.1 EE; Consistency edit	--
March 2012/2012 EE and 2012 SE	Rebranded for QAD 2012 EE and SE	--
Sept 2011/2011.1 EE and 2011 SE	Rebranded for QAD 2011.1 EE	--
Sept 2011/2011.1 EE and 2011 SE	Reorganized and expanded chapters	--
Sept2011/2011.1 EE and 2011 SE	Updated illustrations and screen captures.	--



# **About This Course**

## Course Description

This course provides a technical and functional overview of the architecture and use of the QAD .NET UI.

The course includes information on:

- The architecture of QAD's interface tools
- Deployment options for the QAD .NET UI
- Administration of the QAD .NET UI
- Tuning and troubleshooting the installation
- Navigation, browses, and process maps
- Configuring screens

## Objective

Learn how to administer and troubleshoot both the Enterprise (EE) and Standard (SE) editions of QAD Enterprise Applications. In addition, students will be able to use browses and process maps effectively and learn how to customize non-component based screens.

## Audience

- Implementation consultants
- System administrators

## Prerequisites

- Progress 4GL knowledge
- Data model basics
- Knowledge of QAD Enterprise Application architecture concepts
- Familiarity with Enterprise (EE) and Standard (SE) editions of QAD Enterprise Applications

## Course Credit and Scheduling

This course is designed to be taught in three days.

## Additional Resources

If you encounter questions on QAD software that are not addressed in this book, several resources are available. The QAD corporate Web site provides product and company overviews. From the main site, you can access the QAD Learning or Support site and the QAD Document Library. Access to some portions of these sites depends on having a registered account.

<http://www.qad.com/>

## QAD Learning Center

To view available training courses, locations, and materials, use the QAD Learning Center. Choose Education under the Services tab to access this resource. In the Learning Center, you can reserve a learning environment if you want to perform self-study and follow a training guide on your own.

## QAD Document Library

To access release notes, user guides, training guides, and installation and conversion guides by product and release, visit the QAD Document Library. Choose Document Library under the Support tab. In the QAD Document Library, you can view HTML pages online, print specific pages, or download a PDF of an entire book.

For more information, see *QAD .NET UI Administration Guide*.

To find a resource, you can use the navigation tree on the left or use a powerful cross-document search, which finds all documents with your search terms and lets you refine the search by book type, product suite or module, and date published.

## QAD Support

Support also offers an array of tools depending on your company's maintenance agreement with QAD. These include the Knowledgebase and QAD Forums, where you can post questions and search for topics of interest. To access these, choose Visit Online Support Center under the Support tab.



Chapter 1

# Overview

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to review the features and benefits of the QAD .NET UI



ADM\_OVER\_020

## Benefits

### Benefits

- You will be familiar with how to use many of the essential features of the QAD .NET UI



ADM\_OVER\_030

## Training Flow

### Training Flow



- **Overview**
- Terminology
- Components
- Administration Tasks
- Multiple Systems
- Performance Tuning
- Troubleshooting
- Customizing Browsers
- Menu and Browse Collections
- Process Maps
- Configurable Screens

## Overview

### Overview

- QAD .NET UI Benefits
- Security, Rich Functionality
- Menu System, Menu Search
- Favorites
- Workspaces and Domains
- Tabs, Enhanced Screens
- Hide / View Navigation Pane, Auto Start
- Administration Programs
- Product Structure Maintenance
- Navigation Buttons
- Performance



ADM\_OVER\_050

## Overview (continued)

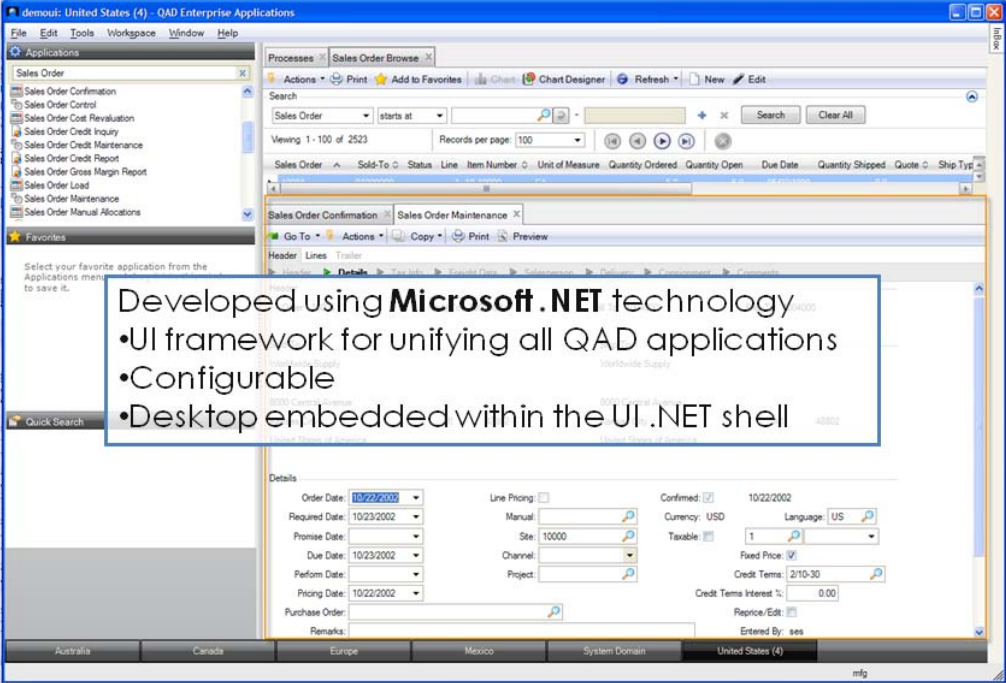
- Browsers
  - Browse Control Bar
  - Excel Export
  - Browse Primary Search, Advanced Search
  - Browse Column Filtering, Summary, Reset,
  - Browse Hyperlinks, Drill-Down, New/Edit, Charting
- Menu and Browse Collections
- Multiple Views
- External Files as Favorites
- Connect to External Applications
- Exercises



ADM\_OVER\_060

# QAD .NET UI Benefits

## QAD .NET UI Benefits



The screenshot displays the QAD .NET UI interface for a sales order. The window title is "demo: United States (4) - QAD Enterprise Applications". The interface includes a menu bar (File, Edit, Tools, Workspace, Window, Help), a toolbar with actions like Print, Add to Favorites, Chart Designer, Refresh, New, and Edit, and a search bar. A list of sales orders is shown with columns for Sales Order, Sold-To, Status, Line, Item Number, Unit of Measure, Quantity Ordered, Quantity Open, Due Date, Quantity Shipped, Quote, and Ship Type. A details form is visible at the bottom, containing fields for Order Date, Required Date, Promise Date, Due Date, Perform Date, Pricing Date, Purchase Order, Line Pricing, Manual, Site, Channel, Project, Confirmed, Currency, Language, Taxable, Fixed Price, Credit Terms, Credit Terms Interest %, Reprice/Edit, and Entered By. A text box overlay in the center of the screenshot contains the following text:

Developed using **Microsoft .NET** technology

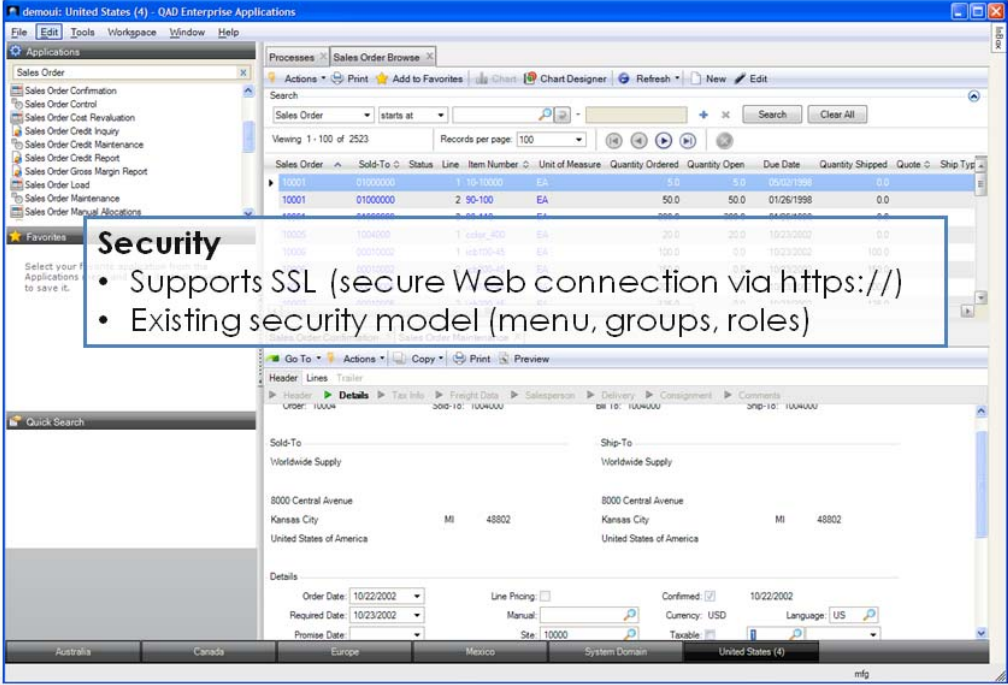
- UI framework for unifying all QAD applications
- Configurable
- Desktop embedded within the UI .NET shell

The QAD logo is visible in the bottom left corner, and the text "A DM\_OVER\_070" is in the bottom right corner.

## Security

### Security

- Supports SSL (secure Web connection via https://)
- Existing security model (menu, groups, roles)



The screenshot displays the QAD Enterprise Applications web interface. The main window shows a 'Sales Order Browse' process with a search bar and a table of sales orders. The table has columns for Sales Order, Sold-To, Status, Line, Item Number, Unit of Measure, Quantity Ordered, Quantity Open, Due Date, Quantity Shipped, and Ship Type. Below the table, there are tabs for 'Header', 'Lines', and 'Trailer'. The 'Header' tab is active, showing details for a sales order, including 'Sold-To' and 'Ship-To' information for 'Worldwide Supply' at '8000 Central Avenue, Kansas City, MI 48802, United States of America'. The 'Details' section includes fields for 'Order Date', 'Required Date', 'Promise Date', 'Line Pricing', 'Manual', 'Confirmed', 'Currency', and 'Language'. The interface also shows a navigation bar at the bottom with tabs for 'Australia', 'Canada', 'Europe', 'Mexico', 'System Domain', and 'United States (4)'. A QAD logo is visible in the bottom left corner, and the text 'ADM\_OVER\_080' is in the bottom right corner.

## Rich Functionality

### Rich Functionality

The screenshot displays the QAD Enterprise Applications interface. On the left, there is a navigation menu with categories like Customer Services, Master Data, Supply Chain, Processes, Process Maps, Vertical Industry View, Supply Chain View, Operational Metrics View, and Collections. The main content area shows a 'Vertical Industry Process Model' with a diagram of process steps: Automate, Customer Products, Industrial Equipment, Post and Services, Life Sciences, and High Technology. A text box is overlaid on the screenshot, listing key features of the application.

- Calling programs by menu, alias and program names
- Configurable screens
- Process maps
  - Use Microsoft Silverlight
  - Process Maps for each vertical industry
  - Adobe SVG is used to create and modify the process maps



ADM\_OVER\_090

## Menu System

# Menu System

The screenshot displays the QAD .NET UI Administration interface. On the left, there is a 'Menu Search' pane with a tree view showing categories like Distribution, Manufacturing, Financials, and General Ledger. Below this is a 'Favorites' section with items like Sales, Sales Order Shipments, and Sales Order Maintenance. A 'Quick Search' field is also present.

The main window shows a 'Sales Order Browse' window with a search bar and a table of sales orders. A text box is overlaid on the table with the following text:

**Menu System**

- Hierarchical structure
- New icons
- Dynamic presentation based on security

The table below the text box shows the following data:

Order	Sold-To	Bill To	Ship-To
681700-45	EA	50.0	01-26-1998
681700-45	EA	200.0	01-26-1998
682000-45	EA	20.0	10-23-2002
682000-45	EA	150.0	10-23-2002
681700-45	EA	200.0	10-23-2002

Below the table is a 'Sales Order Maintenance' window with a 'Header' section containing fields for Order, Sold-To, Bill To, and Ship-To. The bottom of the interface shows a navigation bar with tabs for Australia, Canada, Europe, Mexico, System Domain, and United States (2).

# Menu Search

## Menu Search

The screenshot displays the QAD Enterprise Applications interface. On the left, a 'Menu Search' window is open, showing a tree view of menu items under 'Sales'. A callout box with the text 'Dynamic menu filtering as you type' points to the search results. The main window shows a 'Sales Order Browse' window with a table of sales order lines. Below the table is a 'Sales Order Maintenance' window with a header section containing fields for Order, Sold-To, Bill To, and Ship-To.

Sales Order	Sold-To	Status	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type
10001	01000000		1	10-10000	EA	5.0	5.0	09/02/1998	0.0		
10001	01000000		2	90-100	EA	50.0	50.0	01/26/1998	0.0		
10001	01000000		3	90-110	EA	200.0	200.0	01/26/1998	0.0		
10005	1004000		1	color_400	EA	20.0	20.0	10/23/2002	0.0		
10006	00010002		1	icb100-45	EA	100.0	0.0	10/23/2002	100.0		
10006	00010002		2	icb200-45	EA	150.0	0.0	10/23/2002	150.0		
10007	00010005		1	icb100-45	EA	200.0	0.0	10/23/2002	200.0		
10007	00010005		2	icb200-45	EA	125.0	0.0	10/23/2002	125.0		
10008	00010005		1	1.05-0079	EA	1.0	1.0	10/25/2002	0.0		

## Favorites

**Favorites**

- Drag-and-drop programs and folders
- Rename programs
- Create custom folders

The screenshot shows the QAD Enterprise Applications interface. The main window is titled "Sales Order Browse" and displays a table of sales orders. The "Favorites" pane on the left lists various programs and folders, including "Sales", "Sales Order Shipments", "Sales Order Maintenance", "Sales Order Confirmation", "Admin", "Connection Manager", "Browse Collection Maintenance", "Tomcat Manager", "Attachment Maintenance", and "Configurable Screens". The interface also includes a search bar, a table with columns for Sales Order, Sold-To, Status, Line, Item Number, Unit of Measure, Quantity Ordered, Quantity Open, Due Date, Quantity Shipped, Quote, and Ship Type, and a header section for details.

# Workspaces and Domains

## Workspaces and Domains

Sales Order	Sold-To	Status	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Typ
10000	01000000		1	1010000	EA	1.0	1.0	05/23/1998	0.0		
10001	01000000		2	90-100	EA	50.0	50.0	01/26/1998	0.0		
10001	01000000		3	90-110	EA	200.0	200.0	01/26/1998	0.0		
10005	1004000		1	color_400	EA	20.0	20.0	10/23/2002	0.0		
10006	00010002		1	icb100-45	EA	100.0	0.0	10/23/2002	100.0		
10006	00010002		2	icb200-45	EA	150.0	0.0	10/23/2002	150.0		
10007	00010005		1	icb100-45	EA	200.0	0.0	10/23/2002	200.0		
10007	00010005		2	icb200-45	EA	125.0	0.0	10/23/2002	125.0		
10008	00010005		1	95-0079	PA	1.0	1.0	10/24/2002	0.0		

**Workspace and Domains**

- New navigation
- Security defined workspace access

Australia Canada Europe Mexico System Domain United States (2)

## Tabs

# Tabs

The screenshot displays the QAD Enterprise Applications interface with multiple tabs open. The main window shows a list of customers with columns for Customer ID, Sort Name, Region, Country, Salesperson, Type, Site, and Language. A text box highlights the 'Tabs' feature with the following characteristics:

- Open multiple Browsers and Maintenance screens
- Split screens (vertical and horizontal)
- Simple resizing and restore
- Detachable to new window

The interface includes a navigation pane on the left, a search bar, and a status bar at the bottom showing the current site as 'United States (5)'.

# Enhanced Screens

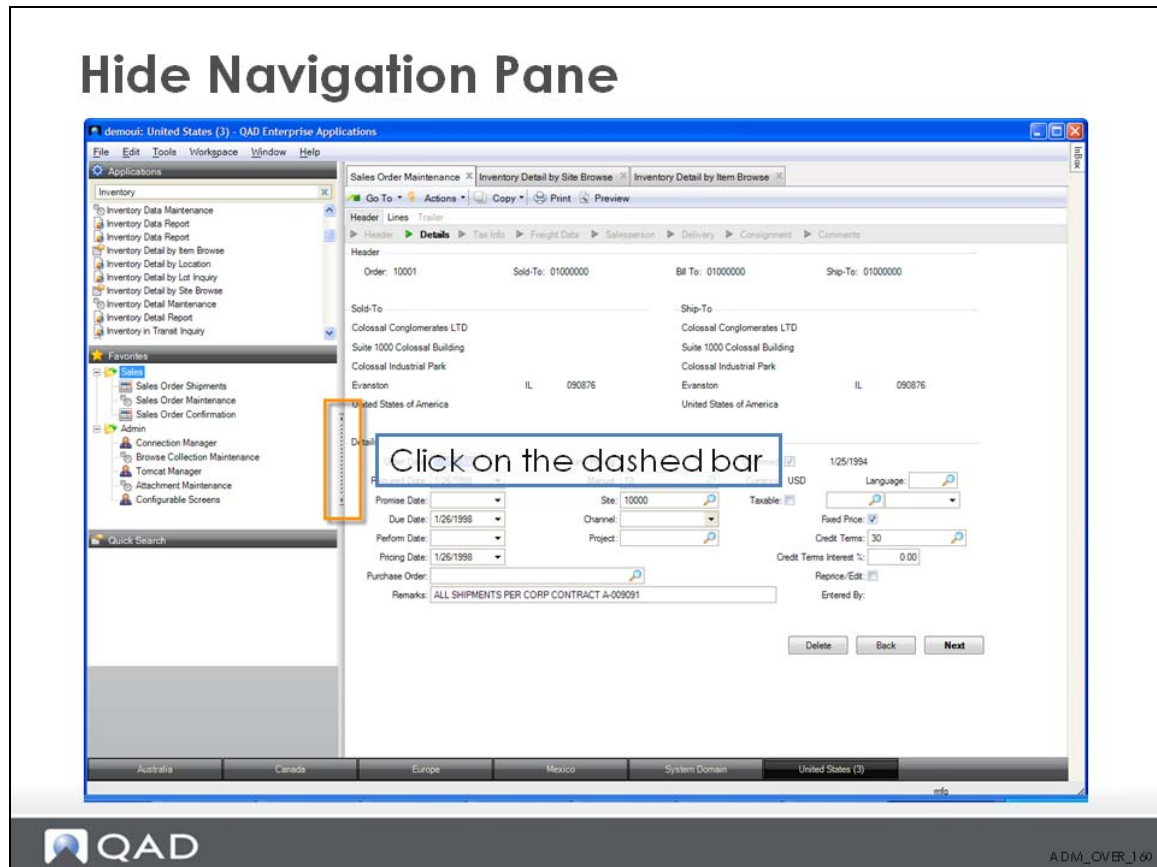
## Enhanced Screens

The screenshot displays the QAD Enterprise Applications interface. On the left is a navigation sidebar with a tree view of application modules. The main window shows a 'Sales Order Maintenance' form for order 10001, with fields for 'Sold-To' and 'Ship-To' information, and a 'Details' section for dates and pricing. A text box is overlaid on the screenshot, listing the following features:

- New "skin" – refresh appearance
- Anchored navigation controls
- Significant tuning for better performance
- .NET Technology

At the bottom of the interface, there is a navigation bar with tabs for 'Australia', 'Canada', 'Europe', 'Mexico', 'System Domain', and 'United States (3)'. The QAD logo is visible in the bottom left corner, and the text 'ADM\_OVER\_150' is in the bottom right corner.

## Hide Navigation Pane



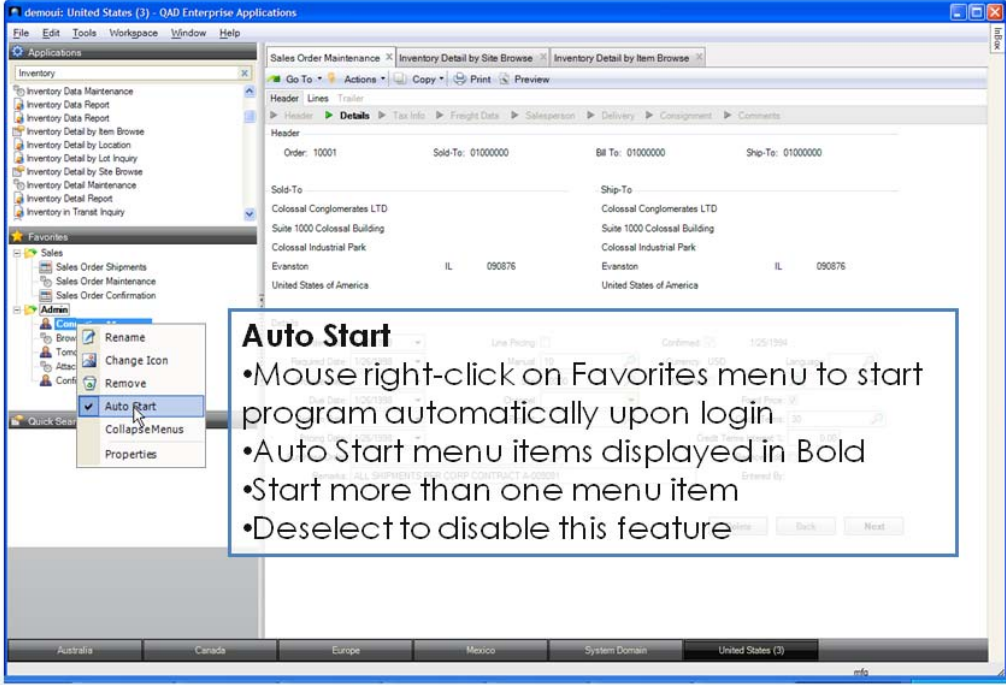
# View Navigation Pane

## View Navigation Pane

The screenshot displays the QAD Enterprise Applications interface. A navigation pane on the left side of the window is highlighted with a dashed orange border. A callout box with a blue border and white background contains the text "Click on the dashed bar again" with a mouse cursor icon pointing to the dashed bar. The main window shows a sales order form for "Order: 10001" with fields for "Sold-To", "Ship-To", "Required Date", "Promise Date", "Due Date", "Perform Date", "Pricing Date", "Purchase Order", "Remarks", "Channel", "Project", "Site", "Currency", "Language", "Taxable", "Fixed Price", "Credit Terms", "Credit Terms Interest %", "Reprice/Edit", and "Entered By". The bottom of the window features a navigation bar with tabs for "Australia", "Canada", "Europe", "Mexico", "System Domain", and "United States (3)".

## Auto Start

# Auto Start



The screenshot shows the QAD Enterprise Applications interface. On the left, the 'Favorites' menu is expanded, and a context menu is open over the 'Auto Start' item. The 'Auto Start' item is highlighted with a blue checkmark. The main window displays a 'Sales Order Maintenance' form with fields for Order, Sold-To, and Ship-To information.

**Auto Start**

- Mouse right-click on Favorites menu to start program automatically upon login
- Auto Start menu items displayed in Bold
- Start more than one menu item
- Deselect to disable this feature

QAD

A DM\_ OVER\_180

# Administration Programs

## Administration Programs

The screenshot shows the QAD Enterprise Applications interface for Administration Programs. The left sidebar contains a 'Menu Search' section with a tree view under 'Administration' including: Browse Collection Maintenance, Menu Collection Maintenance, Attachment Maintenance, Tomcat Manager, Connection Manager, Configurable Screens, Process Admin, Process Editor, Process Label Maintenance, Create Metric Group, and Execute Document Import. Below this is a 'Favorites' section with 'Sales' and 'Admin' items. The main window displays 'Sales Order Maintenance' for Order 10001, with details for Suite 1000 Colossal Building, Colossal Industrial Park, Evanston, IL 090876, United States of America. The 'Details' section includes fields for Order Date (1/25/1998), Required Date (1/25/1998), Promise Date, Due Date (1/25/1998), Perform Date, Pricing Date (1/25/1998), Purchase Order, Line Pricing (Manual 10), Site (10000), Channel, Project, Confirmed (1/25/1994), Currency (USD), Taxable, Fixed Price (checked), Credit Terms (30), Credit Terms Interest % (0.00), and Reprice/Edit. A red callout box with the text 'Only authorized users can access' is overlaid on the 'Administration' menu in the sidebar.

Only authorized users can access

QAD ADM\_OVER\_190

## Product Structure Maintenance

### Product Structure Maintenance

• Create, edit, view BOM  
• Drag or double-click to add components  
• Undo added component

Component	Description	Unit of Measure	Reference	Quantity	Start Date	End Date	BOM Code
0300002	Filter, Pen	EA		1			0300002
05-005	S Barrel	EA		1		05-005	
05-0055	Pen Cap	EA		1		05-0055	



A DM\_OVER\_200

# Navigation Buttons

## Navigation Buttons

The screenshot displays the QAD Enterprise Applications interface. On the left is a sidebar menu with a tree view of applications, including 'Sales Order Maintenance' and 'RMA Maintenance'. The main window shows the 'Sales Order Maintenance' form for order 10001. A navigation bar at the top of the form contains buttons for 'Go To', 'Actions', 'Copy', 'Print', and 'Preview'. Below this, a breadcrumb trail shows 'Header' > 'Details' > 'Tax Info' > 'Freight Data' > 'Salesperson' > 'Delivery' > 'Consignment' > 'Comments'. The 'Details' button is highlighted with an orange box. A blue box highlights the 'Details' button in the breadcrumb trail with the following text:

- Helps to navigate complex screens
- Hide/view the pane
- On by default

At the bottom of the interface, there are buttons for 'Delete', 'Back', and 'Next'. The QAD logo is visible in the bottom left corner, and the text 'ADM\_OVER\_210' is in the bottom right corner.

## Performance

# Performance

The screenshot displays the QAD Enterprise Applications interface. The main window is titled "Sales Order Browse" and shows a table of sales orders. A text box is overlaid on the table with the following bullet points:

- New browses perform faster than previous Java browses
- New desktop screens perform faster within .NET framework
- Scalable

Below the text box is a line chart titled "Performance: Embedded Screens v.s. Desktop Customer Credit Inquiry / Unplanned Issues / Unplanned Receipts". The chart compares the performance of embedded screens (represented by a blue line) and desktop screens (represented by a yellow line) across various operations. The Y-axis represents performance time, ranging from 0 to 24. The X-axis lists operations: Customer, Customer SO, Customer Output, Ullpark, Ullqy, UllOrder, Ullconfirm, Ullpark, Ullqy, UllOrder, Ullconfirm, and Logout. The embedded screens generally show higher performance (lower time) than desktop screens, especially for the Ullqy and UllOrder operations.

A DM\_OVER\_220

## Browsets

### Browsets

**Browsets**

- Redeveloped using Microsoft .Net technology
- Consistent functionality with Lookups
- Tuned for performance
- Drag columns to new locations to change order
- Columns can be sorted in ascending or descending order
- Memory – layout changes are saved and restored
- Legacy browsets (also customised) are supported
- No need to compile new browsets
- Search criteria can be saved



A DM\_OVER\_230

## Browse Control Bar

### Browse Control Bar

Navigation buttons: *First, Previous, Next, Last*

- Can optionally download ALL records (with constraints!)
- Export to Excel enhanced
- Print (Preview from File menu)
- Save & Load: Save Browse settings for sharing with other users
- Chart Designer
- Ability to create new or change existing record

Sales Order	Sold-To	Status	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type	Purchase Order	Ship-To	Site	Customer Item
10001	01000000		1	10-10000	EA	5.0	5.0	05/02/1998	0.0				01000000	10000	COL-COR-10000
10001	01000000		2	90-100	EA	50.0	50.0	01/26/1998	0.0				01000000	10000	
10002	custA		1	frgpo0-001	EA	3.0	3.0	10/02/2003	0.0				custA	Central	
10021	custA		1	frgpo0-001	EA	3.0	3.0	10/02/2003	0.0			po10021	custA	Central	
10022	custA		1	frgpo0-001	EA	1.0	1.0	10/02/2003	0.0				custA	Central	
10040	01000000		1	100634	EA	10.0	10.0	05/01/2004	0.0				01000000	100	
10041	01000000		1	100634	EA	5.0	5.0	05/01/2004	0.0				01000000	100	
10042	01000000		1	100634	EA	1.0	1.0	05/01/2004	0.0				01000000	100	
1234	01000000		1	90-100	EA	0.0	-150.0		150.0				01000000	10000	
200008	WANA		1	6543	EA	100.0	100.0	07/23/2001	0.0				WANA	10000	



ADM\_OVER\_240

Excel Export

# Excel Export

The screenshot displays the QAD Enterprise Applications interface with a Microsoft Excel window open. The Excel window shows a table titled 'Sales Order' with columns: A, B, C, D, E, F, G, H, I, J, K, L, M, N. The data is as follows:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	Sales Order	Sold-To	Status	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type	Purchase Order	Ship-T
2	10001	01000000		1	10-10000	EA	5.0	5.0	5/2/1998	0.0				01000
3	10001	01000000		2	90-100	EA	50.0	50.0	1/26/1998	0.0				01000
4	10001	01000000		3	90-110	EA	200.0	200.0	1/26/1998	0.0				01000
5	10005	1004000		1	color_400	EA	20.0	0.0	10/23/2002	0.0				10040
6	10006	00010002		1	icb100-45	EA	150.0	0.0	10/23/2002	100.0				00010
7	10006	00010002		2	icb200-45	EA	150.0	0.0	10/23/2002	150.0				00010
8	10007	00010005		1	icb100-45	EA	200.0	0.0	10/23/2002	200.0				00010
9	10007	00010005		2	icb200-45	EA	125.0	0.0	10/23/2002	125.0				00010
10	10008	00010005		1	05-0079	EA	1.0	1.0	10/25/2002	0.0				00010
11	10012	01000000		1	88-100	EA	1,000.0	1,000.0	10/6/1998	0.0				01000
12	10012	01000000		2	44-110	EA	25.0	5.0	10/6/1993	20.0				01000
13	10013	01000000		3	88-100	EA	100.0	100.0	4/11/1994	0.0				00010
14	10013	01000000		4	88-100	EA	100.0	100.0	7/11/1994	0.0				00010
15	10013	01000000		5	88-100	EA	500.0	500.0	10/10/1994	0.0				00010
16	10015	custA		1	FinGood-001	EA	1.0	1.0	9/9/2003	0.0				00010
17	10017	custA		1	FinGood-001	EA	1.0	1.0	9/9/2003	0.0				00010
18	10018	custA		1	FinGood-001	EA	1.0	1.0	9/9/2003	0.0				00010
19	10019	custA		1	FinGood-001	EA	1.0	1.0	9/9/2003	0.0				00010
20	10020	custA		1	FinGood-001	EA	3.0	3.0	10/2/2003	0.0				00010

The 'Formatted' box highlights the data for line 5 (row 5 in the table), which includes the item number 'color\_400' and a quantity of 20.0.

QAD ADM\_OVER\_250

# Excel Export

The screenshot shows the QAD Enterprise Applications interface with an Excel export window open. The Excel window displays a table with the following data:

Name	Value
User ID	mfg
Query Date	10/8/2009 4:24:29 PM
Browse Name	Sales Order Browse
Browse Program	sobr009.p

A text box in the center of the Excel window states: "Additional information is passed in the 3<sup>rd</sup> Excel worksheet".

### Browse Primary Search

## Browse Primary Search

The screenshot shows the 'Sales Order Browse' window in QAD Enterprise Applications. The search criteria are defined as follows:

- Search (2): Sales Order starts at 1000
- Sold-To: WANA

Navigation buttons 'Search' and 'Clear All' are highlighted in the search bar. A blue box highlights the search criteria and navigation buttons with the following text:

- Define search criteria
- Search and Clear buttons for easy navigation

Sales Order	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type	Purchase Order
200008	1	6543	EA	100.0	100.0	07/23/2001	0.0			
200009	2	6543	EA	4.0	4.0	07/23/2001	0.0			
200010	3	6543	EA	3.0	3.0	05/15/2001	0.0			
200014	1	0300000	EA	1.0	1.0	05/15/2001	0.0			
200016	1	0300003	EA	2.0	2.0	05/15/2001	0.0			
200017	1	0300001	EA	3.0	3.0	05/15/2001	0.0			
200018	1	0300002	EA	1.0	1.0	05/15/2001	0.0			
200019	2	0300001	EA	20.0	20.0	05/15/2001	0.0			
200022	1	6543	EA	5.0	5.0	06/14/2001	0.0			PO 20010
200023	1	6543	EA	1.0	1.0	05/15/2001	0.0			
200024	1	87543	EA	1.0	1.0	05/15/2001	0.0			
200025	1	0300002	EA	1.0	1.0	05/16/2001	0.0			
200027	2	0300003	EA	2.0	2.0	05/16/2001	0.0			
200028	2	87543	EA	1.0	1.0	05/16/2001	0.0			
200029	4	87543	EA	1.0	1.0	05/16/2001	0.0			
200030	5	87543	EA	1.0	1.0	05/16/2001	0.0			
200031	2	6543	EA	100.0	100.0	05/16/2001	0.0			PO123
200032	3	6543	EA	100.0	100.0	05/16/2001	0.0			PO123
200033	7	87543	EA	1.0	1.0	05/16/2001	0.0			
200034	6	87543	EA	1.0	1.0	05/16/2001	0.0			
200035	1	6543	EA	7.0	7.0	05/20/2001	0.0			PO 200015
200036	2	6543	EA	8.0	8.0	05/26/2001	0.0			PO 200015
200037	3	6543	EA	150.0	150.0	05/26/2001	0.0			EXPLORE

## Browse Advanced Search

# Browse Advanced Search

demou: United States (1) - QAD Enterprise Applications

Sales Order Browse

Search (3)

Sales Order starts at 1000

Sold-To equals WANA

Quantity Ordered starts at 10

Viewing 1 - 55 of 55 records per page: All

Sales Order	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type	Purchase Order
200009	1	6543	EA	100.0	100.0	07/23/2001	0.0			
200020	2	0300001	EA	20.0	20.0	05/15/2001	0.0			
200031	2	6543	EA	100.0	100.0	05/16/2001	0.0			PO123
200032	3	6543	EA	100.0	100.0	05/16/2001	0.0			PO123
200037	3	6543	EA	150.0	150.0	05/26/2001	0.0			EXPLORE
200038	1	6543	EA	150.0	150.0	05/19/2001	0.0			EXPLORE1
200039	2	6543	EA	100.0	100.0	05/22/2001	0.0			EXPLORE2
200040	2	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE3
200041	2	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE4
200042	2	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE5
200043	2	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE6
200044	2	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE7
200045	2	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE8
200046	1	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE9
200047	1	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE10
200048	1	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE11
200049	1	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE12
200050	1	6543	EA	150.0	150.0	05/18/2001	0.0			EXPLORE13
200051	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE14
200052	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE15
200053	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE16
200054	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE17
200055	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE18
200056	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE19
200057	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE20
200058	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE21
200059	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE22
200060	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE23
200061	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE24
200062	1	6543	EA	150.0	150.0	05/21/2001	0.0			EXPLORE25

- Define additional search criteria for any browse field
- Build search criteria statements using multiple browse fields
- Multiple conditions can be defined for a single field

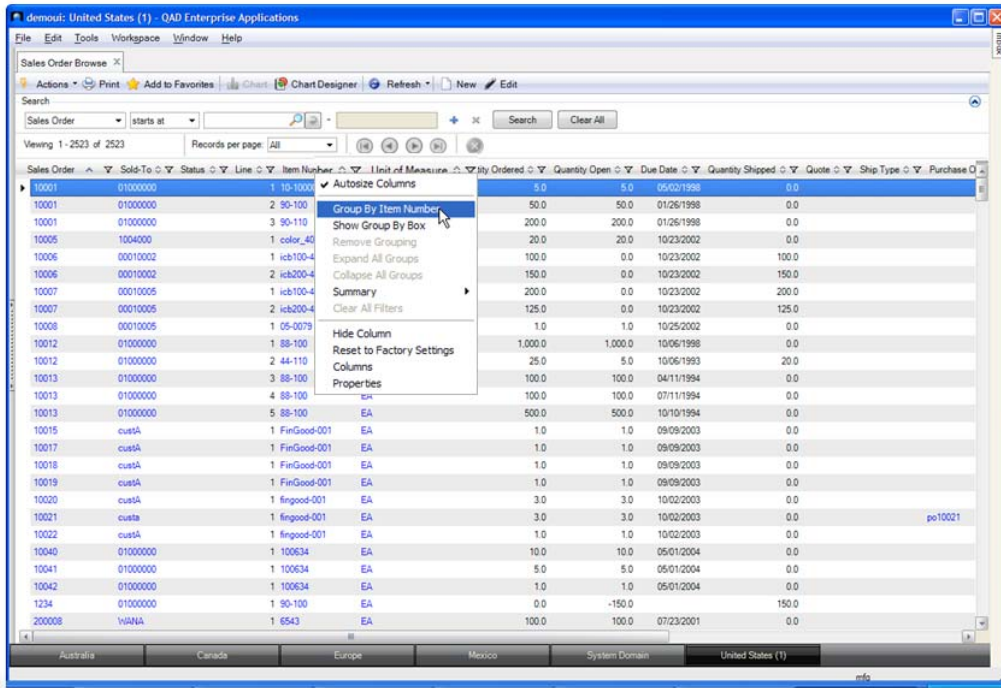
### Browse Column Filtering

# Browse Column Filtering

The screenshot shows the 'Sales Order Browse' window in QAD Enterprise Applications. The window title is 'demo: United States (1) - QAD Enterprise Applications'. The search criteria are 'Ship-To' and 'starts at'. The table displays sales order records with columns: Sales Order, Sold-To, Status, Line, Item Number, Unit of Measure, Quantity Ordered, Quantity Open, Due Date, Quantity Shipped, Quote, Ship Type, and Purchase Order. A filter is applied to the 'Item Number' column, showing only records with item numbers starting with '02-0009'. A text box highlights this filter and states: 'Browse view displays only the records that comply with the column filter selected'. The bottom of the window shows a navigation bar with tabs for Australia, Canada, Europe, Mexico, System Domain, and United States (1).

Sales Order	Sold-To	Status	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type	Purchase Order
SO20037	10010001			000-0117-38 001	EA	100.0	100.0	10/03/2004	0.0	Q6500		
SO20055	10010001			02-0001	EA	100.0	100.0	10/03/2004	0.0	Q6500		
SO20075	10010001			02-0002	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20105	10010001			0300001	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20110	10010001			0300002	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20140	10010001			0300003	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20141	A100		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	e65001		
SO20150	10010001		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20151	A100		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	e65001		
SO20158	10010001		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20169	A100											
SO20164	10010001											
SO20165	A100											
SO20180	10010001											
SO20181	A100											
SO20190	10010001		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20191	A100		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	e65001		
SO20196	10010001		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20197	A100		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	e65001		
SO20206	10010001		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20207	A100		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	e65001		
SO20216	10010001		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20217	A100		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	e65001		
SO20226	10010001		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	Q6500		
SO20227	A100		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	e65001		
SO20236	10010001		1	02-0009	EA	100.0	100.0	10/04/2004	0.0	Q6500		

# Browse Column Filtering



A DM\_OVER\_310

# Browse Column Filtering

The screenshot shows a web browser window titled "United States (1) - QAD Enterprise Applications". The application interface includes a menu bar (File, Edit, Tools, Workspace, Window, Help) and a toolbar with options like Print, Add to Favorites, Chart Designer, Refresh, New, and Edit. A search bar is present with a dropdown menu set to "Sales Order" and a search button. Below the search bar, it indicates "Viewing 1 - 2523 of 2523" records. The main area displays a table of sales orders with columns for Sales Order, Sold-To, Status, Line, Unit of Measure, Quantity Ordered, Quantity Open, Due Date, Quantity Shipped, Quote, Ship Type, Purchase Order, and Ship. The table is grouped by "Item Number" with expandable sections. The "United States (1)" section is expanded, showing sales orders for "WANA" and "001".

Sales Order	Sold-To	Status	Line	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type	Purchase Order	Ship
Item Number:000-0117-38 (5 items)												
SO33352	john		1	EA	1.0	1.0	10/27/2005	0.0				john
SO33353	john		1	EA	1.0	1.0	10/27/2005	0.0				john
SO33354	john		1	EA	1.0	1.0	10/27/2005	0.0				john
SO33355	Canada		1	EA	1.0	1.0	10/27/2005	0.0				Canad
SO33356	AUSSIE		1	EA	1.0	1.0	10/27/2005	0.0				AUSSIE
Item Number:001 (1 item)												
Item Number:02-0001 (1 item)												
Item Number:02-0009 (42 items)												
Item Number:0300000 (17 items)												
Item Number:0300001 (9 items)												
Item Number:0300002 (16 items)												
Item Number:0300003 (6 items)												
Item Number:04-0009 (42 items)												
Item Number:05-005 (42 items)												
Item Number:05-0079 (43 items)												
Item Number:05-0095 (42 items)												
Item Number:05-0579 (42 items)												
Item Number:09-0029 (42 items)												
Item Number:100634 (5 items)												
Item Number:100804 (1 item)												
Item Number:10-10000 (6 items)												
Item Number:10-10000 (6 items)												



## Browse Summary

# Browse Summary

The screenshot shows the 'Sales Order Browse' window in QAD Enterprise Applications. A context menu is open over a numeric field in the table, displaying options for data manipulation: Count, Sum, Average, Minimum, and Maximum. A text box highlights these options with the text: 'Numeric fields have options : Count, Sum, Avg, Min, Max'.

Sales Order	Sold-To	Status	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type	Purchase O
10001	01000000		1	10-10000	EA	0.0	0.0	09/02/1998	0.0			
10001	01000000		2	90-100	EA	3.0	0.0	01/26/1998	0.0			
10001	01000000		3	90-110	EA	3.0	0.0	01/26/1998	0.0			
10005	1004000		1	color_400	EA	3.0	0.0	10/23/2002	0.0			
10006	00010002		1	icb100-45	EA	3.0	0.0	10/23/2002	100.0			
10006	00010002		2	icb200-45	EA	3.0	0.0	10/23/2002	150.0			
10007	00010005		1	icb100-45	EA	3.0	0.0	10/23/2002	200.0			
10007	00010005		2	icb200-45	EA	3.0	0.0	10/23/2002	125.0			
10008	00010005		1	05-2029	EA	1.0	1.0	10/25/2002	0.0			
10012	01000000		1	10000000	EA	100.0	0.0	01/11/1994	0.0			
10012	01000000		2	10000000	EA	100.0	0.0	01/11/1994	0.0			
10013	01000000		1	10000000	EA	100.0	0.0	01/11/1994	0.0			
10013	01000000		2	10000000	EA	100.0	0.0	01/11/1994	0.0			
10015	custA											
10017	custA		1	FinGood-001	EA	1.0	1.0	09/09/2003	0.0			
10018	custA		1	FinGood-001	EA	1.0	1.0	09/09/2003	0.0			
10019	custA		1	FinGood-001	EA	1.0	1.0	09/09/2003	0.0			
10020	custA		1	fingood-001	EA	3.0	3.0	10/02/2003	0.0			
10021	custA		1	fingood-001	EA	3.0	3.0	10/02/2003	0.0			po10021
10022	custA		1	fingood-001	EA	1.0	1.0	10/02/2003	0.0			
10040	01000000		1	100634	EA	10.0	10.0	05/01/2004	0.0			
10041	01000000		1	100634	EA	5.0	5.0	05/01/2004	0.0			
10042	01000000		1	100634	EA	1.0	1.0	05/01/2004	0.0			
1234	01000000		1	90-100	EA	0.0	-150.0		150.0			
200008	VIANA		1	6543	EA	100.0	100.0	07/23/2001	0.0			



# Browse Summary

The screenshot shows the 'Sales Order Browse' window in QAD Enterprise Applications. The window title is 'demo01: United States (1) - QAD Enterprise Applications'. The interface includes a menu bar (File, Edit, Tools, Workspace, Window, Help), a search bar, and a list of sales orders. The list columns include Sold-To, Status, Line, Item Number, Unit of Measure, Quantity Ordered, Quantity Open, Due Date, Quantity Shipped, Quote, Ship Type, Purchase Order, and Ship-To. Several summary rows are visible, each preceded by a bullet point and a sales order number. Three summary rows are highlighted with orange boxes: 'Sales Order:10001 (3 items) Quantity Ordered: Sum = 255.0', 'Sales Order:10013 (3 items) Quantity Ordered: Sum = 700.0', and 'Sales Order:10020 (1 item) Quantity Ordered Sum = 3.0'. A callout box with a blue border and white background points to the second summary row with the text 'Displayed in summaries area below the column'. The bottom of the window shows a navigation bar with tabs for Australia, Canada, Europe, Mexico, System Domain, and United States (1).



A DM\_OVER\_340



## Browse Reset

## Browse Reset

The screenshot shows the 'Sales Order Browse' window in QAD Enterprise Applications. The window title is 'demo: United States (1) - QAD Enterprise Applications'. The menu bar includes File, Edit, Tools, Workspace, Window, and Help. The toolbar contains Actions, Print, Add to Favorites, Chart Designer, Refresh, New, and Edit. The search bar shows 'Sales Order' and 'starts at'. The main area displays a table of sales orders with columns for Sold-To, Status, Line, Item Number, Unit of Measure, Quantity Ordered, Quantity Open, Due Date, Quantity Shipped, Quote, Ship Type, Purchase Order, and Ship-To. A context menu is open over the table, listing options: Autosize Columns, Group By Quantity Ordered, Show Group By Box, Remove Grouping, Expand All Groups, Collapse All Groups, Summary, Clear All Filters, Hide Column, Reset to Factory Settings (highlighted), Columns, and Properties. A text box with the text 'Reset to factory settings after modifications' is overlaid on the table.



ADM\_OVER\_350

### Browse Hyperlinks

# Browse Hyperlinks

The screenshot shows the 'Item Master' window in QAD Enterprise Applications. A context menu is open over the item '02-0010', listing various data and maintenance links such as 'Item Master Stock Availability', 'Item Master Inventory Data', 'Item Master Planning Data', 'Item Master Shipping Data', 'Item Master Purchasing Data', 'Item Master Manufacturing Data', 'Item Master Sales Data', 'Item Master DRP Planning Data', 'Item Master Maintenance', 'Item Inventory Data Maintenance', 'Item Planning Maintenance', 'Item Cost Maintenance', and 'Item Data Maintenance'. A text box on the right explains that these links can be used to drill down to browse 'above the line' or link to URLs 'below the line', including desktop maintenance screens, other web URLs, and call schemes like file:// or ftp://.

- Drill downs to browses "above the line"
- Links to URLs "below the line"
- Can link to desktop maintenance screens
- Can link to other URLs on the web
- Additional call schemes planned (e.g. file:// ftp:// etc.)
- Can pass multiple values



ADM\_OVER\_350



## Browse Drill Down

# Browse Drill Down

The screenshot displays the QAD Enterprise Applications interface. On the left, a navigation pane shows a tree structure with categories like Manufacturing, Financials, Customer Services, Master Data, Supply Chain, Processes, Collections, and Administration. The main window shows the 'Item Master' browse. A search bar at the top allows filtering by 'Item Number'. Below the search bar, a table lists items with columns for Item Number, Description, Unit of Measure, Prod Line, Item Type, Group, Status, and Buyer/Planner. A text box with a blue border and white background is overlaid on the table, containing the text: '•Drill down to related browses' and '•Moving cursor on main browse automatically brings related drill-down records'. The bottom of the interface shows a navigation bar with tabs for Australia, Canada, Europe, Mexico, System Domain, and United States (1).

- Drill down to related browses
- Moving cursor on main browse automatically brings related drill-down records

QAD ADM\_OVER\_367

Browse Create and Modify Buttons

## Browse Create and Modify Buttons

The screenshot shows the QAD Enterprise Applications interface. On the left is a navigation tree with categories like Distribution, Manufacturing, Financials, Customer Services, Master Data, Supply Chain, Processes, Collections, and Administration. The main area displays an 'Item Master' table with columns for Item Number, Description, Description 2, Unit of Measure, Prod Line, Item Type, Group, Status, and Buyer/Planner. A row for item 000-0117-38 is highlighted. A callout box points to this row with the text: '• Opens appropriate maintenance screen' and '• Create or edit existing records from browse screen'. Below the table, an 'Item Master Maintenance' window is open, showing fields for Item Number (000-0117-38), Description (iFinder), and Unit of Measure (EA). The bottom of the screen features a navigation bar with regional tabs: Australia, Canada, Europe, Mexico, System Domain, and United States (Z).

Item Number	Description	Description 2	Unit of Measure	Prod Line	Item Type	Group	Status	Buyer/Planner
02-0001	CONFIGURED DISPLAY RACK		EA	1000	CONFIG	CARDED	AC	
02-0005	MECHANICAL PENCIL	(5MM) BLISTER PACKED	EA	1000	FINGOOD	CARDED	AC	
02-0009	Packaged Pen							
02-0010	ERASER REFILL		EA	1000	FINGOOD	FAB	AC	
02-0020	LEAD REFILL PA		EA	1000	extra	DISCRETE	ac	
03-0030	DISPLAY RACK		EA	1000				
0300000	Unit, Transaxle		EA	1000	extra	DISCRETE	ac	
0300001	Avie, Integral Ar		EA	1000				

## Browse Charting

# Browse Charting

The screenshot displays the QAD Enterprise Applications interface. The main window is titled 'demoui: United States (3) - QAD Enterprise Applications'. A 'Browse Chart Designer' dialog box is open, showing configuration options for a chart. The X-Axis Label is 'Customer', the X-Variable is 'Sold-To', and the Y-Axis Label is 'Quantity Shipped'. The chart type is set to 'Pie Chart 3D'. A 'Preview Chart' button is visible. Below the designer, a 'Browse Chart' window shows a 3D pie chart titled 'Sales Order Browse'. The chart is divided into six segments with the following percentages: 26.85%, 20.13%, 13.42%, 2.68%, 10.00%, and 26.85%. The chart is labeled 'Quantity Shipped' on the Y-axis and 'Customer' on the X-axis. A legend at the top of the chart window identifies the segments by color: 00010002 (blue), 00010002 (green), 00010005 (yellow), 00010005 (orange), 01000000 (dark green), and Others (light blue). A data table is visible in the background, showing columns for quantity, date, and customer information.

Quantity	Date	Customer
5.0	10/06/1993	
100.0	07/11/1998	
500.0	10/10/1994	
1.0	09/09/2003	
3.0	10/02/2003	
1.0	10/02/2003	
10.0	05/01/2004	
5.0	05/01/2004	
1.0	05/01/2004	

**Browse Charting**

- Graphic representation of data
- Preview chart
- Types of chart: Column, Bar, Pie, Stacked with 3D option

Australia   Canada   Europe   Mexico   System Domain   United States (3)  
mfg

ADM\_OVER\_380

# Browse Charting

The screenshot displays the QAD Enterprise Applications interface. The main window is titled "Sales Order Browse" and shows a 3D pie chart. The chart is divided into six segments with the following percentages: 13.42%, 2.68%, 20.13%, 16.78%, 20.13%, and 20.13%. A legend at the top of the chart area lists six categories with corresponding color swatches: 00010002 (blue), 00010002 (green), 00010005 (yellow), 00010005 (orange), 01000000 (dark green), and Others (light blue). A context menu is open over the chart, showing options: Hide Titles, Hide Legend, Launch in New Window, and Copy to Clipboard. A callout box points to the "Grid View" button in the top toolbar, with the text "Toggle between Chart / Grid View". Another callout box points to the context menu options, listing: Hide Titles/Legends, Rotate and zoom 3D charts, Search charts, and Launch in New Window. The interface includes a sidebar with a navigation tree, a search bar, and a bottom status bar with tabs for Australia, Canada, Europe, Mexico, System Domain, and United States (1).

• Hide Titles/Legends  
• Rotate and zoom 3D charts  
• Search charts  
• Launch in New Window



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## Interactive Charting

# Interactive Charting

• Split-screen view of both chart and drill-down browse displayed as chart

• Selecting an item in Inventory Detail browse automatically reflects the changed data in Stock Availability

The screenshot shows a web application interface with a menu on the left, a search bar, and two main data visualization areas. The top area, 'Inventory Detail by Item Browse', features a 3D bar chart with blue bars. The bottom area, 'Stock Availability', features a 3D bar chart with blue and green bars. A callout box with a blue border contains two bullet points describing the interactive features. The QAD logo is in the bottom left, and 'ADM\_OVER\_400' is in the bottom right.

# Menu Collections

## Menu Collections

The screenshot displays the 'Menu Collection Maintenance' window in the QAD Enterprise Applications environment. On the left, a tree view shows the hierarchy: Applications > Collections > Menu Collections. The 'Menu Collections' folder is expanded, showing a list of items: Sales Order Maintenance, Sales Order Print, Sales Orders by Customer, Sales Order Browse, and Sales Order Shipments. The main window has a 'Name' field set to 'Sales', a 'Location' field set to 'Collections-Menu Collections', and an 'Items' list containing the same five items as the tree view. A text box with a blue border is overlaid on the screenshot, containing the text: 'Define collections of related menu items by dragging and dropping'. The bottom of the screenshot shows the QAD logo and the text 'ADM\_OVER\_410'.

Define collections of related menu items by dragging and dropping

## Browse Collections

### Browse Collections

• Define collections of related browse and maintenance programs

• For example, Sales Collection – Sales Order browse with a Site browse, Customer browse and Sales Order Maintenance program

• Selecting the sales order will display the associated records in browse and Sales Order Maintenance

• Save under Favorites



ADM\_OVER\_420

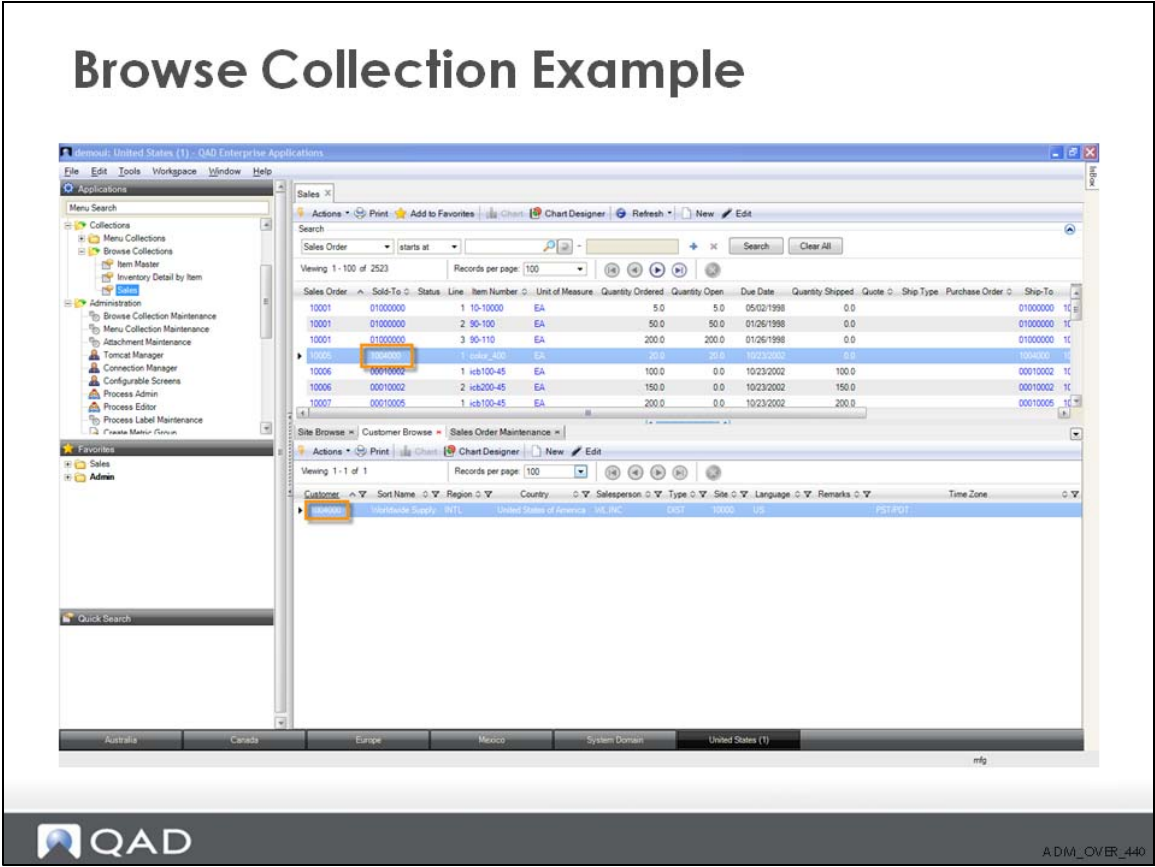
### Browse Collection Example

# Browse Collection Example

The screenshot displays the QAD Enterprise Applications interface. On the left is a navigation tree with categories like 'Collections', 'Administration', and 'Favorites'. The main window shows a 'Sales Order' list with columns for Sales Order, Sold-To, Status, Line, Item Number, Unit of Measure, Quantity Ordered, Quantity Open, Due Date, Quantity Shipped, Quote, Ship Type, Purchase Order, and Ship-To. The row for Sales Order 10005 is highlighted. Below the list, the 'Sales Order Maintenance' screen shows details for Order 10005, including Sold-To (Worldwide Supply), Ship-To (Worldwide Supply), address (8000 Central Avenue, Kansas City, MI 48802, United States of America), and order details (Order Date: 10/22/2002, Confirmed: 10/22/2002, Currency: USD, Language: US).

Sales Order	Sold-To	Status	Line	Item Number	Unit of Measure	Quantity Ordered	Quantity Open	Due Date	Quantity Shipped	Quote	Ship Type	Purchase Order	Ship-To
10001	01000000		1	10-10000	EA	5.0	5.0	05/02/1998	0.0				01000000
10001	01000000		2	90-100	EA	50.0	50.0	01/26/1998	0.0				01000000
10001	01000000		3	90-110	EA	200.0	200.0	01/26/1998	0.0				01000000
10005	1004000		1	coltr_400	EA	20.0	20.0	10/23/2002	0.0				1004000
10006	00010002		1	sch100-45	EA	100.0	0.0	10/23/2002	100.0				00010002
10006	00010002		2	sch200-45	EA	150.0	0.0	10/23/2002	150.0				00010002
10007	00010005		1	sch100-45	EA	200.0	0.0	10/23/2002	200.0				00010005

# Browse Collection Example



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# Multiple Views

## Multiple Views

The screenshot shows the 'Item Browse' window in QAD Enterprise Applications. The window title is 'demo1: United States (1) - QAD Enterprise Applications'. The interface includes a menu bar (File, Edit, Tools, Workspace, Window, Help), a toolbar with options like 'Print', 'Add to Favorites', 'Chart Designer', 'Refresh', 'New', and 'Edit', and a search bar. A left-hand navigation pane lists various view options such as 'Item Browse', 'Customer Item Browse', 'Inventory Detail by Item Browse', 'Kanban Cards by Item Browse', 'Kanban Process Item Browse', 'Linked Site Item Browse', 'Production Line Item Browse', 'Rate Code by Item Browse', 'S-RO by Item Browse', 'Sales by Item Browse', 'Supplier Item Browse', and 'Transactions by Item Browse'. Below this is a 'Favorites' section with 'Sales' and 'Admin' items, and a 'Quick Search' field. The main area displays a table of items with columns for 'Item Number', 'Description', 'Description 2', and 'Unit of'. The table lists various items like 'CONFIGURED DISPLAY RACK', 'MECHANICAL PENCIL', 'Packaged Pen', 'ERASER REFILL PACK', 'LEAD REFILL PACK', 'DISPLAY RACK', 'Unit, Transable Aux Drive', 'Aisle, Integral Arm Steel', 'Filter, Air', 'Filter, Coolant', 'Assembled Pen', 'Barrel', 'Ink Cart, 50 ML', 'Pen Cap', 'Prototype Ink Cart, HQ', 'Printed Card Pen', 'white 2MSCE 40#', 'white 335 429CB 40#', 'U-Bolt Clamp', and 'U-Bolt Clip'. Two blue callout boxes with white text are overlaid on the window: one pointing to the top border of the table area with the text 'Drag the border for multiple horizontal views', and another pointing to the left border of the table area with the text 'Drag the border for multiple vertical views'. At the bottom of the window, there are tabs for different regions: 'Australia', 'Canada', 'Europe', 'Mexico', 'System Domain', and 'United States (1)'. The status bar at the very bottom shows 'mfg'.



# Multiple Views

The screenshot shows the 'Item Browse' window in QAD Enterprise Applications. The window title is 'demo1: United States (1) - QAD Enterprise Applications'. It features a menu bar (File, Edit, Tools, Workspace, Window, Help) and a toolbar with options like 'Actions', 'Print', 'Add to Favorites', 'Chart', and 'Chart Designer'. A search bar is located at the top left, with 'Item Number' selected and 'starts at' as the search criteria. Below the search bar, it indicates 'Viewing 1 - 100 of 603' records, with 'Records per page' set to 100. The main area displays two side-by-side tables of item data. Each table has columns for 'Item Number', 'Description', 'Description 2', and 'Unit of Measure'. The data includes items like 'CONFIGURED DISPLAY RACK', 'MECHANICAL PENCIL (5MM) BLISTER PACKED', 'Packaged Pen', 'ERASER REFILL PACK', 'LEAD REFILL PACK', 'DISPLAY RACK', 'Unit, Transaxle Aux Drive', 'Axle, Integral Arm Steel', 'Filter, Air', 'Filter, Coolant', 'Assembled Pen', and 'Barrel'. A 'Favorites' pane on the left shows 'Sales' and 'Admin' categories. A 'Quick Search' bar is at the bottom left. A navigation bar at the bottom shows regions: Australia, Canada, Europe, Mexico, System Domain, and United States (1). Two callout boxes with blue borders and white text are overlaid on the image. The top callout, pointing to the right edge of the window, says 'Drag the border for multiple horizontal views'. The bottom callout, pointing to the bottom edge of the window, says 'Drag the border for multiple vertical views'.

Drag the border for multiple horizontal views

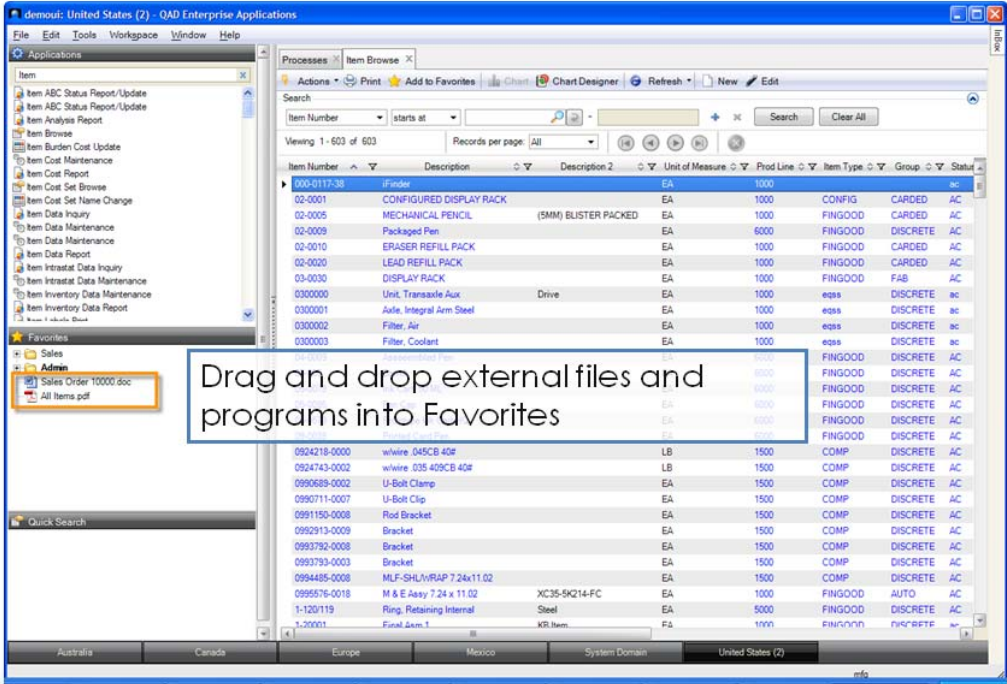
Drag the border for multiple vertical views



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# External Files as Favorites

## External Files as Favorites



## Connect to Other Applications

# Connect To Other Applications

Connect to other applications: define a menu item to open QAD BI Dashboard

**QAD**  
Our Passion. Your Advantage.

### Pam's Production Manager Dashboard

**Past Due Sales Orders**

Bar chart showing Past Due Sales Orders by Item Group (Adhesive, Blank, BSP, Core, Drains, Other) for 1Q'06, 2Q'06, 3Q'06, and 4Q'06. A significant spike is visible in 3Q'06 for the 'Blank' category.

**Past Due Sales Orders**

Gauge chart showing Past Due Sales Orders by Item Group. The needle points towards the 'Blank' category, indicating a high volume of past due orders.

**Daily Revenue (USD)**

Line chart showing Daily Revenue (USD) by Item Group (Adhesive, Blank, BSP, Core, Drains, Other) for 1Q'06, 2Q'06, 3Q'06, and 4Q'06. Revenue is generally stable, with a slight increase in 3Q'06.

	Adhesive	Blank	BSP	Core	Drains	Other
Lines Early	0	0	0	0	0	0
Lines Same	4,974	30	1,712	143,702	10,258	18,018
Lines Late	3,804	10	717	67,256	4,353	6,006
Lines 1 day late	916	3	201	19,372	1,122	1,056
Lines 2 days late	922	5	147	18,491	1,026	1,411
Lines 3 days late						

mfg

ADM\_OVER\_480

## Exercises

### Exercises

- Create a new product structure using Product Structure Maintenance
- Add menu options to your Favorites
- Open Sales Order Browse and add filters, create a chart, group the browse by Sales Order, organize it in multiple views (vertical and horizontal)
- Create a new Menu Collection, choosing any options that relate with each other
- Create a new Browse Collection with
  - Site Browse
  - Customer Browse
  - Sales Order Maintenance



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Chapter 2

# **Terminology**

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to describe terminology you need to know to understand the QAD .NET UI



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## Benefits

### Benefits

- You will be familiar with the terminology used in QAD .NET UI administration



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## Training Flow

### Training Flow



- Overview
- **Terminology**
- Components
- Administration Tasks
- Multiple Systems
- Performance Tuning
- Troubleshooting
- Customizing Browsers
- Menu and Browse Collections
- Process Maps
- Configurable Screens

## Overview

### Overview

- Network Terminology
- Web Terminology
- Java Terminology
- Tomcat Terminology
- .NET Terminology

## Network Terminology

### Network Terminology

- Intranet: A private network inside a company
- Internet: A system of linked networks that are worldwide in scope
- Extranet: A network that allows a company to share information with other businesses and customers



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## Network Terminology

- LAN: Local Area Network. A network of computers that span a relatively small area
- WAN: Wide Area Network. A network that spans a larger area and comprised of two or more LANs
- TCP/IP: Transmission Control Protocol / Internet Protocol
- HTTP: Hypertext Transmission Protocol

## Web Terminology

### Web Terminology

- HTML: Hypertext Markup Language
- URL: Uniform Resource Locator
- HTML Documents: ASCII files containing HTML that the Web server sends to the browser
- CGI: Common Gateway Interface



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## JAVA Terminology

### Java Terminology

- JAR File: Java Archive File. A zip file that contains an optional META-INF directory
- JVM: Java Virtual Machine. Enables cross-platform delivery
- JDK/JSDK: Java Development Kit (required by Tomcat)

## Tomcat Terminology

### Tomcat Terminology

- Servlet: Simple, consistent mechanism for extending the functionality of a Web Server
- JSP: JavaServer Pages; technology to rapidly develop and easily maintain information-rich, dynamic Web pages
- XML: eXtensible Markup Language
- XSLT: Transforms XML to another format and allows manipulation of Elements, Attributes and Data



ADM\_TERM\_100

## .NET Terminology

### .NET Terminology

- .NET: Microsoft software for connecting information, people, systems, and devices. .NET provides XML-based interoperability and is being incorporated across Microsoft clients, servers, services, and tools.
- .NET Framework: An integral Windows component that enables building and running the next generation of software applications and Web services.
- ADO.NET
  - Key for integrating .NET with Progress
  - A set of classes used to wrap data and data services
    - XML Web Services
    - .NET Remoting
    - Passes data back and forth to OpenEdge AppServer
  - In memory database



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## .NET Terminology

- ProDataSet
  - An OpenEdge in-memory data store
  - Maps directly to an ADO.NET DataSet allowing us to:
    - Design a .NET interface in terms of .NET DataSets
    - Pass data back and forth to OpenEdge AppServer

Chapter 3

# Components

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to describe the QAD .NET UI components and architecture



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## Benefits

### Benefits

- You will be familiar with the components used in QAD .NET UI architecture and installation



ADM\_COMP\_030

## Training Flow

### Training Flow



- Overview
- Terminology
- **Components**
- Administration Tasks
- Multiple Systems
- Performance Tuning
- Troubleshooting
- Customizing Browsers
- Menu and Browse Collections
- Process Maps
- Configurable Screens



ADM\_COMP\_040

## Overview

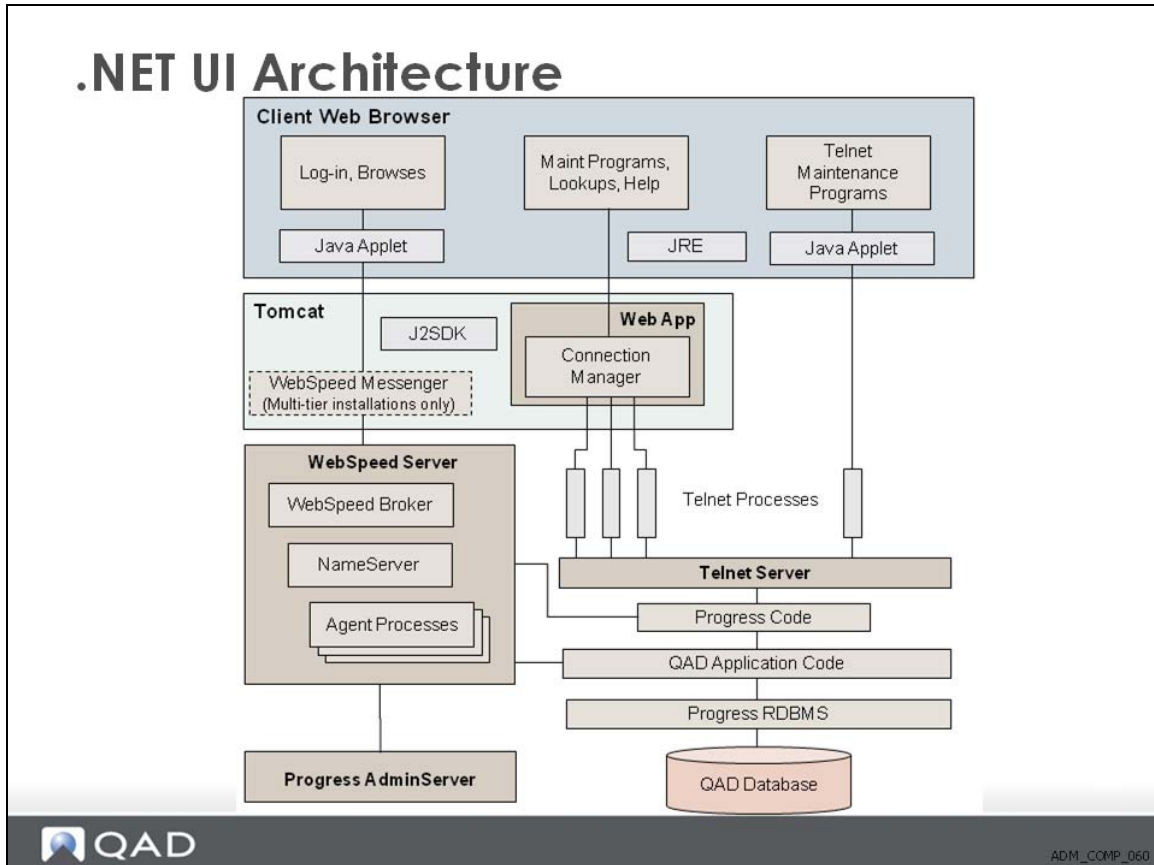
### Overview

- .NET UI Technology Overview
- .NET UI Architecture
  - Progress WebSpeed
  - Progress AppServer
  - Tomcat
  - Connection Manager
  - Telnet Server
  - .NET UI Client



ADM\_COMP\_050

## NET UI Architecture



## What Is WebSpeed?

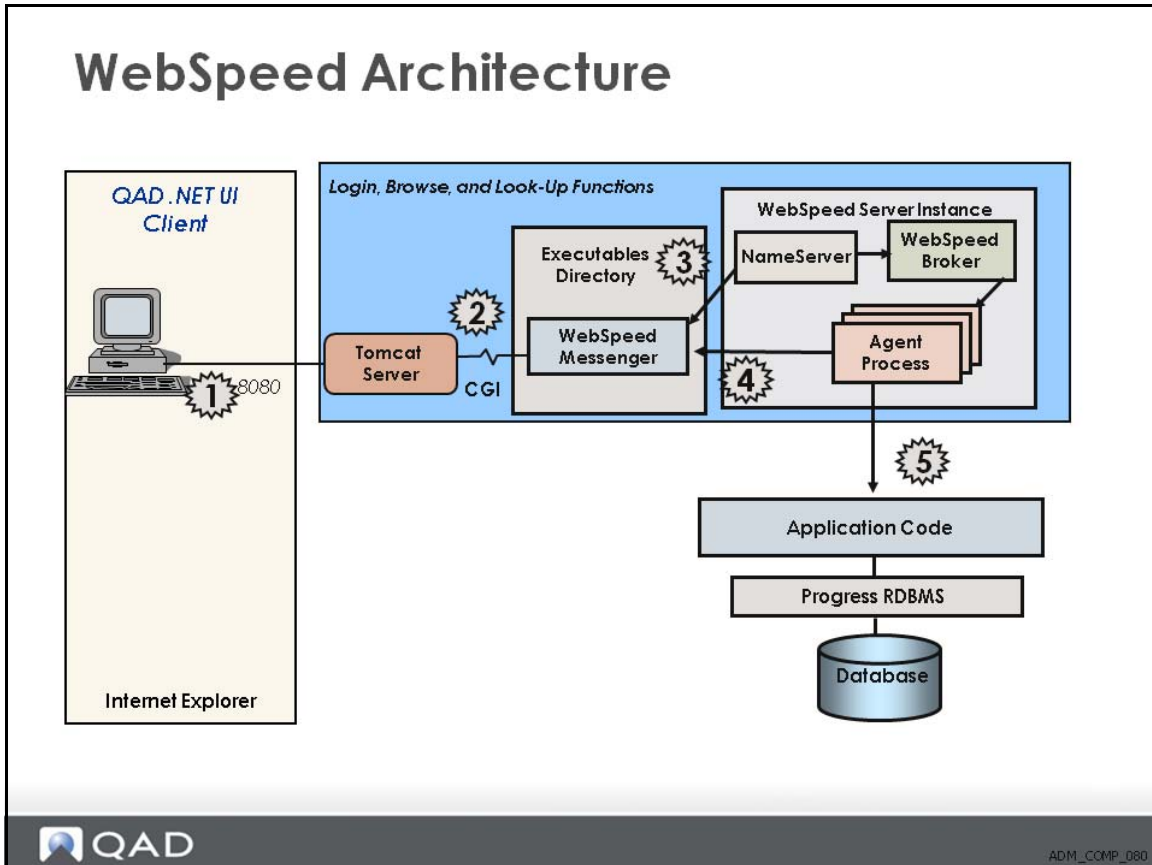
### What is WebSpeed?

- WebSpeed is a Progress development and deployment environment that enables users to build robust, data-driven Internet Transaction Programs (ITP) for the intranet or Internet
- Enables you to create Web Objects (application modules) that map data to and from static HTML documents using the WebSpeed Workshop and WebSpeed 4GL
- Enables you to deploy your HTML pages and Web Objects to a run-time environment using the WebSpeed Transaction Server



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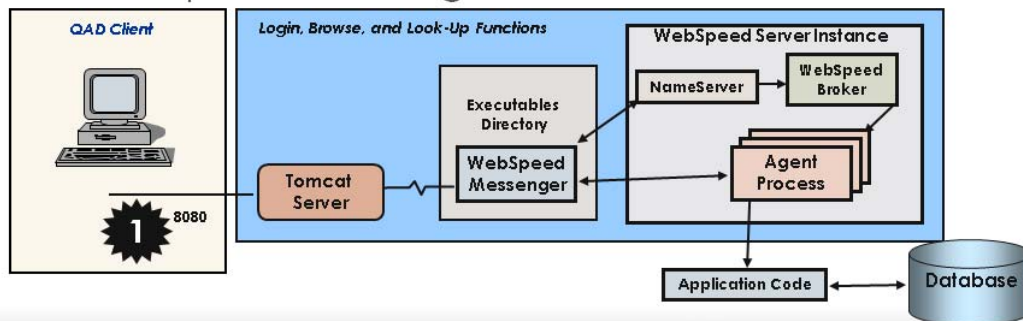
## WebSpeed Architecture



## WebSpeed Architecture 1

### WebSpeed Architecture

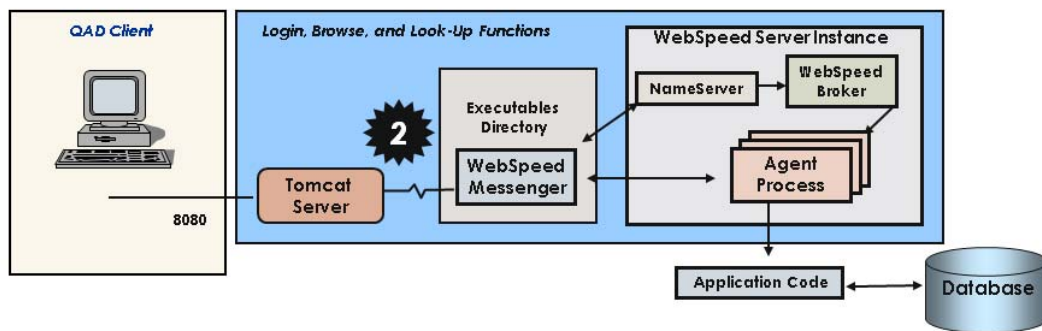
- Connection 1
  - Network Connection between the browser and the Tomcat server. Default server port is 8080
  - Tomcat server and WebSpeed messenger must be on the same machine
  - Tomcat server communicates with the WebSpeed messenger



## WebSpeed Architecture 2

### WebSpeed Architecture

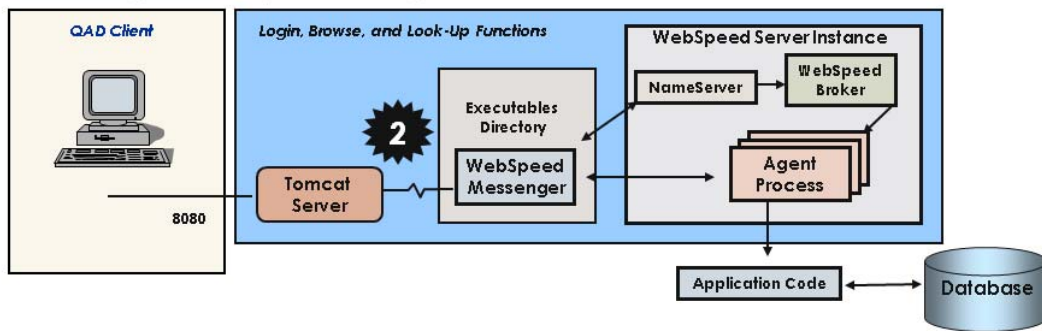
- Connection 2
  - Tomcat server connection to the WebSpeed messenger
  - Uses script programs stored on the Tomcat server to communicate with the messenger
  - Messenger is a PROGRESS .exe file that takes a PROGRESS Web Object procedure (.w) as input and sends back an HTML page as output



## WebSpeed Architecture 2

## WebSpeed Architecture

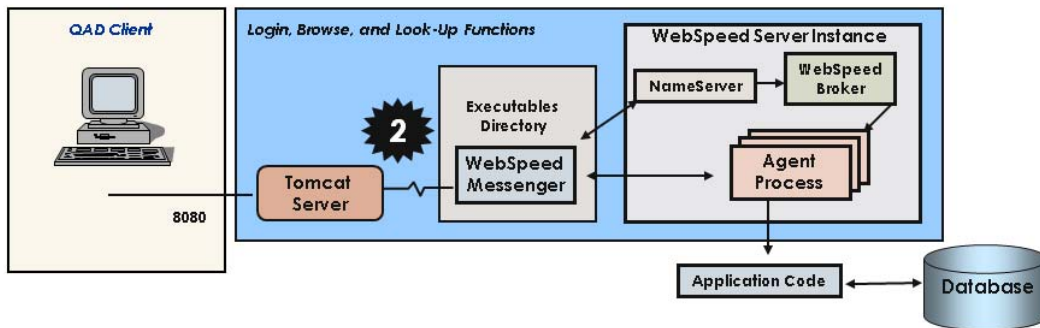
- CGI Messenger executables
  - Uses script programs stored on the Tomcat server to communicate with the messenger
  - cgiip.exe (NT) cgiip (UNIX)
  - The messenger asks the broker if there are agents available to run a web object, then passes the web object to the agent for processing



## WebSpeed Architecture 2

# WebSpeed Architecture

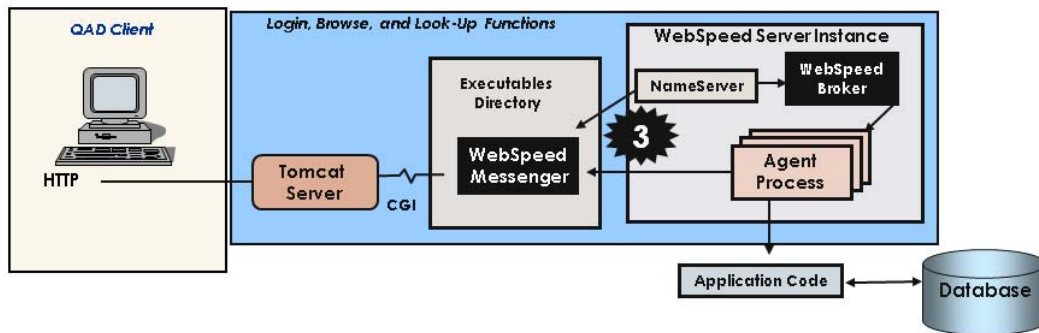
- After processing, the agent returns its HTML output to the messenger for transfer back to the web server and finally to the browser



## WebSpeed Architecture 3

### WebSpeed Architecture

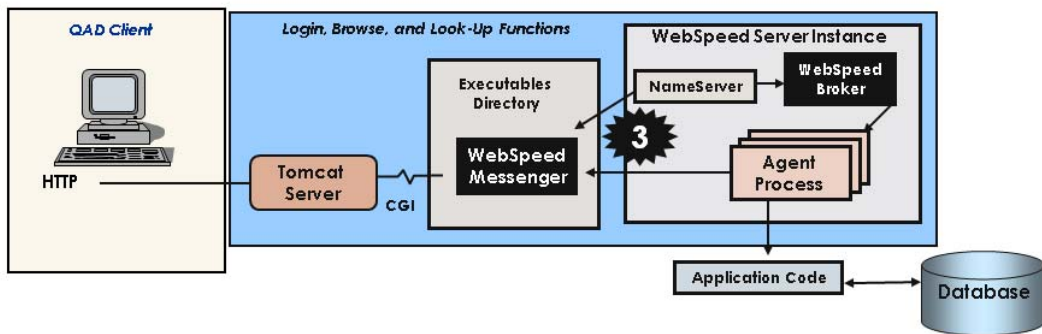
- Connection 3
  - Network connection between the messenger and the transaction broker
  - Defined by the hostname and port defined in the `ubroker.properties` file



### WebSpeed Architecture 3

## WebSpeed Architecture

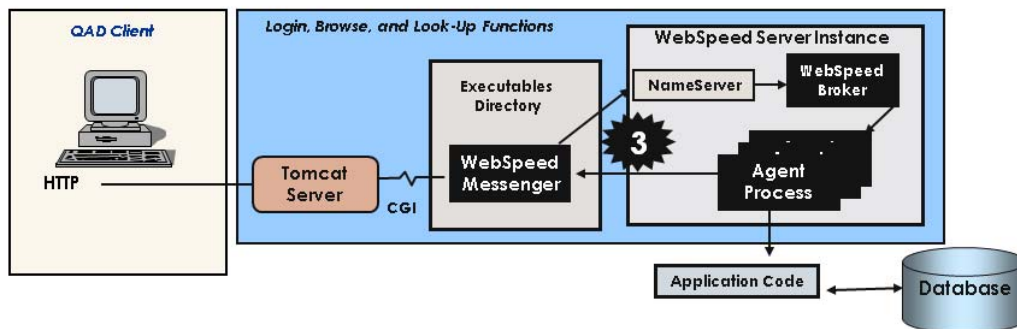
- WebSpeed Transaction Broker is responsible for:
  - Receiving requests from the messenger on availability of an agent to service the Web object
  - Replying to the messenger with the ID and port of the available agent
  - Spawning a new agent if none available and not at the limit



## WebSpeed Architecture 3

## WebSpeed Architecture

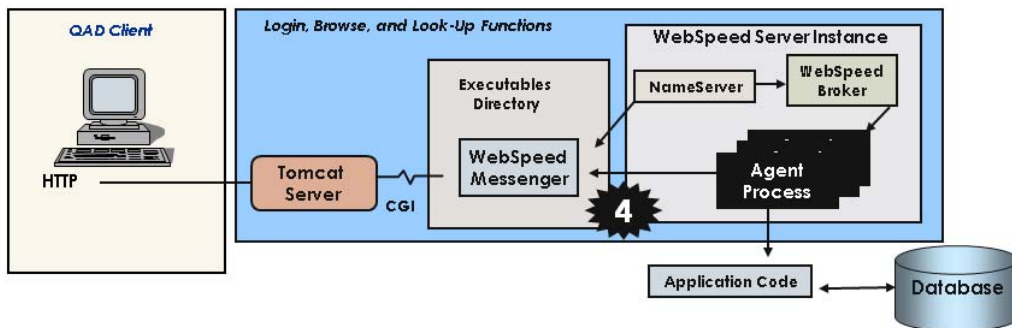
- The WebSpeed broker will assign an agent
  - If at the limit, sends message to messenger that no agents are available
  - Provides the status and states of running agents
    - STARTING, AVAILABLE, LOCKED, BUSY



## WebSpeed Architecture 4

### WebSpeed Architecture

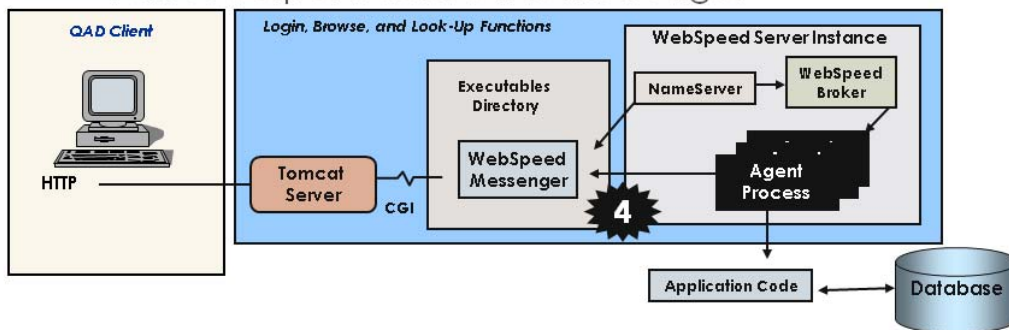
- Connection 4:
  - Network connection between the WebSpeed transaction agents and Web server
  - Defined by the hostname and port defined in the `ubroker.properties` file



## WebSpeed Architecture 4

## WebSpeed Architecture

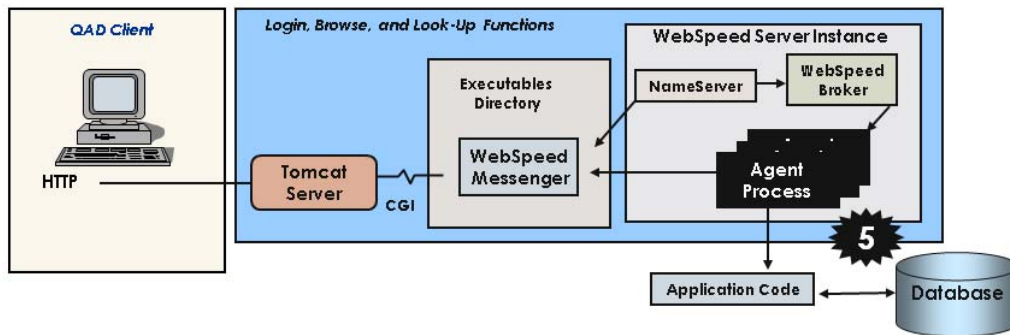
- WebSpeed Transaction Agent:
  - A Progress client (\_progres) with modifications to work with WebSpeed
  - Agents accept requests from the messenger in the form of a URL, parse the URL for the name of the web object to execute, and then run it
  - Passes output back to the messenger



## WebSpeed Architecture 5

### WebSpeed Architecture

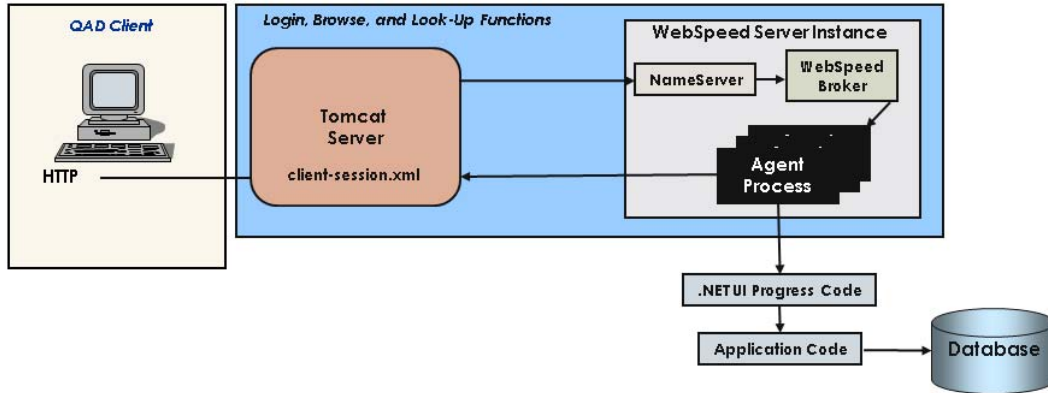
- Connection 5:
  - Connection between agents and the database
  - The WebSpeed Agents can connect to the databases in either Client/Server or shared memory mode



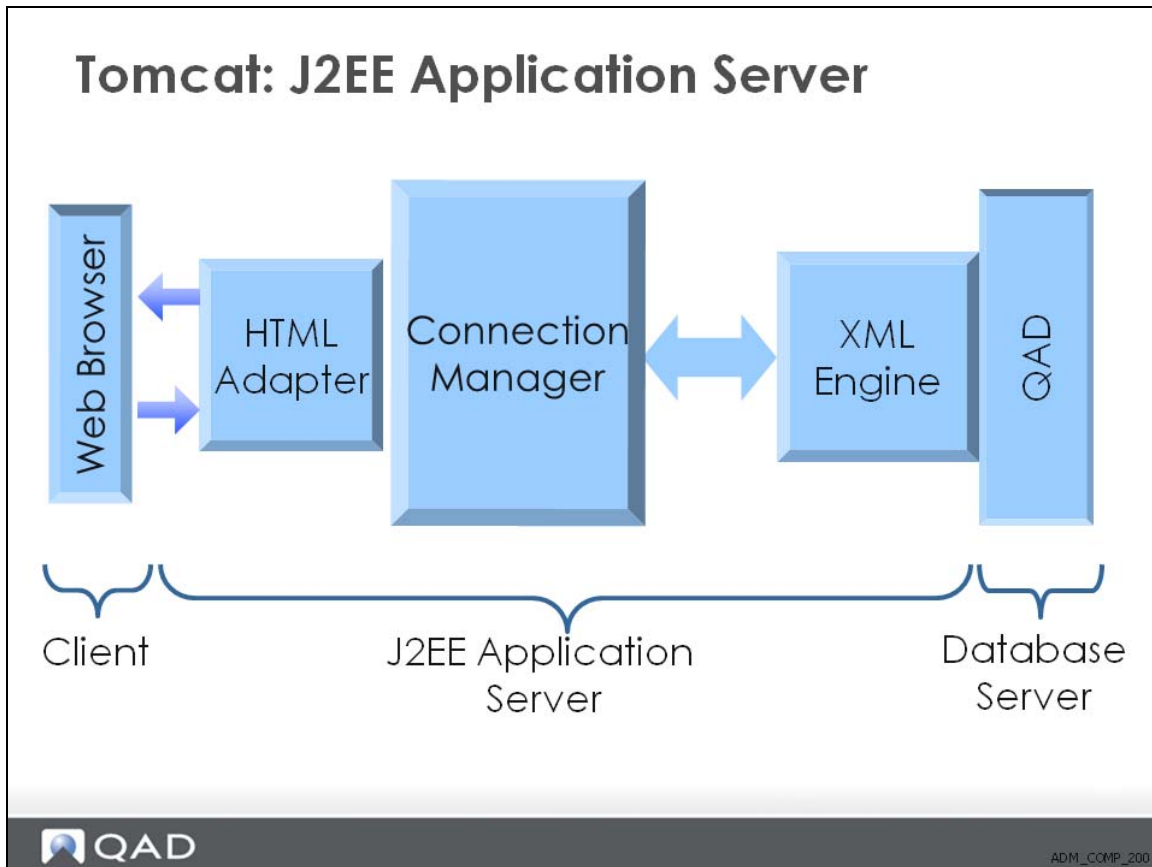
## Progress AppServer

### Progress AppServer

- Executes OpenEdge 4GL Procedures that can be called by Progress, Java and .NET



## Tomcat J2EE Application Server



## Tomcat Overview

### Tomcat Overview

- Java-based Web application container
- Runs servlet in JSP
- Tomcat 5.5.x and 6.0.x
- If upgrading and using 5.5.x, you do not need to upgrade to 6.0.x.

## Tomcat Directories - Key Subdirectories

### Tomcat Directories

- Key subdirectories
  - /bin – administration scripts
    - startup.sh
    - shutdown.sh
    - setenv.sh
  - /logs – log files directory
    - catalina.out
    - tomcat.pid
  - /conf – configuration files directory
    - server.xml
    - tomcat-users.xml
  - /webapps – web applications directory
    - Location of .NET UI directories and files

## Tomcat Directories - Key .NET UI Directories

### Tomcat Directories

- Key .NET UI directories
  - Configuration files
    - /webapps/qadhome/<env\_name>/configurations
  - Client session configuration file
    - /webapps/qadhome/<env\_name>/configurations/client-session.xml
  - Process Maps
    - /webapps/<env\_name> /WEB-INF/pronav
  - Configurable Screens
    - <qad\_install\_dir>/<netui\_progress\_dir>/com/mfgpro/configxml/qaddb
  - Metrics, Favorites, Collections
    - /webapps/qadhome/configurations/<env\_name> /storage



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## Tomcat Directories - Attachments

### Tomcat Directories

- Key .NET UI directories: Attachments
  - Attachments default location:
    - `/webapps/qadhome/configurations/<env_name>/storage/attachments`
  - Attachments single WebDAV location:
    - Specify in `client-session.xml`:
    - `<WebDAVRoot>ServerURL  
/webdav/attachments</WebDAVRoot>`

## Tomcat Directories - Key .NET UI Files

### Tomcat Directories

- Key .NET UI files

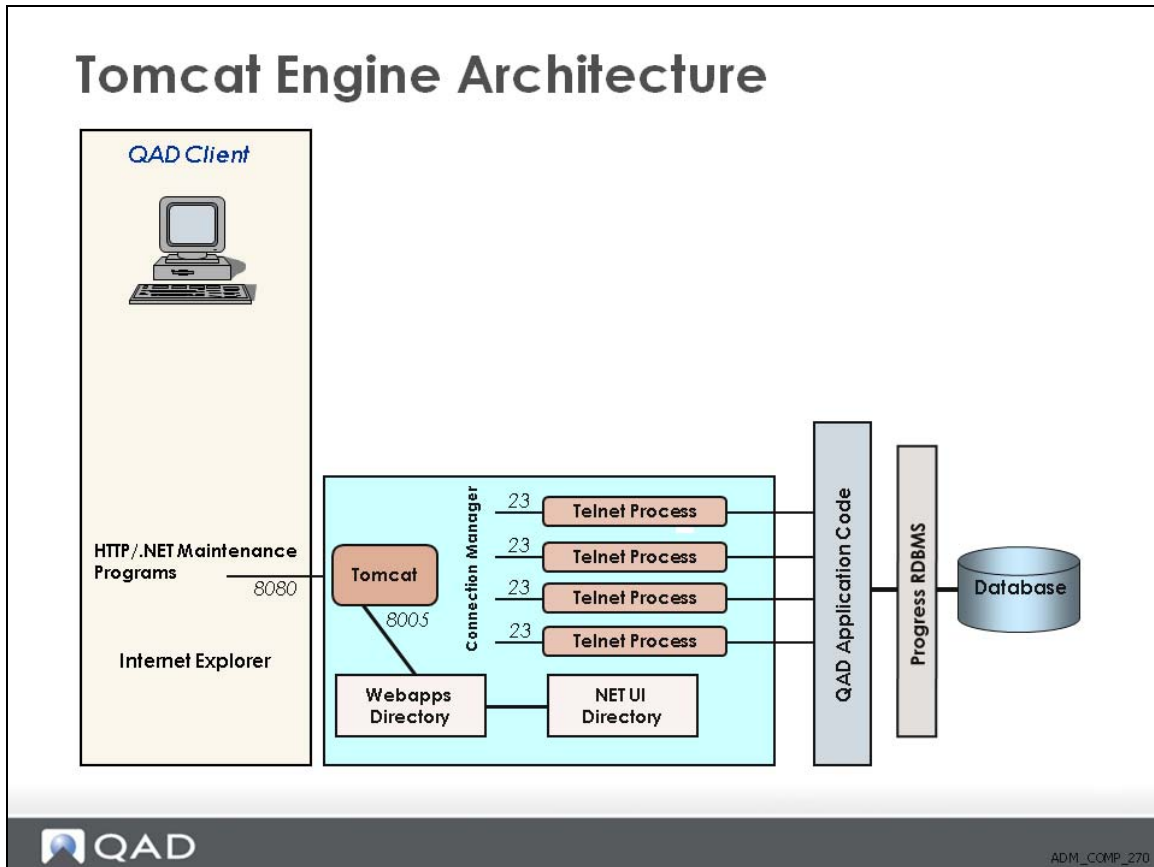
- /webapps/<.NET UI Install>
  - /WEB-INF
    - /conf -- configuration files for .NET UI components
    - /cgi -- WebSpeed Messenger and other executables
    - /log -- log files for .NET UI
  - /WEB-INF/conf
    - connectionManagerConfig.xml
      - Stores configuration values for the connection manager
      - Edit via the Connection Manager
    - process-config.xml
      - Stores values for the Process Editor

## Using Tomcat

### Using Tomcat

- Set JAVA\_HOME environment variable
- Startup Tomcat (`startup.sh`)
- Verify Tomcat Server is up  
(`http://hostname:8080`)
- Shutdown Tomcat (`shutdown.sh`) as needed
- See `catalina.out` for error messages

## Tomcat Engine Architecture



ADM\_COMP\_270

## Connection Manager

### Connection Manager

- Use to update configuration settings
- View a log file of Connection Manager actions
- Monitor connections in the connections pool
- Monitor users and close user sessions
- Configure Connection Manager before you start a .NET UI client session



ADM\_COMP\_280

# Connection Manager

- Manage pool of Telnet connections
- Functions
- Connections
- Users

The screenshot displays the Connection Manager interface. On the left is a sidebar with a 'Functions' section containing options like 'Close Connection Manager', 'Restart Connection Manager', and 'Update configuration settings'. Below that is a 'Connections' section with filters for 'All', 'Busy', 'Idle', and 'Initializing'. At the bottom of the sidebar is a 'Users' section with a 'Refresh' button.

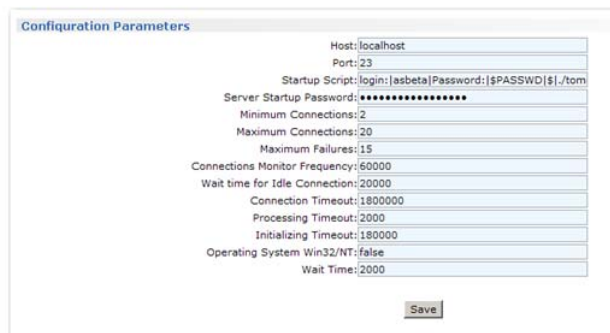
The main area is titled 'Connection Manager - Default/Desktop' and shows a status summary: 'All: 2 Busy: 0 Idle: 2 Initializing: 0'. Below this is a table of active connections:

Status	ID	Process ID	User ID	Device	User IP	Maximum Connections	Program	User Connected Time	Close
Idle	904	0	null		null	0	null		Close
Idle	905	0	null		null	0	null		Close
<b>Total</b> 2									Refresh Close All

## Configuration Settings

### Configuration Settings

- Update as necessary
- Host: The machine name or IP address of the telnet server
- Port: The port number for the telnet server. Usually set to 23



The screenshot shows a dialog box titled "Configuration Parameters" with the following fields and values:

Host:	localhost
Port:	23
Startup Script:	login:[asbeta]Password:[\$PASSWD]\$.tom
Server Startup Password:	*****
Minimum Connections:	2
Maximum Connections:	20
Maximum Failures:	15
Connections Monitor Frequency:	60000
Wait time for Idle Connection:	20000
Connection Timeout:	1800000
Processing Timeout:	2000
Initializing Timeout:	180000
Operating System Win32/NT:	false
Wait Time:	2000

A "Save" button is located at the bottom right of the dialog box.

## Monitor Connections and Users

### Monitor Connections and Users

- Displays connection status
- Click Refresh to update
- View currently logged in users
- Click the user ID to view user information
- Click Close to close a user session

Connection Manager - Default/Desktop

Fri Jun 18 08:09:27 PDT 2010 All: 2 Busy: 0 Idle: 2 Initializing: 0

Name: All

Status	ID	Process ID	User ID	Device	User IP	Maximum Connections	Program	User Connected Time	Close
Idle	906	0	null		null	0	null		Close
Idle	907	0	null		null	0	null		Close
<b>Total</b>	<b>2</b>								Refresh Close All

## .NET UI Client

### **.NET UI Client**

- Runs in the Microsoft .NET framework
- Server components are installed during the .NET UI install
- Brief automated installation on client



ADM\_COMP\_320

## Exercise

### Exercise

- Verify that all .NET UI components are working:
  - All databases are started
  - Progress OpenEdge Admin Server
  - Progress OpenEdge NameServer
  - Progress OpenEdge WebSpeed Broker
  - Progress OpenEdge AppServers (Financials and UI)
  - Tomcat Server (idle session)
- Install QAD .NET UI Client



ADM\_COMP\_330



Chapter 4

# **QAD .NET UI Administration**

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to describe different administration features and functions



ADM\_ADM\_020

## Benefits

### Benefits

- You will have an overview of release and service pack installations, be able to edit the `client-session.xml` file, and to identify and use different session monitors and logs

## Training Flow

### Training Flow



- Overview
- Terminology
- Components
- **Administration Tasks**
- Multiple Systems
- Performance Tuning
- Troubleshooting
- Customizing Browsers
- Menu and Browse Collections
- Process Maps
- Configurable Screens

## Overview

### Overview

- Installation of New Release or Service Pack
- Client Session Configuration
- System-Wide Logging Settings
- Configuration Storage Directories
- Menu Extension Configuration
- Session Configuration
- Session Monitoring
- Connection Manager
- Heartbeat Monitor
- User Count Log



ADM\_ADM\_050

## Overview (continued)

- Adding Custom Menus
- Using Attachment Maintenance
- Active Directory Authentication
- Messaging and Workflow Inbox
- Adding Custom Links
- Adding Transaction Comments
- Embedded Telnet Screens
- Recording Program Actions

## Installation

### Installation

- Installation of new release
  - Review Release Notes and Errata
  - Clear Tomcat cache
  - .NET UI client automatically checks for new version
- Installation of a service pack
  - May overwrite newer MFGUTIL files
  - Re-install may be needed to place back updated MFGUTIL files

## Client Session Configuration

### Client Session Configuration

- Client Session Configuration File:
  - `client-session.xml`
  - Located on the server in  
`/webapps/qadhome/configurations/  
<env_name>/client-session.xml`
  - Contains configuration for NameServer,  
AppServer and WebSpeed broker names and  
ports
  - Progress OpenEdge DC (Direct Connect)  
parameter for the AppServer should be set up

## Client Session Configuration

- Client Session Configuration File:
  - client-session.xml

```
<?xml version="1.0" encoding="utf-8" ?>
<Configuration>
  <ConnectionProtocol>AppServer</ConnectionProtocol>
  <ConnectionSecureProtocol>AppServer</ConnectionSecureProtocol>
  <ConnectionHost>qaddemo.qad.com</ConnectionHost>
  <ConnectionPort>5162</ConnectionPort>
  <ConnectionService>qaddemo_AS</ConnectionService>
  <ConnectionSecureService>qaddemo_AS</ConnectionSecureService>
  <ConnectionSecureHost>qaddemo.qad.com</ConnectionSecureHost>
  <ConnectionSecurePort>5162</ConnectionSecurePort>
  <DesktopProtocol>http</DesktopProtocol>
  <DesktopHost>qaddemo.qad.com</DesktopHost>
  <DesktopPort>8080</DesktopPort>
  <DesktopService>qaddemo</DesktopService>
  <DesktopAPI>shell.jsp</DesktopAPI>
  <DesktopAsWebBrowser>>false</DesktopAsWebBrowser>
  <WebSpeedService>qaddemo_WS</WebSpeedService>
  <WebSpeedPath>cgi-bin/wspd_cgi.ksh/WService</WebSpeedPath>
  <WebSpeedProgram>com/qad/desktop/interface/wsep1.p</WebSpeedProgram>
```

## Client Session Configuration

- Setting Browse Record Threshold in `client-session.xml`

```
<MaximumBrowseRecordsToCount>50000</MaximumBrowseRecordsToCount>  
<MaximumBrowseRecordsToDownload>50000</MaximumBrowseRecordsToDownload>  
<BrowseRecordsForPrintWarning>10000</BrowseRecordsForPrintWarning>  
<BrowseRecordsForExcelWarning>10000</BrowseRecordsForExcelWarning>  
<ChartElementsForChartWarning>100</ChartElementsForChartWarning>
```

## System-Wide Logging Settings

### System-Wide Logging Settings

- Applying system-wide settings
  - Set in `./webapps/qadhome/configurations/default/client-bootstrap.xml`
  - Examples: Log level, log file location
- Increasing the logging level increases the log file size
- Use only to debug problems for short periods of time

## Configuration Storage Directories

### Configuration Storage Directories

- By default, attachments stored in `/webapps/qadhome/configurations/<env_name>/storage/attachments`
- Subdirectories organize attachments by domain, program, type, and field
- Each directory includes an underscore (`_`) at the end to account for the possibility of using a blank

## Configuration Storage Directories

- Browse collections are stored in `/webapps/qadhome/configurations/<env_name>/storage/browse-collections`. Each is assigned a unique ID by the system.
- Menu collections are stored in `/webapps/qadhome/configurations/<env_name>/storage/menu-collections`. Each is assigned a unique ID by the system.
- Favorites are stored in `/webapps/qadhome/configurations/<env_name>/storage/user-data` in subdirectories based on user ID and domain

## Configuration Storage Directories

- Browse collections are stored in `/webapps/qadhome/configurations/<env_name>/storage/browse-collections`. Each is assigned a unique ID by the system.
- Menu collections are stored in `/webapps/qadhome/configurations/<env_name>/storage/menu-collections`. Each is assigned a unique ID by the system.
- Favorites are stored in `/webapps/qadhome/configurations/<env_name>/storage/user-data` in subdirectories based on user ID and domain

## Menu Extension Configuration

### Menu Extension Configuration

- The menu extension configuration file defines menus added to the QAD .NET UI outside of standard menu items.
- By default, file is located in  
`/webapps/qadhome/configurations/default/menus/plugin-menu.xml`
- You can define them for each environment by placing them in appropriate directories under the `/configurations` directory:  
`<env_name>/menus/plugin-menu.xml`



ADM\_ADM\_140

## Menu Extension Configuration

- To add Microsoft Excel:

```
<ShellMenuItem key="apps.excel" label="Word"
  image=".xls">
  <Command type="QAD.Commands.ProcessCommand">
    <Property name="StartInfo.FileName"
value="Excel.exe"/>
  </Command>
</ShellMenuItem>
```

- To add Microsoft Internet Explorer:

```
<ShellMenuItem key="apps.iexplore"
  label="WebBrowser" image=".html">
  <Command type="QAD.Commands.ProcessCommand">
    <Property name="StartInfo.FileName"
value="about:blank"/>
  </Command>
</ShellMenuItem>
```



ADM\_ADM\_150

## Session Configuration

### Session Configuration

- Set session configuration
  - Can set maximum number of forms each user can open
  - Affects maintenance, inquiries, reports, and embedded telnet screens
  - Browsers, Financials, Workbenches, and Product Structure Maintenance are driven by the OE AppServers
  - Setting it too high can impact performance
  - Set in User Option Telnet Maintenance



ADM\_ADM\_160

# Session Configuration

User Option Telnet Maintenance

Go To Actions Copy Print Preview

User ID: \*

Telnet Options

Host:	cdli49.qad.com	Script Timeout:	240
Host O/S:	UNIX	Port:	23
Image:		Idle Timeout:	240

Script Lines

Sequence: 1

Script Lines Data

Script Pattern: login:

Script Value: netui

Script Status:

Telnet Connections

Maximum:

Min Telnet Connect:

Delete Back Next

## Session Monitoring

### Session Monitoring

- Session Master Maintenance
  - No maintenance done in this screen
  - Can be used to delete defunct users
  - Specifies a system-generated session ID
- Connection Manager
  - Monitor which users are accessing system/programs
  - View status of connection pools
- Heartbeat Monitor
  - Configure load balancer device or create script that monitors the Connection Manager through heartbeat pages
- User Count Log File
  - Logs user, program executed, and time of execution
  - Located in /webapps/<qadui.cfg>/WEB-INF/logs/usercount.log



ADM\_ADM\_180

## Session Master Maintenance

**Session Master Maintenance**

File Edit Tools Workspace Window Help

Applications

Menu Search

- Language Detail Maintenance
- Report Translation Maintenance
- Menu System Menu
- Message Menu
- Browse Menu
- User Function Browse
- User-Defined Object Menu
- Field Help Menu
- User Option Telnet Maintenance
- User Option Report
- Configurable Screens Report
- Label Menu
- Customization Export
- Customization Delete
- E-Mail Definition Maintenance
- Report Setup Menu
- Session Master Maintenance**

Go To Actions Copy Print Preview

Session ID: 020020w6ESjT&rvHaKeUlyRjLlniZi41nX0Yp482pl8cgHZolvl0

User ID: mfg

User Name: General User

Session Master

Client IP Address: 167.3.9.60	Security Profile:
Session Timeout: 600 Mi	Idle Time: 0.07 Min
Active Web: 0	Active Telnet: 2
Number of Records: 0	Menu Substitution: <input type="checkbox"/>

Session Context Detail

Context ID: 1	Domain: Domain1
GI Entity: 1000	Current Entity: 1000
	Base Currency: USD
	Database: newyork

Delete Back Next

**QAD** ADM\_ADM\_190

# Connection Manager

## Connection Manager

**Connection Manager - Default/Desktop**  
 Thu Jul 21 11:30:54 PDT 2011 All: 5 Busy: 2 Idle: 3 Initializing: 0 Name: All

Status	ID	Process ID	User ID	Device	User IP	Maximum Connections	Program	User Connected Time	Close
Idle	103	0	null		null	0	null		Close
Idle	101	0	null		null	0	null		Close
Idle	102	0	null		null	0	null		Close
Busy	104	3018	sti	col49 48	167.3.9.60	20	mgssmt.p	Thu Jul 21 11:18:24 PDT 2011	Close
Busy	105	21337	sti	col49 28	167.3.9.60	20	sosomt.p	Thu Jul 21 11:30:22 PDT 2011	Close
<b>Total</b>	<b>5</b>								Refresh Close All

**Sales Order Maintenance**  
 Order: SO71773 Sold-To: ckc-001 Bill To: ckc-001 Ship-To: ckc-001

Sold-To: CKC-001  
 Headoffice: Hamilton House  
 Limerick NJ 0010  
 United States

Ship-To: CKC-001  
 Headoffice: Hamilton House  
 Limerick NJ 0010  
 United States

Attachments: Order SO71773

ADM\_ADM\_200

## Heartbeat Monitor

### Heartbeat Monitor

- `status.jsp` — returns a status message containing the number of agents that are All / Idle / Init / Busy
- `idle.jsp` — returns a page containing the number of idle connections
- `busy.jsp` — returns a page containing the number of busy connections
- `init.jsp` — returns a page containing the number of initializing connections



ADM\_ADM\_210

## User Count Log File

### User Count Log File

Located in /webapps/<qaducfg>/WEB-INF/logs/usercount.log

```
2011-07-11 06:26:47,554 apisource=AppShell at=s d=QP ip=10.167.3.1 s=TMP6 sid=TMP6 t=li u=mfg
2011-07-11 06:35:58,879 a=sobr009.p apisource=AppShell at=s d=QP s=TMP6 sid=TMP6 t=ai u=mfg
2011-07-11 06:36:00,643 a=sobr009.p apisource=AppShell at=s d=QP s=TMP6 sid=TMP6 t=ao u=mfg
2011-07-11 06:36:10,355 a=mgdbiq.p apisource=AppShell at=s d=QP s=TMP6 sid=TMP6 t=ai u=mfg
2011-07-11 06:36:42,728 a=mgdbiq.p apisource=AppShell at=s d=QP s=TMP6 sid=TMP6 t=ao u=mfg
2011-07-11 06:37:32,866 apisource=AppShell at=s d=QP s=TMP6 sid=TMP6 t=lo u=mfg
2011-07-11 06:37:36,817 apisource=AppShell at=s d=QP ip=10.167.3.1 s=TMP9 sid=TMP6 t=li u=mfg
2011-07-11 06:39:50,038 a=sosomt.p apisource=AppShell at=s d=QP s=TMP9 sid=TMP6 t=ai u=mfg
2011-07-11 06:40:15,754 a=sosomt.p apisource=AppShell at=s d=QP s=TMP9 sid=TMP6 t=ao u=mfg
2011-07-11 06:40:16,120 apisource=AppShell at=s d=QP s=TMP9 sid=TMP6 t=lo u=mfg
2011-07-11 06:40:49,743 servletcontextpath=%2Fdr01%2Ftomcat%2Fwebapps%2Fqaddemo%2F t=webappstop
```



ADM\_ADM\_220

## Adding Custom Menus

### Adding Custom Menus

- Must be created within an existing Menu or Menu Group
- Multiple ways to create new menus, depending on release
- **Example:** in Menu System Maintenance, add menu 88.1 under new menu group called "My Custom Menu Group":
  1. Create an entry for A.9. Assign a label (ex. My Custom Programs) and execute procedure of "A.9"
  2. Create an entry for A.9.88. Assign a label (ex. Custom Sales Orders) and execute procedure of "88"
  3. Create an entry for 0.88. Assign a label (ex. Custom Sales Orders) and execute procedure of "88"
  4. Create an entry for 88.1. Assign a label (ex. Custom Sales Order Maintenance) and execute procedure with the program name (for example: xxsomt.p).



ADM\_ADM\_230

## Adding Custom Menus

- Each program in the QAD .NET UI must have a record both in Menu System Maintenance and Program Information Maintenance
- What needs to be set on Menu System Maintenance for each custom item:

Program Type	Web Logic Implemented	Type
Browses, lookups	Yes	Blank
Special HTML programs such as Browse Maintenance and Kanban workbenches	Yes	Blank
HTML reports and inquiries	No	Desktop
HTML maintenance programs	No	Desktop

## Adding Custom Menus

- Multi Domain field set for options that update data that applies to all domains in a database

Program Information Maintenance... X

Go To Actions Copy Print Preview

Program:

Selection Label: Country Code Maintenance

Multi Domain:

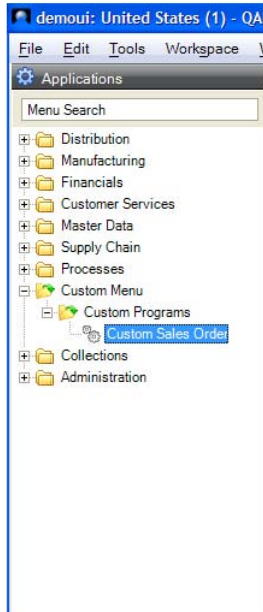
Web Options

Image: Maint

Web Logic Implemented:

Type: desktop

# Adding Custom Menus



## Using Attachment Maintenance

### Using Attachment Maintenance

- Document Type
  - *Data Type*. Specify a data type identifier for organizing attachments
  - *Label*. Specify a label for organizing attachments
- Program Name
  - *Program Name*. Specify a program that you want to have include attachments. You must also specify a field
  - *Key Field*. Specify a field that will trigger acceptance of attachments (required)
  - The field must exist on the first frame of the program
- Adding a file as an attachment
  - Drag the file and drop it within the attachment area
  - Right-click the attachment area, select attach, browse to local folders, select file
- Removing an existing file attached
  - Right-click the file already attached, select delete

## Enable Attachments to Sales Order Maintenance

# Enable Attachments to Sales Order Maintenance

The screenshot shows two overlapping windows: 'Attachment Maintenance' and 'Sales Order Maintenance'. The 'Attachment Maintenance' window is in the foreground and contains the following elements:

- Buttons: Save, Refresh, Insert
- Section: Document Type
- Table:
 

Data Type	Label
▶ All	
* [Empty]	
- Section: Program Name
- Table:
 

Program Name	Key Field
▶ sosomt.p	so_nbr
* [Empty]	

## Attachments to Sales Order Maintenance

### Attachments to Sales Order Maintenance

Sales Order Maintenance x

Go To Actions Copy Print Preview Attach

Attachments (2)

(3.96 KB)

(31.69 KB)

Header Lines Trailer

**Header** Details Tax Info Freight Data Salesperson Delivery Consignment Comments

Header

Order:  Sold-To:  Bill To:  Ship-To:

Sold-To:  Ship-To:

Details

Order Date:	Line Pricing: <input type="checkbox"/>	Confirmed: <input type="checkbox"/>
Required Date:	Manual:	Currency:
Promise Date:	Site:	Language:
Due Date:	Channel:	Taxable: <input type="checkbox"/>
Perform Date:	Project:	Fixed Price: <input type="checkbox"/>
Pricing Date:		Credit Terms:
Purchase Order:		Credit Terms Interest %:
Remarks:		Reprice/Edit: <input type="checkbox"/>
		Entered By:

ADM\_ADM\_290

## Active Directory Authentication

### Active Directory Authentication

- The QAD .NET UI supports Microsoft's Active Directory authentication
- Enforce OS User ID option in Security Control must be enabled
- User passwords can be centrally managed
- User accounts in the QAD system must match the Active Directory User ID
- The User ID in QAD system is limited to eight characters



ADM\_ADM\_300

## Enabling Active Directory Authentication

### Enabling Active Directory Authentication

- `/webapps/qadhome/configuration/default/client-session.xml`
- Remove the comments (denoted by `<!--` and `-->`) around `<QAD.Authentication.ActiveDirectory>` and set it to true
- In Security Control, enable Enforce OS User ID option
- In User Maintenance, define users and set their passwords to blank



ADM\_ADM\_310

## Active Directory Limitations

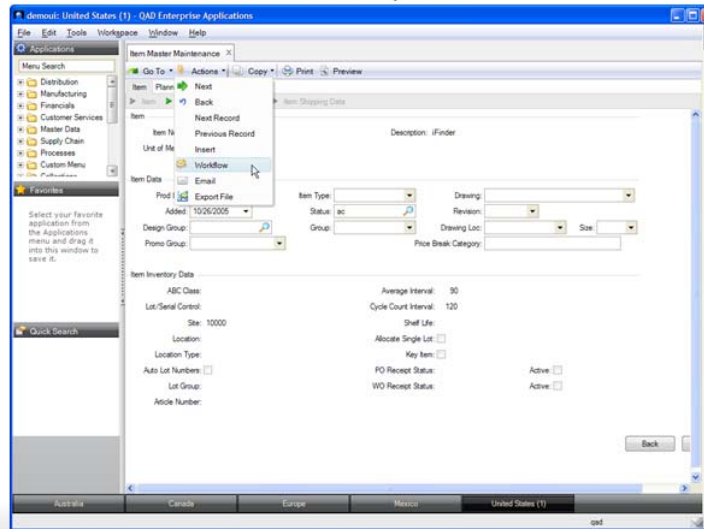
### Active Directory Limitations

- Once Active Directory is enabled, the following are enforced during authentication:
  - Users' computers must be joined to the domain (Windows) for Active Directory authentication
  - Local accounts are not supported
  - Blank passwords are not supported (password is validated against Active Directory)
  - User ID set up within Active Directory must be eight characters or less (QAD has limitation on user ID of that size)

## Messaging and Workflow Inbox

### Messaging and Workflow Inbox

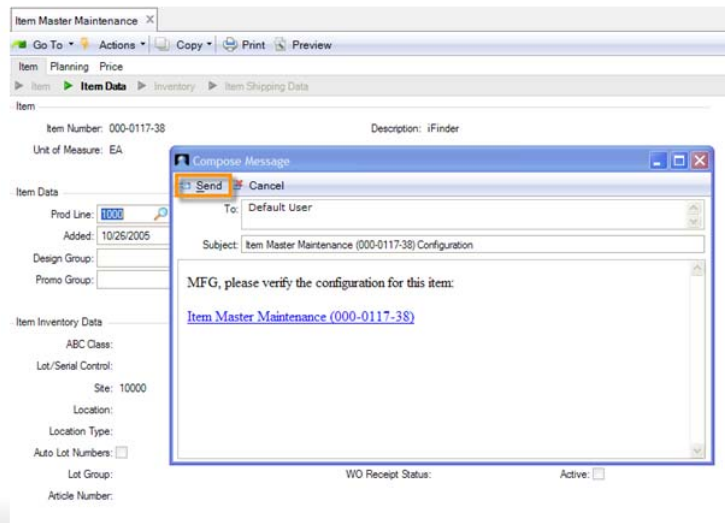
- QAD .NET UI includes a messaging capability to send messages and workflow information to other users of the system



ADM\_ADM\_330

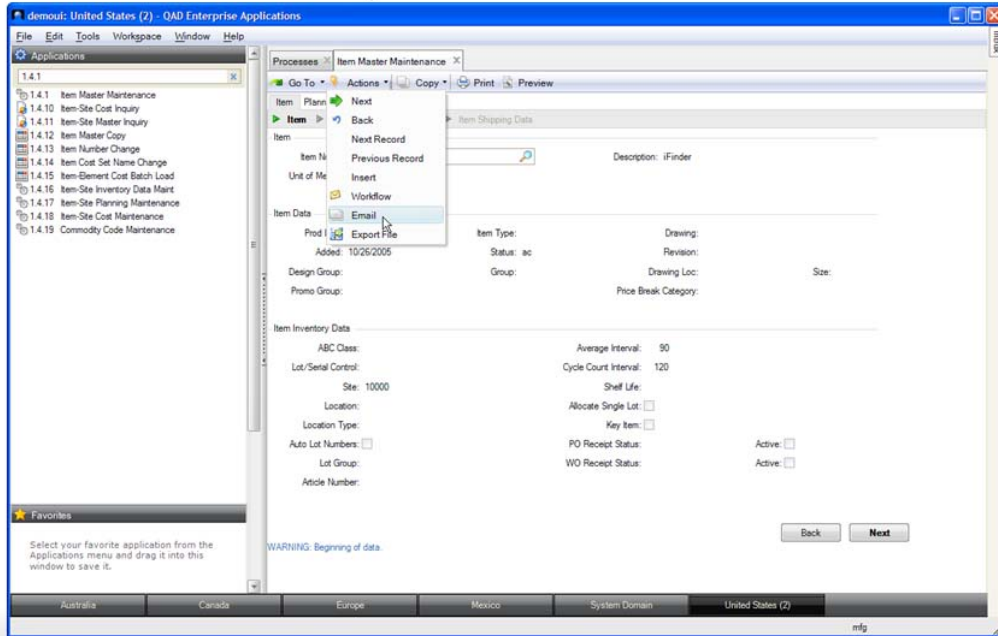
## Messaging and Workflow Inbox

- Choose Actions | Workflow
- Compose a workflow message to a system user
- System adds link to current program and context



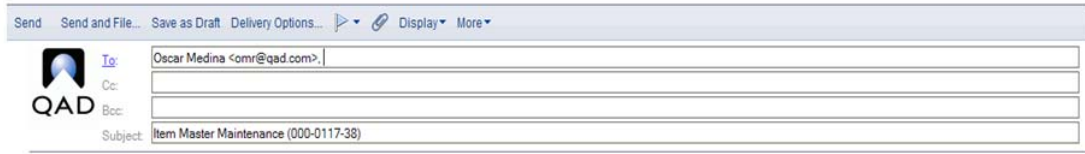
## Messaging and Workflow Inbox

- Choose Actions | Email



## Messaging and Workflow Inbox

- Uses your default email client configured on client PC



The screenshot shows an email client interface with a header bar containing the following options: Send, Send and File..., Save as Draft, Delivery Options..., Display, and More. Below the header, the email header fields are displayed:

To:	Oscar Medina <omr@qad.com>
Cc:	
Bcc:	
Subject:	Item Master Maintenance (000-0117-38)

[Item Master Maintenance \(000-0117-38\)](#)

[qadsh/menu/invoke?menu-key=A.5&menitem-key=1.4.1&f=pt\\_part&v=000-0117-38&config-uri=http%3a%2f%2finux-tst%3a8080%2fqadhome%2fservlet%2fenv%2fworkspace=QP.1000&config-name=demoui](http://qadsh/menu/invoke?menu-key=A.5&menitem-key=1.4.1&f=pt_part&v=000-0117-38&config-uri=http%3a%2f%2finux-tst%3a8080%2fqadhome%2fservlet%2fenv%2fworkspace=QP.1000&config-name=demoui)

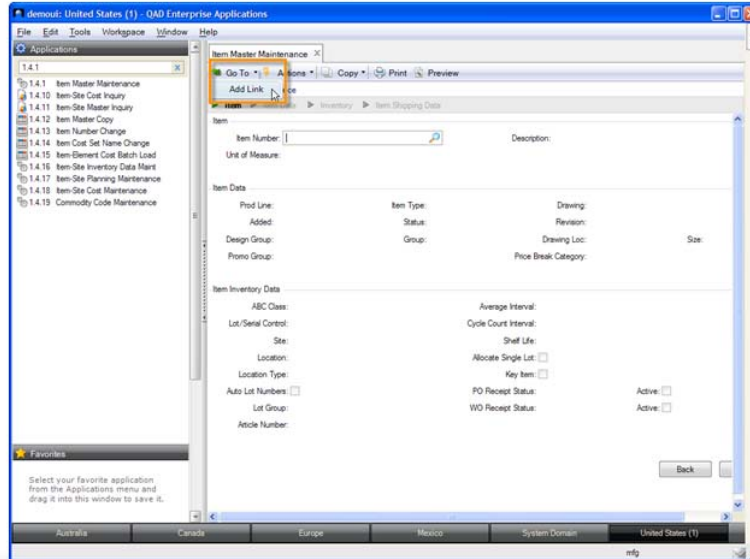


ADM\_ADM\_360

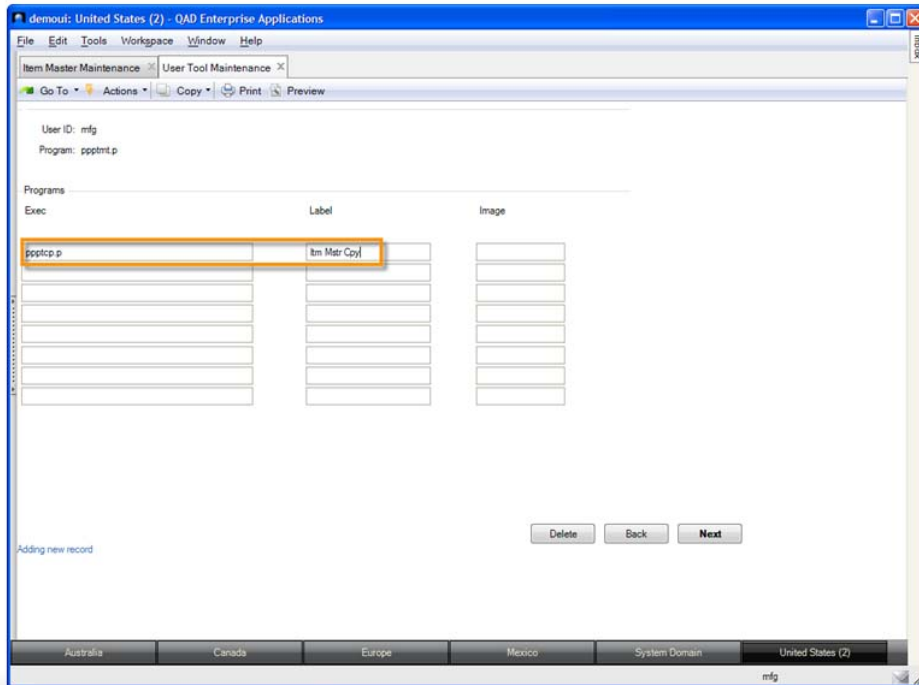
## Adding Custom Links

### Adding Custom Links

- Open the program that you want to update and select Go To | Add Link



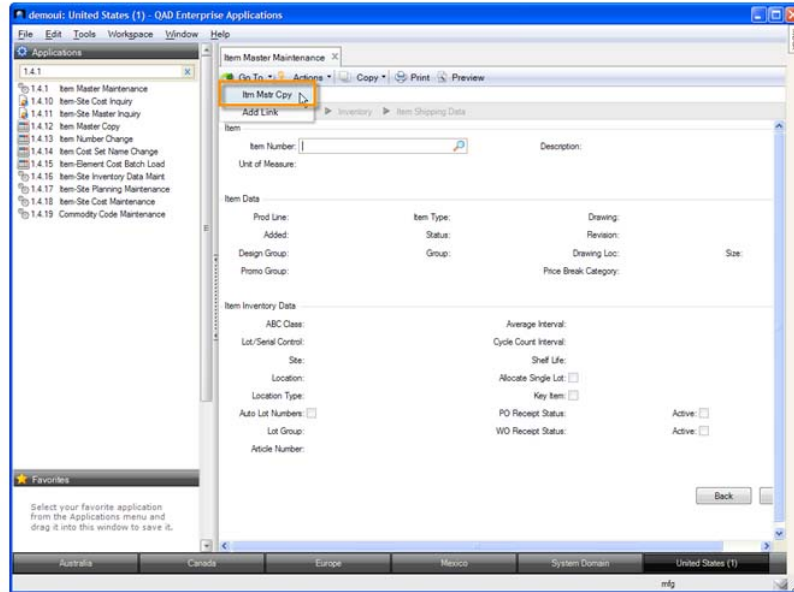
# Adding Custom Links



ADM\_ADM\_390

## Adding Custom Links

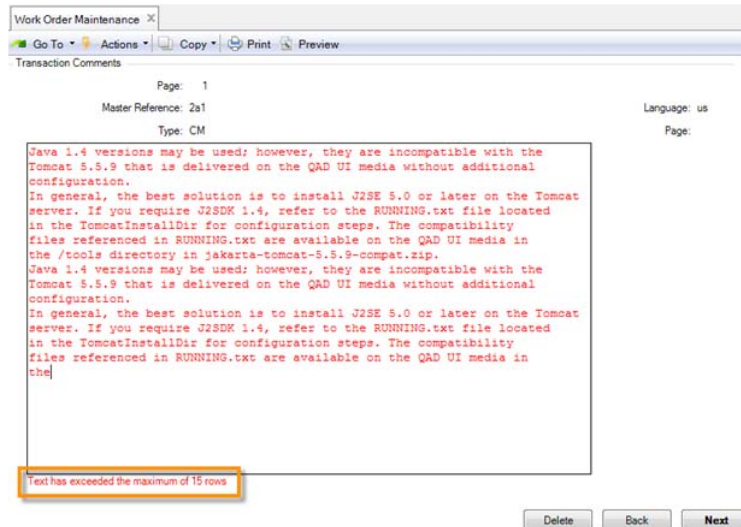
- To validate the link, close and reopen the option



## Adding Transaction Comments

### Adding Transaction Comments

- 15 lines per page maximum
- Cut and paste enabled



## Embedded Telnet Screens

### Embedded Telnet Screens

- Some programs cannot be converted to Desktop mode in QAD .NET UI. These programs display in Terminal mode (the QAD .NET UI's integrated telnet display)
- Some of these programs are:
  - Set Multiple BOL Print Utility
  - Required Ship Schedule Update
  - Call Queue Manager
  - Escalation Monitor
  - Change Deferred/Accrued Accounts
- For a complete list, see QAD .NET UI documentation



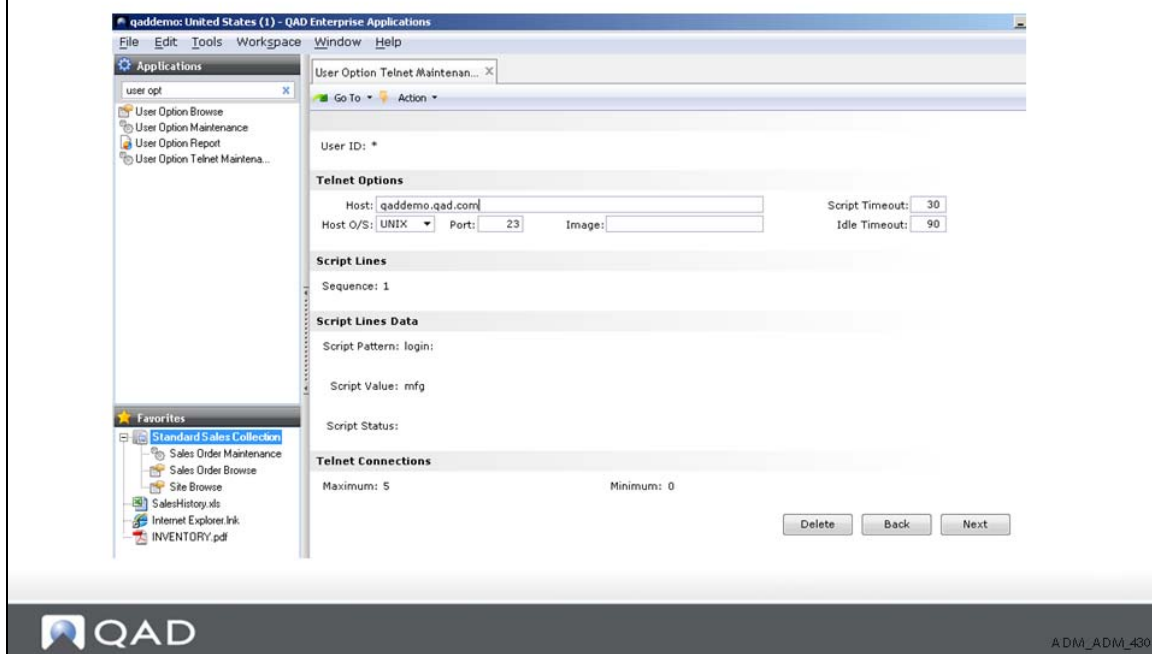
ADM\_ADM\_410

## Embedded Telnet Screens

- Using SSH for embedded telnet screens:
  - Download `Routrek.granados.dll`
  - `<SshProviderUrl>${HomeServer}/Routrek.granados.dll</SshProviderUrl>`
  - Choose SSH2 instead of telnet
  - `<TerminalProtocol>telnet</TerminalProtocol>`
- Changing the login method for embedded telnet screens in `client-session.xml`:
  - `<add key="TerminalAuthentication" value="ScriptUser" />`
  - `ScriptUser`: The user defined in User Option Telnet Maintenance will be used for telnet login
  - `ShellUser`: The user defined in QAD Enterprise Applications will be used for telnet login
  - `PromptUser`: The user will get prompted for telnet login when using embedded telnet screen

## Embedded Telnet Screens

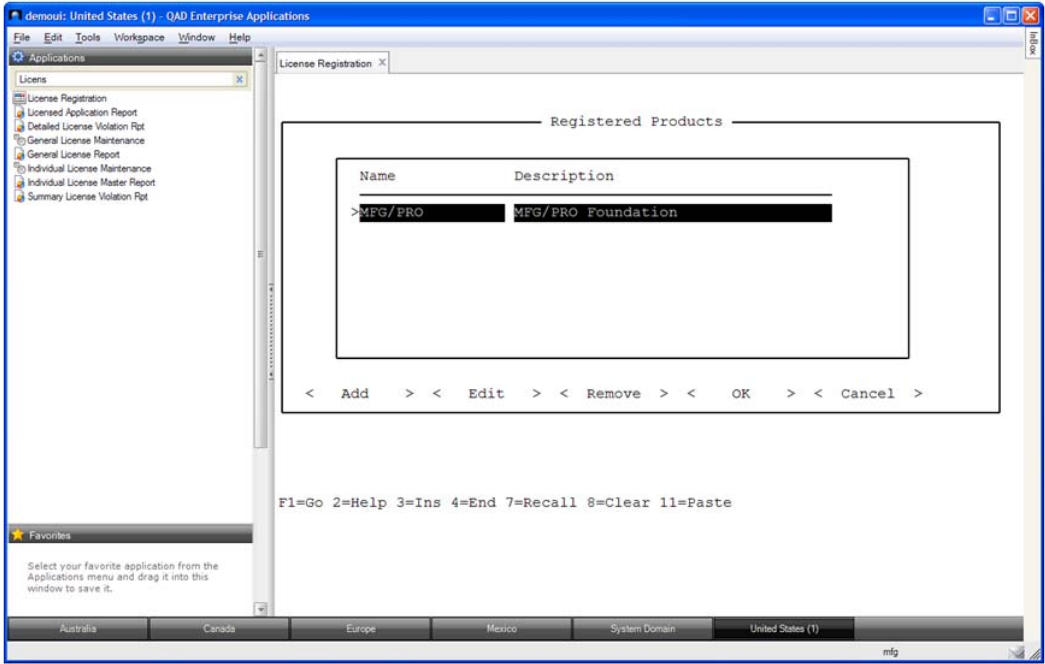
- Defined in User Option Telnet Maintenance



## Embedded Telnet Screens

- SSH can be used for embedded telnet screens instead of Telnet
- Steps to configure SSH:
  1. Download Routrek.granados.dll  
`<SshProviderUrl>${HomeServer}/Routrek.granados.dll</SshProviderUrl>`
  2. Choose SSH2 instead of telnet  
`<TerminalProtocol>telnet</TerminalProtocol>`
- Changing the login method for embedded telnet screens:
  - ScriptUser: user defined in User Option Telnet Maintenance used for telnet login
  - ShellUser: user defined in User Maintenance

## Embedded Telnet Screens



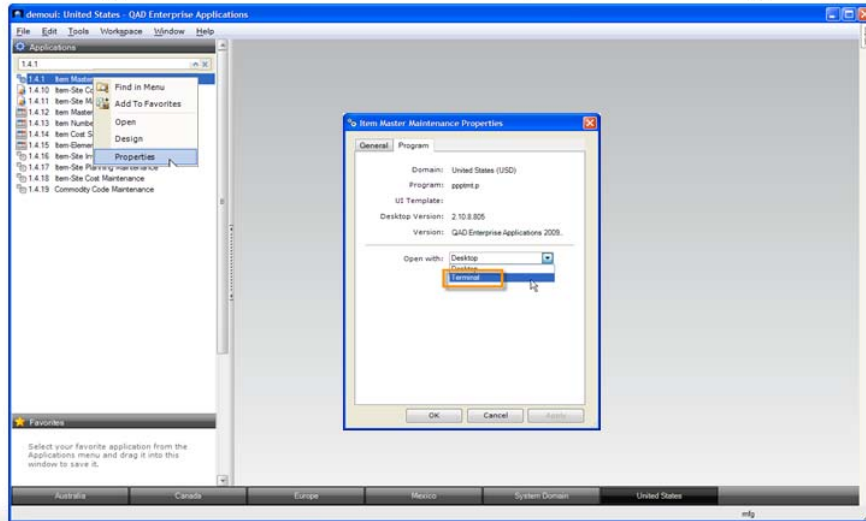
The screenshot displays the QAD Enterprise Applications interface. The main window is titled "demou: United States (1) - QAD Enterprise Applications". On the left, there is a navigation pane with a tree view under "Applications" containing several license-related items. The "License Registration" application is selected, and its window is open in the center. The window title is "License Registration" and it contains a telnet-style interface. At the top of the telnet screen, it says "Registered Products". Below this is a table with two columns: "Name" and "Description". A single row is visible with the text "MFG/PRO" in the Name column and "MFG/PRO Foundation" in the Description column. Below the table are navigation buttons: "< Add > < Edit > < Remove > < OK > < Cancel >". At the bottom of the telnet screen, there is a command prompt showing "F1=Go 2=Help 3=Ins 4=End 7=Recall 8=Clear 11=Paste". The bottom of the application window shows a status bar with tabs for "Australia", "Canada", "Europe", "Mexico", "System Domain", and "United States (1)", with "United States (1)" selected. The user name "mg" is visible in the bottom right corner.

QAD

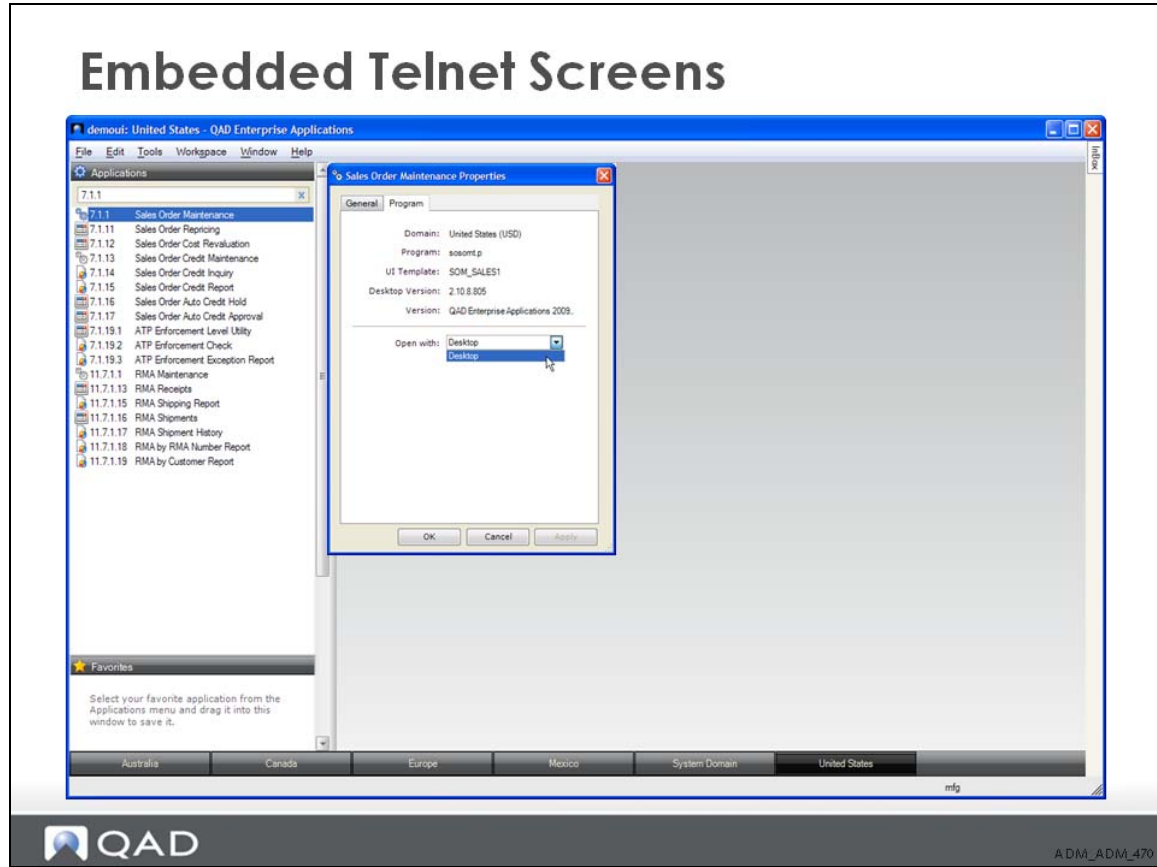
ADM\_ADM\_450

## Embedded Telnet Screens

- Maintenance screens can be switched to Terminal mode if they do not have any configurable screen templates assigned.



# Embedded Telnet Screens



## Recording Program Actions

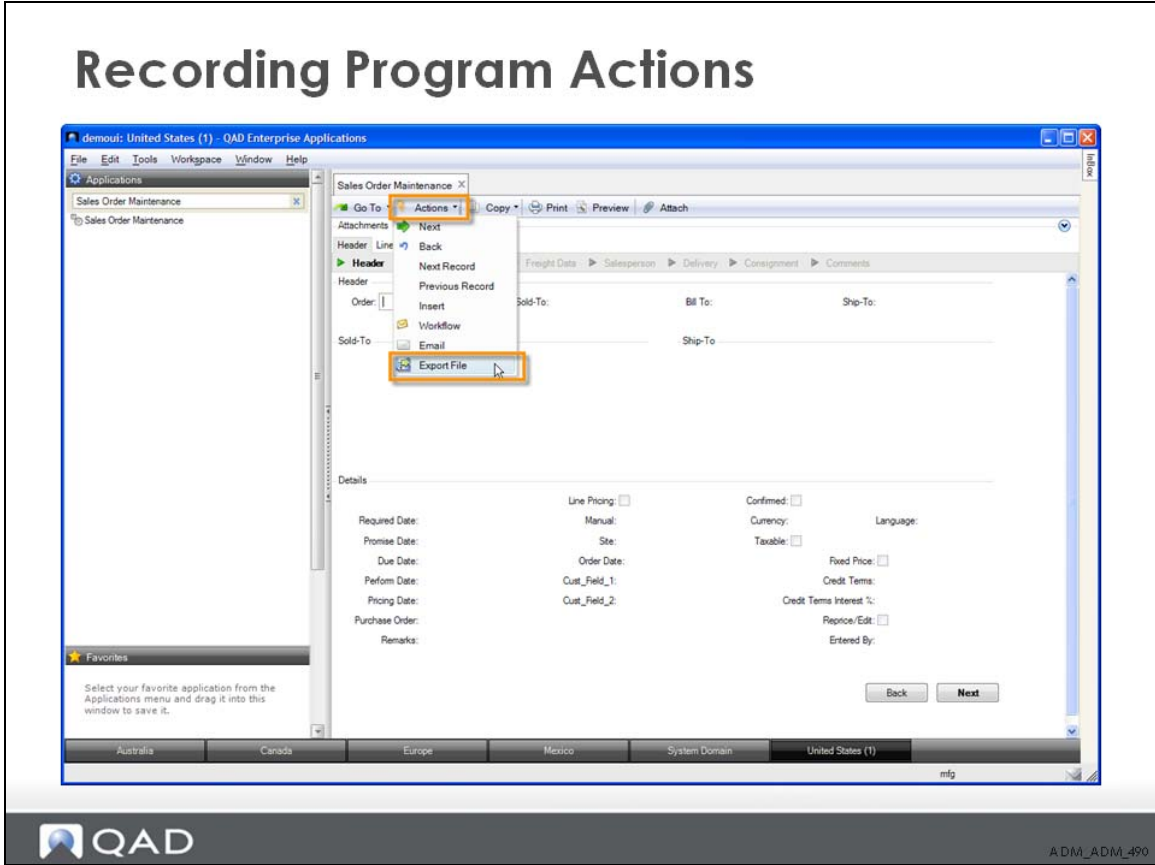
### Recording Program Actions

- Program Export File function is a test utility in the QAD .NET UI and is available in the Action menu
- Allows you to record your actions as you complete an application process and save the recorded actions to an .xml or .xls file
- The saved files can be executed in the Execute Document Import function, repeating the recorded process
- Saved files can be exported for testing to another QAD .NET UI environment, or imported into current environment



ADM\_ADM\_480

# Recording Program Actions



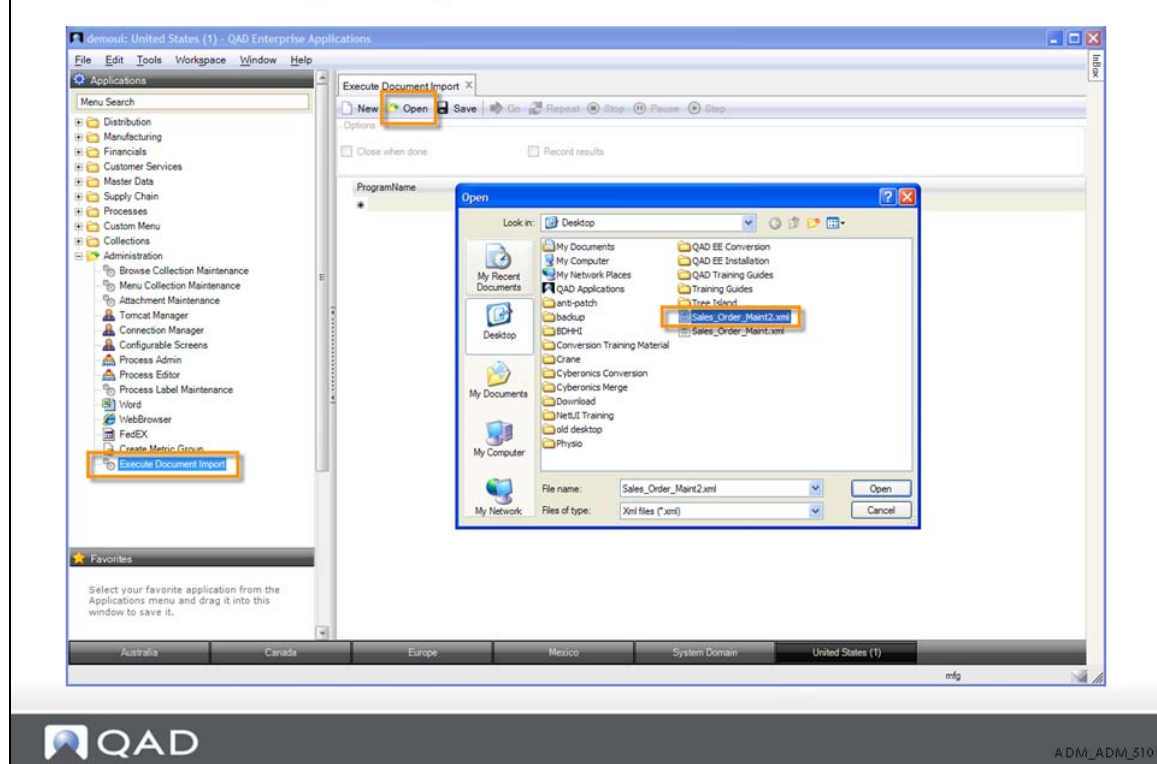
# Recording Program Actions

The screenshot shows the QAD Enterprise Applications interface. The main window is titled 'Sales Order Maintenance' and displays various form fields including Order, Sold-To, Bill To, and Ship-To. An 'ExportForm' dialog box is open in the foreground, showing a table of recorded actions. The table has the following data:

Action	FrameName	ActionField	Comment
next	a	so_nbr	
submit	a	so_nbr	
submit	a	so_cust	
submit	a	so_bill	
submit	a	so_ship	
submit	fra_me_cfp567	so_mstr_so_de	
submit	set_tax	so_tax_usage	

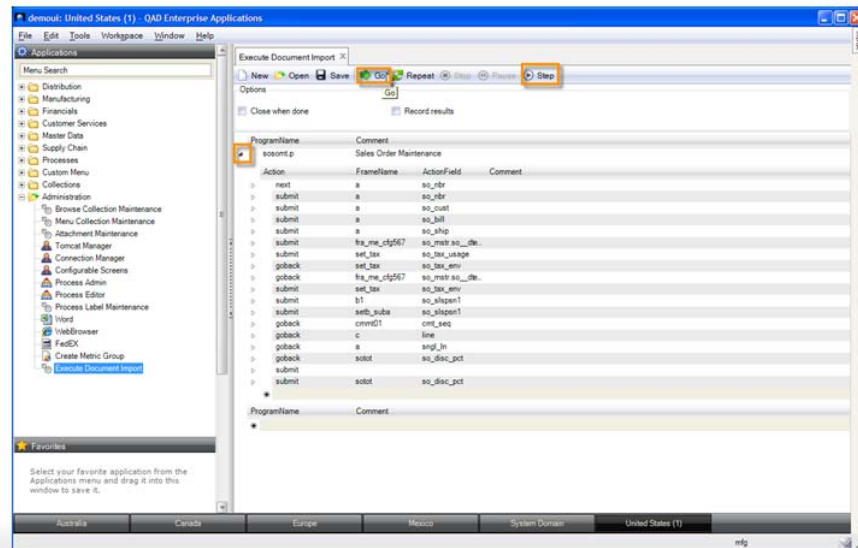
The dialog box also includes a 'ProgramName' field set to 'Sales Order Maintenance' and a 'Comment' field. The main application window shows a 'Sales Order Maintenance' form with fields for Order (10001), Sold-To (01000000), Bill To (01000000), and Ship-To (01000000). The 'ExportForm' dialog box is positioned over the 'Trailer Information' section of the form.

## Recording Program Actions



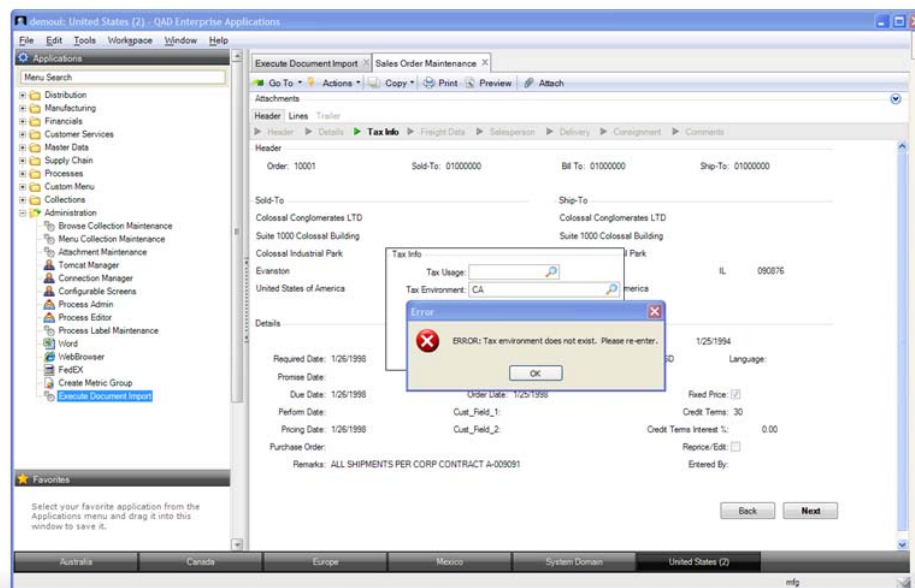
## Recording Program Actions

- Run the recording
  - Select Go to execute all the steps or Step to go one step at a time
  - Existing values can be changed and results can be recorded



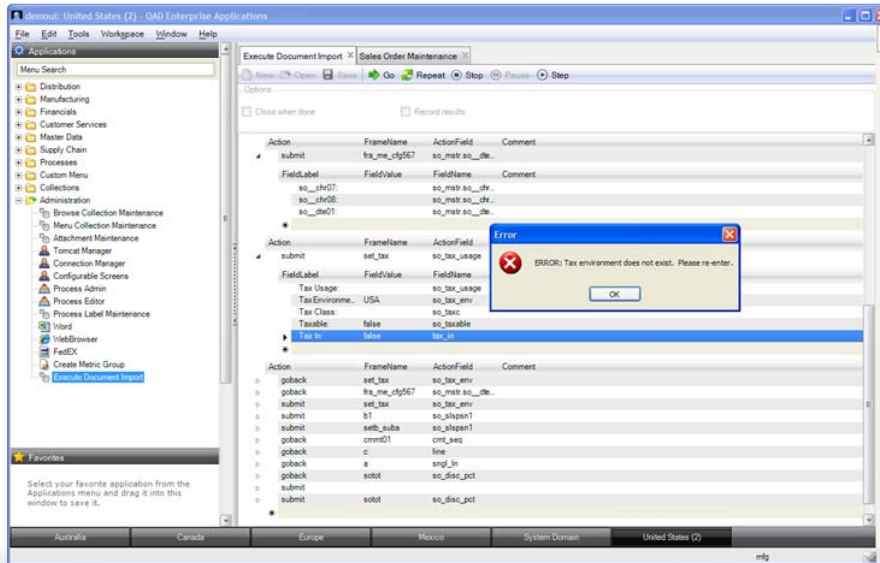
## Recording Program Actions

- Recording is executed until it hits an error



## Recording Program Actions

- Execute step-by-step to verify what field is causing the error



## Exercises

### Exercises

- Change timeout value in Security Control to 15 minutes and validate that it works
- Add a custom menu item
- Enable attachments for Sales Order Maintenance, add attachment to a sales order, check where file is stored
- Use messaging and workflow inbox
- Use transaction record feature for Sales Order Maintenance
- Create custom links for Item Master Maintenance linking to Item Master Copy
- Change max sessions configuration on User Option Telnet Maintenance; try to open as many programs as you can until you reach the limit

## Knowledge Check

- 1 What information is contained in the `client-session.xml` file?
- 2 You define user telnet options in which menu?
- 3 What settings are contained in the `client-bootstrap.xml` file?
- 4 What effect on user navigation does the Maximum field in User Option Telnet Maintenance have?
- 5 What menu do you use to delete defunct users?
- 6 What is the purpose of Heartbeat Monitor?



Chapter 5

# Multiple Systems

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to look at aspects of running multiple database instances in different environments

## Benefits

### Benefits

- You will be aware of the different issues relating to running multiple database instances

## Training Flow

### Training Flow



- Overview
- Terminology
- Components
- Administration Tasks
- **Multiple Systems**
- Performance Tuning
- Troubleshooting
- Customizing Browsers
- Menu and Browse Collections
- Process Maps
- Configurable Screens

## Multiple Databases: Independent Environment

### Multiple DB: Independent Environment

- Why?
  - Production, development, training
  - Independent environments
- Considerations
  - Different code streams
  - Different startup parameters
  - Administrative differences

## .NET UI Install Review List

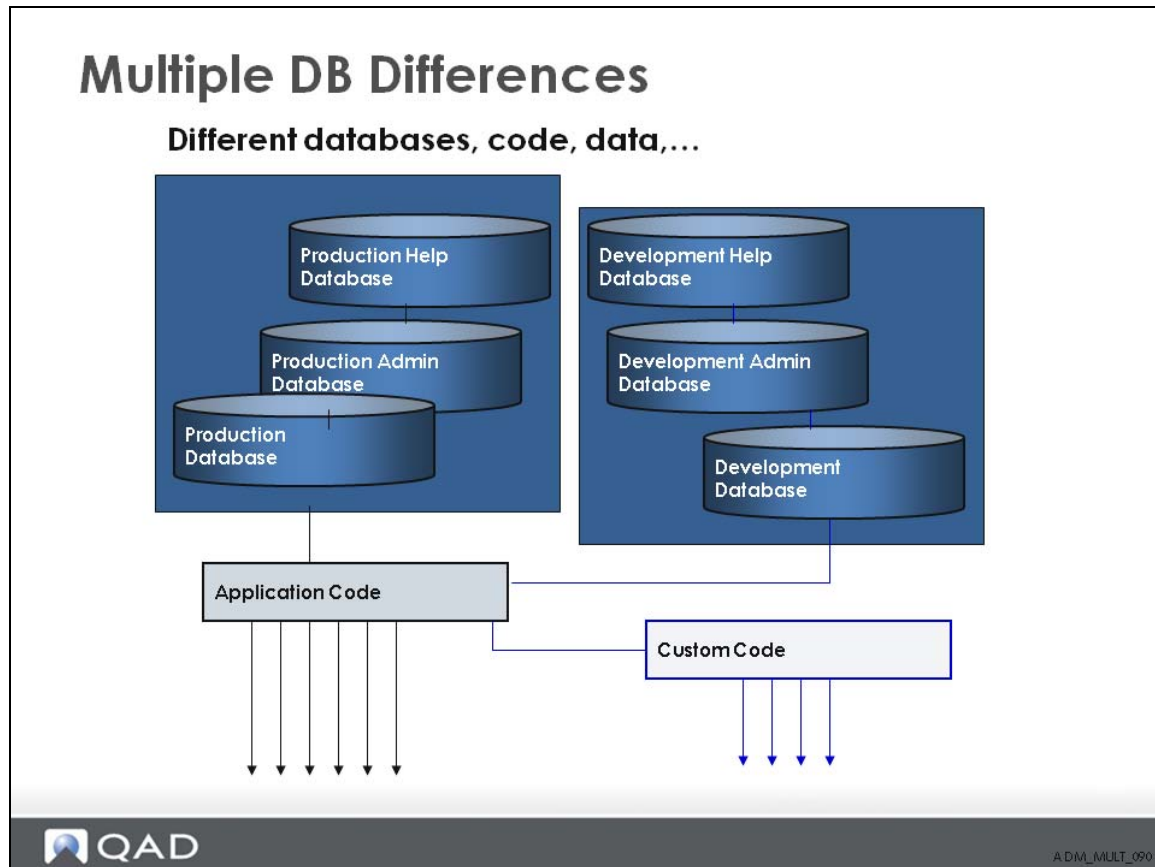
### .NET UI Install Review List

- Character environment
  - Database parameters
  - Data
  - Application code
- WebSpeed
  - Broker
- AppServer
  - Broker

## **.NET UI Install Review List (cont.)**

- Tomcat
  - WebApplication
- .NET UI
  - Progress Code
  - Configuration

## Database Differences



## Multiple DB Differences

### Differences

- Databases
  - Names
  - Ports
  - Startup parameters

### What does this affect?

- Parameter file
  - Telnet file
  - Tomcat file

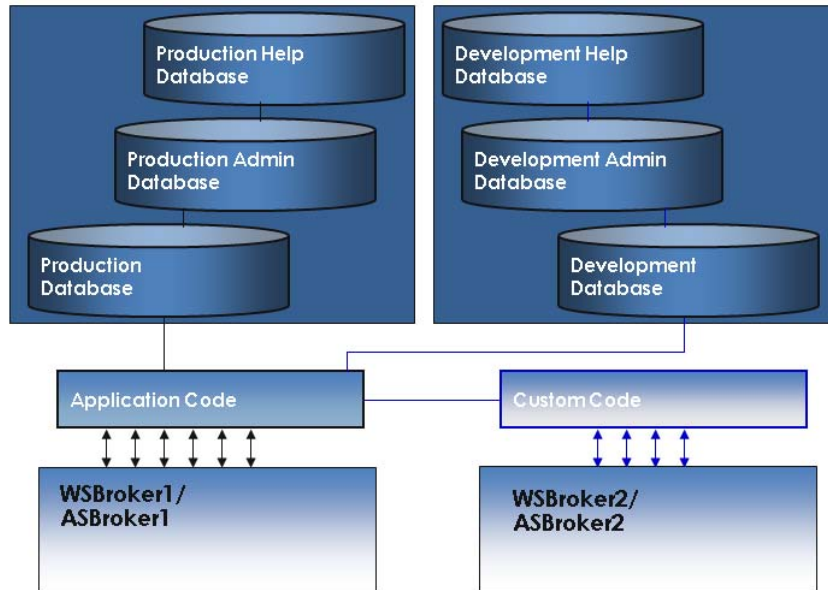
- Application code

- Propath
  - WebSpeed broker
  - AppServer broker
  - .NET UI build

- Data



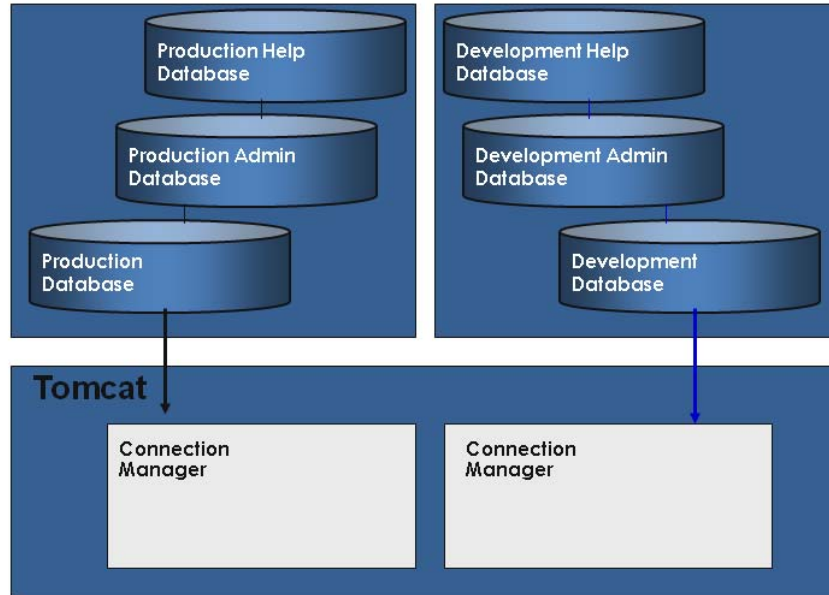
## Multiple DB – WebSpeed and AppServer Different brokers



## Multiple DB – WebSpeed and AppServer

- Differences
  - WebSpeed Brokers
    - Names
    - Ports
    - Agents/port ranges
  - AppServer Brokers
    - Names
    - Ports
    - Agents/port ranges

## Multiple DB – Tomcat



## Multiple DB – Tomcat

- No requirement for additional Tomcat servers
- Considerations for additional Tomcat servers
  - Resources (CPU, memory)
  - Administration (starting and stopping)
- Requires a separate .NET UI webapp
  - Different names
  - Different telnet script files
  - Different configuration files

## .NET UI Considerations

### .NET UI

- Managed by separate client config files in <TomcatInstall>/webapps/qadhome/configurations>
- Each .NET UI installation points to one qadhome server through configuration file:

```
C:\Program Files\QAD\QAD Enterprise Applications
  2007.1\container\QAD.Client.exe.config
<configuration>
<appSettings>
<!-- An HTTP URI to a server that provides backend
  services for the application. -->
<add key="HomeServer"
  value="http://qaddemo:8080/qadhome" />
```
- Users choose .NET UI instance upon login



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## .NET UI

- Possible to have multiple icons that point to multiple qadhome servers



1. Install multiple instances of .NET UI

**Example:**

C:\...\Production\QAD\...

C:\...\Test\QAD\...

2. Configure shortcut to use batch file to replace configuration file corresponding to desired environment prior to launching

**Example:**

The Production icon batch file will copy

`Production.QAD.Client.exe.config` to `QAD.Client.exe.config`

## Knowledge Check

Consider and list the setup and configuration issues involved in running a multiple database .NET UI environment.

Chapter 6

# Performance Tuning

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to describe the different performance tuning techniques you can apply to the installation.



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## Benefits

### Benefits

- You will be able to use memory allocation and database tuning techniques, and to identify optimum client settings and UNIX performance commands.

## Training Flow

### Training Flow



- Overview
- Terminology
- Components
- Administration Tasks
- Multiple Systems
- **Performance Tuning**
- Troubleshooting
- Customizing Browsers
- Menu and Browse Collections
- Process Maps
- Configurable Screens

## Overview

### Overview

- Performance considerations
- Tomcat tuning
- Database tuning
- Client considerations
- UNIX tools
- Kernel considerations

## Performance Considerations

### Performance Considerations

- Impact of poor performance:
  - Lost productivity
  - Lost customer confidence and credibility
  - Lost revenue
  - Lower morale
  - Financial penalties



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## Performance Considerations

- Typical performance problems include:
  - Slow and unresponsive applications
  - Applications that get slower over time
  - Memory leaks and unindexed database queries can cause performance issues
  - Applications that crash (either themselves or the server)
  - Lack of reliability
  - CPU usage spikes and application freezes
  - Applications that get slower as more users log in
  - Lack of scalability
  - Business functions that fail to complete within established timeframes
    - Backups
    - MRP
    - Advanced Shipment Notice (ASN) generation

## Performance Considerations

- Defining the problem
  - All users are experiencing slow performance?
  - Identify the users that report slow performance, verify what they were doing
  - What interface being used?
  - Has the program always run slowly?
  - Anything changed on the system (operating system or application patch)?
  - Can the problem be reproduced?
  - Who is having the problem (local or remote users)?

## Performance Considerations

# Change One Thing At A Time



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## Tomcat Tuning

### Tomcat Tuning

- Memory allocations (Java options)
  - `-server`: Tells java to run optimized for server side
  - `-Xms256m`: Sets initial heap size (this example sets it to 256 MB)
  - `-Xmx256m`: Sets maximum heap size (this example sets it to 256 MB)
  - Set via `CATALINA_OPTS` environment variable
    - `export CATALINA_OPTS="-server -Xms256m -Xmx256m"`



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## Database Tuning

### Database Tuning

- Standard database tuning
- Make sure to set the `-n` parameter
  - This sets the maximum number of connections a database can have
  - This value should exceed  
Max WebSpeed agents + Max AppServer agents + Max tomcat agents + Max character connect + Max telnet connects
- User Option Telnet Maintenance
  - Max value = Maximum number of telnet connections a user can have **and** Maximum number of active HTML maintenance programs a user can have
  - Min value = Number of idle telnet connections a client will have
  - **RECOMMEND SETTING THIS VALUE TO "0"**



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## Database Tuning

- Database growth should take place in fixed extents
- BI should have enough fixed extents to grow, and reside on a different set of disks than data and AI
- Use AI Management tool to manage AI extents; these should reside on a different set of disks than BI and data
- Always start BIW, AIW (if AI enabled), APW and WDOG background processes
- Checkpoints should not be taking place more than every 2 minutes

## Database Tuning

- Buffer hits should be 85% or better; increase this parameter if Buffer Hits go below 85%
- Avoid RAID 5
- If a massive Delete and Archive activity took place recently on your environment, plan to dump and load
- Use QoS (Quality of Service) or protocol prioritize

## Client Considerations

### Client Considerations

- HTML Rendering is CPU-intensive
- A P400 PC will see its processor peg at 100% with each page rendering
- Recommend at least 1.6 GHz
- Recommend double the OS required memory
- Recommend 1 GB of hard disk space



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## Unix Tools: top

### Unix Tools

- top / topas

```

root@coli22:/dr01/mfgpro/tomcat-8080/bin
12:35pm up 75 days, 21:52, 45 users, load average: 1.99, 1.91, 1.71
794 processes: 792 sleeping, 2 running, 0 zombie, 0 stopped
CPU0 states: 7.2% user, 48.1% system, 0.0% nice, 43.1% idle
CPU1 states: 9.1% user, 32.0% system, 0.0% nice, 58.0% idle
Mem: 1028368K av, 1023272K used, 5096K free, 14120K shrd, 3752K buff
Swap: 2048248K av, 384116K used, 1664132K free, 140584K cached

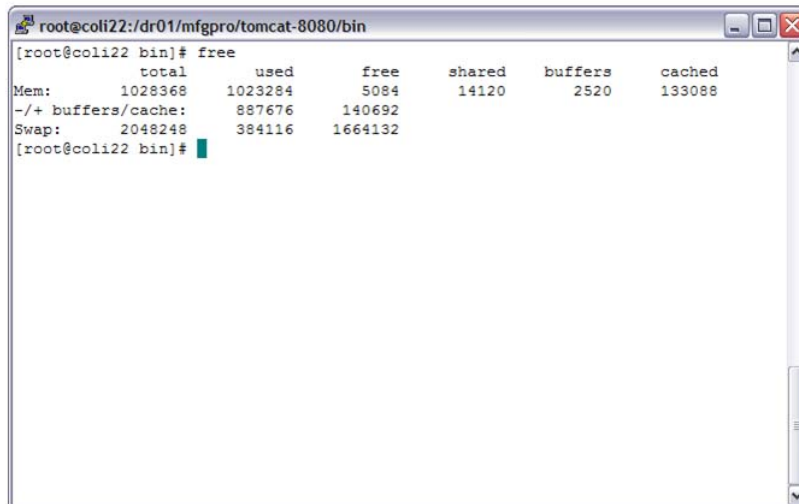
```

PID	USER	PRI	NI	SIZE	RSS	SHARE	STAT	%CPU	%MEM	TIME	COMMAND
9815	root	17	0	1944	1940	956	R	60.5	0.1	0:03	top
10642	nobody	11	0	26992	25M	496	S	12.4	2.5	450:01	smbd
26579	root	9	0	10856	10M	1844	D	10.1	1.0	62:48	smbd
31110	root	9	0	14364	4932	1572	S	3.5	0.4	13:16	java
1807	root	9	0	10628	8756	7756	S	1.5	0.8	5:36	_progres
26740	root	10	0	202M	139M	60032	S	1.5	13.8	0:37	java
3175	named	9	0	44212	40M	36888	S	0.7	4.0	98:38	named
22803	nobody	9	0	27256	26M	2728	S	0.7	2.6	30:27	smbd
9812	root	9	0	2056	2056	1476	S	0.3	0.1	0:00	vim
1	root	8	0	120	72	72	S	0.0	0.0	0:08	init
2	root	9	0	0	0	0	SW	0.0	0.0	0:00	keventd
3	root	19	19	0	0	0	SWN	0.0	0.0	0:05	ksoftirqd_CPU0
4	root	19	19	0	0	0	SWN	0.0	0.0	0:06	ksoftirqd_CPU1
5	root	9	0	0	0	0	SW	0.0	0.0	18:44	kswapd
6	root	9	0	0	0	0	SW	0.0	0.0	5:30	kreclaimd
7	root	9	0	0	0	0	SW	0.0	0.0	0:51	bdflush

## Unix Tools: free

# Unix Tools

- Check memory with `free`



```
root@coli22:/dr01/mfgpro/tomcat-8080/bin
[root@coli22 bin]# free
              total        used         free       shared    buffers     cached
Mem:          1028368      1023284         5084        14120        2520       133088
-/+ buffers/cache:    887676      140692
Swap:         2048248       384116      1664132
[root@coli22 bin]#
```

## Unix Monitoring Tool: sar

### Unix Monitoring Tool: sar

- `sar` is an excellent performance monitoring tool:
  - Found on nearly all Unix platforms
  - Excellent for recording large and varied amounts of system information
  - Can run automatically to provide daily performance summary or interactively for spot checking
  - Flexible, powerful, non-intrusive, accurate
  - Useful for monitoring all aspects of operating system performance

## Other Unix Tools

### Other Unix Tools

- `lsof`
  - Lists open files on system
  - A way of tracking down process associated with a port
- `ipcs`: Provides information on ipc facilities
- `who`: Shows who is logged into system
- `ps -elf / ps -defa`
  - Shows active processes
  - Will want to redirect to file for viewing
  - Will want to pipe it to a `grep` command for filtering

## Kernel Considerations

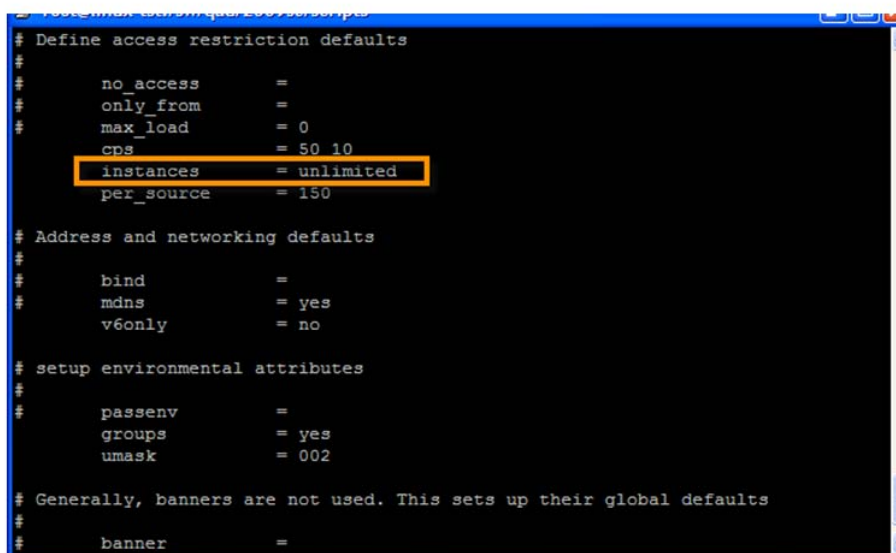
### Kernel Considerations

- Maximum number of open files
- Maximum number of telnet connections
- Terminal type
- Java threading

## Kernel Considerations: Max Telnet Connections

### Kernel Considerations

- Max number of telnet connections  
For Linux, modify /etc/xinetd.conf



```
root@max:~/bin/qad100/scripts
# Define access restriction defaults
#
#   no_access          =
#   only_from         =
#   max_load           = 0
#   cps                = 50 10
#   instances          = unlimited
#   per_source         = 150
#
# Address and networking defaults
#
#   bind               =
#   mdns               = yes
#   v6only             = no
#
# setup environmental attributes
#
#   passenv            =
#   groups             = yes
#   umask              = 002
#
# Generally, banners are not used. This sets up their global defaults
#
#   banner             =
```

## Kernel Considerations: File Handles

### Kernel Considerations

- File handles
  - The total amount of allowable processes and open files might need to be raised
  - Controlled in `/etc/security/limits.conf`

```
#<domain>      <type>  <item>      <value>
#
*               soft    nproc       2047
*               hard    nproc       16384
*               soft    nofile      1024
*               hard    nofile      65536
```

## Kernel Considerations: Shared Memory

### Kernel Considerations

- Shared memory and other sysctl tunables
- Add the following to `/etc/sysctl.conf`

```
kernel.core_uses_pid = 1
kernel.shmmax = 2147483648
kernel.shmmni = 4096
kernel.shmall = 2097152
kernel.sem = 500 32000 200 256
fs.file-max = 65536
net.ipv4.ip_local_port_range = 1024 65000
```



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## Kernel Considerations: Disable Bigpages

### Kernel Considerations

- Disable bigpages
  - Enabling bigpages (large virtual memory page sizes) can result in a reduction in application performance
- Novell: `kernel.shm-use-bigpages = 0`
- Redhat: `vm.hugetlb_pool = 0`

## Kernel Considerations: I/O Scheduler

### Kernel Considerations

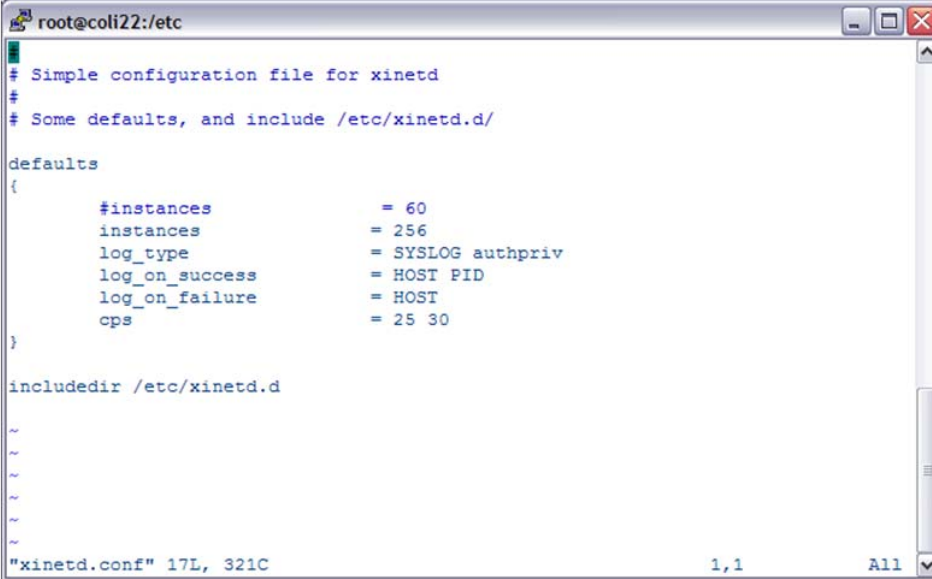
- Starting with the 2.6 kernel, the I/O scheduler can be changed at boot time to control the way the kernel commits reads and writes to disks
- Add `elevator=deadline` to `/etc/grub.conf` configuration file, for example:

```
kernel /vmlinuz-2.6.18-8.el5 ro
root=LABEL=/rhgb quiet
crashkernel=128M elevator=deadline
```



## xinetd.d

### xinetd.d



```
root@coli22:/etc
# Simple configuration file for xinetd
#
# Some defaults, and include /etc/xinetd.d/

defaults
{
    #instances           = 60
    instances            = 256
    log_type             = SYSLOG authpriv
    log_on_success       = HOST PID
    log_on_failure       = HOST
    cps                  = 25 30
}

includedir /etc/xinetd.d

~
~
~
~
~
"xinetd.conf" 17L, 321C          1,1          All
```

## Additional Resources

### Additional Resources

- QAD .NET UI Deployment Guide



A.D.M. PERF\_270

## Knowledge Check

- 1 In standard database tuning, what is the purpose of the `-n` parameter?
- 2 What is the purpose of the `lsof` and `ps -elf` UNIX commands?
- 3 What is the function of the `xinetd.d` program?

Chapter 7

# Troubleshooting

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to describe troubleshooting techniques, commands, and logs for the QAD .NET UI



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## Benefits

### Benefits

- You will be able to identify
  - Basic troubleshooting techniques based on standard startup sequence types
  - possible test points and database connections
  - troubleshooting commands for servers
  - Applicable system logs

## Training Flow

### Training Flow



- Overview
- Terminology
- Components
- Administration Tasks
- Multiple Systems
- Performance Tuning
- **Troubleshooting**
- Customizing Browsers
- Menu and Browse Collections
- Process Maps
- Configurable Screens

## Overview

### Troubleshooting

- Troubleshooting basics
- Startup sequence
- Test points
- Tools and Logs
- Exercises



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## Troubleshooting Basics

### Troubleshooting Basics

- Everyone will develop their own troubleshooting techniques
- QAD .NET UI is not a diagnostic tool, it is an application; however, it can be used to gather important troubleshooting indications
  - Can you log on?
  - Can you run browses?
  - Can you run HTTP Maintenance programs?
  - Can you run Telnet Maintenance programs?
  - Do the URL links work?
  - Are the screens correctly rendered?
  - Do the SE programs run in a character client?
- Develop a list of test points



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## .NET UI Startup Sequence

### .NET UI Startup Sequence

- The startup sequence is important to a point
  1. The database servers must be started before the other Desktop components
  2. Admin Server and Name Server
  3. WebSpeed Brokers: Will require restart if the databases are bounced
  4. AppServer Brokers: Will require restart if the databases are bounced
  5. Tomcat
  6. Connection Manager: Will also require restart if the databases are bounced

## Troubleshooting Test Points

### Troubleshooting Test Points

- Possible test points
  - Databases
  - Admin Sever – Name Server
  - WebSpeed/AppServer brokers, agents, and messengers
  - Tomcat Server
  - Connection Manager
  - Correct operation of both telnet scripts
    - User Option Telnet Maintenance Telnet Script
    - Connection Manager Telnet Script
  - Then – what does the client do or not do
    - Login?
    - Run browses?
    - Run HTTP Maintenance?
    - Run Telnet Maintenance
    - Are the screens rendered correctly?



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## Database Connections

### Database Connections

- Are all the necessary databases running?
- Are there a reasonable number of database connections?
  - Use a sanity check to account for the number of database connections
    - Connections for the WebSpeed brokers
    - Connections for the AppServer brokers
    - Connections for each Connection Manager instance
    - Connections for Telnet Maintenance
    - Connections for any character users
    - Connections for batch processes
  - Have the databases been bounced?

Check the Databases: PROMON

# Check the Databases

- Use PROMON
  - How many users are logged on?
  - Does the number match the configuration?
  - Does the `-n` accommodate enough logins on all of the databases?
  - Are there users from all WebSpeed Brokers?

```

Rec Lock Waits    0 %   BI Buf Waits    0 %   AI Buf Waits
Writes by APW    0 %   Writes by BIW   0 %   Writes by AIW
Buffer Hits      99 %
DB Size          158 MB
FR chain         0 bloc
Shared Memory    8960 K

0 Servers, 17 Users (17)
RETURN - repeat, U - con

Enter your selection: 8
usr  pid  time of login  user id  tty Limbo?
6    386  Mon Sep 16 14:27:03 2002 dtremote /dev/pts/12
7    4285 Fri Sep 13 08:40:28 2002 root     batch
8    388  Mon Sep 16 14:27:03 2002 dtremote /dev/pts/15
9    387  Mon Sep 16 14:27:03 2002 dtremote /dev/pts/13
10   389  Mon Sep 16 14:27:03 2002 dtremote /dev/pts/14
11   4390 Fri Sep 13 08:41:18 2002 root     batch
12   394  Mon Sep 16 14:27:04 2002 dtremote /dev/pts/16
13   436  Mon Sep 16 14:27:14 2002 dtremote /dev/pts/17
15   4593 Fri Sep 13 08:44:34 2002 dt2      /dev/pts/3
16   4592 Fri Sep 13 08:44:34 2002 dt2      /dev/pts/2
17   4857 Fri Sep 13 08:45:34 2002 dt2      /dev/pts/6
18   4879 Fri Sep 13 08:45:34 2002 dt2      /dev/pts/5
19   4878 Fri Sep 13 08:45:34 2002 dt2      /dev/pts/9
20   4882 Fri Sep 13 08:45:35 2002 dt2      /dev/pts/7
    
```



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PROMON is a Progress command that displays server, configuration, and user information.

## Test the Admin and Name Servers

### Test the Admin and Name Servers

- Test the Admin Server

**proadsv -query**

```
(root) /apps/progress/91d/bin $ proadsv -query  
PROGRESS Version 9.1D as of Wed May 8 16:47:54 EDT 2002  
AdminServer is alive. (8545)  
(root) /apps/progress/91d/bin $
```

- Test the Name Server

**nsman -name NS1 -query**

```
(root) /apps/progress/91d/bin $ nsman -name NS1 -query  
PROGRESS Version 9.1D as of Wed May 8 16:47:54 EDT 2002  
  
Connecting to Progress AdminServer using rmi://localhost:20931/Chimera (8280)  
Searching for NS1 (8288)  
Connecting to NS1 (8276)  
  
NameServer NS1 running on Host pl1i01.qad.com Port 5162 Timeout 30 seconds.  
Application Service
```



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## Test the WebSpeed Brokers

- Test the broker and agents

**wtbman -name qaddemo\_WS -query**

```

root@qaddemo:/dr01/tomcat/webapps/qadhome/client/configs
Connecting to Progress AdminServer using rmi://localhost:20931/Chimera (8280)
Searching for qaddemo_WS (8288)
Connecting to qaddemo_WS (8276)

Broker Name           : qaddemo_WS
Operating Mode        : Stateless
Broker Status         : ACTIVE
Broker Port           : 4160
Broker PID            : 2382
Active Agents         : 1
Busy Agents           : 0
Locked Agents         : 0
Available Agents      : 1
Active Clients (now, peak) : (0, 1)
Client Queue Depth (cur, max) : (0, 0)
Total Requests        : 13
Rq Wait (max, avg)    : (1 ms, 0 ms)
Rq Duration (max, avg) : (8 ms, 1 ms)

PID  State      Port  nRq  nRcvd  nSent  Started      Last Change
02416 AVAILABLE 04173 000006 000006 000006 Jul 31, 2006 20:50 Jul 31, 2006 22:16

[root@qaddemo configs]#

```



ADM\_TS\_H120

## Test the AppServer Brokers

# Test the AppServer Brokers

- Test the broker and agents

**asbman -name qaddemo\_AS -query**

```

root@qaddemo:/dr01/tomcat/webapps/qadhome/client/configs
Connecting to Progress AdminServer using rmi://localhost:20931/Chimera (8280)
Searching for qaddemo_AS (8288)
Connecting to qaddemo_AS (8276)

Broker Name           : qaddemo_AS
Operating Mode        : Stateless
Broker Status         : ACTIVE
Broker Port           : 4150
Broker PID            : 2446
Active Servers        : 1
Busy Servers          : 0
Locked Servers        : 0
Available Servers     : 1
Active Clients (now, peak) : (0, 0)
Client Queue Depth (cur, max) : (0, 0)
Total Requests        : 0
Rq Wait (max, avg)    : (0 ms, 0 ms)
Rq Duration (max, avg) : (0 ms, 0 ms)

PID  State      Port  nRq  nRcvd  nSent  Started      Last Change
02484 AVAILABLE 04179 000000 000000 000000 Jul 31, 2006 20:50 Jul 31, 2006 20:50

[root@qaddemo configs]#
    
```



ADM\_TSH130



## Test the WebSpeed Messenger

### Test the WebSpeed Messenger

- A simple test of WebSpeed will tell you a lot

Address  [http://plli01:8080/demo/cgi-bin/wspd\\_cgi.ksh/WService=wsdemo/ping](http://plli01:8080/demo/cgi-bin/wspd_cgi.ksh/WService=wsdemo/ping)

**Web Object Path (PROPATH):**

- /apps/mfgpro/eb2/desktop
- /apps/mfgpro/eb2
- /apps/mfgpro/eb2/bbi
- /apps/progress/91d/tty
- /apps/progress/91d/tty/adecomm.pl
- /apps/progress/91d/tty/adeshar.pl
- /apps/progress/91d/tty/product.pl
- /apps/progress/91d/tty/adeedit.pl
- /apps/progress/91d/tty/adecomp.pl
- /apps/progress/91d/tty/as4dict.pl
- /apps/progress/91d
- apps/progress/91d/bin

**Connected Databases:**

- qaddb (PROGRESS)
- qadhelp (PROGRESS)
- qadadm (PROGRESS)

Does the broker respond?

Is the PROPATH correct?

Are the correct databases connected?

Ping each service that you are supporting



A.DM.TSH.1.40

## Verify Tomcat Is Running

# Verify Tomcat is Running

- Enter the URL for each Tomcat instance

Address  <http://plli01.qad.com:8080/index.html>



Tomcat  
Version 4.0.3



**The Jakarta Project**  
<http://jakarta.apache.org>

Address  <http://pln107:8080/index.html>



Tomcat  
Version 4.0.3



**The Jakarta Project**  
<http://jakarta.apache.org>

## Test the Tomcat Web App

- Log in to the application and run Connection Manager

Status	ID	Process ID	User ID	Device	User IP	Maximum Connections	Program	U
Idle	166	0	null		null	0	null	
Idle	167	0	null		null	0	null	
Idle	168	0	null		null	0	null	
Idle	169	0	null		null	0	null	
Idle	170	0	null		null	0	null	
<b>Total</b>	<b>5</b>							

- Is Connection Manager functioning?

## Troubleshooting Aids: who Command

### Other Troubleshooting Aids

- Use the `who` command to differentiate users

```
root pts/0 Sep 13 08:25 (:0)
root pts/1 Sep 13 08:29 (:0)
dt2 pts/7 Sep 13 08:45 (plli01)
dt2 pts/9 Sep 13 08:45 (plli01)
dt2 pts/8 Sep 13 08:45 (plli01)
dt2 pts/10 Sep 13 08:45 (plli01)
mfg pts/11 Sep 17 10:58 (167.3.25.15)
dtremote pts/12 Sep 16 14:27 (plnt07)
dtremote pts/13 Sep 16 14:27 (plnt07)
dtremote pts/14 Sep 16 14:27 (plnt07)
dtremote pts/15 Sep 16 14:27 (plnt07)
dtremote pts/16 Sep 16 14:27 (plnt07)
dtremote pts/17 Sep 16 14:27 (plnt07)
dttelnet pts/18 Sep 17 10:59 (167.3.25.15)
dttelnet pts/19 Sep 17 10:59 (167.3.25.15)
```

## Troubleshooting Aids: tail Command

### Other Troubleshooting Aids

- Use the `tail` command to view active logs
- `tail -f catalina.out`

```
StateName: Idle
connectionID: 2
ID: null
RequestID: null
SessionID: null
ProcessSeqID:
UserIP: null
UserID: null
program: null
UserMaxSessions: 0
PID: 4592
SessionStart:
AgentStart: Fri Sep 13 08:44:32 PDT 2010
LastAccessedTime: Fri Sep 13 09:31:04 PDT 2010

Init:
Initializing
timing:,,,1032362612673,Connection Mgr Monitor end,10
```

## Troubleshooting Aids: Logs

### Other Troubleshooting Aids

- Some important logs
  - WebSpeed broker logs:
    - `../qadui/<brokername>/ .broker.log`
    - `../qadui/<brokername>/ .server.log`
  - AppServer broker logs:
    - `../qadui/<brokername>/ .broker.log`
    - `../qadui/<brokername>/ .server.log`
  - Database logs:
    - `<db name>.lg`
  - Tomcat's catalina.out:
    - `../tomcat/logs/catalina.out`
  - Client shell log:
    - `C:\Documents and Settings\<user>\Application Data\QAD\Shell\QAD.Applications.log`



ADM\_TSH190

## Trouble Shooting Aids: Informational Commands

### Other Troubleshooting Aids

- Some additional informational commands
  - TOP - VSAR - GLANCE - VMSTAT
  - Windows Task Manager
  - GSW Admin Monitor
  - `ps -ef` or `ps -elf`
  - `wtbman -name [broker] -query`
  - `asbman -name [broker] -query`
  - `nsman -name NS1 -query`
  - WebSpeed Messenger Admin Utility - ping
  - Connection Manager status
  - ?



A DM\_TSH\_200

## Troubleshooting Exercise

### Troubleshooting Exercise

- Bad news – All of your users report they can't get into their QAD .NET UI systems
  - Use your bag of tricks to determine and correct the cause of their problems
  - Be sure to test all functionality of QAD .NET UI before giving them the go-ahead
- As always happens, they have a few more complaints, even after your heroic efforts to get the system up and running



ADM\_TSH\_220

## Knowledge Check

- 1 When databases are bounced, which services need to be restarted?
- 2 Which two commands do you use to test the Admin and Name servers?
- 3 How do you test WebSpeed Messenger?
- 4 What is the purpose of the `tail` command?
- 5 Where are the AppServer and `catalina.out` logs located?

Chapter 8

# Customizing Browsers

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to describe how to use
  - Browse Maintenance
  - Browse Link Maintenance
  - Browse URL Maintenance

## Benefits

### Benefits

- You will be able to use the Browse Maintenance programs to customize your browsers

## Training Flow

### Training Flow

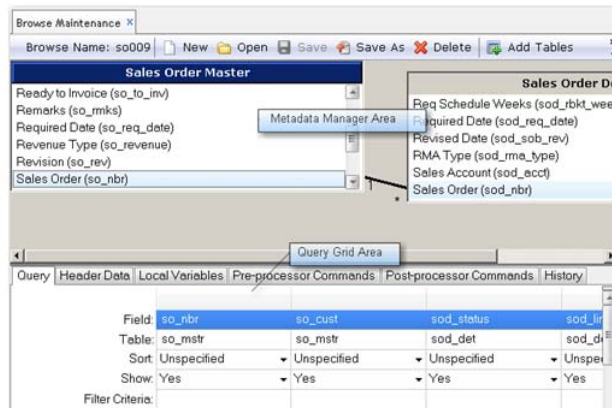


- Overview
- Terminology
- Components
- Administration Tasks
- Multiple Systems
- Performance Tuning
- Troubleshooting
- **Customizing Browsers**
- Menu and Browse Collections
- Process Maps
- Configurable Screens

## Browse Maintenance

### Browse Maintenance

- Design tool for creating, editing, duplicating and deleting browses
- .NET UI program for non-component based browses
- Customize field properties
- Create table joins
- Import and export browses



ADM\_8CLUS\_050

Use Browse Maintenance (36.4.8.13 in EE; 36.20.13 in SE) to specify the components of a browse. The storage of the browse definition is performed automatically.

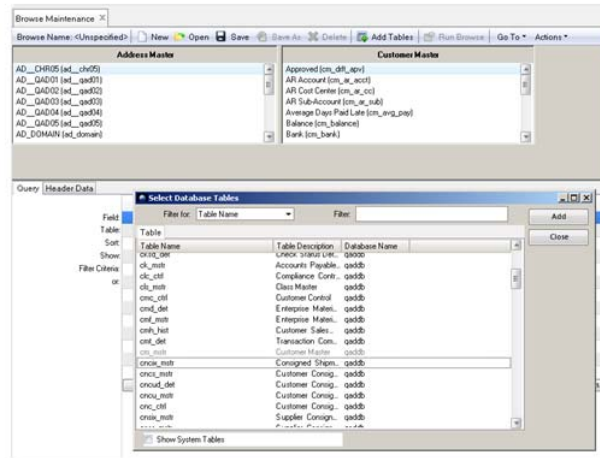
All browses created by Browse Maintenance (.NET User Interface) can be maintained in the Character UI.

There is no limit to the number of tables you can include using the .NET UI Browse Maintenance, but including more than 30 tables in a browse definition can cause the .NET UI browse engine to halt. The browse engine was originally designed with a four-table limit to avoid Progress performance issues. The Character UI browse engine and Desktop browse engine have four-table limits.

## Creating a Browse

### Creating a Browse

- Add left and right tables
- Include or exclude system tables
- Can include up to 30 tables in a new browse
- Tables defined in `clientsession.xml`
- Restricted tables are not displayed



ADM\_&amp;CUS\_0.60

When you start Browse Maintenance, the function is ready to create a new browse.

Click the Add Tables icon in the tool bar to display the Select Database Tables window. Double-click the name of the table you want to add as the left table, and then double-click on the name of the table you want to add as the right table.

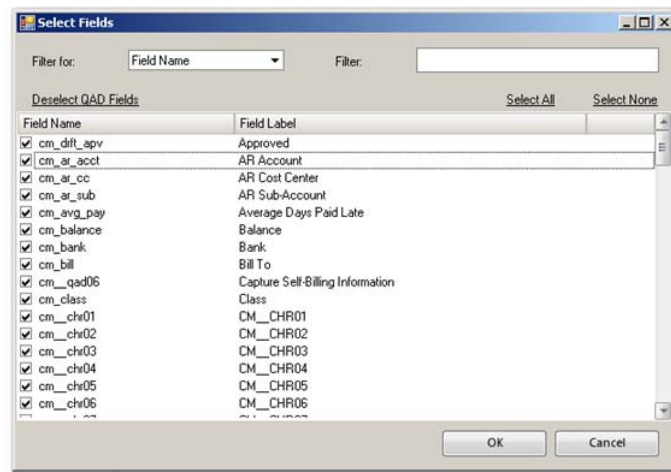
In the Select Database Tables screen, the Show System Tables field ensures that system tables (such as `*_Db`, `*_File`, and `*_Field`) are displayed (or not displayed) in the table list.

The tables displayed for each program are defined in the `client-session.xml` file. The Browse Maintenance function reads this .XML file before populating the Select Tables screen. You can prevent tables from being displayed by modifying this file.

## Selecting Fields

### Selecting Fields

- Right-click Table Area
- Select or deselect custom QAD fields



ADM\_8CUS\_070

Right-click the table area and choose Select Fields. The Select Fields dialog has the following constraints:

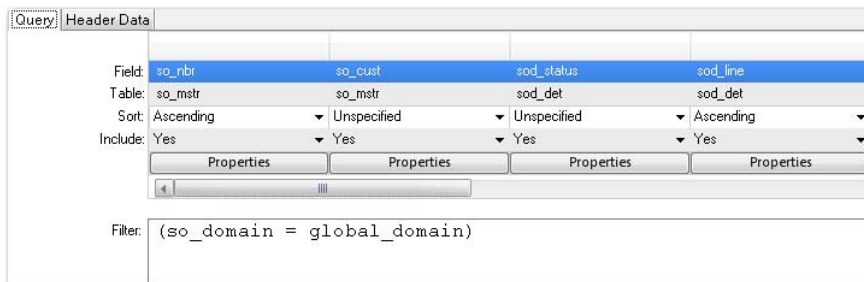
- A field used in a table join cannot be unchecked and is displayed as grayed-out text in the dialog field list.
- A minimum of one field must be checked in the dialog field list before clicking OK to exit the screen.

When you have selected a subset of fields for a table, only the selected fields are displayed in the table control area. Note the filter icon displayed in the upper right corner of the Table Control to indicate to the user that a filtered list of fields is being displayed.

## Using the Query Tab

### Using the Query Tab

- Add fields to the browse using the Query tab
- Set field Sort and Include properties
- Set field filters
- View and modify field properties



ADM\_&amp;CUS\_060

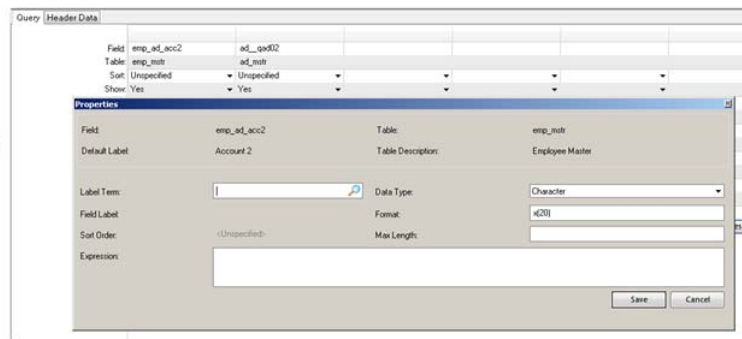
To add a field from a table to the browse, drag-and-drop a field from the table to a column in the Query section. Note that you can view and modify the properties by clicking on the Properties button at the bottom of the column.

To insert new blank columns into the grid, right-click the column header to display the column options.

## Field Properties

### Field Properties

- Specify a label term from the label master table
- Sort order if column is set to Ascending
- Expressions for local variables
- Data Types for local variables
- Format depends on data type
- Display length



ADM\_&amp;CUS\_090

The label term field specifies the key or label term from the label master table which is used to retrieve the field label displayed in the column in the browse results.

When saving the browse definition:

If the label term does not exist in the label master table, the system creates a new label master record using the string entered (the string is set to all uppercase and spaces are replaced with underscores).

The new label master record's value is the entered label term. For example, if you enter the new term Red Book, the label master table is queried and the term is not found. A new label master record is created with the key RED\_BOOK and the value Red Book. An associated lookup lets the user select an existing label term from the label master table.

## Header Data Tab

### Header Data Tab

- Name and description for the browse
- Optionally restrict access to the browse
- Join the browse tables to the global domain
- Specify the value returned by double-clicking on a browse row

The screenshot shows the 'Header Data' configuration window in QAD. It includes the following fields and options:

- Browse Name:** xx001
- Description Term:** SALES\_ORDER
- Description:** Sales Order
- User IDs/Groups:** (empty field)
- Value-Returned Column:** Channel (so\_mstr\_so\_channel)
- Filter By Current Domain:**
- Power Browse:**
- Current Entity Only:**
- Look-up Browse:**

*\* Name must have the format: "XX" (module) + "999" (seq num)*



ADM\_BCUS\_100

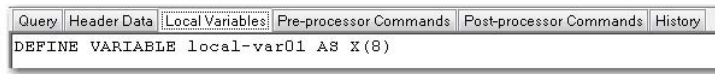
Roles in Enterprise Edition are the equivalent of user groups in Standard Edition. You use the same User IDs/Groups field to define access to browse functions in both applications.

If your role or user group has not been specified in the User IDs/Groups field on the Header Data tab, you can run the browse but cannot open the browse in Browse Maintenance. You can also specify roles or user groups in the authorized user list for the Browse Maintenance Import, Export, and Multiple Delete functions.

## Other Browse Options

### Other Browse Options

- Local Variables
- Pre-Processor Commands
- Post-Processor Commands
- Browse History



ADM\_8CUS\_110

Right-click the Header Data tab to select which additional tabs you want to display: Local Variables, Pre-processor Commands, Post-processor Commands, and History tabs.

The Pre-processor Commands and Post-processor Commands tabs are available only for backwards compatibility with browsers defined using the Character UI. These tabs provide a way to enter Progress 4GL code that can run either before (pre-processor) or after (post-processor) the browse runs. You do not need to use these tabs when creating a new browse using the QAD .NET UI.

The History tab displays revision history for this browse.

By default, only the Query and Header Data tabs display.

## Performance Considerations and Limitations

### Performance Considerations and Limitations

- 200-character limit restricts the number of parameters in browse links
- Check the number of records that will be retrieved by the browse
- Check that fields have been properly indexed
- 30-table limit in browses
- Character UI and .NET browse compatibility



ADM\_BCUS\_120

A browse on a database table that has a great many records may take a long time to save and hours to run. System resources are also strained when you select fields as search criteria that have not been properly indexed.

You should, therefore, consult the data dictionary before defining a browse, to check the number of records being retrieved by a browse. You should also check that the selected fields have been indexed.

There is no limit to the number of tables you can include using the .NET UI Browse Maintenance, but including more than 30 tables in a browse definition can cause the .NET UI browse engine to halt. The browse engine was originally designed with a four-table limit to avoid Progress performance issues. The Character UI browse engine and desktop browse engine have four-table limits.

Although all browses created by Browse Maintenance (.NET User Interface) can be maintained in the Character UI, some legacy browses defined using the Character UI might not be maintainable by Browse Maintenance (.NET User Interface). In the Character UI, you create a browse by entering data in two maintenance programs: View Maintenance and Browse Maintenance. You have to enter the join data in View Maintenance's Join Phrase field, where *join data* is a clause of the form:

```
<from table>.<from field> = <to table>.<to field>
```

However, more than just join data can be entered in View Maintenance's Join Phrase field. For example, you can include field filters of the form `<field name> <operator> <value>`. Browse Maintenance (.NET User Interface) only supports maintaining join data.

## Browse Performance Controls

In QAD .NET UI 2.9.3.79 (2011.1 EE), if a browse runs longer than five minutes, the browse will be cancelled and the user will get a browse timeout message.

When developing custom browses with Browse Maintenance, be sure to follow the browse performance guidelines described in *User Guide: Introduction to QAD Enterprise Applications*. If not developed carefully, custom browses can cause performance issues.

If custom browses are causing performance issues, you can configure the system to identify those browses, send warnings to the Message Inbox, and cancel the browses after a specified time.

Cancelling the browses after a specified time prevents long-running browse queries from adversely affecting application server performance, which can affect all the users of the system. You can have the system identify, report, and eventually cancel long-running browses. You can alert administrators that a performance problem could be developing by having the system periodically send messages to the Messages Inbox.

The browse name and query conditions are included in the messages to help administrators identify problematic browses and their user-specified conditions. In general, performance issues can often center around just a few browses. To track particular types of browses, you can use regular expressions to specify the names of the browses you want to monitor and possibly cancel after some specified time. To configure the system to identify, report, and cancel such browses, use the following settings in the client session configuration file (`client-session.xml`):

- `<NotifyRole>` indicates which role (or group) of users gets notified on any browse alert. Notification is sent to the Messages Inbox. If blank, no notification is sent to administrators, but the user running the browse gets a browse timeout message.

`<timeout browseId="browse_name" warnAt="interval" cancelAfter="interval"/>` specifies a browse performance warning or cancellation, where:

- `browseId` specifies a browse name (such as `ppbr100.p`) or a regular expression (such as `so*`) to specify browse names. The default is blank, which applies the browse performance warnings to all browses.
- `warnAt` specifies the interval for sending warning messages to users in the `<NotifyRole>` role (or group). The warning messages can alert administrators that a performance problem could be developing because of a long-running browse query. The messages include the browse name and the query conditions entered by the user.
- `cancelAfter` specifies the minutes after which the browse will be cancelled, with 0 specifying no cancellation.

Use `warnAt` and `cancelAfter` to have the system report warnings up to some time after which the browse is cancelled automatically. For instance, in `<timeout browseId="xx*" warnAt="2" cancelAfter="5"/>`, the system reports warnings two minutes for all browses running whose names start with `xx`. After five minutes, those browses are cancelled.

The following is included in `client-session.xml`:

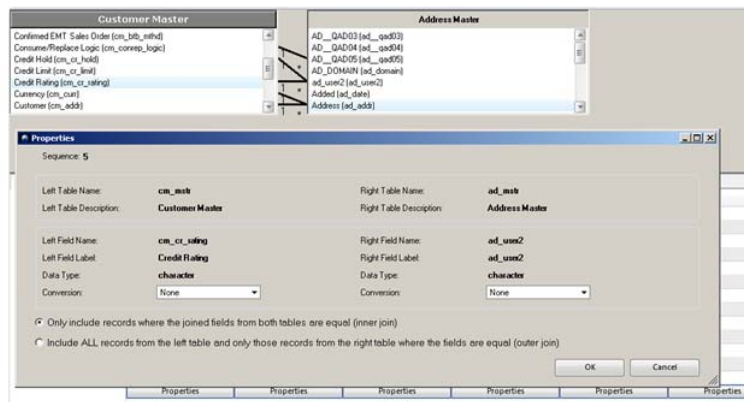
```
<Browse>
  <Notification>
    ...
    <NotifyRole></NotifyRole>
    <timeout browseId="" warnAt="0" cancelAfter="5"/>
    ...
    <!-- Add additional specific browse setting as required
    <timeout browseId="ppbr100.p" warnAt="2" cancelAfter="5"/>
    <timeout browseId="so*" warnAt="2" cancelAfter="5"/>
    -->
    ...
  </Notification>
</Browse>
```

**Important** The browse performance settings are active by default. If a browse runs longer than five minutes, the browse is cancelled and the user gets a browse timeout message.

## Table Joins

### Table Joins

- Drag and drop to create a join
- View and modify join properties
- Datatype conversion
- Inner and Outer Joins



ADM\_&amp;CUS\_130

An inner join returns the records selected for the first table combined with related records selected from the second table. If a record does not exist in the second table, no records are returned. Only related records selected from both sides of the relationship display in the view.

An outer join returns the records found by an inner join. However, in addition, for each value in the first table, it returns unknown values from the second table when no related record is found. As a result, all matching records from the first table are preserved for unmatched records in the second table.

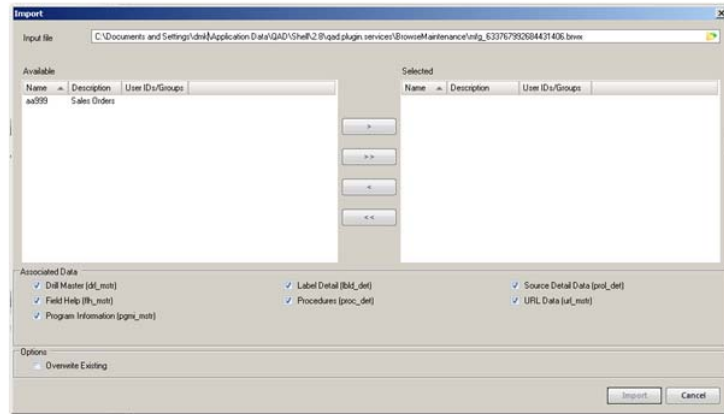
The default join type is inner. Using the outer join can give you more flexibility in displaying information.

**Example** An inner join between customers and sales orders displays only customers with sales orders. An outer join includes all customers, even those who do not have orders.

## Importing Browsers

### Importing Browsers

- Select a browse definition file (.brwx) using the Open lookup



- Specify the data to import using the Associated Data options



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Importing includes the browse and view data for the browse, but you can specify whether to include associated browse data in the Associated Data pane, which includes checkboxes for including the Drill Master, Field Help, Program Information, Label Detail, Procedures, Source Detail Data, and URL Data.

If you are importing a browse that has the same name as an existing browse, specify whether you want the system to replace the existing browse with the one you are importing by choosing the Overwrite Existing checkbox in the Options pane. Finally, click the Import button.

The Import and Export functions requires that you are using Progress version 10.1C01 at a minimum.

## Exporting Browsers

### Exporting Browsers

- Select a .brwx file to display available browsers
- Use the Associated Data options to limit the data to be exported
- Browsers are exported to a default location:
  - C:\Documents and Settings\username\Application Data\QAD\Shell\version\qad.plugin.services\BrowseMaintenance



ADM\_BCUS\_150

The ability to export, import, and delete browsers is disabled by default and should be limited to authorized users.

Do this by configuring a setting in the `client-session.xml` file located in:

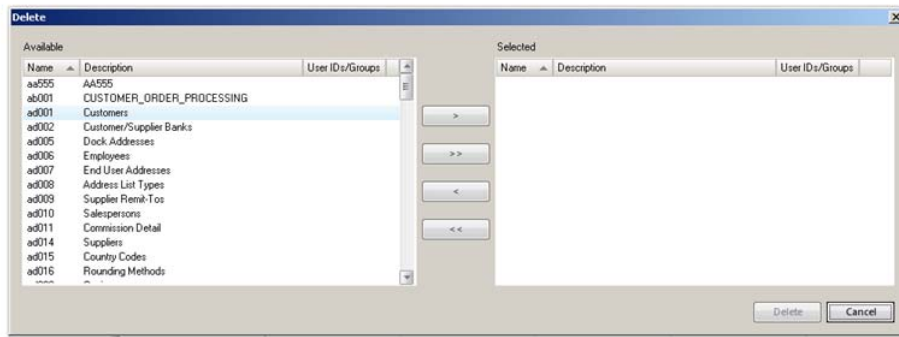
```
TomcatInstallDir/webapps/qadhome/configurations/SysEnv/
```

The `<DotNetBrowseMaintenanceUtilities>` element includes a `<Utility>` element whose attributes specify authorization the import, export, and delete features.

## Deleting Multiple Browses

### Deleting Multiple Browses

- Security considerations
  - Restrict the use of Browse Import, Export and Multiple Delete functions by modifying the `clientsession.xml` file



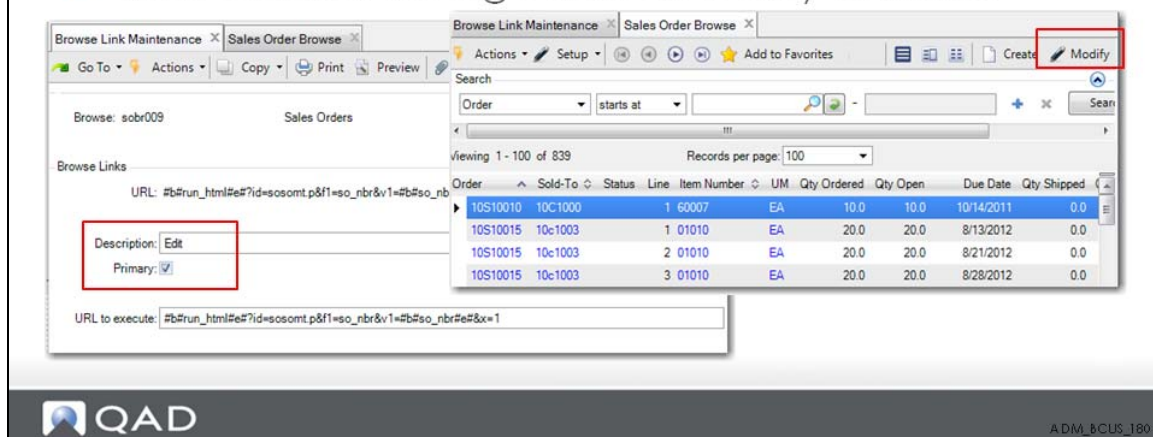
ADM\_BCUS\_1.60

Deleting will remove the browse and view data along with the associated data.

## Browse Link Maintenance

### Browse Link Maintenance

- Specify program links as URLs that display as buttons on browses
- New and Edit links display as Create and Modify buttons
- Data in the current browse is passed to the linked Modify program
- Links loaded during install for many browses



You can use Browse Link Maintenance to associate programs with a browse that display as buttons on the browse toolbar. Link data has already been defined for most commonly used browses so that Create and Modify buttons display when the product is installed.

**Note** When buttons are defined with a description of New and Edit in Browse Link Maintenance, the terms are mapped to Create and Modify for display on the toolbar.

When you click the button in a browse, data from the currently selected row in the browse is passed to the linked program.

For example, in Sales Order Browse, click Create to open Sales Order Maintenance to enter a new sales order. Click Edit to open Sales Order Maintenance to modify the order for the currently selected row in Sales Order Browse.

If needed, you can define additional associations to commonly used programs that will also appear on the browse toolbar labeled with the text you supply in the Description field.

## Creating a Browse Link

### Creating a Browse Link

- Select a browse
- Specify the program link as a URL to Execute, using the syntax:
  - `#b#run_html#e#?id=program_name`
- Set the HTTP parameters for the program
  - Index is the number of submits the program executes
  - Field and Value are the field and value you want to load in the linked program



ADM\_BBUS\_190

The index field is used to store the number of times the program will execute an Enter action (similar to pressing the Next button).

In simple maintenance programs, this is set to 1 to simply enter the key field values and access the fields that can be maintained in the linked record. More complex maintenance programs may have multiple sets of input prompts to be processed to access the frame of maintainable data.

For example, the first prompt for data in `addkmt.p` requires a value for the field `Shipto`. The program link record provides the value of `ad_ref` from the browse and executes the first Enter action.

The next prompt for data in the maintenance program requires a value for the field `ad_addr` and the browse link provides the value of `ad_addr` from the browse and executes a second Enter action. This advances the maintenance program to its frame of maintainable data for the user. Each time the program asks for data to be entered, the browse link logic offers up the fields it has and if the field names it has data for matches one of the fields the program is looking for, the field value is provided and an Enter action is executed (if any are left to execute).

Use the Field field to enter the name of the variables that the target program is using to prompt for data. This information can be found by executing the program, advancing the cursor to a field of interest, and pressing Ctrl+F.

The value fields (Value[1], Value[2], and so on) are the variable names from the browse providing the data and must be contained within #b# and #e#. The browse link logic uses these tags to parse out the value of the field from its record buffer.

**Example**

Field[1]: shipto; Value[1] : #b#ad\_ref#e#

Field[2]: ad\_addr; Value[1] : #b#ad\_addr#e#

**Important** Progress has a limit in the size of the data that can be stored in an index. In versions prior to 10.1B, the limit is around 200 characters (the sum of all the data contained in the fields of an index of a record). This limit has been increased to around 2000 characters in version 10.1B and beyond. Within browse link functionality, you are restricted to the 200-character limit unless you have upgraded your version of Progress. This limits the number of parameters that can be defined in a browse link, usually to four or less, although a fifth parameter is possible if the names of all of the involved fields are small.

## Exercise

# Exercise



## Browse URL Maintenance

### Browse URL Maintenance

- Create links to:
  - Programs
  - External Web sites, such as supplier or customer company Web sites,
- Create URL links for specific records in browse cells



ADM\_BCUS\_210

When a browse cell contains a URL link, double-clicking it launches a new browser window and displays the intranet or Internet resource associated with the URL. You can use these URLs in two ways:

- Create links to external Web sites that users can activate from QAD .NET browses, such as a supplier Web site associated with a supplier ID.
- Create links to other programs and pass specific data values to the programs. This lets you use browses as a means of navigating directly to maintenance programs.

You can access links to other programs only from drill-down browses, not lookups. Drill-down browses are typically available directly from the menus, but can also be associated with program fields in Drill Down/Lookup Maintenance (36.20.1 in SE, 36.4.8.1 in EE).

## Creating a Browse URL Link to a Program

### Creating a URL Link to a Program

- Using run\_html to build the URL
- Specify:
  - The program
  - The field and value
  - The index
- Use the syntax  
`#b#run_html#e#?id=program_name&f1=field_name&v1=value_name#b#`
- Set the HTTP parameters for the program
- Field and Value are the field and value you want to load in the linked program



ADM\_BCUS\_220

**Example** For example, you can set up links in an item browse to directly access Item Master Maintenance (1.4.1), passing the current item number to the maintenance program, and executing the Next command any number of times. When a user clicks the link, Item Master Maintenance displays in a detached window. Multiple columns of data in a browse can contain links so that you can access maintenance programs for any data related to a record. However, data for only one field can be passed to each program.

## Exercise

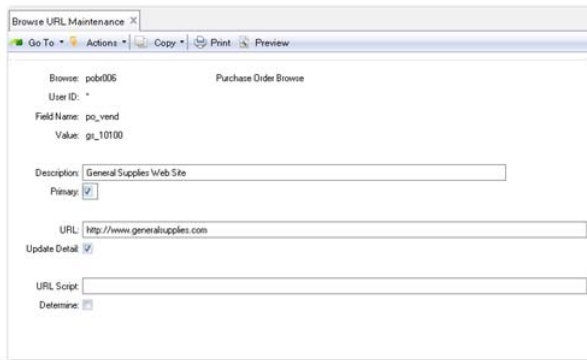
# Exercise



## Creating a Browse Link to a Web Page

### Creating a Browse Link to a Web Page

- Specify:
  - The browse
  - Field name and value
  - The URL
- Use the syntax: `http://www.website.com`



ADM\_B\_CUS\_240

**Example** You want to establish a URL link in the Purchase Order Browse from supplier ID GS10100 to the corresponding supplier’s company Web site, located at:

<http://www.generalsupplies.com>.

Enter these values in Browse URL Maintenance:

Field Name	Value
Browse	pobr006.p
User ID	*
Field Name	po_vend
Value	gs_10100
URL	http://www.generalsupplies.com
Description	General Supplies Web Site
Primary	Yes

When you run Purchase Order Browse, the supplier gs\_10100 record now features a link to the Web site [www.generalsupplies.com](http://www.generalsupplies.com).

## Exercise

# Exercise



## Creating a Browse Link to a Record

### Creating a Browse Link to a Record

- Insert a string in the URL that is replaced by a browse field value
- You can create a link to a specific field at a web address, for example, a catalog item
- Insert the field name in the URL
- Use the syntax:

```
http://www.website.com/catalog/#b#fieldname#e#
```



ADM\_BCUS\_260

URLs can contain special strings that are automatically replaced by field values in the browse. Selecting a link containing this type of string automatically replaces that string with the corresponding field value in the row. Follow these steps to define this type of special string in a URL:

- 1 Enter #b# to indicate the beginning of the string.
- 2 After the #b#, enter a field name associated with the specified browse.
- 3 Enter #e# to indicate the end of the string.
- 4 The Web site for one of your primary suppliers contains a catalog of items. Entering an item's identifier at this Web site accesses the catalog entry for that item, containing information such as item cost, quantity available, and ship weight. To create links from the supplier item numbers to their corresponding catalog entries at the supplier's Web site, create the following URL: `http://www.generalsupplies.com/catalog/#b#vp_vend_part#e#`  
**Note** You must include `http://` in the URL. For example, you must use `http://www.generalsupplies.com/` and not just `www.generalsupplies.com`.
- 5 Next, associate the URL with the Supplier Item column in the Supplier Item Browse.
- 6 After you establish this link, selecting a supplier item number in the Supplier Item Browse automatically inserts the selected field value. For example, selecting supplier item 10-1005 creates this URL: `http://www.generalsupplies.com/10-1005`.

- 7 The system then launches a Web browser to display the relevant catalog information for that item located at that URL address.

## Knowledge Check

- 1 What is the recommended upper limit of tables you can include in a browse definition?
- 2 How do you restrict access to the Browse Import and Export functions?
- 3 What information should you check before creating a browse?
- 4 What is the file extension for browse definitions?
- 5 Which menu do you use to associated drill-downs with fields?

Chapter 9

# **Menu and Browse Collections**

## Chapter Objectives

### Chapter Objectives

- The objective of this chapter is to introduce the Menu Collection and Browse Collection programs.



ADM\_COLL\_020

## Benefits

### Benefits

- You will be familiar with the Collections functions.

## Training Flow

### Training Flow

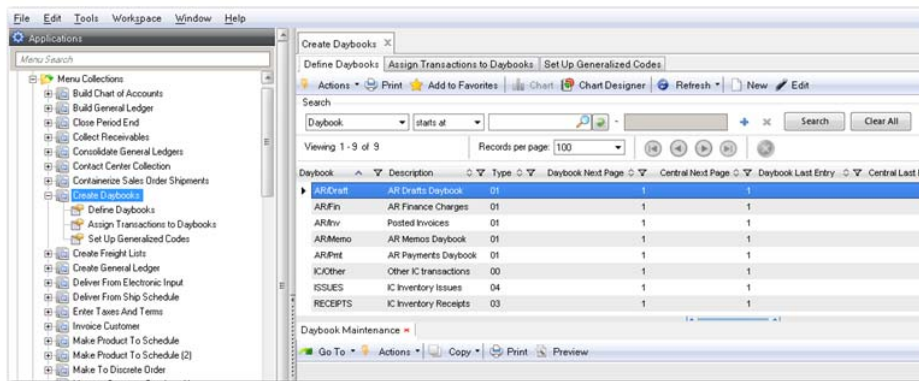


- Overview
- Terminology
- Components
- Administration Tasks
- Multiple Systems
- Performance Tuning
- Troubleshooting
- Customizing Browsers
- **Menu and Browse Collections**
- Process Maps
- Configurable Screens

## Menu Collections

### Menu Collections

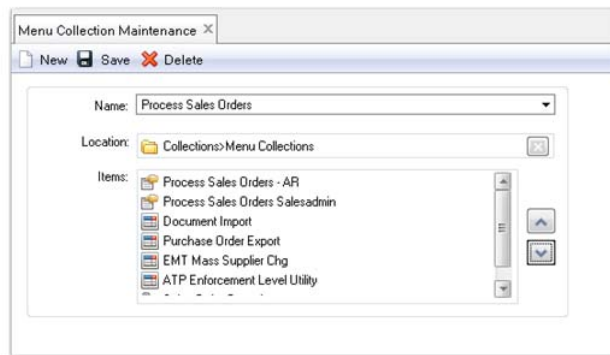
- Collections of menu items such as programs, browses, process maps, and dashboards
- Stored in the Collections folder
- Need access to Administration Menu



## Menu Collection Maintenance

### Menu Collection Maintenance

- Drag-and-drop facility for adding menus to collections
- Set the order of menus in the collection using the up and down arrows



## Browse Collections

### Browse Collections

- Browse Collections comprise a main browse that can drive selected fields in other browses and programs
- Can be customized and saved to user favorites
- Can link to
  - Other browses
  - Maintenance and report programs
  - Other URLs such as external Web pages
- Need access to Administration Menu



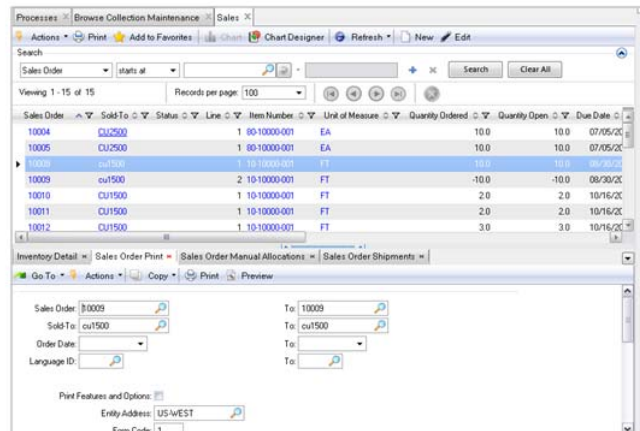
ADM\_COLL\_070

There is no limit to the number of programs and browses you can include in a Browse Collection. However, when defining the collection, you should consider that a large collection takes longer to display on the screen, and there may be a performance issue if it is to be in constant use by a large number of users. In this case, you should consider multiple smaller collections.

## Browse Collection Maintenance

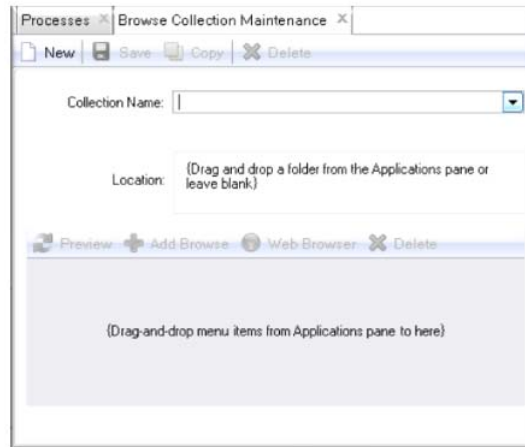
# Browse Collection Maintenance

- Main browse in upper half of screen
- Related browses and programs in lower half



## Browse Collection Maintenance

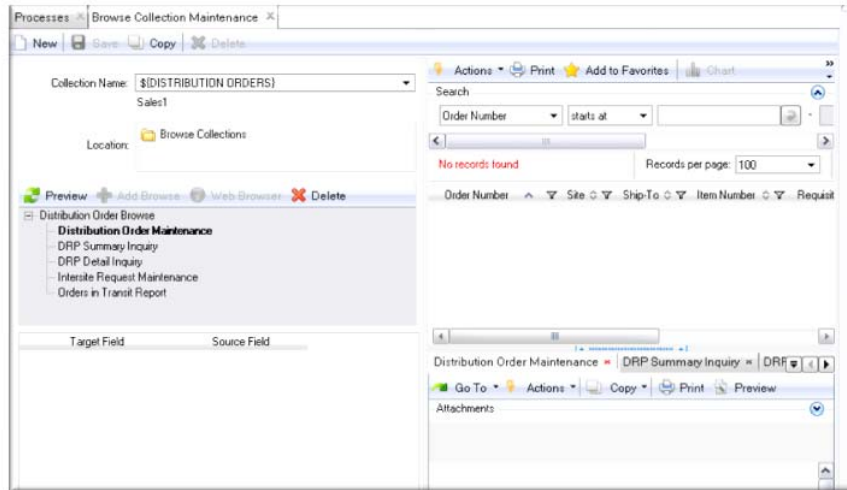
- Give collection a Name
- Assign Location in menu



Browse collections are stored in the Collections folder in the Applications area. When you right-click the Collection name and select Design, you can open the collection directly in Browse Collection Maintenance. This option lets you modify collection properties from the desktop without having to run the maintenance program.

## Browse Collection Maintenance

- Select Main Browse and related browses / programs and links between them



ADM\_COLL\_100

You can specify a label term as a name for the browse collection. The advantage of doing this is that you can use a label term whose associated description has been translated into a supported language. To find an existing label term, open Label Master Browse (36.4.17.2). To quickly find a label term you might want to use, use the browse's Search function. For example, if you want to find a label term that includes `Item`, set the Search fields to `Term contains Item` and click Search.

In the browse, the `Term` column lists the label terms that include `Item` and the `Long Label` column displays the associated descriptions. Next, in Browse Collection Maintenance's Name field, enter the label term in the format `${Term}`.

**Important** You must use curly brackets `{ }` when defining a label term. Otherwise, the label will not link correctly to the translated description.

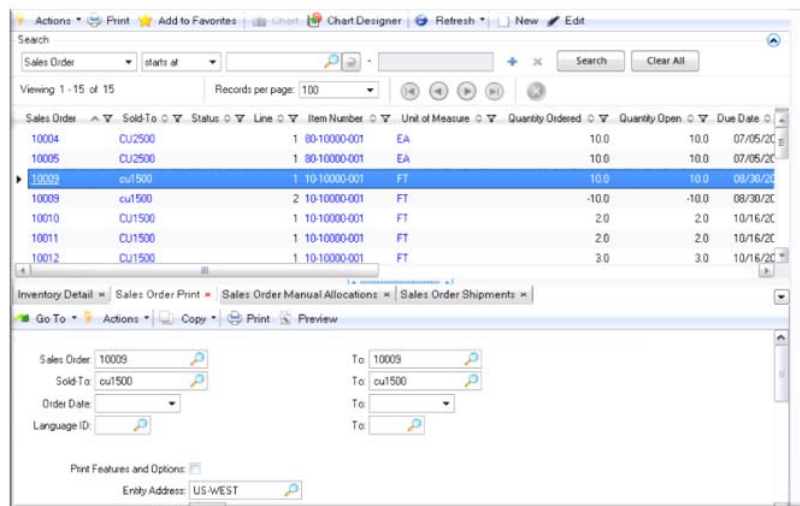
For example, if the label term is `ALL_ITEMS`, enter `${ALL_ITEMS}` in the Name field. After the browse collection is saved, in the Applications Pane, the browse collection name takes the description associated with the `ALL_ITEMS` label term.

If the `${Term}` name is not converted immediately to the label term's description, log out and log back in again to refresh the Application area's display.

## Running Browse Collections

### Running Browse Collections

- Selecting a row in the main browse changes linked data in the programs in the collection



ADM\_COLL\_110

You can also drive URLs from browses. For example, select Customer Address Browse and click the Web Browser button.

- 1 In the Title field, enter Google Address Search. In the URL field, enter `http://maps.google.com/maps?q=` and then choose Postal Code from the pull-down menu, which adds `<Postal Code>` to the Google Maps query. Now Customer Address Browse automatically drives a Google Maps query.
- 2 If you decide you want to remove one of the browses or programs, select the browse or program and click the Delete button just above the gray area.
- 3 To preview the collection, click Preview.

## Knowledge Check

- 1 Where are menu and browse collections located in the Applications area?
- 2 How do you edit a browse collection directly from the Applications area?
- 3 How many fields can be used as target fields?

Chapter 10

# Process Maps

## Objectives

### Objectives

- Understand process maps
- Edit process maps
- Administer process maps



ADM\_PMAP\_020

## Benefits

### Benefits

You will be able to:

- Create your own process maps
- Link process maps to menus and operational metrics



ADM\_PMAP\_030

## Training Flow

### Training Flow



- Overview
- Terminology
- Components
- Administration Tasks
- Multiple Systems
- Performance Tuning
- Troubleshooting
- Customizing Browsers
- Menu and Browse Collections
- **Process Maps**
- Configurable Screens

## Overview

### Process Maps

- A process is a structured set of activities designed to accomplish a specific objective
- Process maps illustrate principal business and operational processes within a QAD application and provide graphical navigation
- Two separate views for process maps in QAD applications
  - Vertical Industry View
  - Supply Chain View
- Both views lead to the same detailed maps



ADM\_PMAP\_050

## Process Maps Views

### Process Maps Views

- Vertical Industry



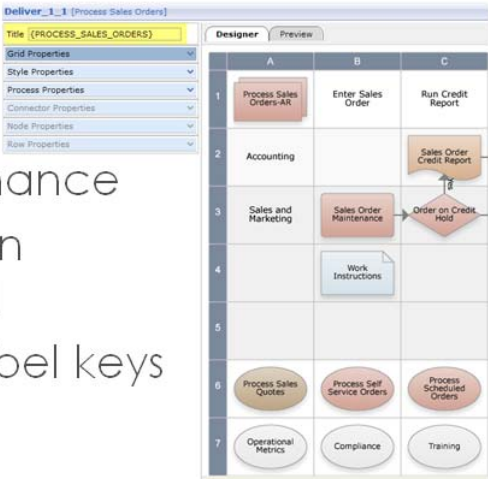
- Supply Chain



# Naming Conventions

## Naming Conventions

- Each map has a title
- Label keys {...} defined in Process Label Maintenance
- Alternatively, enter text in Process Editor's Title field
- Best practice is to use label keys



ADM\_PMAP\_070

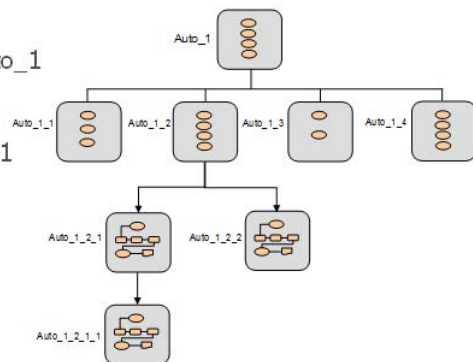


## Numbering Conventions

### Numbering Conventions

- A code identifies the functional area to which the map belongs
- A number indicates the map's place within the map hierarchy for that area
- Example

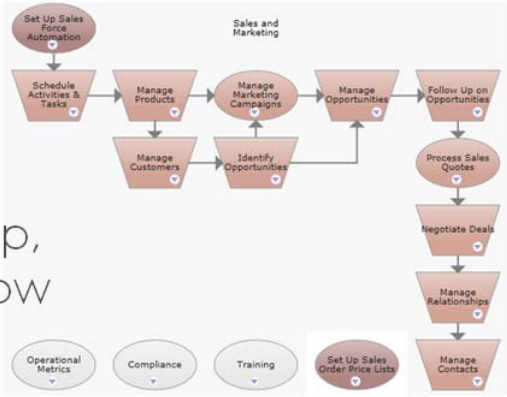
- The first map in the Automotive area is named Auto\_1
- Auto\_1 opens four submaps named Auto\_1\_1, Auto\_1\_2, Auto\_1\_3, and Auto\_1\_4
- Two maps open from Auto\_1\_2 named Auto\_1\_2\_1 and Auto\_1\_2\_2
- One map opens from Auto\_1\_2\_1 named Auto\_1\_2\_1\_1



# Map Titles

## Map Titles

- Level 1:  
High-level vertical map for that area; title in black text above the map
- Level 2:  
Subsequent vertical map, or a detailed process flow

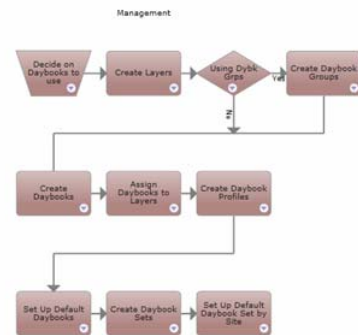


## Breadcrumbs

### Breadcrumbs

- Shows path to current map
- Navigate back by clicking on each breadcrumb

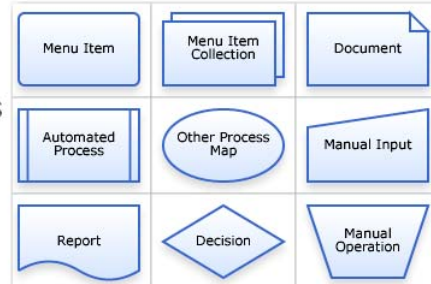
Supply Chain Process Model > Set Up Chart of Accounts Structure (EF) > Set Up Daybooks (EF)  
Set Up Daybooks (EF)



## Nodes

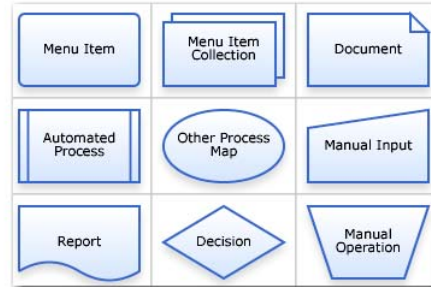
### Nodes

- Menu Item
  - Indicates a link to a program on the menu
- Other Process Map
  - Connects activities on one process map to another process map
- Menu Item Collection
  - Links to collections
- Manual Step
  - Tasks performed outside of the QAD application, for example, external planning
- Decision
  - Directs the flow of a map when it can branch in two directions



## Nodes

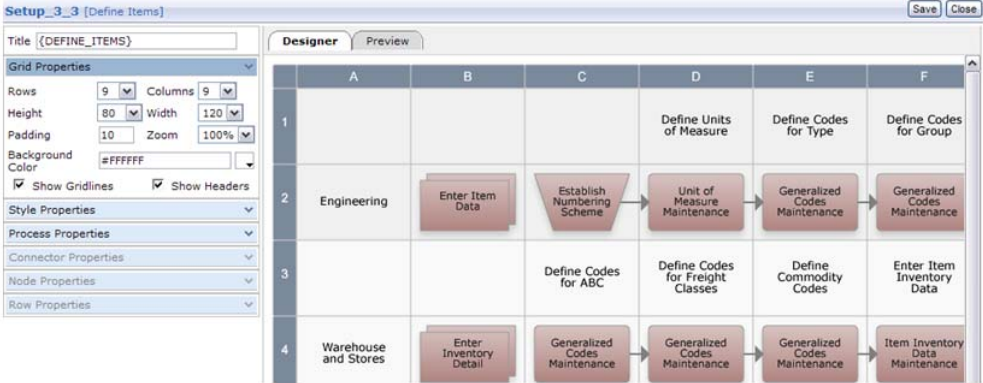
- Document
  - Represents reports or files, such as Word documents or Excel spreadsheets, relevant to a task
- Manual Input
  - Indicates inputs to the process from external systems or outputs to external systems, for example, Electronic Document Interchange (EDI)
- Automated Process
  - Indicates a link to an automated process
- Report
  - Indicates a link to a report program
- Nodes also indicate a user's permissions to the link: If the user does not have access, the node grays out



# Viewing Process Maps

## Viewing Process Maps

- Use the Process Editor to view maps



- Click Open to select existing process maps



## Viewing Process Maps

- Process maps are rendered using Microsoft's **Silverlight** technology
- Silverlight is a programmable Web browser plugin compatible with .NET applications
- Can also be viewed using standard **SVG**-based technology
- The scalable vector graphics (SVG) format is an XML technology for defining vector-based two-dimensional graphics for the Web
- Set the default display technology in Process Admin Context Parameters



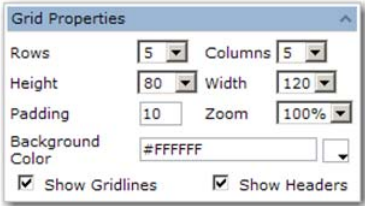
ADM\_PMAP\_140

**Note** Adobe Scalable Vector Graphics (SVG) Viewer is not supported by Adobe Systems. If the SVG plugin does not correctly install automatically, you must install it manually.

## Creating a Process Map

### Creating a Process Map

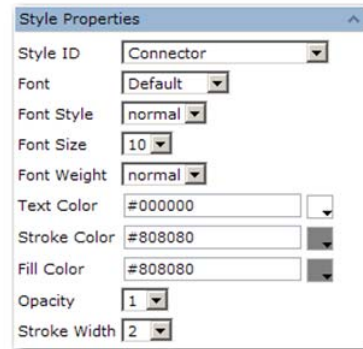
- Click New to create a new map
- Assign a name, title, and owner (do not use spaces)
- Use Grid Properties to set:
  - The number of rows and columns,
  - cell height, width, and padding
  - A zoom factor for previewing purposes
  - Cell background color
  - Cell gridlines and header settings



## Editing Style Properties

### Editing Style Properties

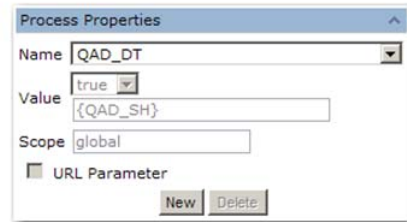
- Styles are pre-defined and are applied to nodes
- You can edit the default font and node properties for the style
- Style attributes are stored in process-config.xml
- Changes you make to styles do not affect existing process maps in which the style is used



## Process Map Variables

### Process Maps Variables

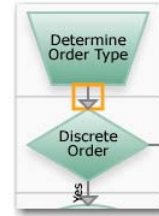
- Used to create links from the Editor to programs, images, icons, other nodes, operational metrics, ..
- Variables ensure that processes can be used in multiple environments
- System global variables are displayed in the Process Properties dialog and defined in the Process Administration dialog
- You can also define local variables with this dialog



## Connector Properties

### Connector Properties

- Available when you select an inter-node connector
- Define properties for arrows and lines
- Apply a label or link the connector to a program, other process map, or file
- If the connector is linked, specify the target window
- Set the shape, style, and dash width



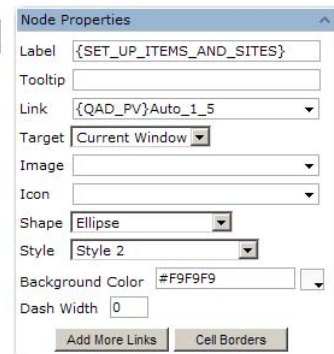
The screenshot shows a dialog box titled 'Connector Properties'. It contains the following fields and controls:

- Label:** A text input field.
- Link:** A dropdown menu.
- Target:** A dropdown menu with 'Current Window' selected.
- Shape:** A dropdown menu with 'Top Elbow Arrow' selected.
- Style:** A dropdown menu with 'Connector' selected.
- Dash Width:** A text input field containing the value '0'.

## Node Properties

### Node Properties

- Available when you click a cell in the grid
- Use to design nodes
- Set a label and tooltip, which use the default attributes defined in the style
- Link to a file, program or another node
- The system uses process variables to locate files, programs, or process maps to be linked
- Target lets you open the link in the current window or new window



The screenshot shows a 'Node Properties' dialog box with the following fields and values:

- Label: {SET\_UP\_ITEMS\_AND\_SITES}
- Tooltip: (empty)
- Link: {{QAD\_PV}Auto\_1\_5}
- Target: Current Window
- Image: (empty)
- Icon: (empty)
- Shape: Ellipse
- Style: Style 2
- Background Color: #F9F9F9
- Dash Width: 0

Buttons at the bottom: Add More Links, Cell Borders

## Node Properties

- Display an image instead of the default node shape
- The image sized to fit the cell
- Select an icon to display in the lower right-hand corner of the node
- Select the node shape, based on the function of the node in the process map
- Select a style for the node, from the default styles defined in Style Properties
- Set a background color

Node Properties

Label {SET\_UP\_ITEMS\_AND\_SITES}

Tooltip

Link {QAD\_PV}Auto\_1\_5

Target Current Window

Image

Icon

Shape Ellipse

Style Style 2

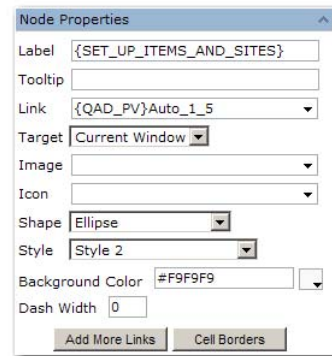
Background Color #F9F9F9

Dash Width 0

Add More Links Cell Borders

## Node Properties

- Dash Width is the length in pixels of dashed lines for the node border or for connectors
- Click Add More Links to add up to 8 additional URL links for the process map
- Click Cell Borders to define the color, width, and dash width of the cell borders



The screenshot shows the 'Node Properties' dialog box with the following fields and values:

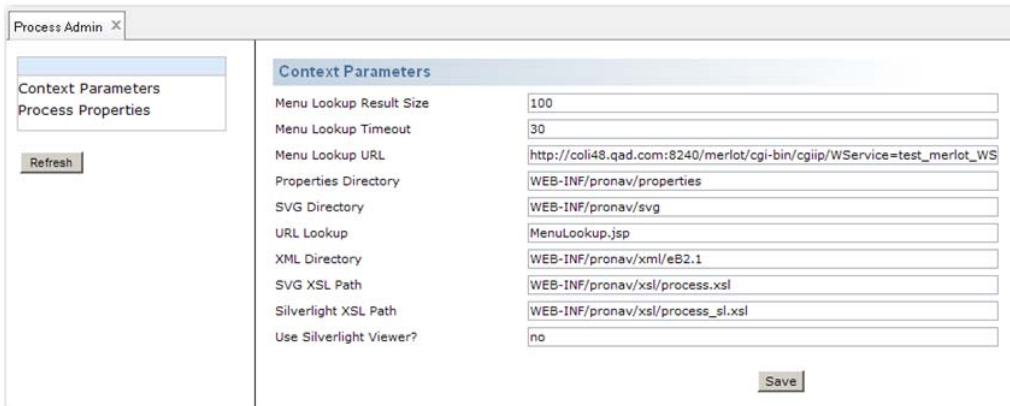
Field	Value
Label	{SET_UP_ITEMS_AND_SITES}
Tooltip	
Link	{QAD_PV}Auto_1_5
Target	Current Window
Image	
Icon	
Shape	Ellipse
Style	Style 2
Background Color	#F9F9F9
Dash Width	0

Buttons: Add More Links, Cell Borders

## Process Map Administration

### Process Administration

- Use the Process Admin option to set context parameters and define system properties variables



The screenshot shows a web application window titled "Process Admin". On the left, there is a navigation menu with "Context Parameters" selected and "Process Properties" below it. A "Refresh" button is located below the menu. The main content area is titled "Context Parameters" and contains a list of parameters with their corresponding values in text input fields:

Parameter Name	Value
Menu Lookup Result Size	100
Menu Lookup Timeout	30
Menu Lookup URL	http://coli48.qad.com:8240/merlot/cgi-bin/cgiip/WService=test_merlot_WS
Properties Directory	WEB-INF/pronav/properties
SVG Directory	WEB-INF/pronav/svg
URL Lookup	MenuLookup.jsp
XML Directory	WEB-INF/pronav/xml/eB2.1
SVG XSL Path	WEB-INF/pronav/xsl/process.xsl
Silverlight XSL Path	WEB-INF/pronav/xsl/process_sl.xsl
Use Silverlight Viewer?	no

A "Save" button is located at the bottom right of the main content area.

## Context Parameters

### Context Parameters

- Menu Lookup Result Size
  - The number of records returned when a user displays the Program Lookup associated with the URL field in Node Properties and Connector Properties
  - Default 100
- Menu Lookup Timeout
  - When a user uses the Program Lookup, the system connects to the active database using the URL specified in Menu Lookup URL and reads the menu information from the database
  - This information is held in memory for the number of minutes specified in this parameter



ADM\_PMAP\_230

## Context Parameters

- Menu Lookup URL
  - The full URL for connecting to a database to read menu records to display in the Program Lookup
  - For example  
`http://crsu04.qad.com:4949/cgi-bin/qad_wspd_cgi_31c_dt91.ksh/WService=testdt91web.com/qad/nav/xmenu.p?Action=MenuLookup`
  - Built using the following elements
    - Relative path to the executables directory on the Web server
    - WebSpeed executable name
    - WebSpeed broker name
    - API for reading the database menus



ADM\_PMAP\_240

## Context Parameters

- SVG Directory
  - Specifies the directory path where the SVG files created with the Process Editor are stored
  - Path is relative to *TomcatInstallDir/webapps*
- URL Lookup
  - Specifies the file to use for generating the listing of programs associated with the URL field in Connector and Node Properties
  - By default, this is *MenuLookup.jsp*

## Context Parameters

- XML Directory
  - The path to the directory where the XML files created with the Process Editor are stored
  - Path is relative to *TomcatInstallDir/webapps*
  - Process maps for each supported language are stored in  
*TomcatInstallDir/webapps/WEB-INF/pronav/xml*
- SVG XSL Path
  - The path to the XSL file (installed with the system) used to convert process map files from XML to SVG format
  - Typically is *WEB-INF/pronav/xsl/process.xsl*
  - The path is relative to *TomcatInstallDir/webapps* directory

## Context Parameters

- Silverlight XSL Path
  - The path to the XSL file (installed with the system) used to convert process files from XML to Silverlight format
  - Typically *WEB-INF/ pronav/xsl/process\_sl.xsl*
  - Path is relative to *TomcatInstallDir/webapps*
- Use Silverlight Viewer
  - Use this option to set the default process map viewer
  - By default, this is Yes

## Process Properties

### Process Properties

- Use to display variables used by the Process Editor when creating maps
- Edit the default global variable definitions or create a new local variable
- Generally, you may only need to change the path for the QAD\_DT\_DOC\_ROOT variable

Delete	Name	Value	Scope	URL Parameter
<input type="checkbox"/>	QAD_CONTENT	{QAD_DT_DOC_ROOT}/content/	global	
<input type="checkbox"/>	QAD_CONTENT_IMG	/content/	global	
<input type="checkbox"/>	QAD_DT	{QAD_SH}	global	
<input type="checkbox"/>	QAD_DT_DOC_ROOT	/zinfandelEE	global	
<input type="checkbox"/>	QAD_DT_IMG	{QAD_DT_DOC_ROOT}/images/	global	
<input type="checkbox"/>	QAD_HOMESERVER	http://sql48.qad.com:8888/qad/zinfandel/	global	
<input type="checkbox"/>	QAD_IMG	{QAD_DT_DOC_ROOT}/images/	global	
<input type="checkbox"/>	QAD_IMG_DOCUMENT	{QAD_IMG}document.gif	global	
<input type="checkbox"/>	QAD_IMG_MENUITEM	{QAD_IMG}table.gif	global	
<input type="checkbox"/>	QAD_IMG_PROCESS	{QAD_IMG}process.gif	global	
<input type="checkbox"/>	QAD_METRICS_IMAGE	{QAD_HOMESERVER}/configurations/<test>/storage/metrics/images/	global	
<input type="checkbox"/>	QAD_PV	ProcessViewer.jsp?ProcessName=	global	
<input type="checkbox"/>	QAD_SH	qadsh://menu/invoker/menuitem-alias=	global	
<input type="checkbox"/>	QAD_SH_MENU_KEY	qadsh://menu/invoker/menuitem-key=	global	

Apply New



## Language Support

### Language Support

- The node Label field specifies the node text
- Each label has a key that identifies it
- Use Process Label Maintenance to maintain label keys and text in multiple languages
- Translated label text is stored separately to the node attributes
- Create a new label key for each new node
- Specify this key and its translated text for each required language

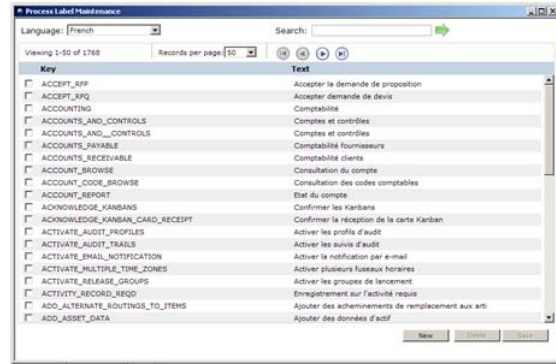


ADM\_PMAP\_290

## Process Label Maintenance

### Process Label Maintenance

- Select a language from the drop-down list
- Translated text displays for each label key
- Translated labels are stored in the *properties\_language.xml* file
- The system identifies the label text to display based on the label key and the user's language



## Managing Process Maps

### Managing Process Maps

- Process maps are stored as XML files, for example, *FinanceEF\_3\_4.xml*
- These files are stored in  
*TomcatInstallDir/webapps/qadhome/configurations/default/storage*
- When migrating to a new QAD .NET UI release, you must manually copy the map files to the *configurations/default/storage* directory of the new Web applications server



ADM\_PMAP\_310

## Knowledge Check

- 1 When a user does not have permissions for a program, how is this represented in the related process map?
- 2 In which menu do you set the default display technology?
- 3 In which file are the map style properties stored?
- 4 What is the purpose of the xml directory parameter?
- 5 Where are process maps stored?
- 6 What is the procedure for migrating process maps from one installation to another?

Chapter 11

# Configurable Screens

## Objectives

### Chapter Objectives

- The objective of this chapter is to describe the Configurable Screens design function

## Benefits

### Benefits

- You will be able to customize non-component based programs using Configurable Screens features and functions

## Training Flow

### Training Flow



- Overview
- Terminology
- Components
- Administration Tasks
- Multiple Systems
- Performance Tuning
- Troubleshooting
- Customizing Browsers
- Menu and Browse Collections
- Process Maps
- **Configurable Screens**

## Overview

### Configurable Screens

- Design tool for configuring non-component based screens
- Equivalent to Design Mode for component-based screens
- Enabled for members of defined UI-design groups



ADM\_CONF\_050

Configurable Screens lets users in a designated UI design group disable fields for input, hide fields, set a predefined default value for a field, mark a field as required, add fields and frames, and set frame navigation.

Configurable Screens is used for non-component based programs only. Component-based screens are customized using Design Mode.

**Note** Access to the Configurable Screens functionality is enabled by the system administrator.

## Types of Configuration

### Types of Configuration

- You can:
  - Disable fields for input
  - Hide fields
  - Set predefined default values for fields
  - Set fields as mandatory
  - Add fields and frames
  - Control frame navigation



ADM\_CONF\_060

Each company that implements a particular function may use different features. This affects which fields are required and which are optional.

Configuration Examples:

- Generalized codes validation
- Optional modules
- Control settings

You must have a very clear understanding of how a particular function is being used before you change the data input requirements. You must thoroughly test the templates you create before using them in a production environment.

## Users and Templates

### Users and Templates

- Changes saved as customized UI template
- Templates are assigned to users based on
  - Groups in Standard Edition
  - Roles in Enterprise Edition
- Generic templates can be used by all users



ADM\_CONF\_070

Screen definitions are stored as UI templates, which can be assigned to user groups so that the screen appearance and behavior can vary based on the user's role within an organization.

In QAD Enterprise Applications Enterprise Edition, the user group function is replaced by the role function. To enable Configurable Screens in Enterprise Edition, you therefore enter the name of the role to which you want to assign the function in the UI Design Group setup field. The users to which this role has been assigned are then authorized to use Configurable Screens.

## Error Handling and Template Conflicts

### Error Handling and Template Conflicts

- Error messages displayed when mandatory fields hidden or removed
- Possible conflicts when users belong to more than one group
- Conflict management tool to list users, programs, and conflicts



ADM\_CONF\_080

When you hide a field that is validated by the system, and attempt to progress through the frame containing the field, the system displays the following error message:

```
The following error was caused by a configurable screen setting.
Please contact your System Administrator.
ERROR: Country code does not exist. Please re-enter.
```

Use the Configurable Screen UI Template Conflicts screen to resolve conflicting template assignments. If a user belongs to more than one group, the system uses the template associated with the first group assigned to the user. You can view and manage these conflicts using the UI Template Conflicts function, accessible from the Configurable Screens table on the Configurable Screens Admin screen. The administrator can use the drop-down list in the Conflict column to select the group assignment that the system should prioritize.

## Configurable Screens Setup

### Configurable Screens Setup

- Administration | Configurable Screens
- Choose Configurable Screens Setup
- Set Enable Configuration Screens
- Specify role (group) for UI Design Group
- Click Save



ADM\_CONF\_090

To set up configurable screens:

- 1 Choose Administration, Configurable Screens.
- 2 Select Configurable Screens Setup.

**Enable Configurable Screens.** Select this field to enable the function for members of the UI Design Group. If you do not select the field, the function is disabled for all users.

**UI Design Group.** Enter the name of a role that is authorized to create and modify screen templates. Only users assigned to this group can create configurable screen templates. In QAD EE, you can create a specific role for Configurable Screens using Role Create (36.3.6.1).

In QAD SE, enter the name of a group created in User Group Maintenance.

Click Save to apply this setting.

## Configurable Screens Setup

- In User Option Telnet Maintenance, verify Program Execution is enabled for your user

The screenshot shows the 'User Option Maintenance' web application interface. At the top, there is a browser window title 'User Option Maintenance' and a menu bar with 'Go To', 'Actions', 'Copy', 'Print', and 'Preview'. Below the menu bar, there is a 'User ID:' field. The main content area contains several configuration options:

Restrict Menu:	<input type="checkbox"/>	Max Web Connections:	<input type="text" value="2"/>
Menu Substitution:	<input checked="" type="checkbox"/>	Max Browse Records:	<input type="text" value="100"/>
Program Execution:	<input checked="" type="checkbox"/>	Session Timeout:	<input type="text" value="60"/>
Server Print:	<input checked="" type="checkbox"/>	Browse Timeout:	<input type="text" value="2"/>
Save Brw Settings:	<input type="checkbox"/>		

Below these options is an 'Expiration Date:' field.

## Creating Template

### Creating Template

- Select the program to configure
- Right-click to select Design
- Enter a name, description, and roles for the template
- Click Configure to enter Design mode



ADM\_CONF\_110

Right-click the program name in the Applications area, and select Design to display the setup screen.

You can assign this template to all users, or select a specific role.

Templates are defined per program. When you select Design for a program, the existing templates for this program are listed, and you can use Delete to remove unwanted templates, or Copy to copy an existing template. When you copy a template, the copy is re-named by adding a 1 to the template name.

# Creating Template

The screenshot displays the QAD Enterprise Applications interface. A 'Sales Order Maintenance' window is open, and a 'Configurable Screens Setup' dialog box is overlaid. The dialog box contains a table with the following data:

Template	Description	All Users	Groups
SOM_SALES1	Custom SO Maint for Sales 1	<input checked="" type="checkbox"/>	

Buttons for 'Delete', 'Copy', 'Preview', and 'Configure' are visible on the right side of the dialog. The 'Configure' button is highlighted with an orange box. Below the dialog, there are fields for 'Pricing Date:', 'Purchase Order:', 'Remarks:', 'Credit Terms Interest %:', 'Reprice/Edit: ', and 'Entered By:'. 'Back' and 'Next' buttons are at the bottom right.

QAD ADM\_CONF\_120

## Template Considerations

### Template Considerations

- Templates control the behavior of the program
- When creating a new record to navigate through a screen, the database is not updated, but the record sequential number may be incremented
- When using an existing record, you may hide a mandatory field, which will not produce an error until the template is saved and the program is run



ADM\_CONF\_130

Each template defines how fields display, whether they are required and enabled, if default values are supplied, and any automatic navigation from frame to frame.

To move through the sequence of frames in a program, you must either create a new record or modify an existing one. In cases where new records are assigned sequential numbers, it may be better not to create new records. Although the records are not saved, number sequences are incremented.

If you hide a required field and test with an existing record that has a field value, no error is generated. Later when a user attempts to create a new record, template errors may occur because a field that needs input cannot be updated.

## Performance Considerations

### Performance Considerations

- Consider the impact on the database of deleting the field at a later stage
- If the field is in constant use, many records are created for it
- When you delete, you delete the field and all its values
- You can remove the field from the frame without deleting it



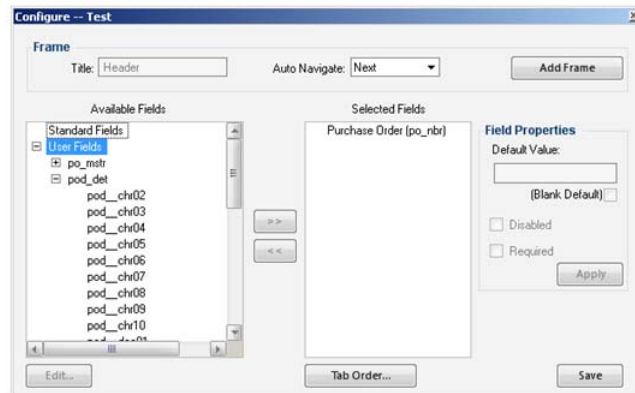
ADM\_CONF\_140

When you create your own field and frame, you add the field to the schema, and as the program is used, users add values to it. When you delete, you delete the field and all its stored values from the database. Use the Disable or remove options to remove a field from the screen without deleting it from the database.

## Configure Screen

### Configure Screen

- Auto Navigate
- Available and Selected Fields
- Field Properties
- Tab Order



ADM\_CONF\_150

You can click the Save button at any time to save your changes and leave configuration mode. Your changes are also saved each time you click Next or Back to access a new frame.

**Auto-Navigate.** Use Auto-Navigate to control navigation between frames. You can use the Next and Back options to skip entire frames. To skip an entire frame without generating an error, the proper defaults must exist for all required fields. Next and Back have a similar effect; use them to skip the display of a frame. Which one you use depends on the normal screen navigation.

**Available Fields.** This area displays the user-defined fields you can add to the current frame or to a new frame. These fields are defined for each program in the `configscreens.xml` file.

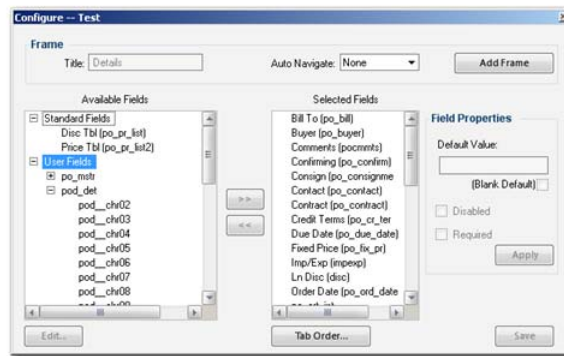
**Selected Fields.** This area displays the fields selected for use on the current frame.

**Tab Order.** The tabbing order is the sequence in which you access fields using the Tab key. Click to display the tabbing order of fields in the current Frame. Use the Up and Down buttons to change the order, if required.

## Available Fields

### Available Fields

- Standard Fields and User Fields
- Tables and fields defined in `configscreens.xml`
- Add new user fields to `configscreens.xml`
- Default values for fields



ADM\_CONF\_160

**Standard Fields.** These are existing data fields for the program. The Standard fields area only displays fields that have been hidden from the screen as part of a previous customization.

**User Fields.** These are the default user customization fields that are defined for all tables.

## Adding New Fields and Tables to Programs

When you design a program, the user fields available to add to the screen are displayed in the Available Fields area. You can add these to existing frames, or create a new frame to contain one or more of these fields.

By default, only specific tables and fields are displayed for a particular program. These tables and fields are defined in the `configscreens.xml` file.

## Default Values

You can add a default value to existing or new fields, which is displayed in red on the screen. A drop-down list of default values (None, True, or False) is displayed beside logical-type fields. Defaults you specify for a template override any other defaulting logic associated with a field and are only applied to new records; when a record is being edited, no field values are overridden.

## Field Properties

### Field Properties

- Editing Field Properties
- Field Validation
- Generalized Codes
- Program Validation



ADM\_CONF\_170

The Edit Field screen displays read-only properties for the selected field, and lets you modify the field label and validation.

**Note** The Edit Field screen is not available for Standard Fields.

*Table.* This read-only field displays the database table for which this field is defined.

*Name.* This read-only field displays the field name.

*Data Type.* This field displays the field type: character, date, logical, decimal, user 1, or user 2

*Format.* This read-only field displays the field data format, for example, the maximum number of characters for a character field.

*Label.* This field displays the field label. Note that the system will translate the value you put in the Label field if the value is a label term. Otherwise, the system will just use the value for the label.

*Generalized Code Validation.* Check this field to ensure that the values for this field are based on the values specified in Generalized Code Maintenance (36.2.13). You can use Generalized Codes Validation Rpt (36.2.15) to view a list of database fields that have schema validation assigned.

**Note** When adding values in Generalized Codes Maintenance, you must specify the full table and field name. For example, if specifying values for the field `pt_chr01`, you enter the table and field name `pt_mstr.pt.chr01`.

*Program.* Use this field to enter the name of a user-defined Progress program that validates the field.

You can use the program template `gpvalidate.p` to create your own Progress programs. This template is stored in the `QADInstallDir/qadui/com/qad/shell/interface` directory and contains instructions for usage. Copy the template and rename it appropriately.

## Adding Lookups to Fields

### Adding Lookups to Fields

- Use Drill-Down/Lookup Maintenance
- Enter the full table and field name

The screenshot shows a window titled "Drill Down/Lookup Maintenance" with a menu bar containing "Go To", "Actions", "Copy", "Print", and "Preview". The main content area displays the following configuration:

- Drill Down/Lookup: Lookup
- Field Name: admastr.adchr02
- Calling Procedure: adbr007.p
- Procedure To Execute:
- Description Term:
- Description:
- Lookup Starts At Row: 7
- Lines In Lookup: 6



ADM\_CONF\_180

Use Drill-Down/Lookup Maintenance (36.4.8.1) to assign drill-downs or lookups to fields that do not have a browse, to replace a browse, or to delete one.

**Warning** Most programs attached to a function with Drill-Down/Lookup Maintenance display values in a database table. You can attach any Progress function to a field, and this program executes when the user selects Help. For example, you can attach the program `calculat.p` to field `pt_avg_int` to display a calculator.

## Using Added Fields in Character Code

### Using Added Fields in Character Code

- Using the `gpngenfld.i` include file
- `gpngenfld.i` get and set function calls



ADM\_CONF\_190

You can modify character code to add new fields to program screens. New fields can be added to existing tables without requiring schema changes. These fields are not physically part of the master tables but are stored in a side table and thus require a different way to access their values from the code. For this purpose, the include file `gpngenfld.i` gives access to the values of these new fields through function calls.

**Note** This function is only used when modifying character code.

To gain access to the get and set function calls, include this file at the top of the program that will use them, for example:

```
{com/qad/mfgpro/gpngenfld.i}
```

## Adding Frames

### Adding Frames

- Custom frames and user-defined fields can be added to configurable screens

The screenshot displays a QAD sales order maintenance window. A 'Custom Frame' dialog box is open, allowing the user to define a new frame. The dialog contains three input fields: 'so\_dte01' (a dropdown menu), 'so\_chv08' (a text field), and 'so\_chv07' (a text field). The background screen shows order details for Order: 10001, including ship-to information for Colossal Conglomerates LTD and various dates like Required Date, Promise Date, and Due Date. The QAD logo is visible in the bottom left corner, and the text 'ADM\_CONF\_200' is in the bottom right corner.

The Frame button is only available when there are available fields to add, default message (8622). For more information on adding User Fields, see [QAD .NET UI Administration Guide](#).

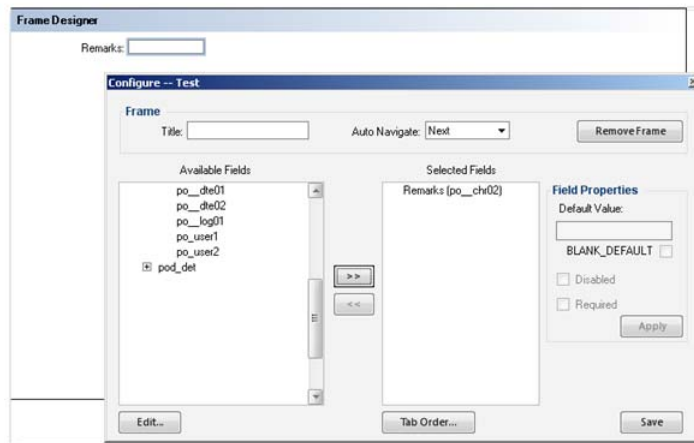
The new frame is displayed behind the Configure screen. To add fields to the screen, use the arrow key to move fields from the Available Fields area to the Selected Fields area. Use the cursor to position fields in the frame, and click the Tab Order button to set the tabbing order for the frame.

Click Save to save this frame and insert it into the program sequence, or Remove Frame to remove the frame from the sequence. When you remove a frame, the fields are selectable again in the Available Fields area.

When you create a new frame, save your updates and exit Configure Screens, the frame is displayed immediately following the current frame when you next launch the program.

## Adding Frames

- Frames option only available when fields are available
- Use Tab Order to set the tabbing order



## Template Conflicts

### Template Conflicts

- Use the Configurable Screen UI Template Conflicts screen to resolve template conflicts
- Conflicts can occur because an option has 2 or more templates, and each template is assigned to different groups, and users belong to both groups
- When a user has two or more templates assigned for the same program, the system uses the template associated with the first role (group) assigned to the user
- This might not be the expected behavior

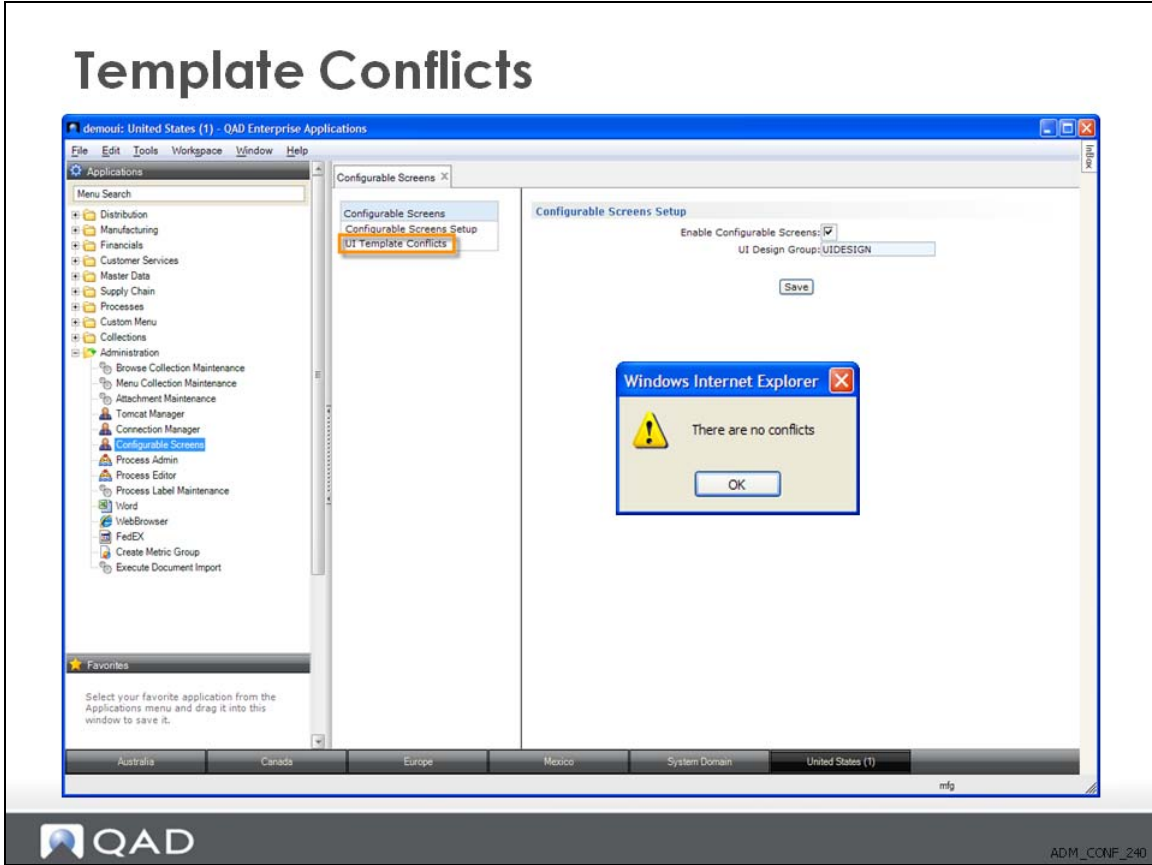


ADM\_CONF\_220

## Template Conflicts

- The UI Templates Conflict screen lists all users that belong to more than one group with an assigned template
- The administrator has to fix this problem by dropping one of the templates

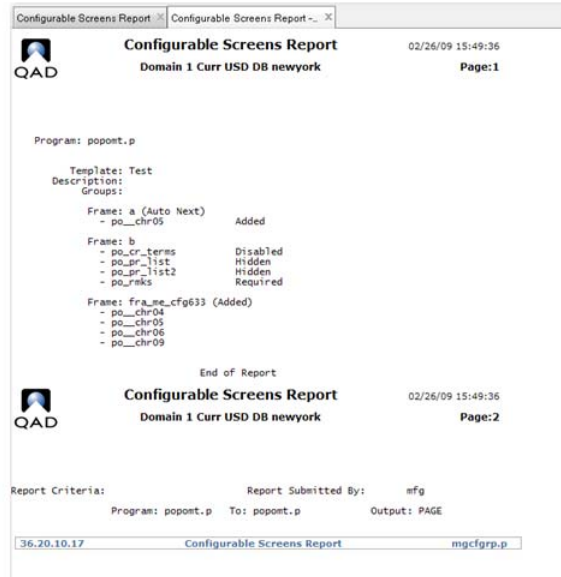
# Template Conflicts



## Configurable Screens Report

### Configurable Screens Report

- Lists configured screens
- Includes details on individual fields



ADM\_CONF\_250

You can generate a report on individual configured screens or on all screens.

## Exercise

### Exercise

- Enable configurable screens
- Create a template for Item Master Maintenance
- Apply template to all users



## Knowledge Check

- 1 How does Configurable Screens handle template conflicts?
- 2 You cannot delete design templates: True or False?
- 3 How do you define the tabbing sequence in a new frame?
- 4 In which file are new fields defined?
- 5 How do you add a lookup to a field?
- 6 What causes the Frame button to be unavailable?

# Product Information Resources

QAD offers a number of online resources to help you get more information about using QAD products.

[QAD Forums \(community.qad.com\)](http://community.qad.com)

Ask questions and share information with other members of the user community, including QAD experts.

[QAD Knowledgebase \(knowledgebase.qad.com\)\\*](http://knowledgebase.qad.com)

Search for answers, tips, or solutions related to any QAD product or topic.

[QAD Document Library \(www.qad.com/documentlibrary\)](http://www.qad.com/documentlibrary)

Get browser-based access to user guides, release notes, training guides, and so on; use powerful search features to find the document you want, then read online, or download and print PDF.

[QAD Learning Center \(learning.qad.com\)\\*](http://learning.qad.com)

Visit QAD's one-stop destination for all courses and training materials.

\*Log-in required

