



Focus Series Tutorials

Creating Setup Sheets with ActiveReports Designer

Creating Setup Sheets with the ActiveReports Designer

October 2009

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II • CREATING SETUP SHEETS WITH THE ACTIVEREPORTS DESIGNER

Mastercam® X4 MU1 Creating Setup Sheets with the ActiveReports Designer

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www.mastercam.com/legal/licenseagreement/

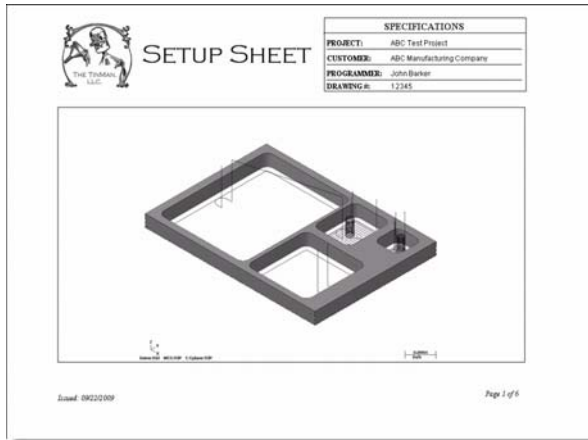
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INTRODUCTION



Setup sheets provide custom information in a printable format about a selected machine group or NCI file. This information can include details on operations, tool references, total programming time, and programming comments. Setup sheets can assist your machine operators and help you track overall project and customer information.

Mastercam provides three setup sheet programs: GUI (graphical), .SET File, and ActiveReports. The ActiveReports setup sheet program produces a fully customizable report based on XML data generated when you execute the setup sheet function (run-time). It can include operation, tool, and custom graphics and can be exported to multiple formats including PDF, HTML, RTF, and XLS.

Your Mastercam installation includes a set of ready-to-use, default setup sheet templates for each Mastercam product (Mill, Lathe, Router, Wire). It also includes a copy of ActiveReports Designer. ActiveReports Designer is a third-party application that allows you to customize the content and layout of any ActiveReports template. With this powerful application, you can modify an existing template or create an entirely new one.

How ActiveReports Works with Mastercam

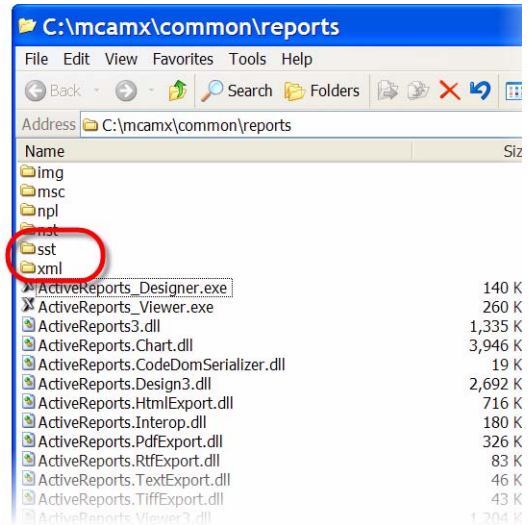
An ActiveReports setup sheet uses XML data to create a report from a selected machine group's operations in the current Mastercam file. The setup sheet displays in the ActiveReports Viewer, which opens automatically when you generate an ActiveReport setup sheet from Mastercam. You can also open a saved ActiveReports file by starting the `ActiveReports_Viewer.exe` in the `\common\reports` directory of the Mastercam installation.



2 • CREATING SETUP SHEETS WITH THE ACTIVEREPORTS DESIGNER

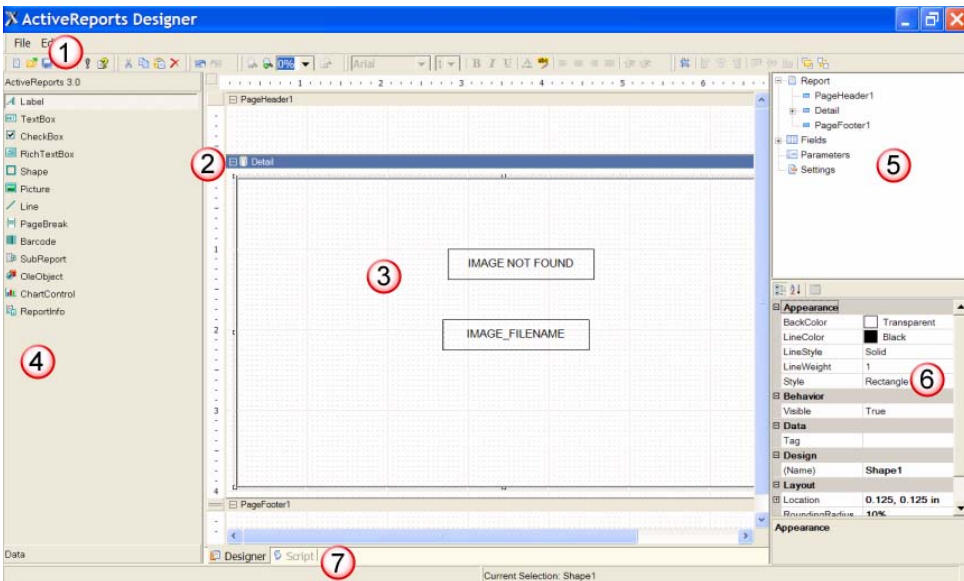
When you execute the ActiveReports setup sheet function, Mastercam reads the ActiveReports template file (RPX) for a list of requested XML tags. Then it scans the MCX file for matching data. The system writes only the “used” tags to the XML file, which reduces compile time and file size. Finally, ActiveReports applies the data to a report (RDF) according to the format and layout of the RPX.

In addition to setup sheets, Mastercam also uses ActiveReports to generate other types of reports, such as nesting reports, ATP reports, material library reports, and tool list library reports. Although all ActiveReports templates reside in folders in the `..common\reports` directory, the exact default location of each template depends upon the report type. Default setup sheet templates are located in the `sst` folder. The default location of a generated report's XML data source is in the `XML` folder.



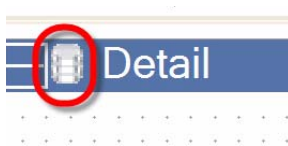
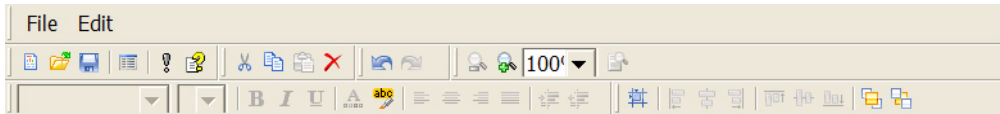
The ActiveReports Designer Environment

The ActiveReports Designer is used to create setup sheet templates. You access it by running `ActiveReports_Designer.exe` from the `..common\reports` folder. It runs outside of Mastercam.



There are seven elements in the ActiveReports Designer's workspace. Throughout this tutorial, you work with each of these elements to create a template.

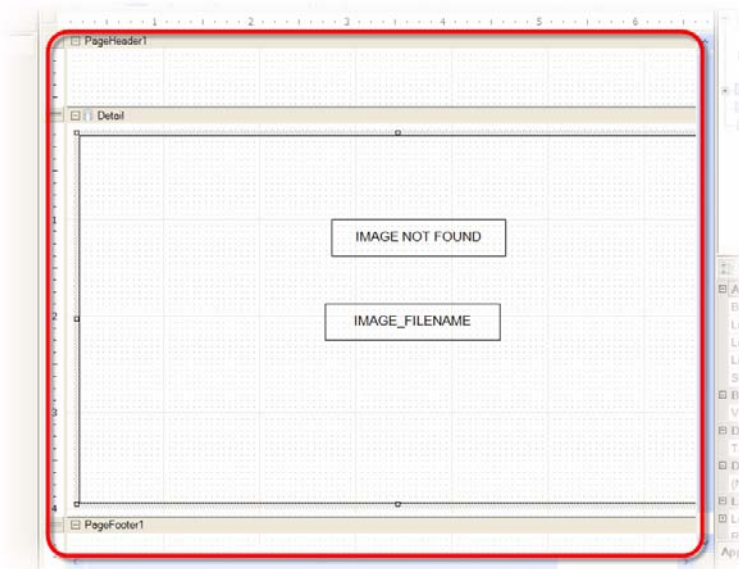
1 Menu bar and Toolbar — Standard functions on the menu bar and toolbar allow you to open, save, and preview files, as well as cut, copy, paste, align, and format elements placed on the design surface. You can access nearly all items on the menu bar by clicking corresponding icons on the toolbar.

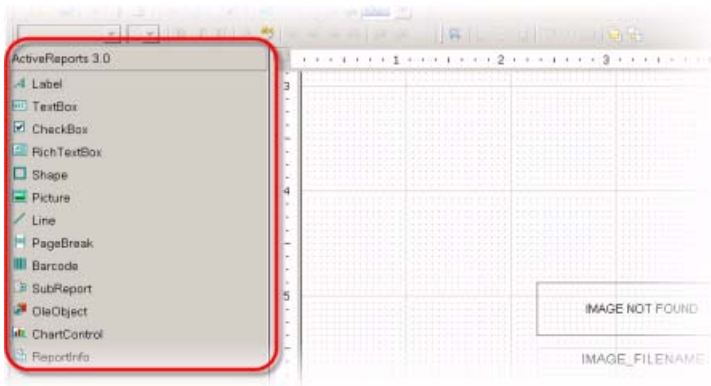


2 DataSource icon — The DataSource icon is located to the left of the word “Detail” on the Detail band. Click this icon to associate the report with a data source. The data source provides the report with all generated part information. Clicking this icon opens the Report Data Source dialog box.

See page 11 for more information on working with the DataSource icon.

3 Design Surface — The Design Surface is the main window of the ActiveReports Designer. Drag and drop fields and controls from the Report Controls Toolbox and the Report Explorer onto this surface. The Design Surface is divided into three parts: the Detail section which contains the body of the report, and the pageHeader and pageFooter sections, which contain repeating information such as titles and page numbers.

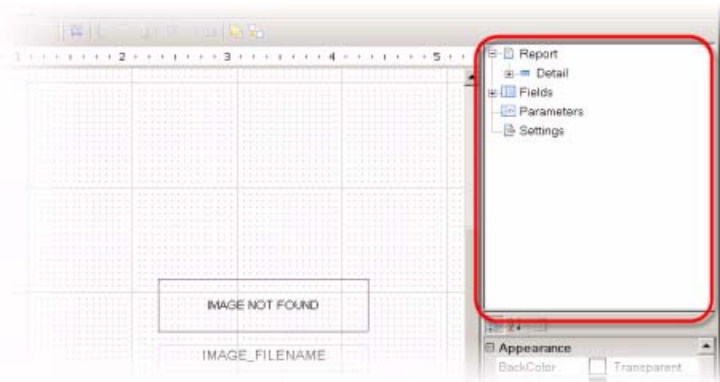




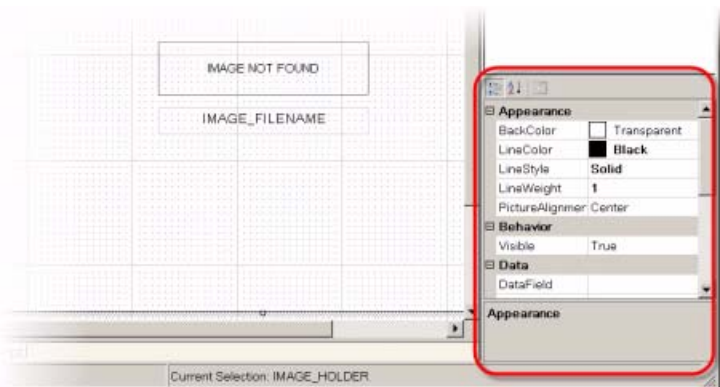
4 Report Controls Toolbox —

The Report Controls Toolbox is located on the left side of the interface. It displays all control types (including subreports) that are supported by the ActiveReports Designer. Choose a control type and drag it onto the design surface.

5 Report Explorer — The Report Explorer is located on the upper right side of the interface. The Report section in the Report Explorer lists every control that is currently in your report. The Fields section displays all the data that is available from the associated XML file. The nodes listed under each branch represent the information that can be displayed in the generated report.



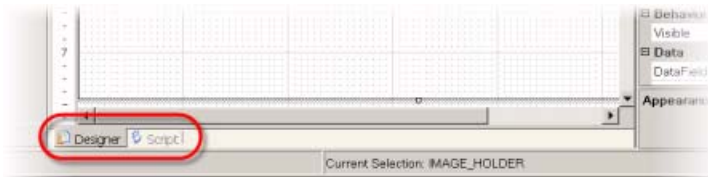
6 Properties Grid — The Properties Grid is located on the lower right side of the interface. Use the Properties Grid to associate a data source to a control on the design surface. Enter the field name into the DataField cell to bind it to a control on the design surface. Editing information in the Properties Grid also controls how data (including font properties and location) appears in the report.



TIP: For more information about any field in the Properties Grid, check the embedded description at the bottom of the window.

7 Designer Tabs — Designer tabs at the bottom of the workspace give quick access to the design surface and the ActiveReports script editor.

You use the Script tab to create bookmarks in Lesson 5.



Design Preparation

Before you create your own templates, you should know your setup sheet's requirements. What information does the setup sheet need to convey to your customer or machine operator? How should it be organized? Will it be printed or viewed electronically? Although you don't need to know the XML language, the data's location within the XML file plays a significant role in your report design. You should also be familiar with the generated part's XML structure. See the XML outline and tag glossary in Mastercam Help for more information about the XML hierarchy.

About this Tutorial



IMPORTANT: You must have a seat of Mastercam X4 MU1 or higher to complete this tutorial. Contact your Mastercam Reseller for any updates.

In this tutorial, you create a template that produces a setup sheet with a landscape orientation. The tutorial template includes:

- A cover sheet with the current view in the graphics window
- Operation and tool information that includes images and an area for comments
- An aggregate list of the tools used to perform the operations
- A set of custom captured images
- Headers and footers that display the issue date, page numbers, and other general report information

Starting with Lesson 2, illustrations at the beginning of each lesson or exercise show the template sections that are covered. For your reference, this tutorial provides a sample PDF of a setup sheet generated upon the completed template (TUTORIAL SETUP SHEET (MILL).pdf).

The following template and support files are provided with the tutorial:

- Operation tool list (mill-simple).rpx
- -TINMAN Setup Sheet (MILL-OPERATION).rpx
- -TUTORIAL Setup Sheet (CAPTURE).rpx
- -TUTORIAL Setup Sheet (CAPTURES).rpx
- -TUTORIAL Setup Sheet (MILL-OPERATION)_L3.rpx

- TUTORIAL Setup Sheet (MILL)-1.rpx
- TUTORIAL Setup Sheet (MILL)-2.rpx
- TUTORIAL Setup Sheet (MILL)-3.rpx
- TUTORIAL Setup Sheet (MILL)-4.rpx
- TUTORIAL Setup Sheet (MILL)-5.rpx
- tinmanLLC.bmp
- ARD-BOOKMARKSCRIPT-TOPLEVEL.txt
- ARD-BOOKMARKSCRIPT-SUBLEVEL.txt



IMPORTANT: Copy all RPX files to `..common\reports\sst` in your Mastercam installation. Other files can be copied to any folder you choose.

This tutorial assumes that you are already comfortable working with Mastercam. Although completing this tutorial requires no previous experience with XML, a good knowledge of Mastercam and familiarity with XML are helpful when preparing your own setup sheet templates.

Tutorial Goals

- Understand how the ActiveReports Designer works with Mastercam to create setup sheets.
- Become familiar with the ActiveReports Designer environment.
- Use the ActiveReports Designer to create a custom setup sheet template.
- Change Mastercam's default template to use the new custom template.

Before You Begin

This is a module of the *Mastercam Focus Series Tutorial Series*. The series focuses on a specific Mastercam feature—for example, Setup Sheets or FBM Drill, and teaches basic and advanced skills. Other tutorial series include:

- *Getting Started Series:* Introduces general Mastercam functions and teaches basic skills for getting started with Mastercam.
- *Exploring Series:* Explores a single Mastercam product—for example, Mill, Solids, or Wire, and teaches in-depth skills for working with the product.

The Mastercam tutorial series is in continual development, and we will add modules as we complete them. For information and availability, please contact your local Mastercam Reseller.

Note: Screen colors in the tutorial pictures enhance image quality; they may not match your Mastercam settings.

General Tutorial Requirements

All Mastercam tutorials have the following general requirements:

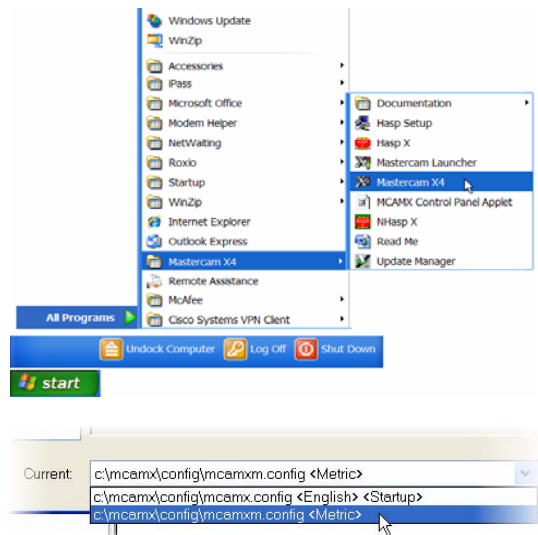
- You must be comfortable using the Windows® operating system.

- The tutorials cannot be used with Mastercam Demo/Home Learning Edition (HLE). The Demo/HLE file format (EMCX) is different from Mastercam (MCX), and basic Mastercam functions, such as file conversions and posting, are unavailable.
- Each lesson in the tutorial builds on the mastery of preceding lesson's skills. We recommend that you complete them in order.
- *Focus Series* and *Exploring Series* tutorials require, at minimum, a mastery of the basic Mastercam skills taught in the *Getting Started Series* modules. A general knowledge of machining principals and practices is also required.
- Additional files may accompany a tutorial. Unless the tutorial provides specific instructions on where to place these files, store them in a folder that can be accessed from the Mastercam workstation, either with the tutorial or in any location that you prefer.
- The *Getting Started Series* tutorials are available in an Adobe® Flash® compatible video format. Additional tutorial videos may also be available. Contact your local Mastercam Reseller for more information.
- You must install Adobe Flash Player to display tutorial videos. You can download Adobe Flash Player from www.adobe.com.
- You must configure Mastercam to work in metric units. Complete the instructions in the following section **Preparing for a Tutorial** to set Mastercam to metric.

Preparing for a Tutorial


Before you start a tutorial, be sure you have completed the following tasks:

- 1 Start Mastercam using your preferred method:
 - ♦ Double-click Mastercam's desktop icon.
 - Or
 - ♦ Launch Mastercam from the Windows Start menu.
- 2 Select the metric configuration file:
 - a Select **Settings, Configuration** from Mastercam's menu.
 - b Choose **..\config\mcamxm.config** <Metric> from the **Current** drop-down list.
 - c Click **OK**.



If You Need More Help

There are many ways to get help with Mastercam, including the following:

- *Mastercam Help*—Access Mastercam Help by selecting **Help, Contents** from Mastercam's menu bar or by pressing [**Alt+H**] on your keyboard. Also, most dialog boxes and ribbon bars feature a Help button  that opens Mastercam Help directly to related information.
- *Online help*—You can search for information or ask questions on the Mastercam Web forum, located at www.emastercam.com. You can also find a wealth of information, including many videos, at www.mastercam.com and www.mastercamedu.com.
- *Mastercam Reseller*—Your local Mastercam Reseller can help with most questions about Mastercam.
- *Technical Support*—CNC Software's Technical Support department (860-875-5006 or support@mastercam.com) is open Monday through Friday from 8:00 a.m. to 5:30 p.m. USA Eastern Standard Time.
- *Documentation feedback*—For questions about this or other Mastercam documentation, contact the Technical Documentation department by email at techdocs@mastercam.com.
- *Mastercam University*—CNC Software sponsors Mastercam University, an affordable online learning platform that gives you 24/7 access to Mastercam training materials. Take advantage of more than 180 videos to master your skills at your own pace and help prepare yourself for Mastercam Certification. For more information on Mastercam University, please contact your Authorized Mastercam Reseller, visit www.mastercamu.com, or email training@mastercam.com.

Additional Documentation

You can find more information on using Mastercam in the following materials, located in the \Documentation folder of your Mastercam installation:

- *Mastercam X4 Installation Guide*
- *Mastercam X4 Administrator Guide*
- *Mastercam X4 Quick Start*
- *Mastercam X4 Reference Guide*
- *Mastercam X4 Transition Guide*
- *Mastercam X4 Quick Reference Card*
- *Mastercam X4 Wire Getting Started Guide*
- *Version 9 to X Function Map*

LESSON 1

Configuring a Report Template

An ActiveReports setup sheet template is a file that you create and save to the RPX file type. To create a working setup sheet template, you must associate the RPX file to a data source. In addition, you need to know what XML elements are included in the report and to decide upon a page format that suits your needs. In this lesson, you create a sample template that prints to a landscape orientation and is formatted to include header and footer information on every page.

Lesson Goals

- Use the ActiveReports Designer to open, create, and save an ActiveReports template file (RPX).
- Associate the RPX file with an XML data source.
- Configure the page layout and printer orientation.
- Format the three sections of the design surface.

Exercise 1: Opening the ActiveReports Designer

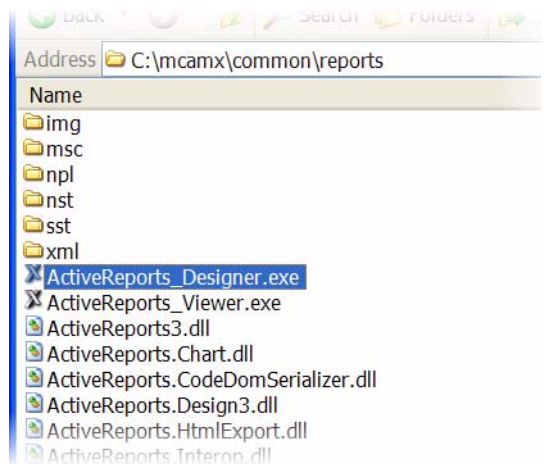
In this exercise, you open the ActiveReports Designer and create an RPX file.

- 1 Navigate to `.. \common\reports` in the Mastercam installation folder.

Note: You cannot open ActiveReports Designer from within the Mastercam application.

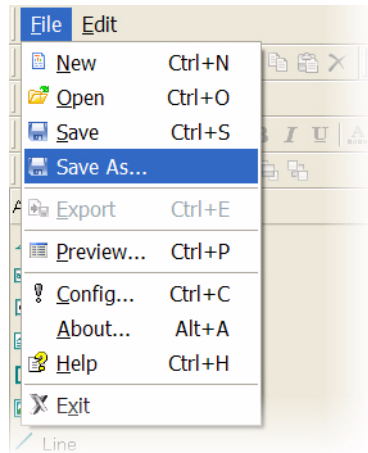
- 2 Double-click **ActiveReports_Designer.exe** to open the application.

ActiveReports Designer opens with a new file.

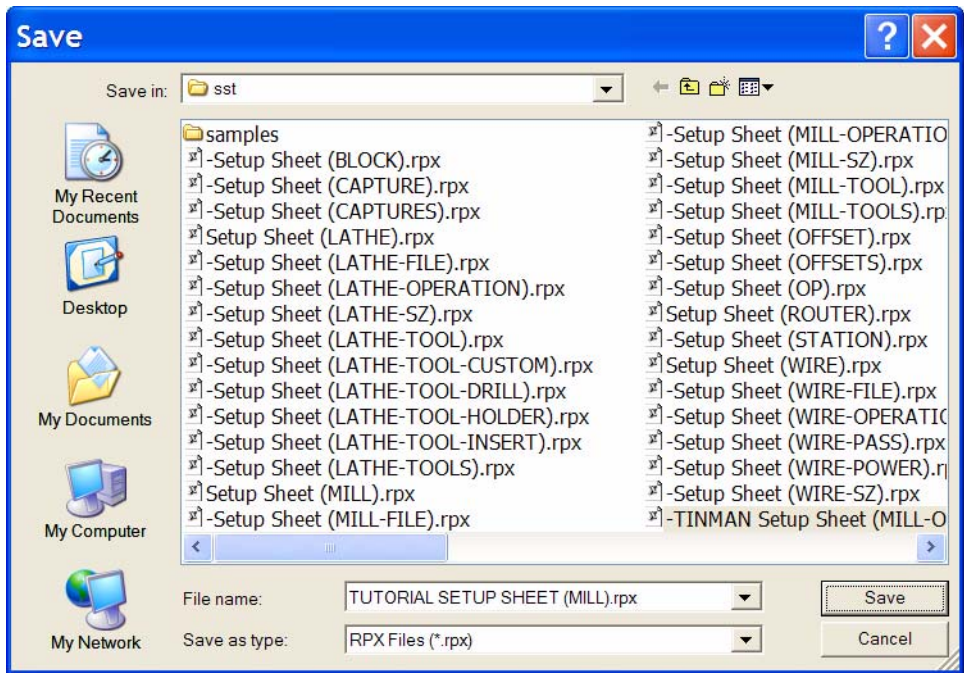


3 Choose **File, Save As.**

The Save dialog box opens.



4 Open the **sst** folder and name your file **TUTORIAL SETUP SHEET (MILL).rpx**.



TIP: You can save the RPX file to any folder, but if you save it to the `sst` folder, it displays in Mastercam’s Select Template dialog box so that you can easily apply it to a report. Lesson 6 shows how to assign a tutorial template to a setup sheet, or you can go to Mastercam’s Help for more information about the Select Template dialog box.

5 Click **Save.**

Exercise 2: Binding the RPX to an XML Data Source

In this exercise, you associate (bind) the template with an XML data source. This data source provides the report with all generated part information.

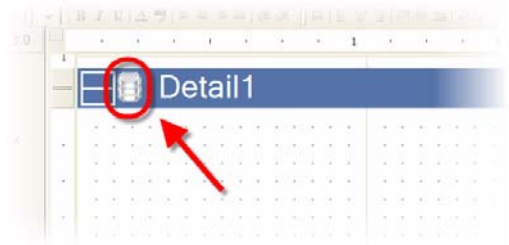
- 1 If necessary, open `TUTORIAL SETUP SHEET (MILL) .rpx`.

You saved this file in the previous exercise.

- 2 Click the **DataSource** icon.

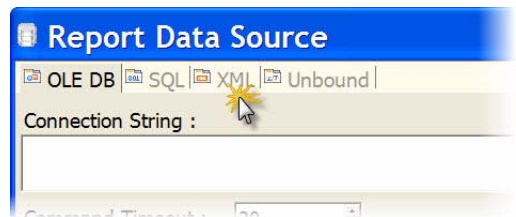
The DataSource icon is located to the left of the word “Detail” on the Detail section band.

The Report Data Source dialog box opens.

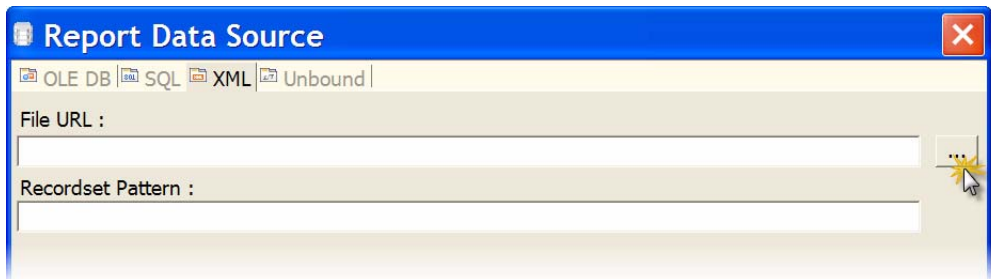


- 3 Select the **XML** tab at the top of the dialog box.

Because Mastercam uses XML files to describe part information, you need to associate your report with an XML file.



- 4 Click the browse button to the right of the File URL field.



- 5 Navigate to `..common\reports\sst\samples\Mill\SSM.xml` in the Mastercam installation and click **Open**.

Binding your template to this sample XML file lets you preview your work without having to create a part. When you run a setup sheet with your own part, the newly generated XML data overrides the data in the previously associated file.



TIP: You can also manually enter the full address of the XML file.

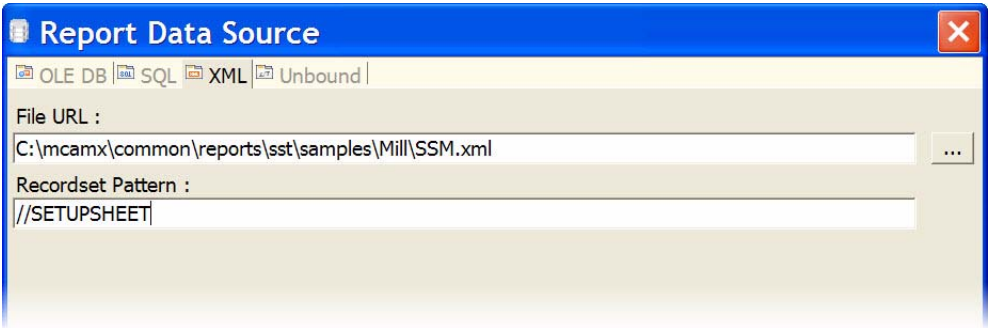
6 In the Recordset Pattern field, enter `//SETUPSHEET`.



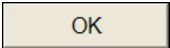
IMPORTANT: The Recordset Pattern field is case-sensitive.

SETUPTSHEET is the root node in the XML data source you identified in the previous step. The expression you enter into this field controls how the ActiveReports Designer navigates through elements in the XML file.

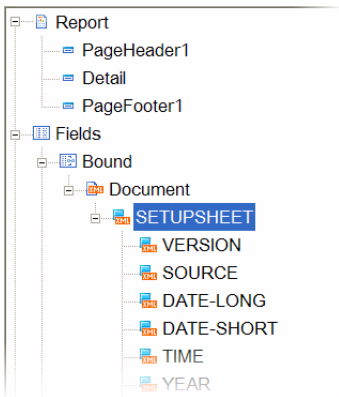
See Lesson 3 for more information about the Recordset pattern.



7 Click **OK** to complete the process.



TIP: To confirm your work, expand the **Fields** node, and then the **Bound** node in the Report Explorer on the upper right side of the interface. The Document node displays all of the data that is available from the associated XML file. The elements listed under this node represent information that can be displayed in the generated report.



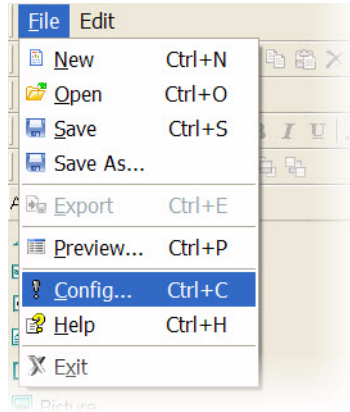
Exercise 3: Configuring Page Setup and Printer Orientation

Use the Report Settings dialog box to configure settings such as margins, page size, printer settings, text styles, and other application preferences such as units of measurement.

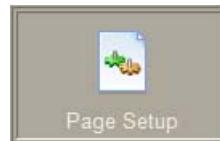
In this exercise, you use ActiveReports' Report Settings dialog box to configure the main template's margins and print orientation. You also adjust the printable area of the report.

- 1 From the File menu, select **Config**.

The Report Settings dialog box opens.



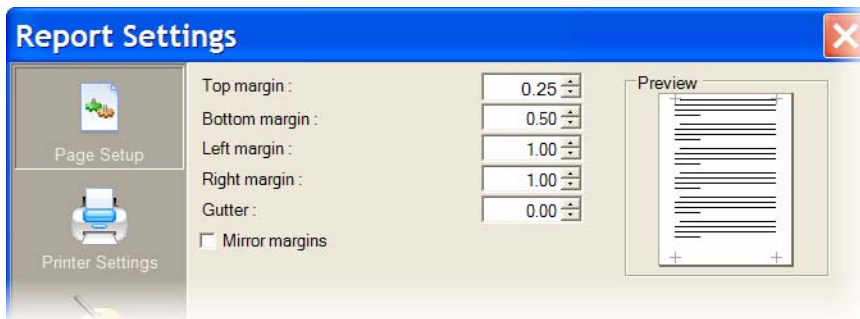
- 2 If necessary, click the **Page Setup** icon on the left side of the dialog box.



- 3 Change the following margins:

- ♦ Top margin: **0.25**
- ♦ Bottom margin: **0.50**

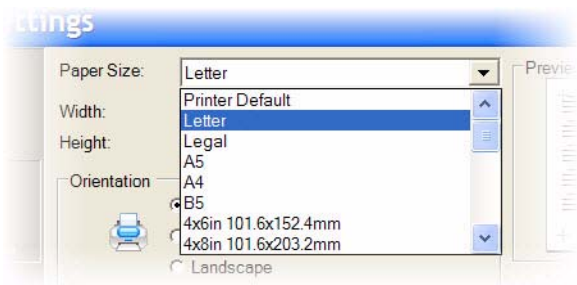
Leave the other margins as you found them. Your settings should match those in the following image.



- 4 Click the **Printer Settings** icon on the left side of the dialog box.

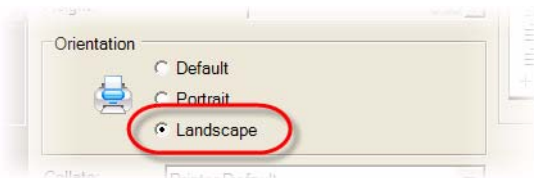


- 5 Select **Letter** from the **Paper Size** drop-down menu.



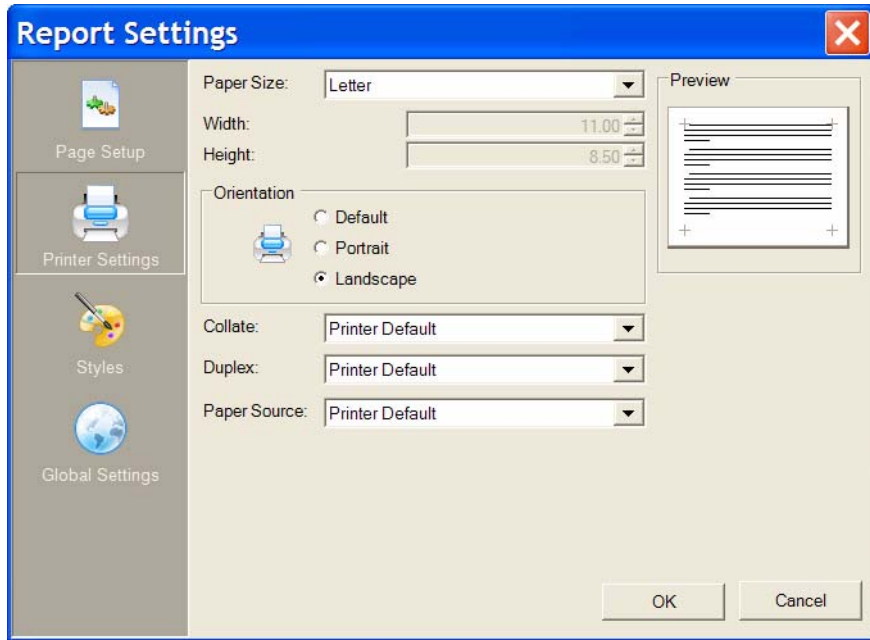
- 6 Set the orientation to **Landscape**.

Although the Paper Size remains set to Letter, the width changes to 11.00 (inches), and the height changes to 8.50 (inches).



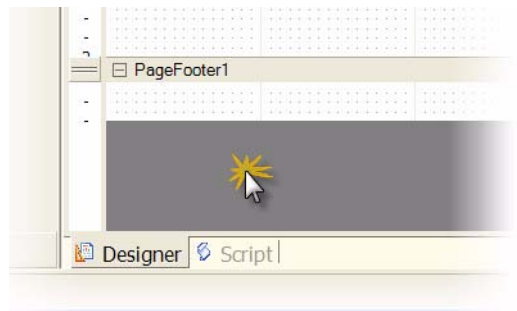
TIP: To change the ActiveReports Designer's default unit of measurement from inches to centimeters, select the **Global Settings** icon.

Your printer settings should match those in the image.



- 7 Click **OK**.
- 8 In the Report Designer, click the grey area below the report.

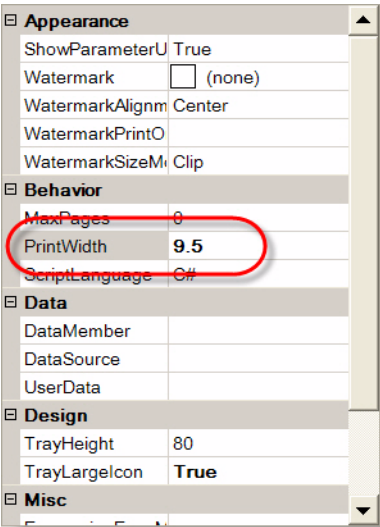
Clicking on the grey area below the report selects the entire report.



- 9 In the Properties Grid on the lower right side of the interface, change PrintWidth to 9.5 and press [Enter].

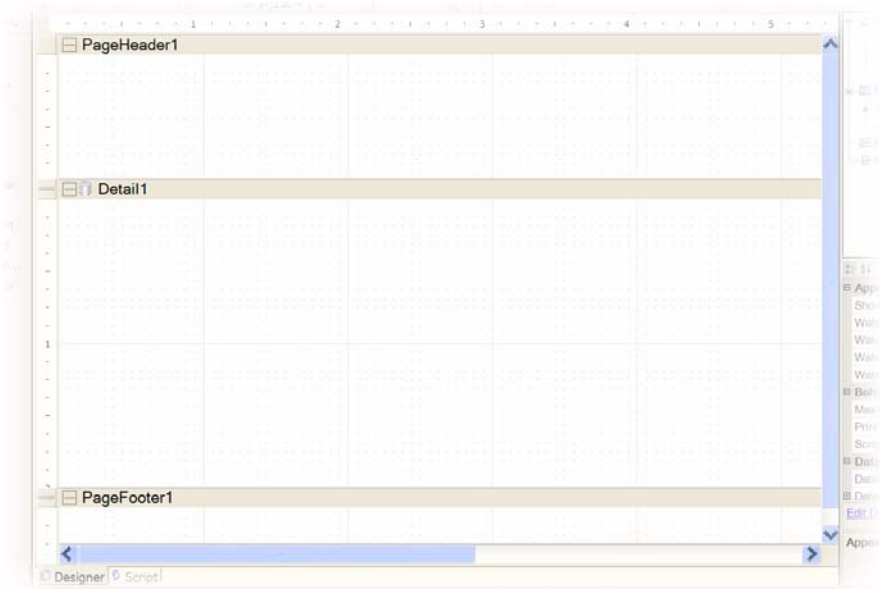
The report designer extends the report's width to 9.5 inches.

- 10 Choose **File, Save** to save your work.



Exercise 4: Formatting the Design Surface

By default, the ActiveReports Designer's design surface contains three parts: the page header (PageHeader1), the detail section (Detail1), and the page footer (PageFooter1). The detail section contains the body of the report, while the page header and page footer sections contain repeating information such as titles and page numbers.

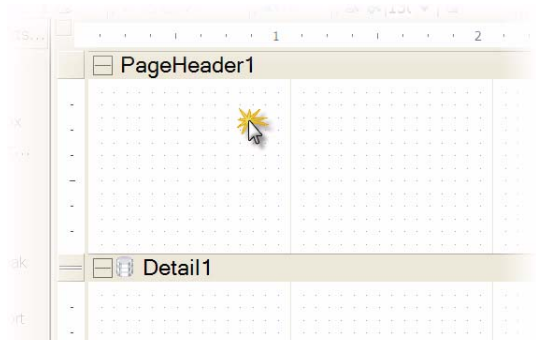


If desired, you can delete the header and footer section of an RPX file. However, every report must have a detail section.

In this exercise, you modify each of these sections.

► Format the Page Header

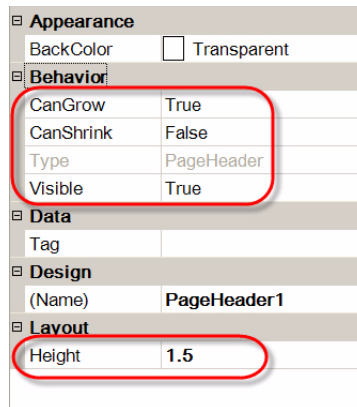
- 1 Click in the section labeled **PageHeader1** on the design surface.



- 2 In the Behavior section of the Properties Grid, make sure the following fields are set to the following values (defaults):

- ◆ CanGrow: **True**
- ◆ CanShrink: **False**
- ◆ Visible: **True**

When you set the CanGrow field to True, the section expands to accommodate the elements that you place in it. This assures that any elements you place in the PageHeader of your generated setup sheet display completely.



- 3 In the Layout section of the Properties Grid, change the Height to **1.5** and press [Enter].



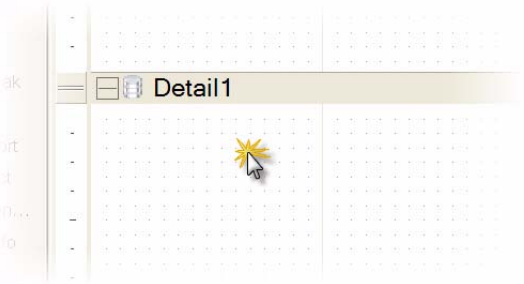
TIP: For more information about any field in the Properties Grid, check the embedded description at the bottom of the window.

On the design surface, the height of the page header section expands to 1.5 inches.

Although the CanGrow setting already expands the page header section to completely display elements in the generated setup sheet, modifying this parameter expands the design surface and allows you to see the entire page header area while you are designing in the ActiveReports Designer.

► Format the Detail Section

- 1 Click in the section labeled **Detail1** on the design surface.



- 2 In the Design section of the Properties Grid, change the (Name) to **Detail**.



IMPORTANT: You must complete Step 2 to view a Mastercam setup sheet with ActiveReports.

- 3 In the Layout section of the Properties Grid, change the Height to **5.75** and press [Enter].

On the design surface, the height of the detail section expands to 5.75 inches.

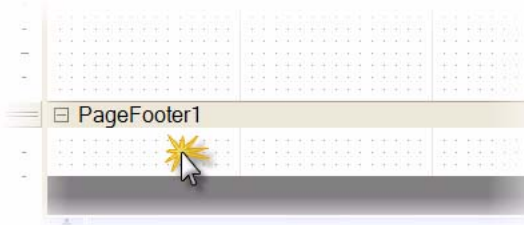
Leave the other fields at their default values. Your settings should match those in the image.

A screenshot of the Properties Grid for the 'Detail1' section. The 'Design' section is expanded, showing '(Name)' set to 'Detail'. The 'Layout' section is also expanded, showing 'Height' set to '5.75'. A red rectangle highlights these two sections.

Appearance	
BackColor	<input type="checkbox"/> Transparent
Behavior	
CanGrow	True
CanShrink	False
ColumnDirection	DownAcross
KeepTogether	False
Type	Detail
Visible	True
Data	
ColumnCount	1
ColumnSpacing	0
NewColumn	None
NewPage	None
Tag	
Design	
(Name)	Detail
Layout	
Height	5.75

► Format the Page Footer

- 1 Scroll down and click in the section labeled **PageFooter1**.



- 2** In the Behavior section of the Properties Grid, make sure the following fields are set to the following values (defaults):

- ♦ CanGrow: **True**
- ♦ CanShrink: **False**
- ♦ Visible: **True**

Like the page header section, when you set the CanGrow field to True, the page footer section expands to accommodate the elements you place in it. This ensures that any elements you place in the page footer display completely in your generated setup sheet.

- 3** In the Layout section of the Properties Grid, change the Height to **0.5** and press **[Enter]**.

On the design surface, the height of the page footer section expands to 0.5 inches.

- 4** Choose **File, Save**.

You now have a template file that is formatted to print in a landscape orientation and is associated with a sample XML data source. In the next lesson, you use the controls in the Control Toolbox to add static and dynamic data to the template.

Appearance	
BackColor	<input type="checkbox"/> Transparent
Behavior	
CanGrow	True
CanShrink	False
Type	PageFooter
Visible	True
Data	
Tag	
Design	
(Name)	PageFooter1
Layout	
Height	0.5

LESSON 2

Adding Data to the Design Surface

The main goal of your setup sheet is to convey information to an audience. That audience can be the machine operator, another programmer, or even your customer. Understanding how to add data to your setup sheet and how to control its appearance and output are essential skills.

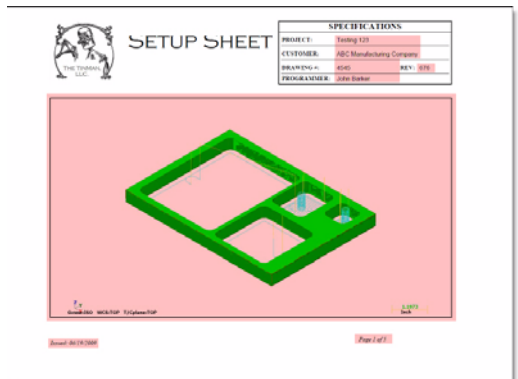
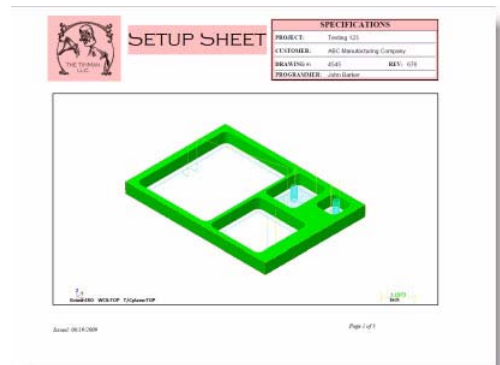
Basically, any template you create with the ActiveReports Designer uses two types of data: static and dynamic.

Static Data does not change with the part. No matter what Mastercam part you run the report on, this type of data remains the same. Static data is identical from setup sheet to setup sheet. In the tutorial template, static data includes logos, shapes, and labels.

In Exercises 1 – 3 of this lesson, you add static data (highlighted in the upper picture at right) to the template page header.

Dynamic Data is information that can change. In the tutorial setup sheet, nearly all dynamic data is generated by Mastercam and compiled into the XML data source. Dynamic data changes when you make changes to the part, or when you apply the same setup sheet template to a different part. The dynamic data in the tutorial template includes text and images that describe the part, tools, or operations. Other types of dynamic data include dates, time, and page numbering.

Exercises 4 – 6 show you how to add dynamic data (highlighted in the lower picture at right) to the template's header, footer, and cover sheet.



Lesson Goals

- Use controls in the ActiveReports Designer toolbox to add static and dynamic data to the three parts of the report template.
- Use fields in the Properties Grid to control the appearance and output of data in the report.
- Use the right-click menu to format the controls.

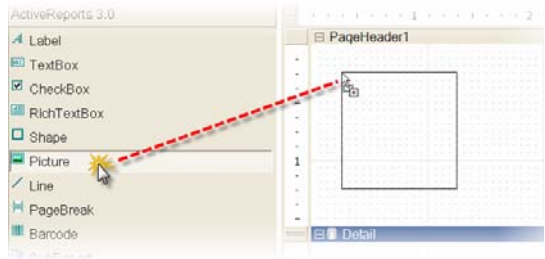
Exercise 1: Adding a Static Image

In this exercise, you add the company logo to the report Page Header.

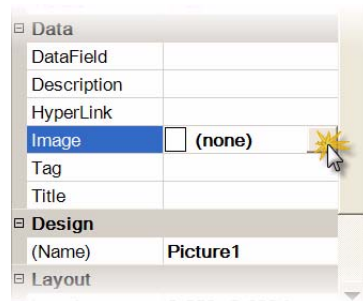
- 1 If necessary, open the file you created in Lesson 1. (TUTORIAL SETUP SHEET (MILL) .rpx)

Alternatively, you can open the file TUTORIAL Setup Sheet (MILL) -1.rpx, which is provided with this tutorial.

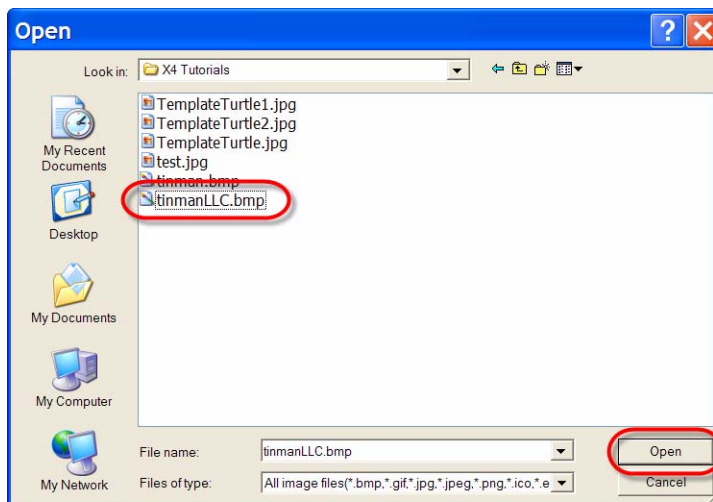
- 2 Select, drag, and drop the **Picture** control from the Report Controls Toolbox on the left side of the interface to the PageHeader1 section.



- 3 In the Data section of the Properties Grid, click in the **Image** field.
- 4 Click the browse button on the right side of the field.



- 5 In the Open dialog box, navigate to tinmanLLC.bmp, which is provided with this tutorial.
- 6 Select the file and click **Open**.



The Designer embeds your image into the template.



- 7 In the Layout section of the Properties Grid, expand the **Location** and **Size** fields and enter the following:

- ◆ Location: X to **0**, Y to **0**.
- ◆ Size: Width to **1.5**, Height to **1.5**.

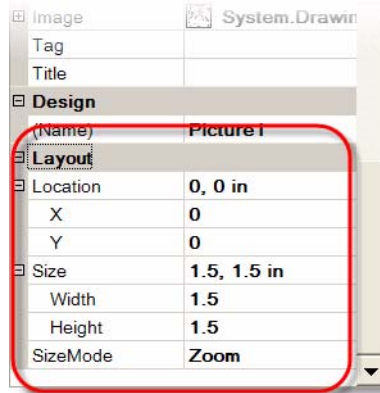


TIP: You can also enter this information directly into the **Location** and **Size** fields without expanding them.

- 8 Remain in the Layout section and select the **SizeMode** field. Choose **Zoom** from the drop-down menu.

The Zoom, Clip, and Stretch modes determine how the image is sized to fit the control area.

- 9 Choose **File, Save** or click the **Save** button to save your file.

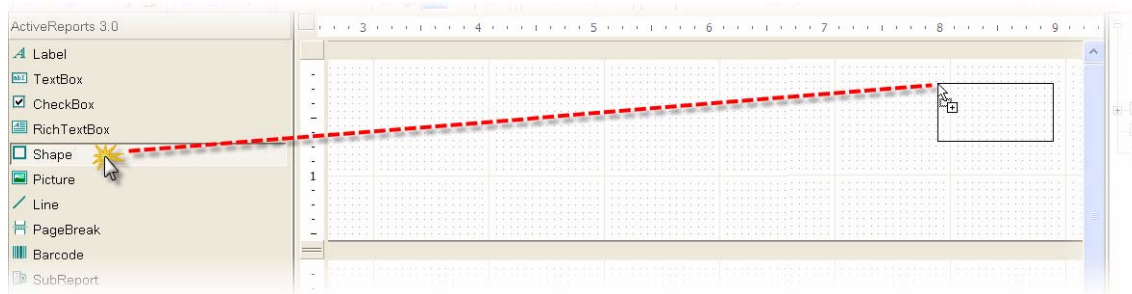


Note: If you opened TUTORIAL Setup Sheet (MILL) -1.rpx, be sure to save it as TUTORIAL SETUP SHEET (MILL) .rpx or under a new name, so that you do not overwrite the original file.

Exercise 2: Drawing Shapes

The tutorial report uses a box to visually set apart the report specifications from the other elements in the header. In this exercise, you use the Shape control to create this box.

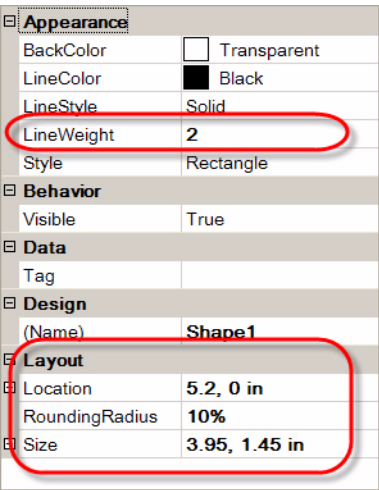
- 1 Select, drag, and drop the **Shape** control from the Report Controls Toolbox onto the right side of the PageHeader1 section.



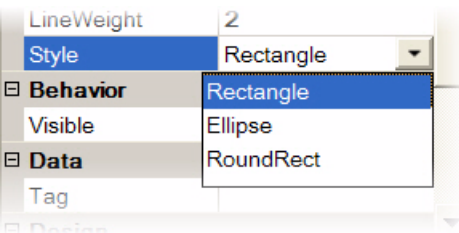
- 2 Enter the following properties in the Appearance and Layout sections of the Properties Grid:

- ◆ LineWeight: **2**
- ◆ Location: X to **5.2**, Y to **0**
- ◆ Size: Width to **3.95**, Height to **1.45**

Your settings should match those in the image to the right.



*Note: To change the shape of the control area, select an option (rectangle, ellipse, rounded rectangle) from the **Style** drop-down menu.*



- 3 Save your file.

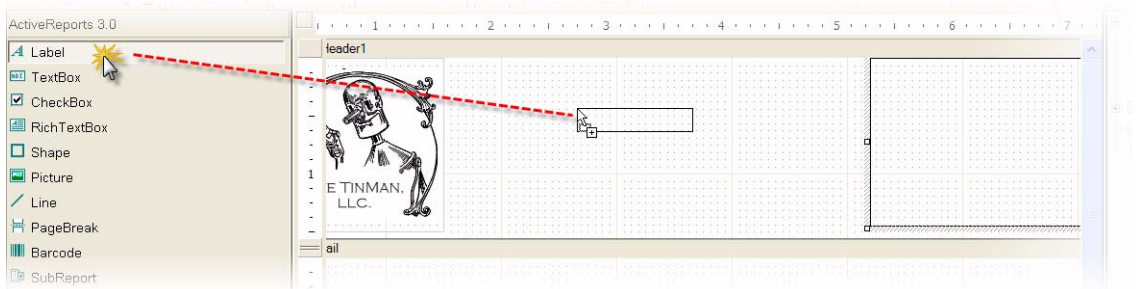


Exercise 3: Adding Static Text

In this exercise, you use the Label control to create text that does not change in the generated setup sheet.

► Create the Report Title

- 1 Select, drag, and drop the **Label** control from the Report Controls Toolbox onto roughly the center of the PageHeader.

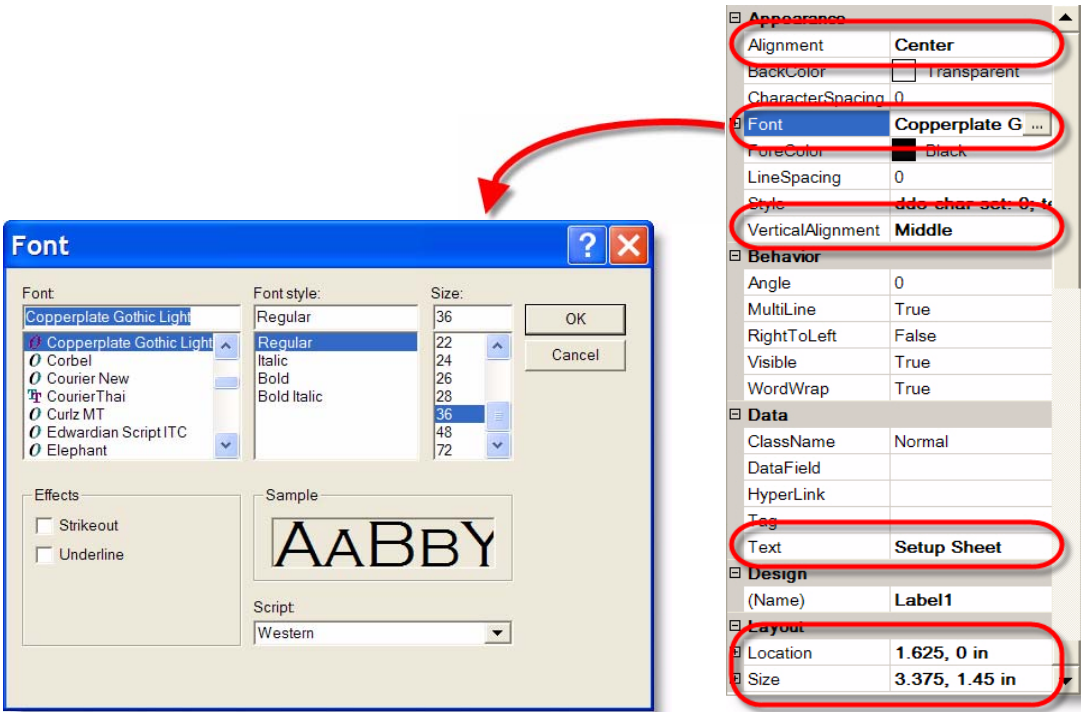


- 2 Enter the following properties in the Appearance, Data, and Layout sections of the Properties Grid:
 - ♦ Alignment: **Center**
 - ♦ Font: **Copperplate Gothic Light, Regular, 36 pt.**
 To set the font, click the Font field's browse button and choose attributes from the Font dialog box. Then click **OK**.

Note: If your system does not have Copperplate Gothic Light, you can choose another font.

- ♦ VerticalAlignment: **Middle**
- ♦ Text: **Setup Sheet**
- ♦ Location: X to **1.625**, Y to **0**
- ♦ Size: Width to **3.375**, Height to **1.45**

Your settings should match those in the following image.

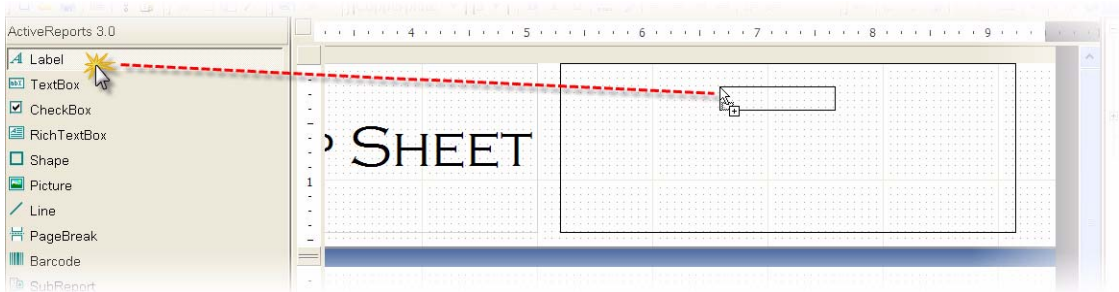


3 Save your file.



► Create the Specification Title

- 1 Select, drag, and drop the **Label** control from the Report Controls Toolbox onto the top of the shape you created in Exercise 2.



- 2 Enter the following properties in the Appearance, Data, and Layout sections of the Properties Grid:

- ◆ Alignment: **Center**
- ◆ Font: **Times New Roman, Bold, 14 pt.**
- ◆ VerticalAlignment: **Middle**
- ◆ Text: **SPECIFICATIONS**
- ◆ Location: X to **5.19**, Y to **0.06**
- ◆ Size: Width to **3.94**, Height to **0.25**

Your settings should match those in the image to the right.

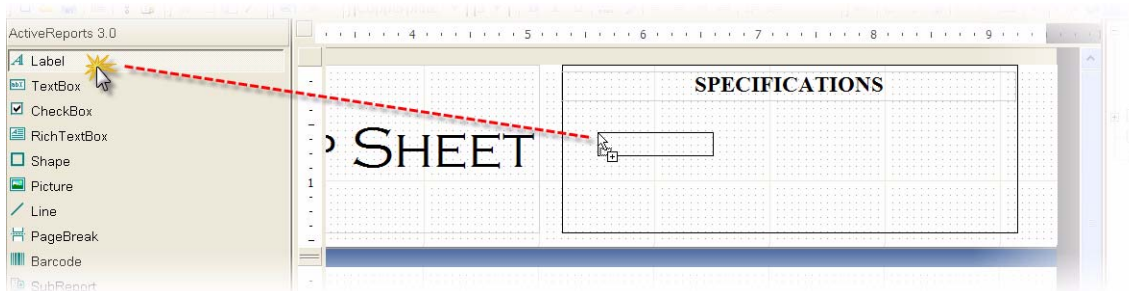
Appearance	
Alignment	Center
BackColor	<input type="checkbox"/> Transparent
CharacterSpacing	0
Font	
Font	Times New Roma
ForeColor	Black
LineSpacing	0
Style	ddo-char-set: 0; i
VerticalAlignment	Middle
Behavior	
Angle	0
MultiLine	True
RightToLeft	False
Visible	True
WordWrap	True
Data	
ClassName	Normal
DataField	
HyperLink	
Tag	
Text	SPECIFICATIONS
Design	
(Name)	Label2
Layout	
Location	5.19, 0.06 in
Size	3.94, 0.25 in

- 3 Save your file.



► Create the Specification Labels

- 1 Select, drag, and drop the **Label** control from the Report Controls Toolbox onto the top of the shape you created in Exercise 2.



2 Enter the following properties in the Appearance, Data, and Layout sections of the Properties Grid:

- ♦ Font: **Times New Roman, Bold, 10 pt.**
- ♦ VerticalAlignment: **Middle**
- ♦ Text: **PROJECT:**
- ♦ Location: X to **5.25**, Y to **0.375**
- ♦ Size: Width to **3.81**, Height to **0.25**

Leave the other fields at their default values. Your settings should match those in the image to the right.

Appearance	
Alignment	Left
BackColor	<input type="checkbox"/> Transparent
CharacterSpacing	0
Font	Times New Roma
ForeColor	Black
LineSpacing	0
Style	ddo-char-set: 0; 1
VerticalAlignment	Middle
Behavior	
Angle	0
MultiLine	True
RightToLeft	False
Visible	True
WordWrap	True
Data	
ClassName	Normal
DataField	
HyperLink	
Tag	
Text	PROJECT:
Design	
(Name)	Label3
Layout	
Location	5.25, 0.375 in
Size	3.81, 0.25 in

3 Repeat Steps 1 and 2 to create the other job information labels. For each label, change the entry in each Text field and the location coordinates to the following:

Text	Location
CUSTOMER:	X: 5.25, Y: 0.68
PROGRAMMER:	X: 5.25, Y: 0.98
DRAWING#:	X: 5.25, Y: 1.23



TIP: Instead of dragging a new label on to the design surface, you can also copy and paste the **PROJECT** label, changing the text and location properties for each new job information label.

4 Save your file.



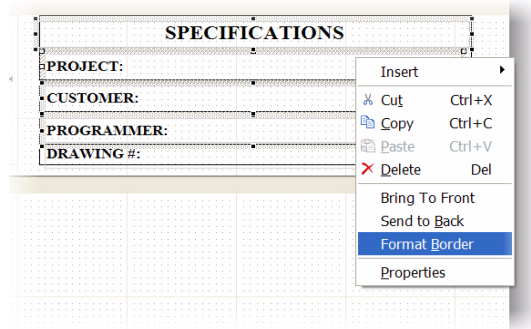
► Format Label Borders

1 Hold the [Shift] key down and select the following labels:

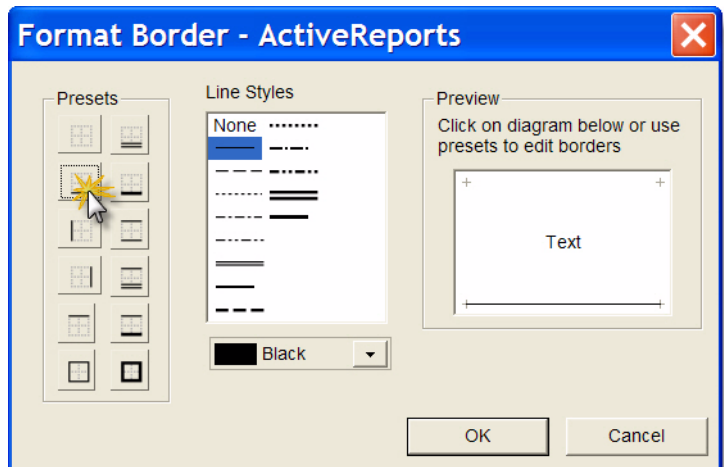
- ♦ SPECIFICATIONS
- ♦ PROJECT
- ♦ CUSTOMER
- ♦ PROGRAMMER

2 Right-click and select **Format Border** from the right-click menu.

The **Format Border - ActiveReports** dialog box opens.



3 Choose the second preset on the left to apply a border to the bottom of each label and click **OK**.



A border underlines each label in the SPECIFICATIONS area.



TIP: If a border does not display under the PROGRAMMER label, select the **DRAWING** label, right-click, and apply the **Send to Back** command to it.

Use the **Send to Back** and **Send to Front** commands in the right-click menu to control the stacking order of controls on the design surface.

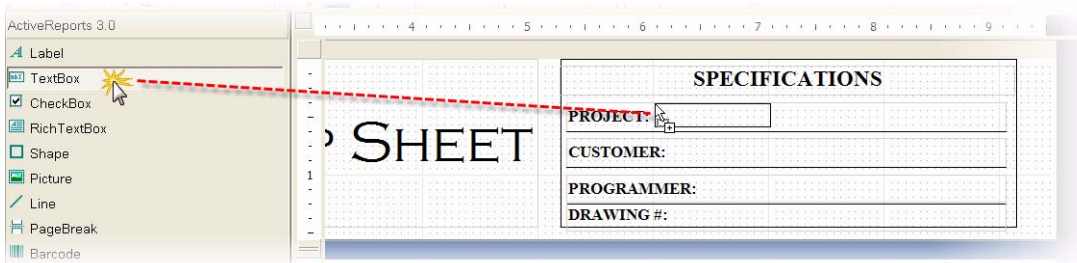
- 4 Save your file.



Exercise 4: Adding Generated Text

ActiveReports Designer retrieves dynamic text from the Mastercam-generated XML file. Mastercam generates the XML when you run the setup sheet (run-time). Dynamic text changes when the part or part information changes. In this exercise, you use the TextBox control to add dynamic text that describes the job information labels you created in the last exercise.

- 1 Select, drag, and drop the **TextBox** control from the Report Controls Toolbox to the right of the PROJECT label you created in Exercise 3.



- 2 Enter the following properties in the Appearance and Layout sections of the Properties Grid:

- ♦ Font: **Arial, Regular, 10 pt.**
- ♦ VerticalAlignment: **Middle**
- ♦ Location: X to **6.5**, Y to **0.375**
- ♦ Size: Width to **2.5**, Height to **0.25**

3 Enter the following properties in the Data section of the Properties Grid.

- ◆ DataField: **DESCRIPTION**
- ◆ Text: **DESCRIPTION**

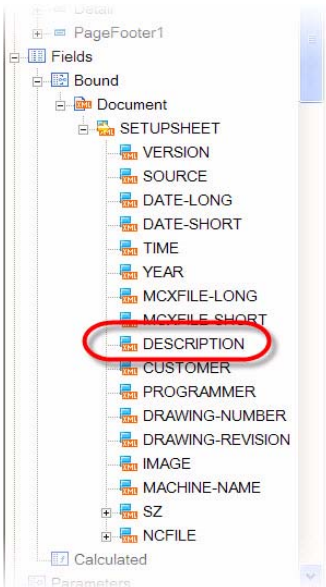
The DataField entry binds the TextBox control to the XML file. The text you enter into the Text field is for your convenience and is replaced by the generated data.

Visible	True
WordWrap	True
Data	
ClassName	Normal
CountNullValues	False
DataField	DESCRIPTION
HyperLink	
Tag	
Text	DESCRIPTION
Design	
(Name)	TextBox1
Layout	
Location	6.25, 0.375 in
Size	2.5, 0.25 in



IMPORTANT: DataField entries are case-sensitive and must exactly match the XML element listed in the Report Explorer.

The Report Explorer reflects the structure of the generated XML. In the XML file, the DESCRIPTION node is nested within the SETUPSHEET node set. In the ActiveReports Designer, the DESCRIPTION node is listed in the Report Explorer under the SETUPSHEET node.



```
<?xml version="1.0" encoding="UTF-8" standalone="no"
>
<SETUPSHEET>
  <VERSION>12.0</VERSION>
  <SOURCE>MASTERCAM</SOURCE>
  <DATE-LONG>Wednesday, March 11, 2009</DATE-LONG>
  <DATE-SHORT>03/11/2009</DATE-SHORT>
  <TIME>03:27 PM</TIME>
  <YEAR>2009</YEAR>
  <MCXFILE-LONG>FBM.MCX</MCXFILE-LONG>
  <MCXFILE-SHORT>FBM.MCX</MCXFILE-SHORT>
  <DESCRIPTION>ABC Test Project</DESCRIPTION>
  <CUSTOMER>ABC Manufacturing Company</CUSTOMER>
  <PROGRAMMER>John Barker</PROGRAMMER>
  <DRAWING-NUMBER>12345</DRAWING-NUMBER>
  <DRAWING-REVISION>2</DRAWING-REVISION>
  <IMAGE>..\SST\SAMPLES\MILL\SCREEN.BMP</IMAGE>
  <MACHINE-NAME>GENERIC MILL</MACHINE-NAME>
  <SZ>
    <IMAGE>..\SST\SAMPLES\MILL\SZ1.BMP</IMAGE>
    <MATERIAL>ALUMINUM inch - 2024</MATERIAL>
    <STOCK-NAME>STOCK-NAME</STOCK-NAME>
    <STOCK-ACTIVE>
      <OP>
        <NAME>Pocket (Standard), op
        <OPIDN>12</OPIDN>
        <OPNUM>7</OPNUM>
      </OP>
    </OFFSET>
  </OFFSETS>
</NCFILE>
</SETUPSHEET>
```

Note: See Mastercam's online Help for the setup sheet's XML outline and tag glossary.

- 4 Leave the other fields at their default values. Your settings should match those in the image to the right.

Appearance

Alignment	Left
BackColor	<input type="checkbox"/> Transparent
CharacterSpacing	0
Font	Arial, 10pt
ForeColor	<input checked="" type="checkbox"/> Black
LineSpacing	0
OutputFormat	
Style	vertical-align: mic
VerticalAlignment	Middle

Behavior

CanGrow	True
CanShrink	False
MultiLine	True
RightToLeft	False
Visible	True
WordWrap	True

Data

ClassName	Normal
CountNullValues	False
DataField	DESCRIPTION
HyperLink	
Tag	
Text	DESCRIPTION

Design

(Name)	TextBox1
--------	----------

Layout

Location	6.5, 0.375 in
Size	2.5, 0.25 in

Summary

- 5 Repeat Steps 1 – 4 to create the dynamic text for the other job information labels. For each label, change the entries in the following fields:

DataField	Text	Location
CUSTOMER	CUSTOMER	X: 6.5, Y: 0.68
PROGRAMMER	PROGRAMMER	X: 6.5, Y: 0.98
DRAWING-NUMBER	DRAWING#	X: 6.5, Y: 1.23



TIP: You can also add dynamic text by selecting a node that is listed in the Report Explorer and dragging it to the design surface. Then use the fields in the Appearance and Layout sections of the Properties Grid to control how the data displays in the generated report.

- 6 If necessary, apply the **Send to Back** and/or **Send to Front** commands (page 30) to the controls to display the borders that you formatted in Exercise 3.

- 7 Save your file.



Exercise 5: Adding a Dynamic Image

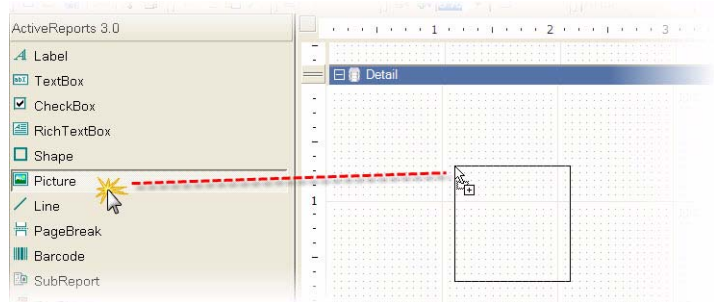
In this exercise, you use a group of controls to add a dynamic cover sheet image to your report. Like dynamic text, ActiveReports Designer retrieves dynamic images from data that Mastercam generates at run-time.

To add a run-time image to the template file, you must create a set of three controls:

- A container that holds and formats the generated image
- A bound link that references the generated image in the XML file
- A label that displays alternate text if the image is unavailable

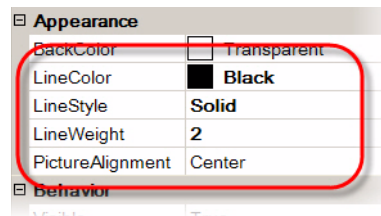
► Create the Image Holder

- 1 Select, drag, and drop the **Picture** control from the Report Controls Toolbox onto the Detail section.



- 2 Enter the following properties into the Appearance section of the Properties Grid.

- ♦ LineColor: **Black**
- ♦ LineStyle: **Solid**
- ♦ LineWeight: **2**
- ♦ PictureAlignment: **Center**



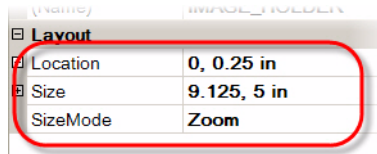
These settings create a visible frame around the generated image.

- 3 In the Design section of the Properties Grid change the (Name) of the control to **IMAGE HOLDER**.



- 4 Enter the following properties into the Layout section of the Properties Grid.

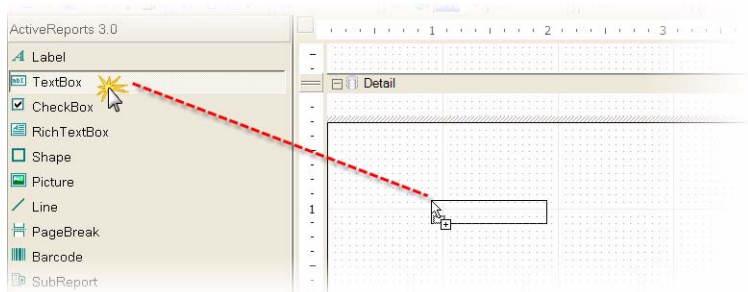
- ◆ Location: X to **0**, Y to **0.25**
- ◆ Size: Width to **9.125**, Height to **5**
- ◆ SizeMode: **Zoom**



These settings format the generated image.

► Create the Image Link

- 1 Select, drag, and drop the **TextBox** control from the Report Controls Toolbox onto the image container you just created.



- 2 In the Behavior section of the Properties Grid, select the **Visible** field. Choose **False** from the drop-down menu.

Setting the Visible field to False hides the file name in the generated setup sheet.

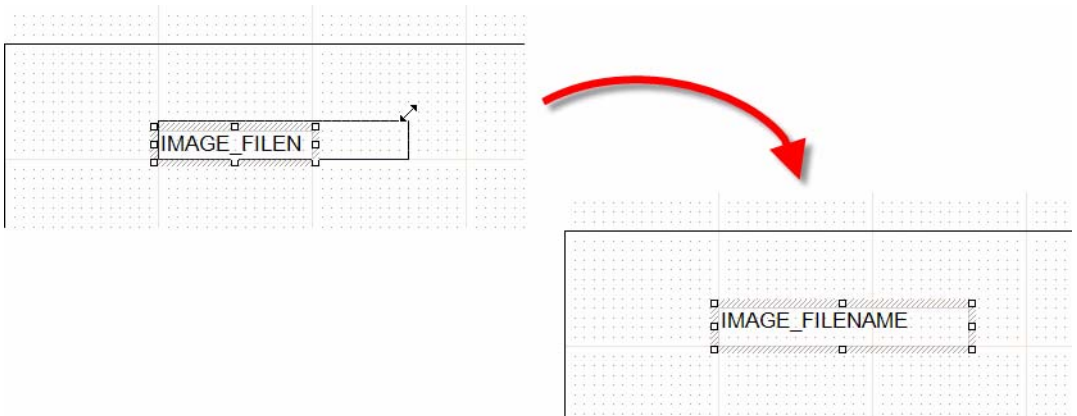
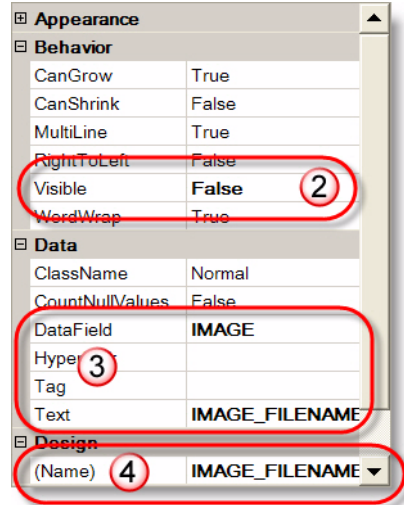
- 3 To bind the control to data in the XML file, enter the following properties into the Data section of the Properties Grid.

- ♦ **DataField:** IMAGE
- ♦ **Text:** IMAGE_FILENAME

The DataField associates the control to the IMAGE element in the SETUPSHEET node set in the XML data source. The Text field is an internal setting for your own reference. It does not display in the generated setup sheet.

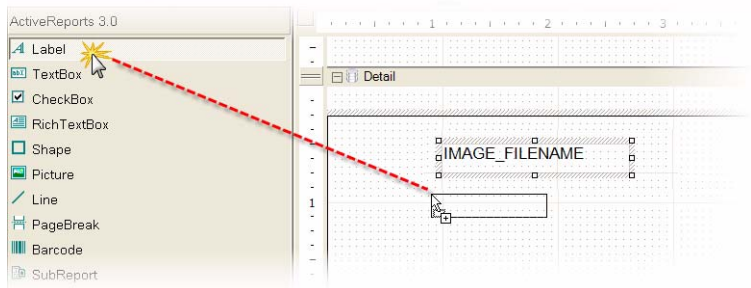
- 4 In the Design section of the Properties Grid change the (Name) of the control to **IMAGE_FILENAME**.

- 5 If desired, resize the text box by selecting and dragging the control's handles.



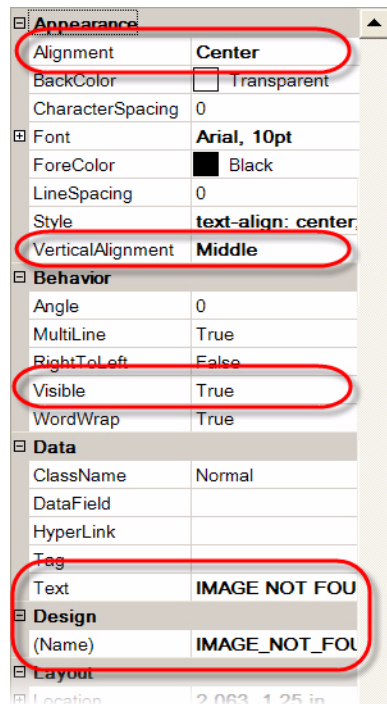
► Create Alternate Text

- 1 Select, drag, and drop the **Label** control from the Report Controls Toolbox onto the image container you created on page 33.

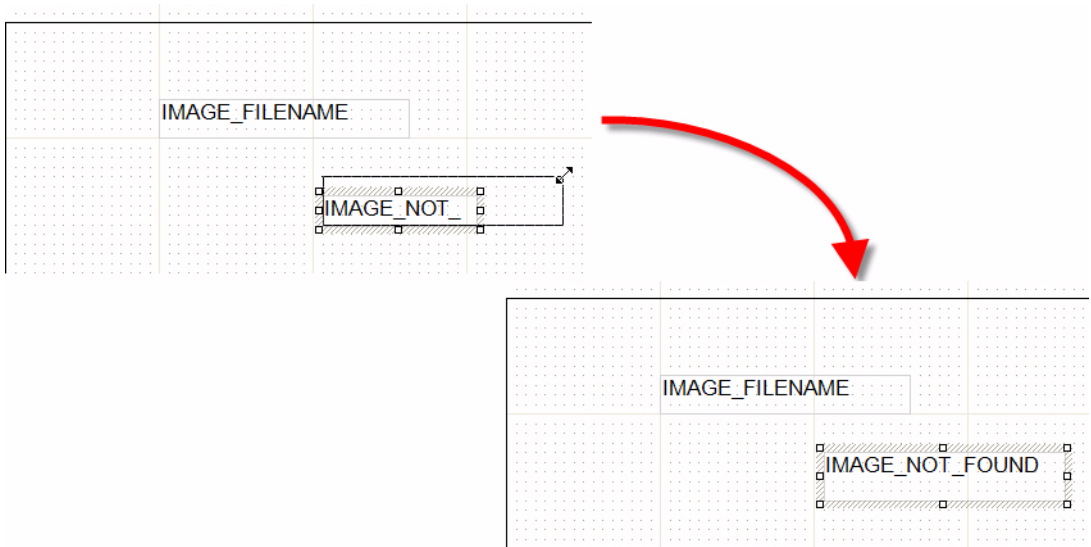


- 2 Enter the following properties in the Appearance, Behavior, Data, and Design sections of the Properties Grid:

- ◆ Alignment: **Center**
- ◆ VerticalAlignment: **Middle**
- ◆ Visible: **True**
- ◆ Text: **IMAGE NOT FOUND**
- ◆ (Name): **IMAGE_NOT_FOUND**



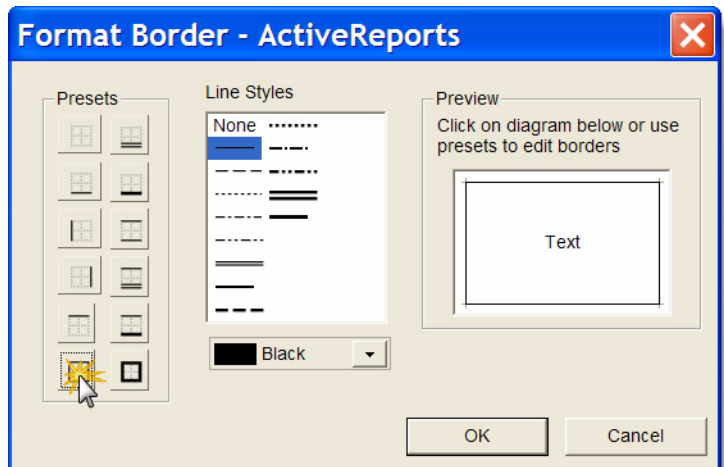
- 3 Resize the label by selecting and dragging the control's handles.



- 4 Right-click and select **Format Border** from the right-click menu.

The **Format Border - ActiveReports** dialog box opens.

- 5 Choose the preset at the bottom of the left-hand column to apply a border to all four sides of the **IMAGE NOT FOUND** label, and click **OK**.



If there is no image within the SETUPSHEET node set, the IMAGE NOT FOUND text box displays when you generate the setup sheet. If there is an image, the ActiveReports Viewer displays the image and hides the text box.

Note: To create multiple dynamic images in a report or subreport, add an underscore plus a number (_1, _2, _3,...) to each of the three associated fields to differentiate them. For example, two dynamic images in a report would have two sets of fields:

- **IMAGE HOLDER_1**, **IMAGE_FILENAME_1**, and **IMAGE_NOT_FOUND_1**.
 - **IMAGE HOLDER_2**, **IMAGE_FILENAME_2**, and **IMAGE_NOT_FOUND_2**.
-

6 Save your file.

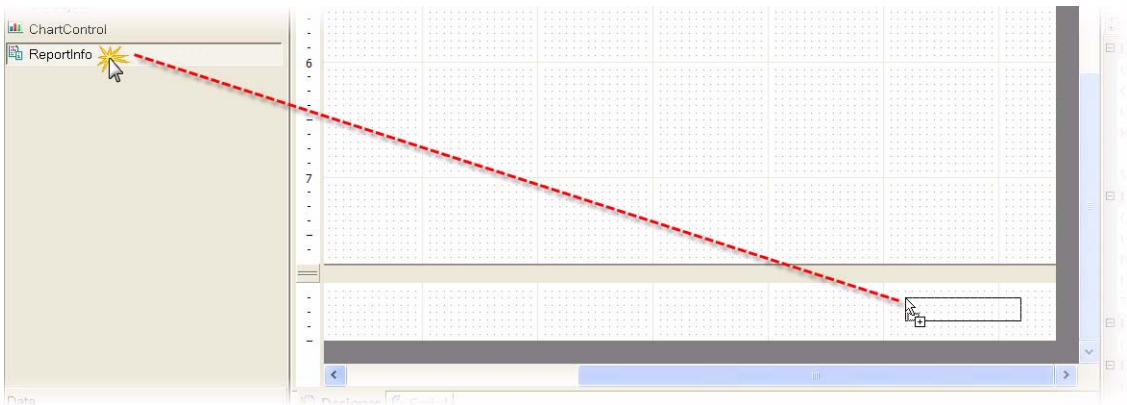


Exercise 6: Including Report Information

ReportInfo is a special text box control that makes it easy to display report information such as page numbers, page counts, and report dates. In this exercise, you use this control in the template's footer to add a report date and page numbers.

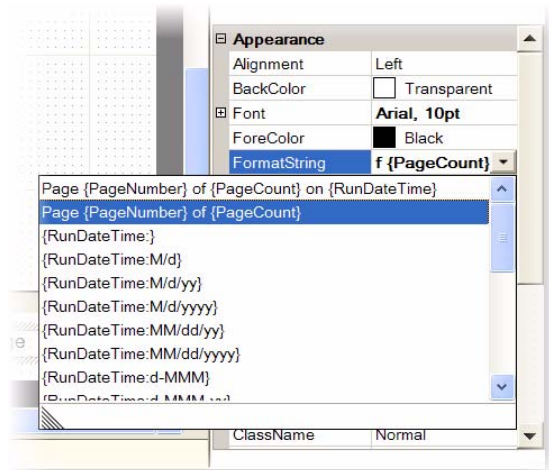
► Add Page Numbering

- 1** Select, drag, and drop the **ReportInfo** control from the Report Controls Toolbox to the right side of the PageFooter1 section.



Note: You will probably need to scroll down to see the page footer section.

- 2 In the Appearance section select the **FormatString** field. Choose **Page {PageNumber} of {PageCount}** from the drop-down menu.



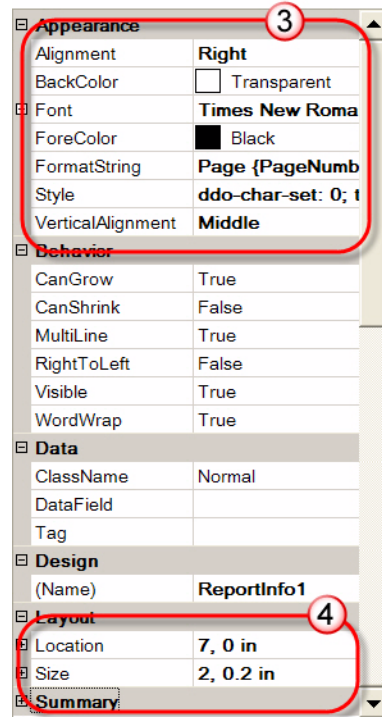
- 3 Remain in the Appearance section and change the following properties:

- ♦ Alignment: **Right**
- ♦ Font: **Times New Roman, Italic, 10 pt.**
- ♦ VerticalAlignment: **Middle**

- 4 Enter the following properties into the Layout section of the Properties Grid:

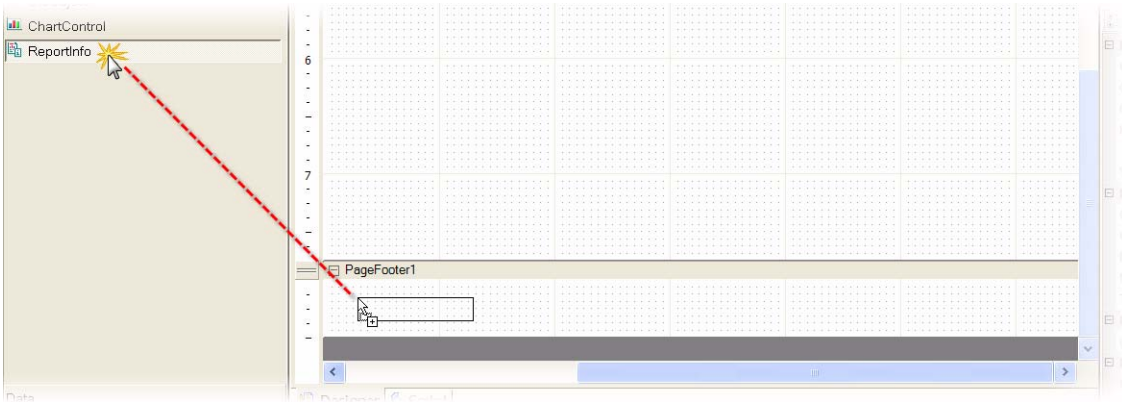
- ♦ Location: X to **7**, Y to **0**
- ♦ Size: Width to **2**, Height to **0.2**

Your settings should match those in the image to the right.

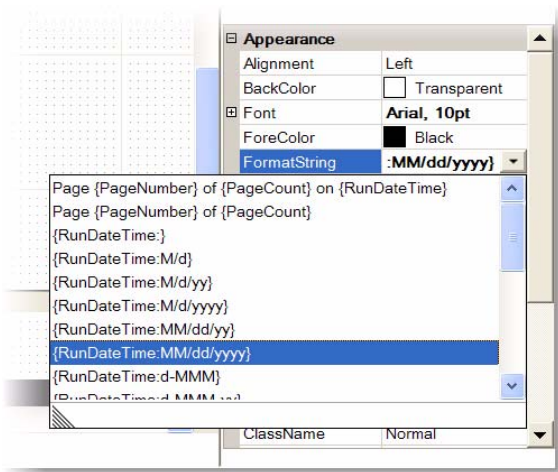


► Add an Issue Date

- 1 Select, drag, and drop the **ReportInfo** control from the Report Controls Toolbox to the left side of the PageFooter1 section.



- 2 In the Appearance section select the **FormatString** field. Choose **{RunDateTime:MM/dd/yyyy}** from the drop-down menu.



- 3 Remain in the FormatString field and place your cursor in front of the **{RunDateTime:MM/dd/yyyy}** option that you selected in the previous step.
- 4 Add custom text to the control. Type **Issued:** into the field. (Include a space after the colon.)



- 5 Enter the following properties into the Appearance and Layout section of the Properties Grid:
 - ♦ Alignment: **Left**
 - ♦ Font: **Times New Roman, Italic, 10 pt.**
 - ♦ VerticalAlignment: **Middle**
 - ♦ Location: X to **0**, Y to **0**
 - ♦ Size: Width to **1.5**, Height to **0.2**

Your settings should match those in the image to the right.

Appearance	
Alignment	Left
BackColor	<input type="checkbox"/> Transparent
Font	Times New Roma
ForeColor	<input checked="" type="checkbox"/> Black
FormatString	Issued: {RunDate
Style	ddo-char-set: 0; 1
VerticalAlignment	Middle
Behavior	
CanGrow	True
CanShrink	False
MultiLine	True
RightToLeft	False
Visible	True
WordWrap	True
Data	
ClassName	Normal
DataField	
Tag	
Design	
(Name)	ReportInfo2
Layout	
Location	0, 0 in
Size	1.5, 0.2 in
Summary	

- 6 Save your file.



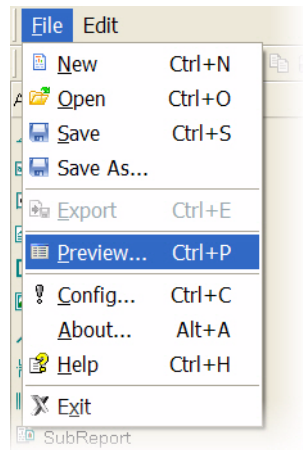
Exercise 7: Previewing Your Work

When you generate a setup sheet from within Mastercam, the setup sheet report displays automatically in the ActiveReports Viewer. When you are designing a setup sheet template with the ActiveReports Designer, you can use the Preview command to display the report without leaving the Designer and without starting the ActiveReports Viewer. This makes it easy to see how changes you make to the template affect the report output.

Note: To preview a report, your RPX file must contain generated data in the Detail section.

1 From the File menu, choose **Preview**.

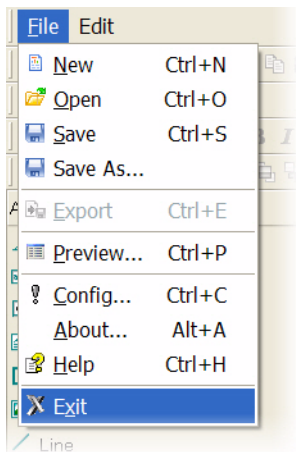
The ActiveReports Preview window displays your report as it would display in the ActiveReports Viewer.



TIP: Click the Help icon for more information about the commands and other options in this window.



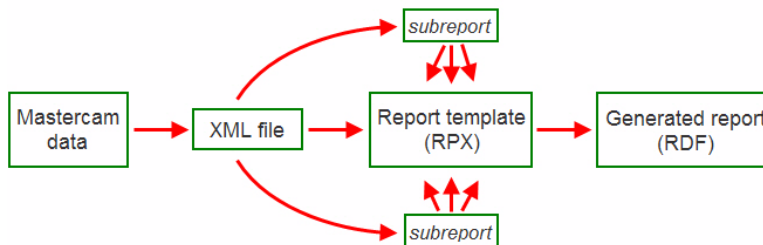
- 2 Click the close button to close the preview window and return to the ActiveReports Designer.
- 3 Select **File, Exit** to close the ActiveReports Designer.



You have successfully added and formatted both static and dynamic data to your template file. In the next lesson, you use subreports and the DataField property to add nested information to the template.

Reports and Subreports

An ActiveReports template creates a report with single pieces of data obtained directly from the XML file and/or sets of data that are obtained from the XML file via a **subreport**. The “parent” template uses a subreport to funnel multiple instances of the same data type into a report. Typically, an ActiveReports template for Mastercam would use subreports to create sections for tools or operations.



A subreport is simply a template file (RPX) that is associated with a subreport control in the parent report template. A hyphen at the beginning of an RPX file indicates that the file is a subreport. In the main report, the SubReport control acts as a placeholder for data from a child report. A reference in the ReportName property in the Data section in the Properties Grid connects the parent report to the subreport.



IMPORTANT: If data associated with a subreport is not present in the XML file, that section of the report does not display.

Mastercam generates the sample XML data source (`SSM.XML`) from data in the sample part, `MILL.MCX`. This part, which is provided in the Mastercam installation, contains six operations. Using subreports, the tutorial template creates a report that lists information about each and every tool and operation used to machine a part.

In this lesson, you create an operation subreport that returns both operation and tool information (upper image at right). You also convert an existing RPX report file that generates a separate list of tools (lower image at right). You embed both of these into the main report that you created in Lesson 1. Finally, you learn how two different reports can use a single subreport to return separate results.

[illegible]

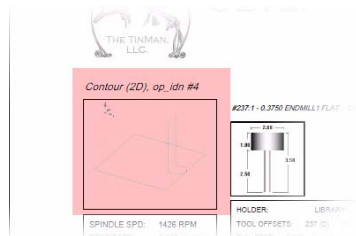
 <h1>SETUP SHEET</h1>	SPECIFICATIONS			
	PROJECT: 4000 Tons Project			
	ESTIMATOR: G&G Manufacturing Company			
	DESIGN & CONSTRUCTION: Low Bidder			
	DESIGNER: G&G			
2013 LIST				
ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
101	Excavate 1/2" 1/2"	1.00	10.00	10.00
102	Excavate 1/2" 1/2"	1.00	10.00	10.00
103	Excavate 1/2" 1/2"	1.00	10.00	10.00

Lesson Goals

- Add operation and tool data to the template.
- Add a subreport to a report.
- Customize an existing report to use as a subreport.
- Use a single subreport with two different reports.

Exercise 1: Creating the Operation Subreport

You must create a separate file to return all of the operations that are contained in the sample XML data source. In this exercise, you create an operation subreport that outputs every operation's name and image.



► Enter the Recordset Pattern Expression

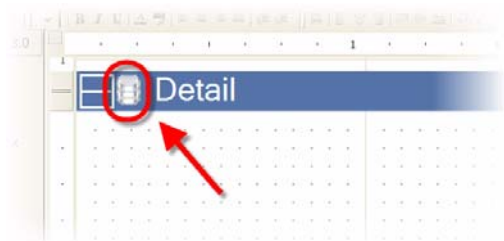
- 1 Open the file: -TUTORIAL Setup Sheet (MILL-OPERATION)_L3.rpx.



TIP: If ActiveReports Designer is not running, there are two ways to open an RPX file:

- Restart the application (ActiveReports_Designer.exe) and choose **File, Open**.
- Double-click the file in Windows Explorer. If Windows cannot open the file, associate the RPX file type with the application: **ActiveReports_Designer.exe**.

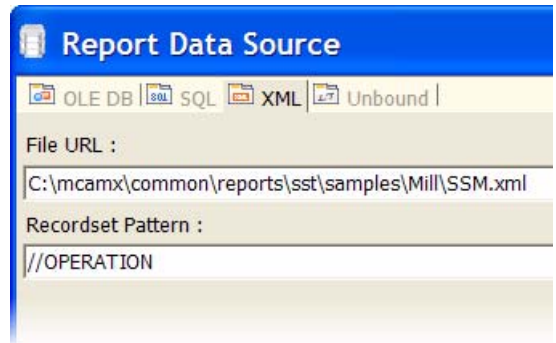
- 2 Click the **DataSource** icon and use the procedure described on page 11 to bind this file to
`..common\reports\sst\samples\Mill\SSM.xml`.



- 3 In the Recordset Pattern field, enter **//OPERATION** and click **OK**.

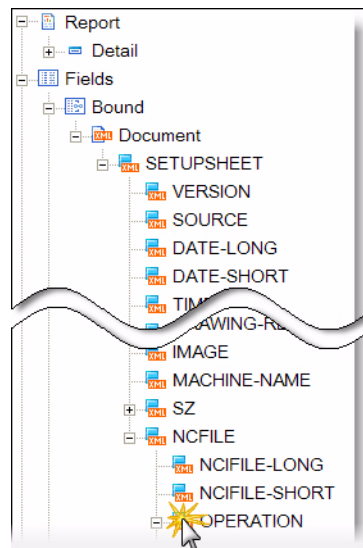
The expression you enter into this field controls how the ActiveReports Designer navigates within and retrieves data from the XML file. The double-slash path operator (//), at the beginning of the expression, commands the ActiveReports Designer to search for data wherever it detects the OPERATION node in the file, `SSM.xml`.

- 4 Save the file to the **sst** folder.

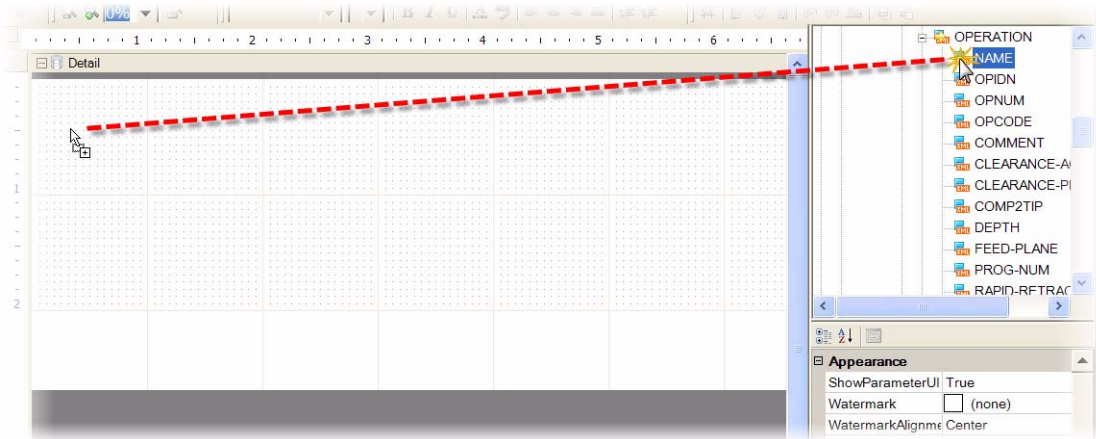


► Add Operation Names

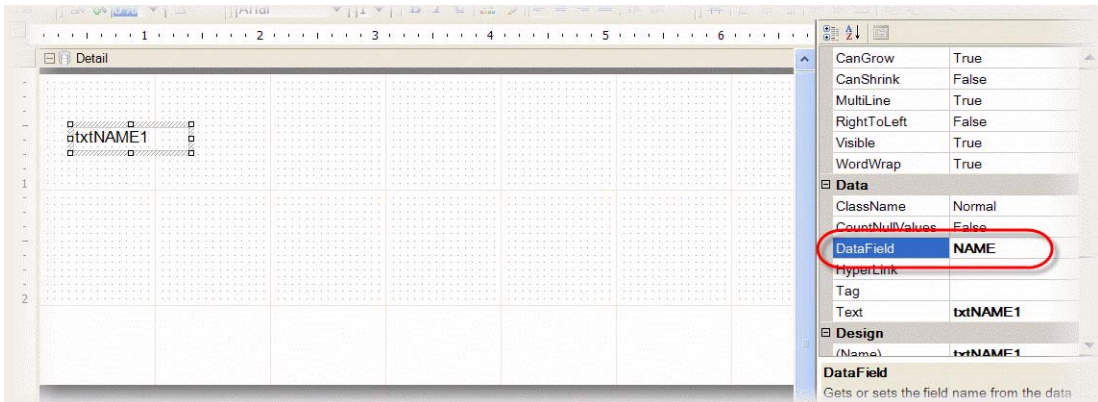
- 1 In the Report Explorer, expand the **Fields**, **Bound**, **Document**, **SETUPSHEET**, **NCFILE**, and **OPERATION** nodes.



- 2** Select the **NAME** node that is located under the OPERATION node in the Report Explorer. Drag and drop it on to the top left corner of the design surface.



The ActiveReports Designer automatically creates a text box control and populates the DataField property.



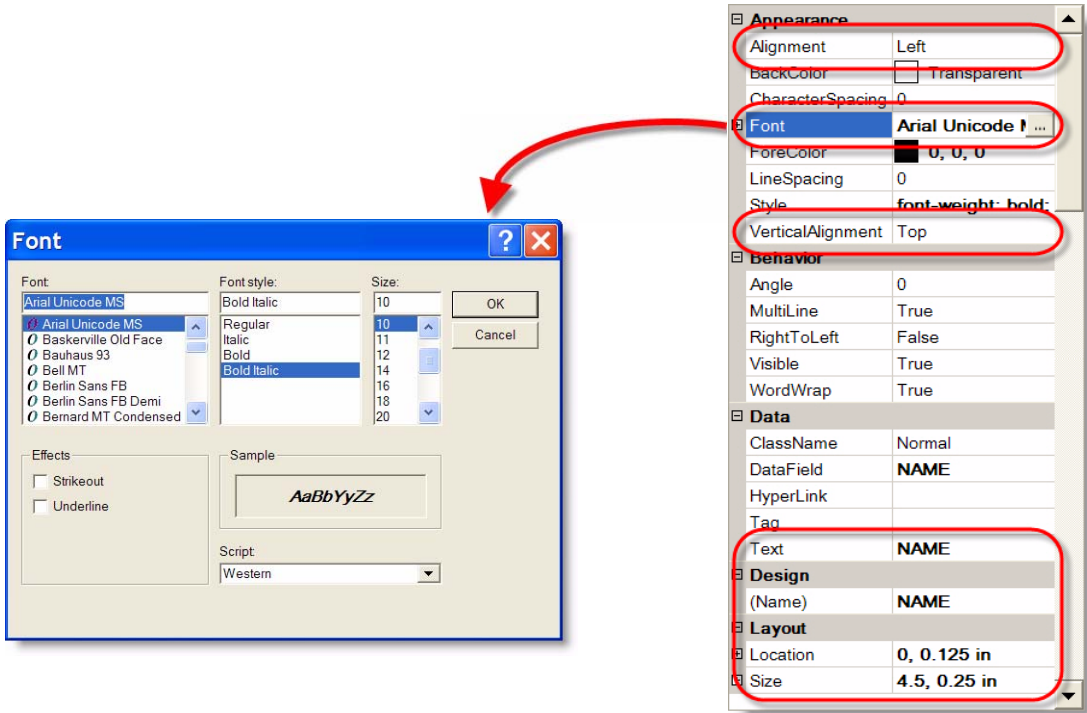
*Note: The ActiveReports Designer automatically names the text box control it creates when you drag a tag from the Report Explorer onto the design surface. You can rename the control by changing both the **Text** property in the Data section and the **(Name)** property in the Design section.*

- 3** Format the data by changing the following fields in the Properties Grid.

- ♦ Alignment: **Left**
- ♦ Font: **Arial Unicode MS, Bold Italic, 10 pt.**
- ♦ VerticalAlignment: **Top**

- ♦ Text: **NAME**
- ♦ (Name): **NAME**
- ♦ Location: X to **0**, Y to **0.125**
- ♦ Size: Width to **4.5**, Height to **0.25**

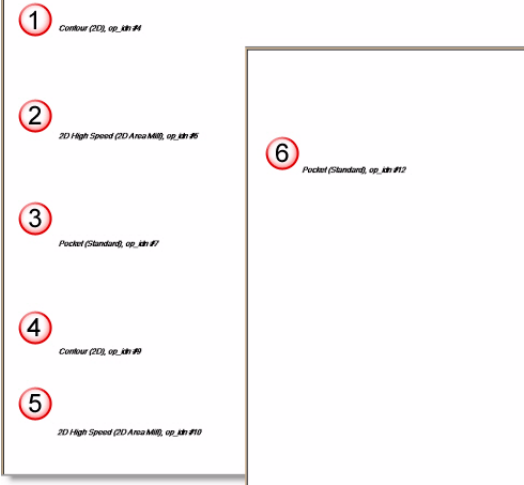
Your settings should match those in the following image.



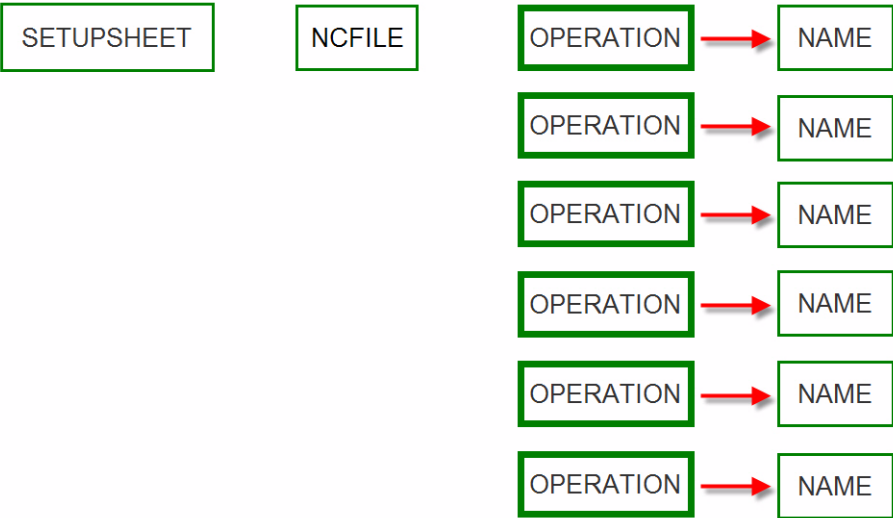
- 4 From the File menu, choose **Preview** or select the **Preview** icon from the menu bar to check your work.



A generated report displays over two pages in the ActiveReports Preview window. This report lists all six operations used by the sample part, MILL.MCX.



Note: When it navigates through the XML file to retrieve data, the ActiveReports Designer finds every occurrence of the node specified in the Recordset pattern (OPERATION). Then it searches each of these nodes for the child element named in the DataField (NAME). Because there are six nodes named OPERATION, the report engine returns the data describing the NAME element for each parent.

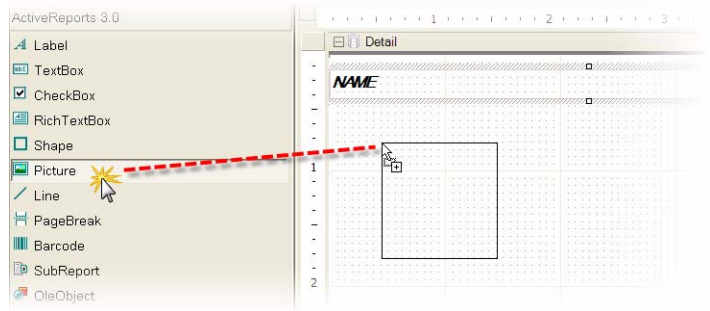


- 5 Close the preview window, and save the file.



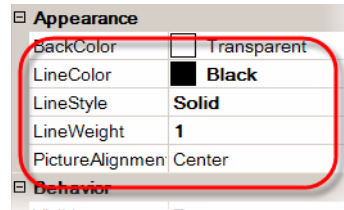
► Add Operation Images

- 1 Select, drag, and drop the **Picture** control from the Report Controls Toolbox onto the design surface. Place it under the Name text box.



- 2 Enter the following properties into the Appearance section of the Properties Grid.

- ◆ LineColor: **Black**
- ◆ LineStyle: **Solid**
- ◆ LineWeight: **1**
- ◆ PictureAlignment: **Center**



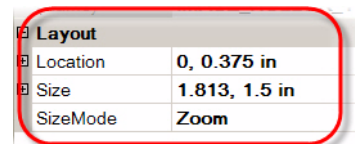
- 3 In the Design section of the Properties Grid change the (Name) of the control to **IMAGE HOLDER_1**.

*Note: Because the operation subreport template contains two dynamic images (operation and tool), you must add **_1** to the image name to differentiate them. See note on page 38.*

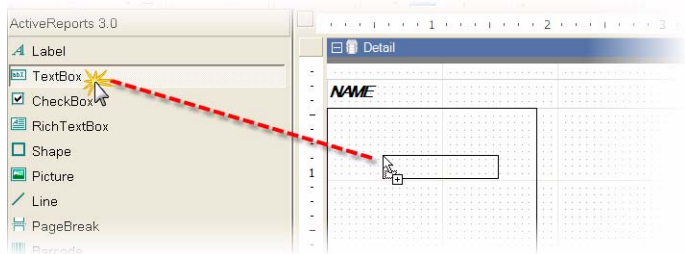


- 4 Enter the following properties into the Layout section of the Properties Grid.

- ◆ Location: X to **0**, Y to **0.375**
- ◆ Size: Width to **1.813**, Height to **1.5**
- ◆ SizeMode: **Zoom**



- 5 Select, drag, and drop the **TextBox** control from the Report Controls Toolbox onto the image container you just created.

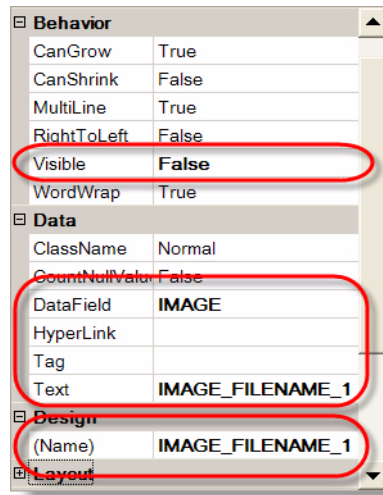


- 6 In the Behavior section of the Properties Grid, select the **Visible** field. Choose **False** from the drop-down menu.
- 7 To bind the control to data in the XML file, enter the following properties into the Data section of the Properties Grid.

- ♦ DataField: **IMAGE**
- ♦ Text: **IMAGE_FILENAME_1**

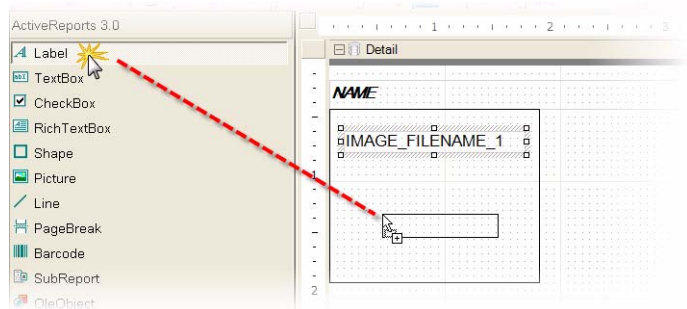
The DataField associates the control to the IMAGE element under the OPERATION node in the XML data source.

Note: Remember, the Text field is an internal setting for your own reference. It does not display in the generated setup sheet.



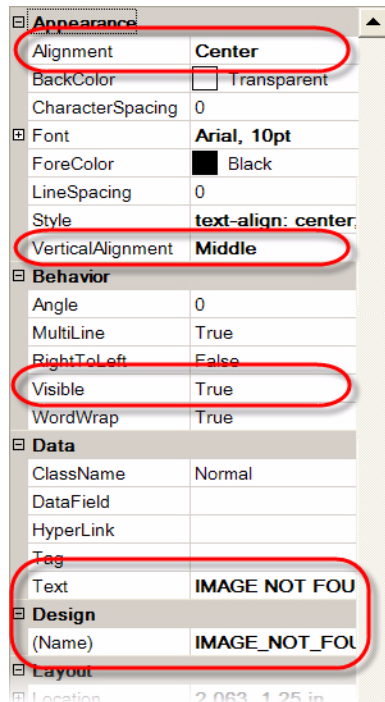
- 8 In the Design section of the Properties Grid change the (Name) of the control to **IMAGE_FILENAME_1**.
- 9 Resize the text box by selecting and dragging the control's handles.

- 10** Select, drag, and drop the **Label** control from the Report Controls Toolbox onto the image container.



- 11** Enter the following properties in the Appearance, Behavior, Data, and Design sections of the Properties Grid:

- ♦ Alignment: **Center**
- ♦ VerticalAlignment: **Middle**
- ♦ Visible: **True**
- ♦ Text: **IMAGE NOT FOUND**
- ♦ (Name): **IMAGE_NOT_FOUND_1**

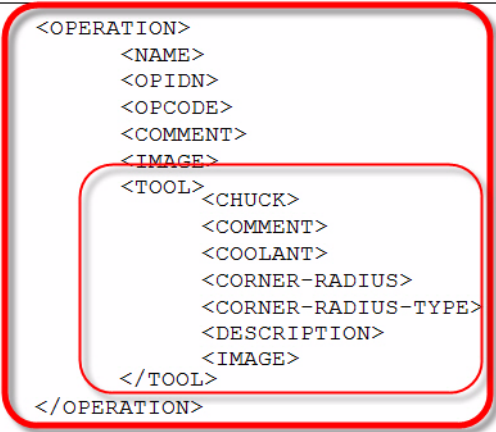


- 12** Resize the label by selecting and dragging the control's handles.
- 13** Right-click and select **Format Border** from the right-click menu. Apply a border to all four sides of the **IMAGE NOT FOUND** label.
- 14** Save the file and leave it open to continue with the next exercise.

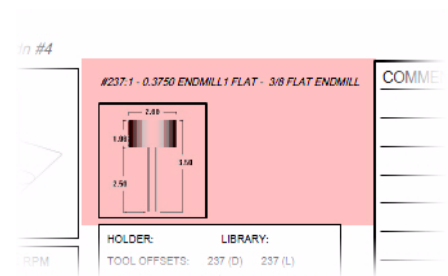


Exercise 2: Adding Tool Information

In the XML data source, elements that describe the tool used to perform the operation are located under the TOOL node, which is nested within the OPERATION node set. (See the image to the right.) To retrieve this nested data for use in an RPX file, you must enter a path expression into the DataField property in the Properties Grid.

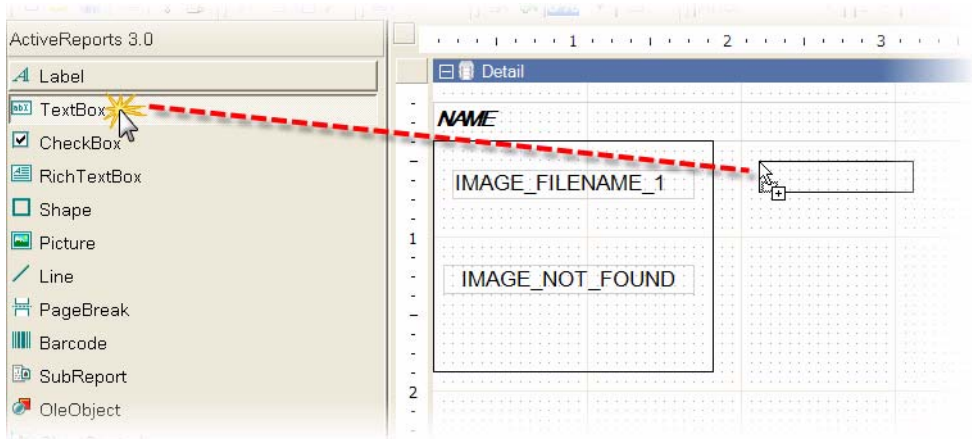


In this exercise, you use a path expression to add tool information to the operation subreport.



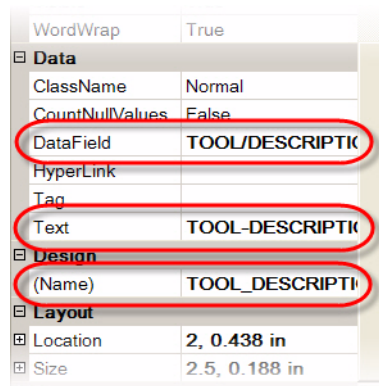
► Add the Tool Descriptions

- 1 Select, drag, and drop the **TextBox** control from the Report Controls Toolbox on to the design surface. Place the control to the right of the operation image holder you created in the previous exercise.



- 2 Enter the following properties in the Appearance and Layout sections of the Properties Grid:
 - ♦ Font: **Arial Unicode MS, Italic, 7 pt.**
 - ♦ VerticalAlignment: **Top**
 - ♦ Location: X to **2**, Y to **0.438**
 - ♦ Size: Width to **2.5**, Height to **0.188**

*Note: Type the font size directly into the **Size** field in the Font dialog box.*



- 3 Enter the following properties in the Data and Design sections of the Properties Grid.
 - ♦ DataField: **TOOL/DESCRIPTION**
 - ♦ Text: **TOOL-DESCRIPTION**
 - ♦ (Name): **TOOL_DESCRIPTION**

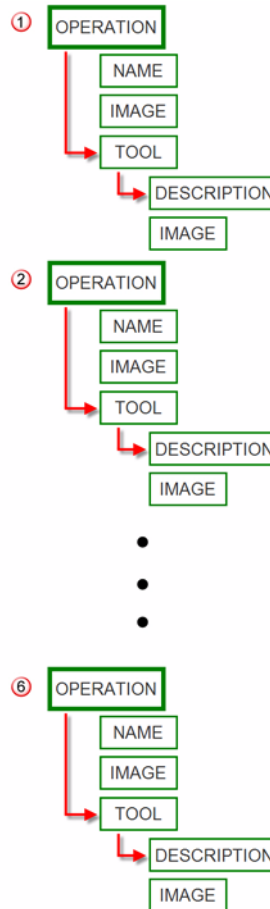
When you add dynamic data that refers to an element within a nested node set, you need to enter an expression that directs the report engine to the specified element into the DataField property.

The expression “TOOL/DESCRIPTION” tells the report engine to find the DESCRIPTION element within the TOOL node set at every occurrence of the node specified in the Recordset pattern (OPERATION).

In other words, the search is based on the node specified in the Recordset pattern. In this tutorial's case, that node is named OPERATION, and so a search goes as follows:

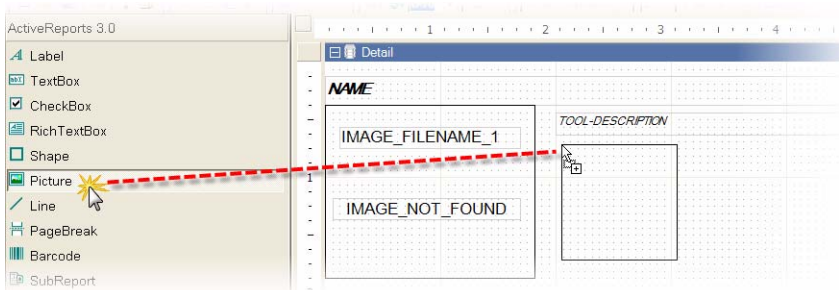
- A** Find an occurrence of the OPERATION node.
- B** Find the TOOL node set within the OPERATION node.
- C** Find the DESCRIPTION element within the TOOL node set.
- D** Repeat Steps A – C until no more OPERATION nodes exist.

The diagram to the right shows a simplified version of how the report engine searches and finds the tool description from each of the six operations.



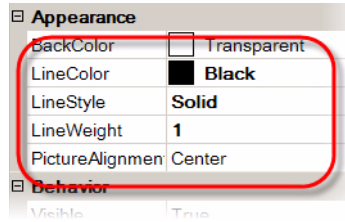
► Add the Tool Images

- 1** Select, drag, and drop the **Picture** control from the Report Controls Toolbox onto the design surface. Place it under the TOOL-DESCRIPTION textbox.



2 Enter the following properties into the Appearance section of the Properties Grid.

- ♦ LineColor: **Black**
- ♦ LineStyle: **Solid**
- ♦ LineWeight: **1**
- ♦ PictureAlignment: **Center**

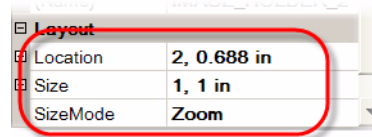


3 In the Design section of the Properties Grid change the (Name) of the control to **IMAGE HOLDER_2**.

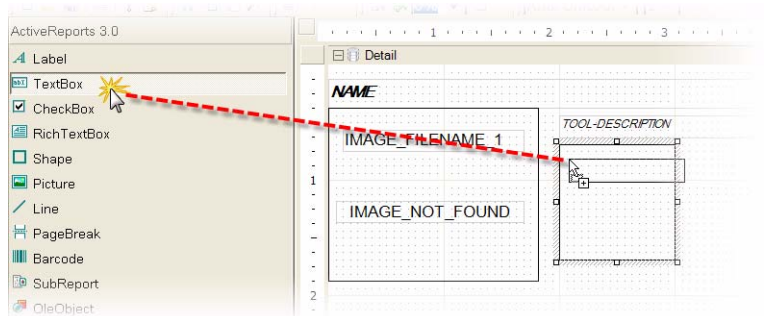


4 Enter the following properties into the Layout section of the Properties Grid.

- ♦ Location: X to **2**, Y to **0.688**
- ♦ Size: Width to **1**, Height to **1**
- ♦ SizeMode: **Zoom**



5 Select, drag, and drop the **TextBox** control from the Report Controls Toolbox onto the image container you just created.



- 6** In the Appearance section of the Properties Grid, change the Font to **Arial, Regular, 6 pt.**

*Note: Type the font size directly into the **Size** field in the Font dialog box.*

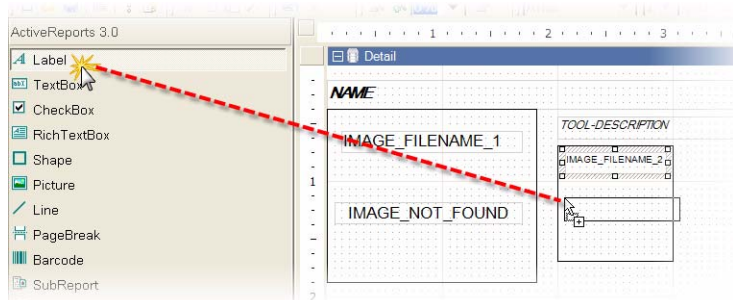
- 7** In the Behavior section of the Properties Grid select the **Visible** field. Choose **False** from the drop-down menu.
- 8** To bind the control to data in the XML file, enter the following properties into the Data section of the Properties Grid.

- ◆ DataField: **TOOL/IMAGE**
- ◆ Text: **IMAGE_FILENAME_2**

The expression “TOOL/IMAGE” tells the report engine to find the IMAGE element within the TOOL node set at every occurrence of the node specified in the Recordset pattern (OPERATION).

- 9** In the Design section of the Properties Grid change the (Name) of the control to **IMAGE_FILENAME_2.**
- 10** Resize the text box by selecting and dragging the control's handles.
- 11** Select, drag, and drop the **Label** control from the Report Controls Toolbox onto the tool image container.

Behavior	
CanGrow	True
CanShrink	False
MultiLine	True
RightToLeft	False
Visible	False
WordWrap	True
Data	
ClassName	Normal
CountNullValue	False
DataField	TOOL/IMAGE
HyperLink	
Tag	
Text	IMAGE_FILENAME_2
Design	
(Name)	IMAGE_FILENAME_2
Layout	



- 12** Enter the following properties in the Appearance, Behavior, Data, and Design sections of the Properties Grid:

- ♦ Alignment: **Center**
- ♦ Font: **Arial, Regular, 6 pt.**
- ♦ VerticalAlignment: **Middle**
- ♦ Visible: **True**
- ♦ Text: **IMAGE NOT FOUND**
- ♦ (Name): **IMAGE_NOT_FOUND_2**

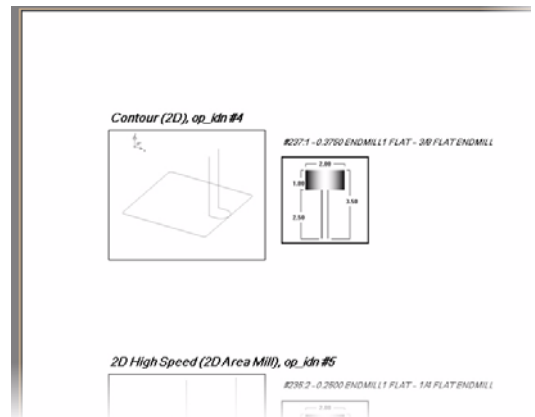
*Note: Type the font size directly into the **Size** field in the Font dialog box.*

- 13** Resize the label by selecting and dragging the control's handles.
- 14** Right-click and select **Format Border** from the right-click menu. Apply a border to all four sides of the **IMAGE NOT FOUND** label.
- 15** From the File menu, choose **Preview** or select the **Preview** icon from the menu bar.



A generated report displays in the ActiveReports Preview window. For every operation, the report displays:

- ♦ an operation name
- ♦ an operation image
- ♦ a tool description
- ♦ a tool image



- 16** Close the preview window and exit the ActiveReports Designer.

You do not need to save this file.

Exercise 3: Adding a Subreport to a Report

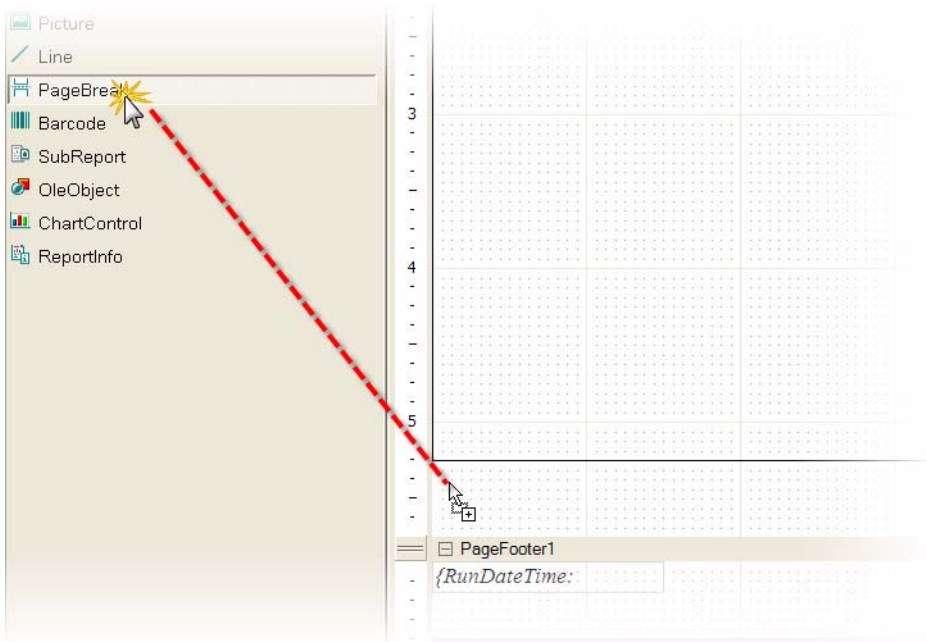
In this exercise, you use the SubReport control to add the operation subreport to the main report.

- 1 Open the main report file: TUTORIAL SETUP SHEET (MILL) .rpx.

Alternatively, you can open the file TUTORIAL Setup Sheet (MILL) -2 .rpx, which is provided with this tutorial.

Note: If you open TUTORIAL Setup Sheet (MILL) -2 .rpx, be sure to save it as TUTORIAL SETUP SHEET (MILL) .rpx or under a new name, so that you do not overwrite the original file.

- 2 Select, drag, and drop the **PageBreak** control from the Report Controls Toolbox onto the design surface.



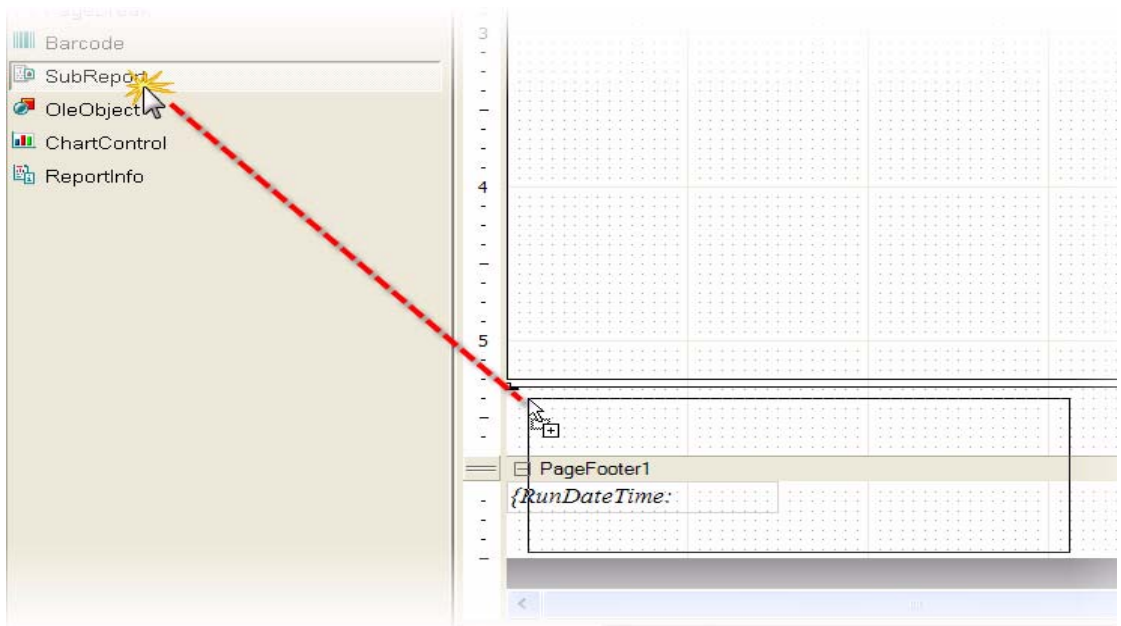
- 3 Enter the following properties into the Layout section of the Properties Grid.

- ◆ Location: X to 0, Y to 5.3

Adding the page break will force the subreport to start on the next page.

Behavior	
Enabled	True
Visible	True
Data	
Tag	
Design	
(Name)	PageBreak1
Layout	
Location	0, 5.3 in

- 4 Select, drag, and drop the **SubReport** control from the Report Controls Toolbox onto the design surface. Place it below the PageBreak control.



- 5 To bind the SubReport control to an RPX file, enter the following properties in the Data section of the Properties Grid. (See the following image.)
 - ♦ DataField: **NCFILE/OPERATION**
 - ♦ ReportName: **-TINMAN Setup Sheet (MILL-OPERATION).rpx**

Note: The file -TINMAN Setup Sheet (MILL-OPERATION) .rpx is a more complete version of the file you created in the previous exercise. It contains additional operation and tool information, as well as a comments section.

6 Enter the following properties into the Design and Layout sections of the Properties Grid.

- ♦ (Name): **SRPT_OPERATION**
- ♦ Location: X to **0**, Y to **5.3**
- ♦ Size: Width to **9.5**, Height to **0.1**

Your settings should match those in the image to the right.

Behavior	
CanGrow	True
CanShrink	True
Visible	True
Data	
DataField	NCFILE/OPERATION
ReportName	-TINMAN Setup Sheet
Tag	
Design	
(Name)	SRPT_OPERATION
Layout	
Location	0, 5.3 in
Size	9.5, 0.1 in

7 From the File menu, choose **Preview** or select the Preview icon from the menu bar.



A generated report displays in the ActiveReports Preview window. Starting on the second page, the report includes operation and tool data for six operations.

The following image shows the second page of the report.

SETUP SHEET

SPECIFICATIONS	
PROJECT:	ABC Test Project
CUSTOMER:	ABC Manufacturing Company
PROGRAMMER:	John Barker
DRAWING #:	12345

Contour (2D), op_idn #4

SPINDLE SPD:	1426 RPM
FEEDRATE:	6.332 inch/min
CYCLE TIME:	00:16:25
WORK OFFSET:	0

#237-1 - 0.3750 ENDMILL 1 FLAT - 3/8 FLAT ENDMILL

HOLDER:	LIBRARY:
TOOL OFFSETS:	237 (D) 237 (L)
DIAMETER:	0.375 FPT: 0.0011
FLUTES:	4 SFM: 139.9869
LENGTH:	2.5 CORNER RAD: 0.0

COMMENTS:

EST CYCLE TIME: 00:16:25 ACTUAL TIME:

2D High Speed (2D Area Mill), op_idn #5

SPINDLE SPD:	2139 RPM
FEEDRATE:	6.4176 inch/min
CYCLE TIME:	00:14:47
WORK OFFSET:	0

#235-2 - 0.2500 ENDMILL 1 FLAT - 1/4 FLAT ENDMILL

HOLDER:	LIBRARY:
TOOL OFFSETS:	235 (D) 235 (L)
DIAMETER:	0.25 FPT: 0.0008
FLUTES:	4 SFM: 139.9869
LENGTH:	2.5 CORNER RAD: 0.0

COMMENTS:

EST CYCLE TIME: 00:14:47 ACTUAL TIME:

Issued: 09/10/2009

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8 Close the preview window.



9 Save the file and exit the ActiveReports Designer.

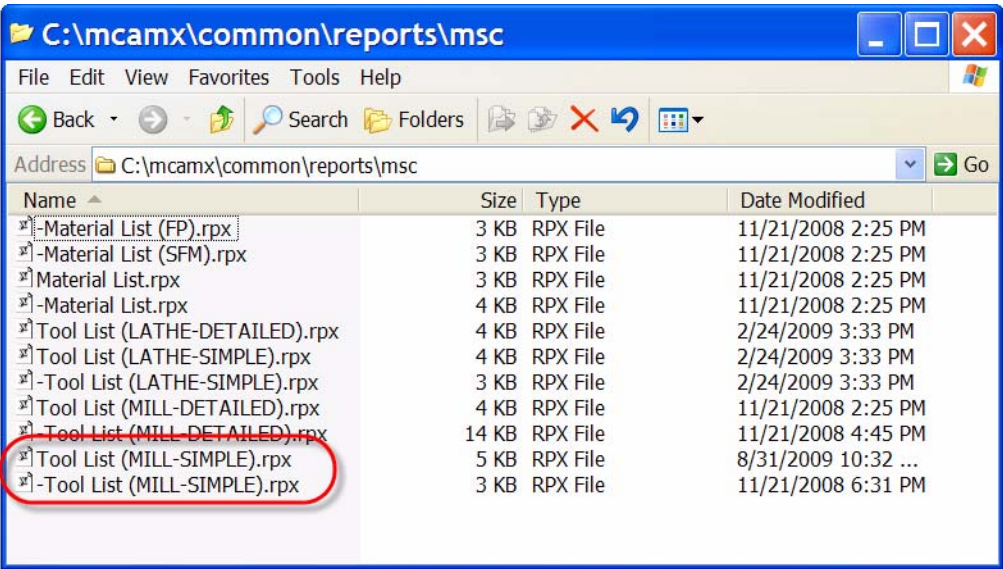
Exercise 4: Converting an Existing Report into a Subreport

In addition to setup sheets, Mastercam also uses RPX files to generate other types of reports, such as nesting reports, ATP reports, material library reports, and tool list library reports. In this exercise, you convert the tool list library report that is supplied with your Mastercam installation into a subreport that you can use in your setup sheet template.

Note: See Mastercam's online Help for more information on other Mastercam reports that use ActiveReports templates.

► Convert the Report

- 1 Use your Windows Explorer to navigate to `.. \common\reports` in the Mastercam installation folder.
- 2 Open the **msc** folder.
- 3 Select the files `Tool List (MILL-SIMPLE).rpx` and `-Tool List (MILL-SIMPLE).rpx`.



The tool list library report contains its own subreport.

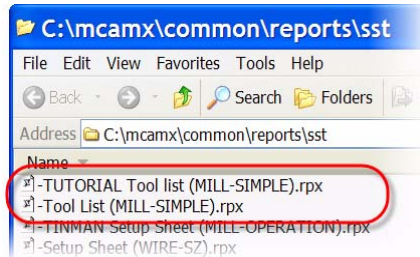
4 Copy both files to `.. \common\reports\sst`.



IMPORTANT: A subreport file must be located in the same folder as the parent report.

5 In the Windows Explorer, change the name of the file from
 Tool List (MILL-SIMPLE).rpx to
-TUTORIAL Tool List (MILL-SIMPLE).rpx.

Note: The hyphen at the beginning of the filename indicates that the file is a subreport.



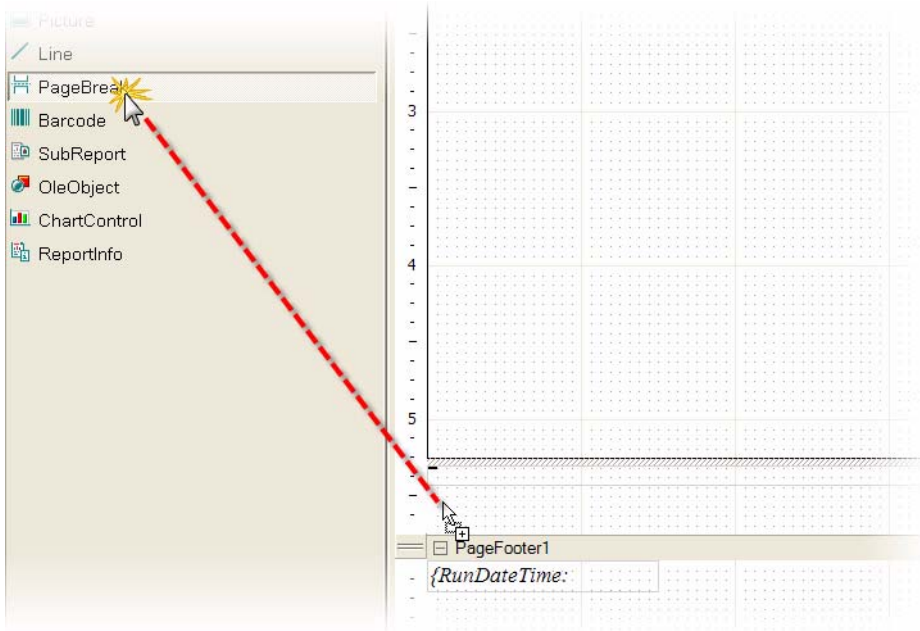
► Add the Tool List Subreport to the Report

1 Open the file: TUTORIAL SETUP SHEET (MILL).rpx.

Alternatively, you can open the file TUTORIAL Setup Sheet (MILL) -3.rpx, which is provided with this tutorial.

Note: If you open TUTORIAL Setup Sheet (MILL) -3.rpx, be sure to save it as TUTORIAL SETUP SHEET (MILL).rpx or under a new name, so that you do not overwrite the original file.

2 Select, drag, and drop the **PageBreak** control from the Report Controls Toolbox onto the design surface. Place it below the first subreport control (SRPT_OPERATION).

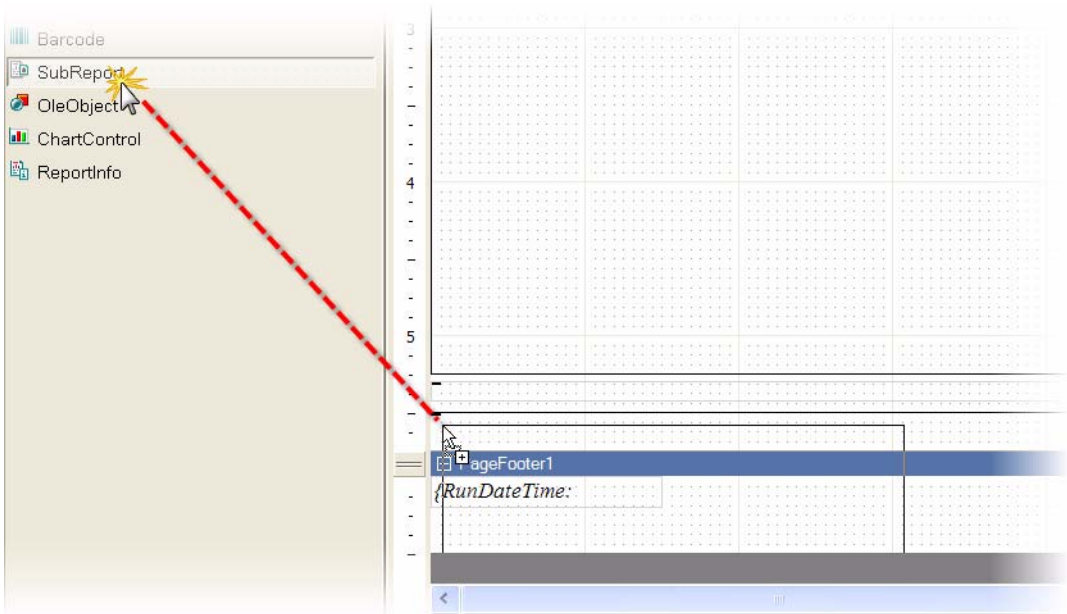


- 3 Enter the following properties into the Layout section of the Properties Grid.

- Location: X to 0, Y to 5.5

Behavior	
Enabled	True
Visible	True
Data	
Tag	
Design	
(Name)	PageBreak2
Layout	
Location	0, 5.5 in

- 4 Select, drag, and drop the **SubReport** control from the Report Controls Toolbox onto the design surface. Place it below the second PageBreak control (PageBreak2).



5 Enter the following properties into the Properties Grid.

- ♦ DataField: **NCFILE/TOOLS**
- ♦ ReportName: **-TUTORIAL Tool List (MILL-SIMPLE).rpx**
- ♦ (Name): **SRPT_TOOLS**
- ♦ Location: X to **0**, Y to **5.5**
- ♦ Size: Width to **9.5**, Height to **0.1**


Your settings should match those in the image to the right.

Behavior	
CanGrow	True
CanShrink	True
Visible	True
Data	
DataField	NCFILE/TOOLS
ReportName	-TUTORIAL Tool List
Tag	
Design	
(Name)	SRPT_TOOLS
Layout	
Location	0, 5.5 in
Size	9.5, 0.1 in

6 From the File menu, choose **Preview** or select the Preview icon from the menu bar.



A generated report displays in the ActiveReports Preview window. The two tools used to machine the part are listed on the fifth page.



SETUP SHEET

SPECIFICATIONS					
PROJECT: ABC Test Project					
CUSTOMER: ABC Manufacturing Company					
PROGRAMMER: John Barker					
DRAWING #: 12345					

TOOL LIST				FILTERED:	
#	Type	Diameter	Tool Name	Cor. rad.	Rad. Type
237	Endmill1 Flat	0.375	3/8 FLAT ENDMILL	0.0	None
236	Endmill1 Flat	0.25	1/4 FLAT ENDMILL	0.0	None

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7 Close the preview window and save the file.

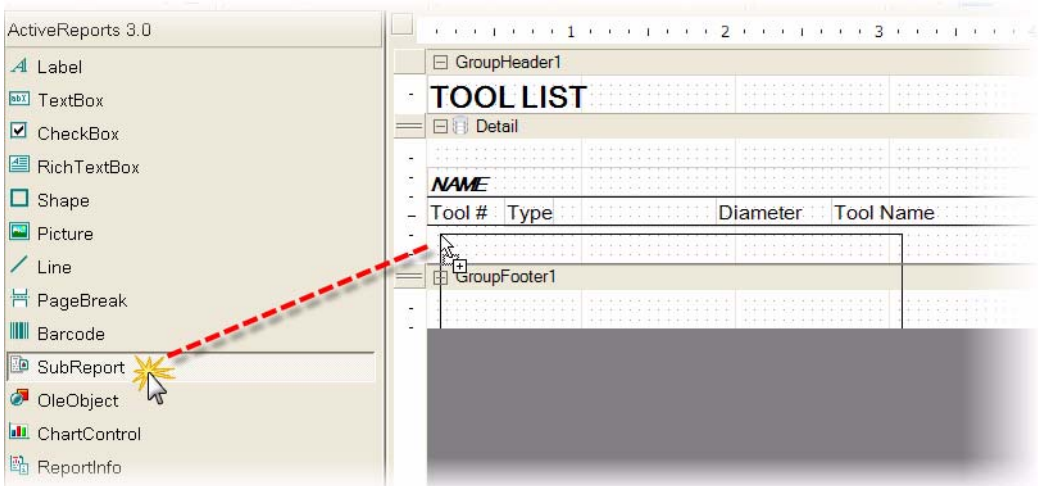
Exercise 5: Using One Subreport in Two Reports

Subreports can be an efficient way to generate similarly formatted reports with different sets of data. In the previous exercise, you used the tool list subreport `-Tool List (MILL-SIMPLE).rpx` in `-TUTORIAL Tool List (MILL-SIMPLE).rpx` to generate a summary of tools in the main report. In this exercise, you use `-Tool List (MILL-SIMPLE).rpx` in another report to display each tool by its operation.

- 1 Open the file: Operation tool list (mill-simple).rpx.



- 2 Select, drag, and drop the **SubReport** control from the Report Controls Toolbox onto the design surface.



- 3 Enter the following properties into the Properties Grid.

- ◆ DataField: **TOOL**
- ◆ ReportName: **-Tool List (MILL-SIMPLE).rpx**
- ◆ (Name): **SRPT_TOOL**
- ◆ Location: X to **0**, Y to **0.625**
- ◆ Size: Width to **6.5**, Height to **0.125**

Your settings should match those in the image to the right.

Behavior	
CanGrow	True
CanShrink	True
Visible	True
Data	
DataField	TOOL
ReportName	-Tool List (MILL-SIMPLE).rpx
Tag	
Design	
(Name)	SRPT_TOOL
Layout	
Location	0, 0.625 in
Size	6.5, 0.125 in

- 4 From the File menu, choose **Preview** or select the Preview icon from the menu bar.



A generated report displays in the ActiveReports Preview window. The report lists each tool by operation.

TOOL LIST					
<i>Contour (2D), op_idn #4</i>					
Tool #	Type	Diameter	Tool Name	Cor. rad.	Rad. Type
237	Endmill 1 Flat	0.375	3/8 FLAT ENDMILL	0.0	None
<i>2D High Speed (2D Area Mill), op_idn #5</i>					
Tool #	Type	Diameter	Tool Name	Cor. rad.	Rad. Type
235	Endmill 1 Flat	0.25	1/4 FLAT ENDMILL	0.0	None
<i>Pocket (Standard), op_idn #7</i>					
Tool #	Type	Diameter	Tool Name	Cor. rad.	Rad. Type
237	Endmill 1 Flat	0.375	3/8 FLAT ENDMILL	0.0	None
<i>Contour (2D), op_idn #9</i>					
Tool #	Type	Diameter	Tool Name	Cor. rad.	Rad. Type
237	Endmill 1 Flat	0.375	3/8 FLAT ENDMILL	0.0	None
<i>2D High Speed (2D Area Mill), op_idn #10</i>					
Tool #	Type	Diameter	Tool Name	Cor. rad.	Rad. Type
235	Endmill 1 Flat	0.25	1/4 FLAT ENDMILL	0.0	None
<i>Pocket (Standard), op_idn #12</i>					
Tool #	Type	Diameter	Tool Name	Cor. rad.	Rad. Type
237	Endmill 1 Flat	0.375	3/8 FLAT ENDMILL	0.0	None

- 5 Close the preview window.



- 6 Save the file and exit the ActiveReports Designer.



TIP: -TUTORIAL Tool List (MILL-SIMPLE).rpx, Operation tool list (mill-simple).rpx, and the subreport, -Tool List (MILL-SIMPLE).rpx are all formatted to be printed with a portrait orientation. Use the skills you learned in previous lessons to format -TUTORIAL Tool List (MILL-SIMPLE).rpx and its subreport for a landscape orientation. Remember, if you rename a file, you must update all references to it.

You have successfully used subreports to add operation and tool information to your template file. In the next lesson, you create a multi-column subreport and use it to show custom images in the main report.

LESSON 4

Creating a Multi-Column Template

You may find that a multi-column layout is a more efficient way to present some of the data in your setup sheet. The ActiveReports Designer supports multi-column layouts in RPX files, and a parent template can contain a mixture of multi-column and single column subreports.

The final part of the tutorial template presents additional custom images in a multi-column layout. In this lesson, you create the multi-column subreport and add it to the tutorial template.


Note: See Mastercam's Help for more information about adding custom images to setup sheets.

Lesson Goals

- Format and organize data into a multi-column layout.
- Create a group header that describes the subreport.
- Add the multi-column subreport into the main template.

Exercise 1: Formatting the Column Data

In this exercise, you format a subreport so that it can be used in a multi-column report.

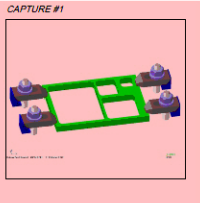


SETUP SHEET

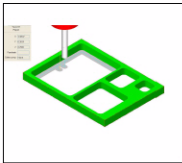
SPECIFICATIONS	
PROJECT:	ABC Test Project
CUSTOMER:	ABC Manufacturing Company
PROGRAMMER:	John Barker
DRAWING #:	12345

IMAGE LIST

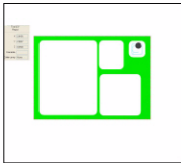
CAPTURE #1



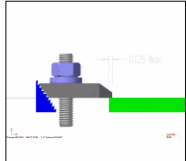
CAPTURE #3



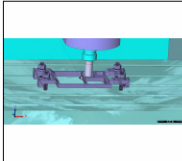
CAPTURE #5



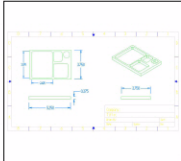
CAPTURE #2



CAPTURE #4



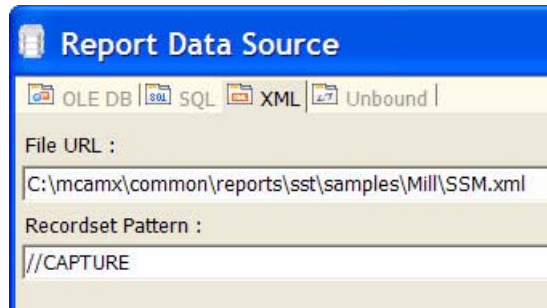
CAPTURE #6



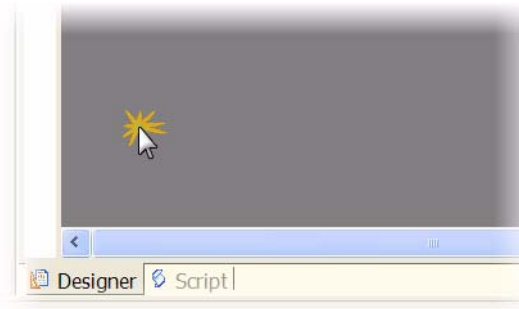
Issued: 09/14/2009

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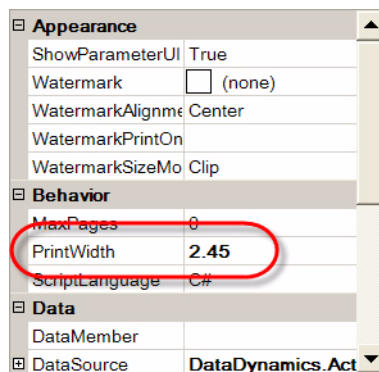
- 1 Open the file: -TUTORIAL Setup Sheet (CAPTURE).rpx.
- 2 Check the DataSource to make sure that the file is bound to the sample XML (.common\reports\sst\samples\Mill\SSM.xml) and that the expression in the Recordset Pattern field is //CAPTURE.



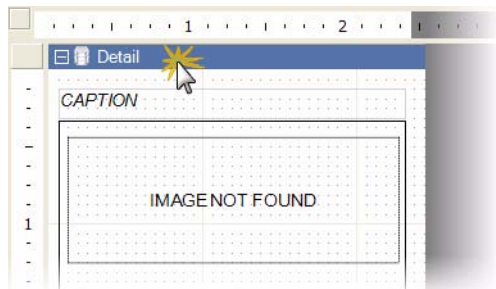
- 3 On the design surface, click the grey area below the report.
- Clicking on the grey area below the report selects the entire report.



- 4 In the Properties Grid, change the PrintWidth to 2.45 and press [Enter].
- The report designer reduces the report area to 2.45 inches.



- 5 On the design surface, click the band labeled **Detail**.



- 6 Enter the following properties into the Behavior section of the Properties Grid.

♦ KeepTogether: **True**

The KeepTogether property attempts to print the section on a single page with no page breaks. It is ignored when the section is too large for the current page or too large to fit on the next page.


Appearance	
BackColor	<input type="checkbox"/> Transparent
Behavior	
CanGrow	True
CanShrink	False
ColumnDirection	DownAcross
KeepTogether	True
Type	Detail
Visible	True
Data	
ColumnCount	1

- 7 Save the file to the **sst** folder.



Exercise 2: Formatting a Template for Multiple Columns

In this exercise, you create an RPX file with a multiple column layout. As a parent report, this file will organize the column data that you formatted in the previous exercise.

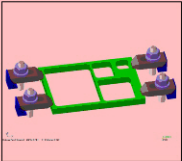
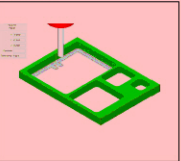
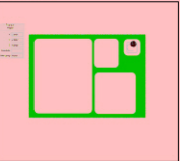
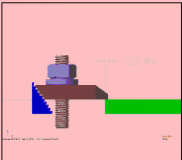

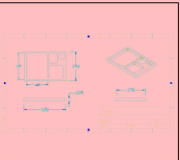


THE TINMAN,
LLC.

SETUP SHEET

SPECIFICATIONS	
PROJECT:	ABC Test Project
CUSTOMER:	ABC Manufacturing Company
PROGRAMMER:	John Barker
DRAWING #:	12345

IMAGE LIST

<p>CAPTURE #1</p> 	<p>CAPTURE #3</p> 	<p>CAPTURE #5</p> 
<p>CAPTURE #2</p> 	<p>CAPTURE #4</p> 	<p>CAPTURE #6</p> 

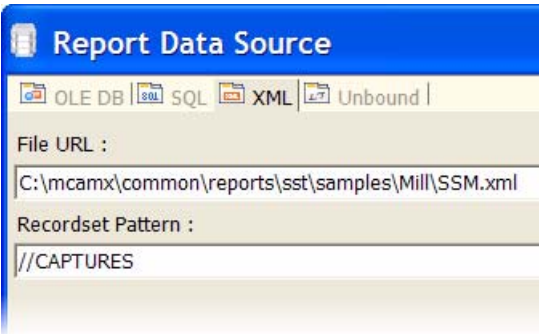
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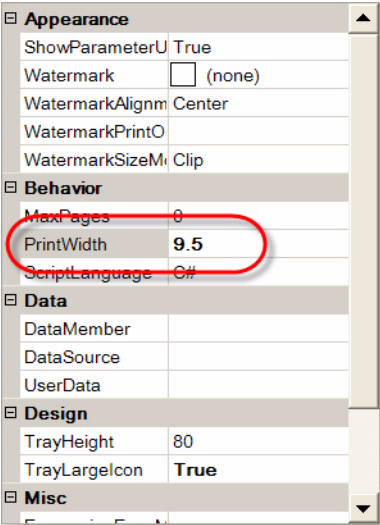
- 1 Open the file: -TUTORIAL Setup Sheet (CAPTURES) .rpx.



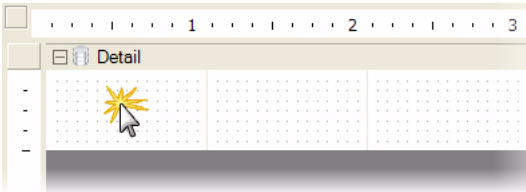
- 2 Check the DataSource to make sure that the file is bound to the sample XML (..\common\reports\sst\samples\Mill\SSM.xml) and that the expression in the Recordset Pattern field is **//CAPTURES**.



- 3 On the design surface, click the grey area below the report to select the report.
- 4 In the Properties Grid, change PrintWidth to **9.5** and press **[Enter]**.
- The report designer extends the report to 9.5 inches.



- 5 Click in the section labeled **Detail**.

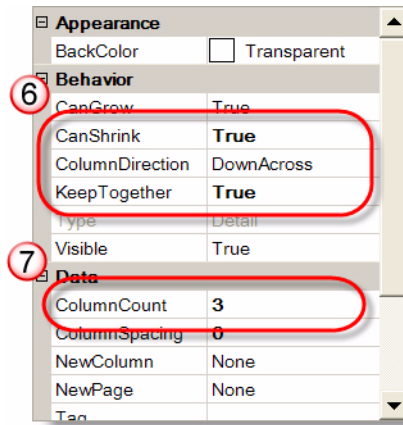


- 6 Enter the following properties into the Behavior section of the Properties Grid.

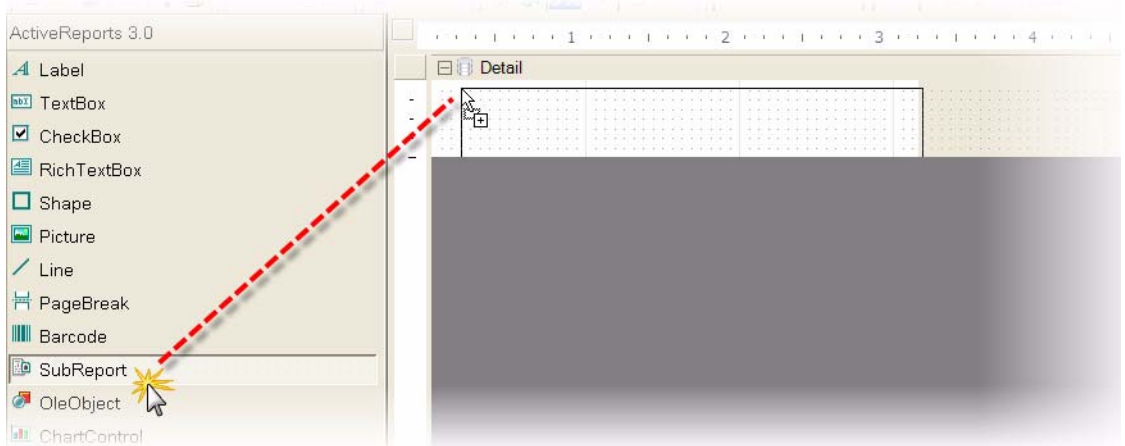
- ♦ CanShrink: **True**
- ♦ KeepTogether: **True**

When you set the CanShrink field to True, the section can adjust to less than the height indicated in the Layout section. Set this field to **True** to eliminate white space in the generated report.

- 7 In the Data section of the Properties Grid, change ColumnCount to **3**.



- 8 Select, drag, and drop the **SubReport** control from the Report Controls Toolbox onto the design surface.



- 9 To bind the SubReport control to an RPX file, enter the following properties in the Data section of the Properties Grid. (See the following image.)

- ♦ DataField: **CAPTURE**
- ♦ ReportName: **-TUTORIAL Setup Sheet (CAPTURE).rpx**

10 Enter the following properties into the Design and Layout sections of the Properties Grid.

- ◆ (Name): **SRPT_CAPTURE**
- ◆ Location: X to **0**, Y to **0**
- ◆ Size: Width to **3**, Height to **0.063**

Your settings should match those in the image to the right.

9

Behavior	
CanGrow	True
CanShrink	True
Visible	True

10

Data	
DataField	CAPTURE
ReportName	-TUTORIAL Setup Sh
Tag	

Design	
(Name)	SRPT_CAPTURE

Layout	
Location	0, 0 in
Size	3, 0.063 in

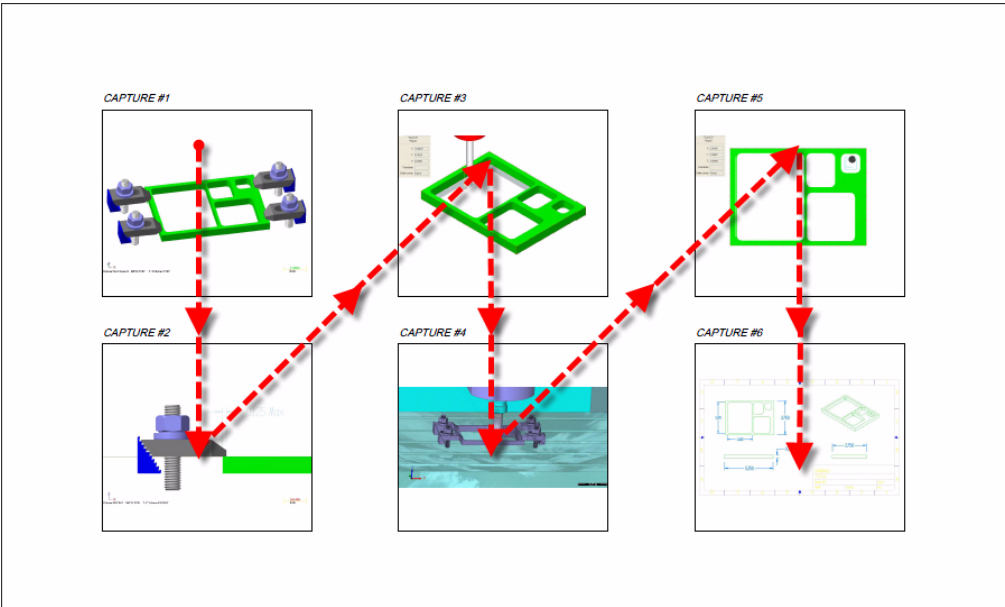


IMPORTANT: The width of the subreport placeholder must be larger than the width of the subreport you formatted in Step 4 on page 68.

11 Preview the file.



The report organizes the capture data from the subreport into three columns and displays it in a top-to-bottom order.



12 Close the preview window.

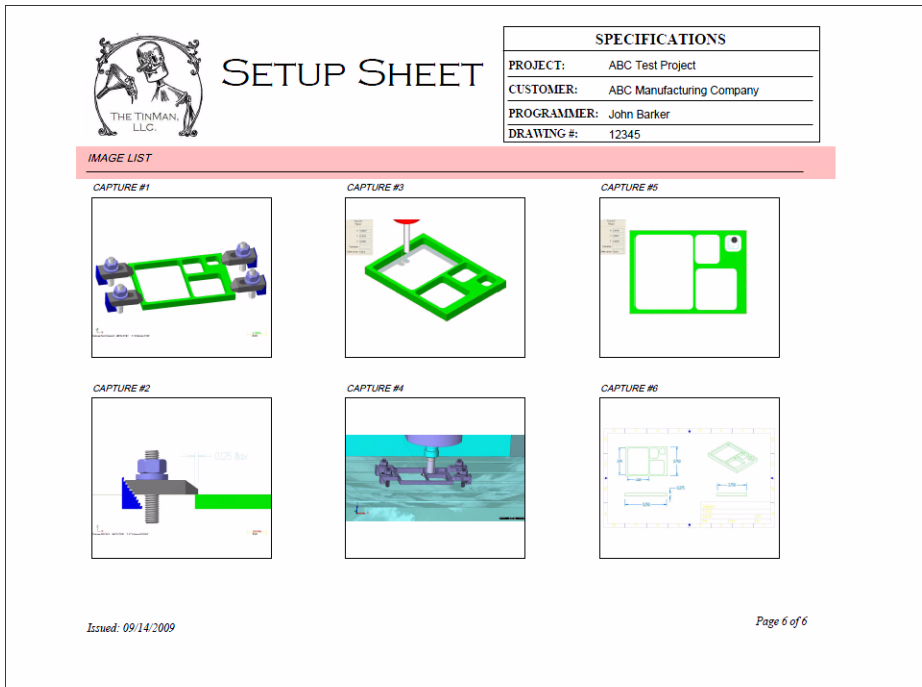


13 Save the file and leave it open to continue with the next exercise.



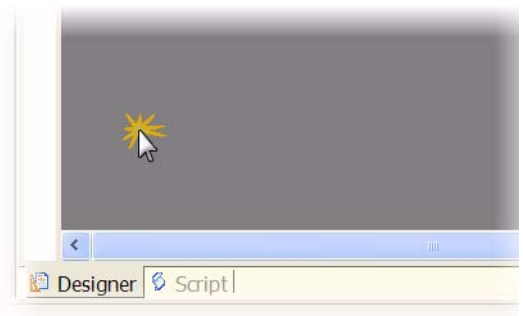
Exercise 3: Creating a Group Header

In this exercise, you create a special header that describes the data in the multi-column template.



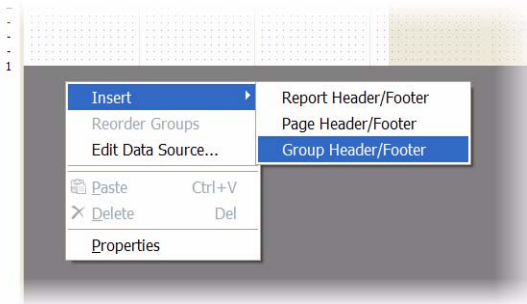
► Add and Format the Group Header

- 1 On the design surface, click the grey area below the report.

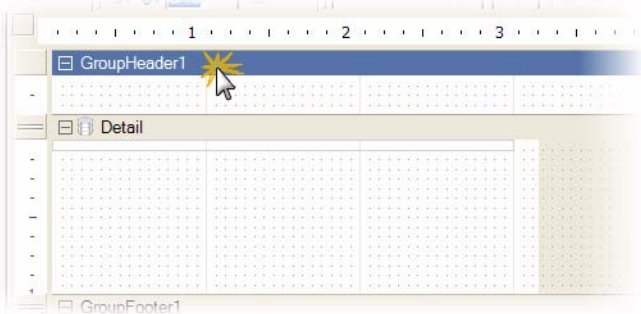


2 Right-click and choose **Insert, Group Header/Footer.**

The ActiveReports Designer adds a Group Header and Footer to the design surface.



3 Click in the section labeled **GroupHeader1.**

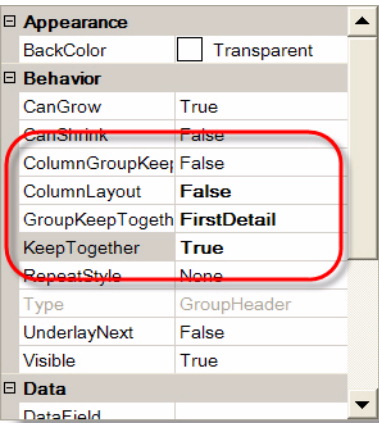


4 Enter the following properties into the Behavior section of the Properties Grid.

- ◆ ColumnLayout: **False**
- ◆ GroupKeepTogether: **FirstDetail**
- ◆ KeepTogether: **True**

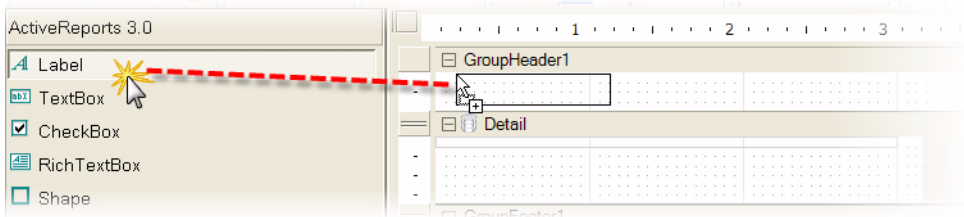
Setting ColumnLayout to **False** allows the group header to have a different number of columns than the detail section.

The GroupKeepTogether option **FirstDetail** keeps the group header and at least the first set of retrieved data together on the same page to prevent widowed group header sections. If there is no room on the current page for the first set of retrieved data, the group header moves to the next page along with the data.



► Add the Group Label

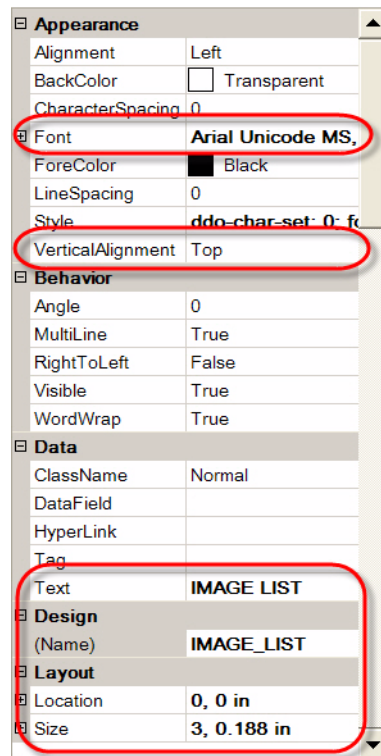
- 1 Select, drag, and drop the **Label** control from the Report Controls Toolbox onto the GroupHeader1 section.



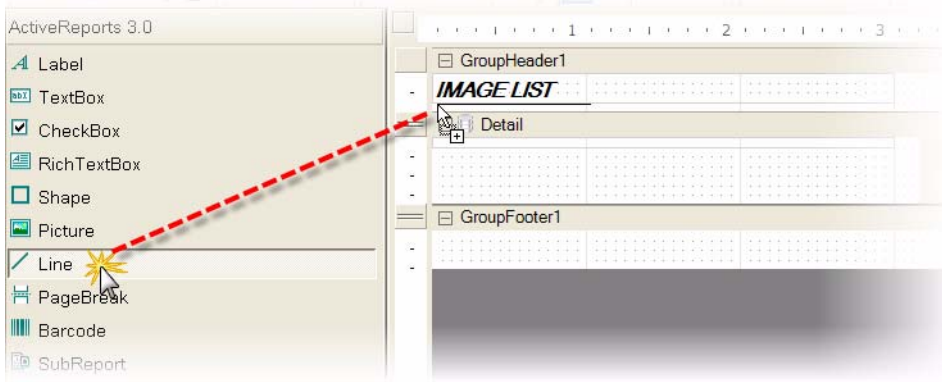
- 2 Enter the following properties in the Appearance, Data, Design, and Layout sections of the Properties Grid:

- ♦ Font: **Arial Unicode MS, Bold Italic, 10 pt.**
- ♦ VerticalAlignment: **Top**
- ♦ Text: **IMAGE LIST**
- ♦ (Name): **IMAGE_LIST**
- ♦ Location: X to **0**, Y to **0**
- ♦ Size: Width to **3**, Height to **0.188**

Leave the other fields at their default values. Your settings should match those in the image to the right.



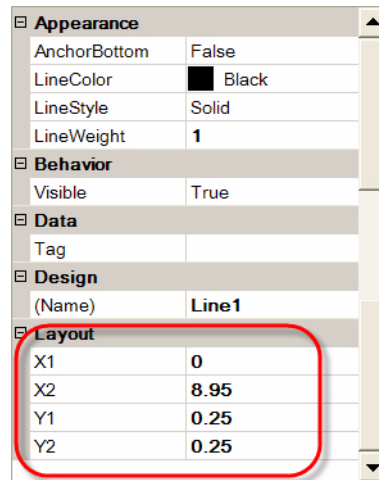
- 3 Select, drag, and drop the **Line** control from the Report Controls Toolbox onto the GroupHeader1 section.



- 4 Enter the following properties into the Layout section of the Properties Grid.

- ◆ X1: **0**
- ◆ X2: **8.95**
- ◆ Y1: **0.25**
- ◆ Y2: **0.25**

Use the defaults for all other line properties. Your settings should match those in the image to the right.



- 5 Save the file.



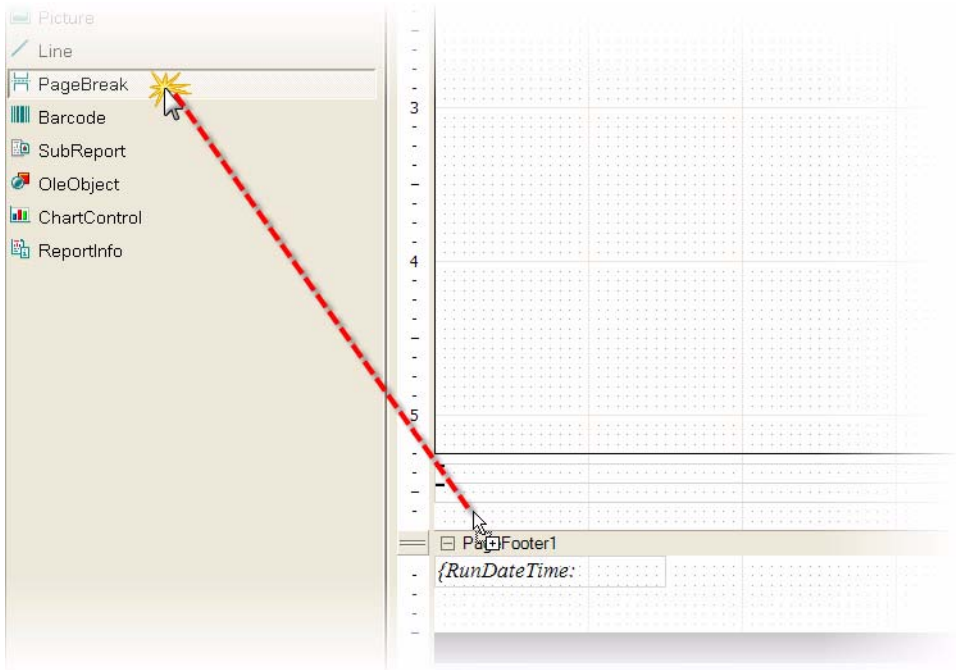
Exercise 4: Adding a Multi-Column Subreport to a Report

- 1 Open the file: TUTORIAL SETUP SHEET (MILL) .rpx.



Alternatively, you can open the file TUTORIAL Setup Sheet (MILL)-4.rpx, which is provided with this tutorial.

- 2 Select, drag, and drop the **PageBreak** control from the Report Controls Toolbox onto the design surface.

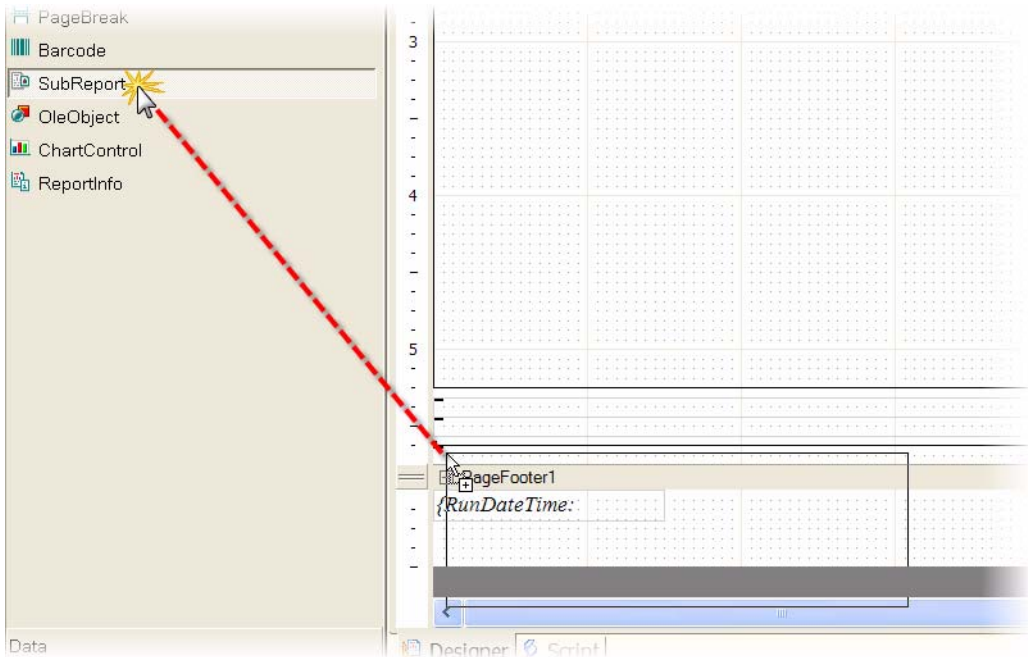


- 3 Enter the following properties into the Layout section of the Properties Grid.

- ◆ Location: X to 0, Y to 5.625

Behavior	
Enabled	True
Visible	True
Data	
Tag	
Design	
(Name)	PageBreak3
Layout	
Location	0, 5.625 in

- 4 Select, drag, and drop the **SubReport** control from the Report Controls Toolbox onto the design surface. Place it below the PageBreak control.



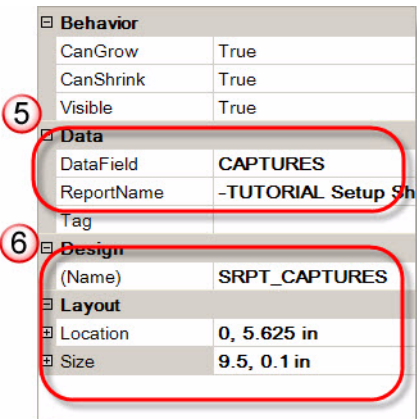
- 5 To bind the SubReport control to an RPX file, enter the following properties in the Data section of the Properties Grid. (See the following image.)

- ◆ DataField: **CAPTURES**
- ◆ ReportName: **-TUTORIAL Setup Sheet (CAPTURES).rpx**

- 6 Enter the following properties into the Design and Layout sections of the Properties Grid.

- ◆ (Name): **SRPT_CAPTURES**
- ◆ Location: X to **0**, Y to **5.625**
- ◆ Size: Width to **9.5**, Height to **0.1**


Your settings should match those in the image to the right.



- 7 From the File menu, choose **Preview** or select the Preview icon from the menu bar.



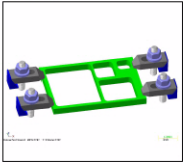
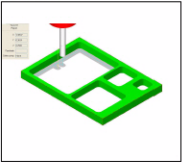
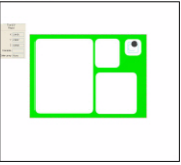
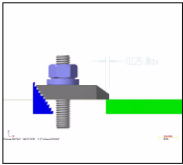
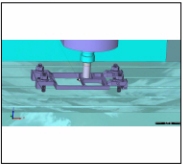
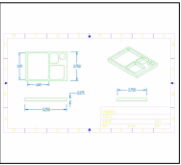
A generated report displays in the ActiveReports Preview window. A list of images begins on the sixth page. The subreport retains its multi-column formatting.



SETUP SHEET

SPECIFICATIONS	
PROJECT:	ABC Test Project
CUSTOMER:	ABC Manufacturing Company
PROGRAMMER:	John Barker
DRAWING #:	12345

IMAGE LIST

<p><small>CAPTURE #1</small></p> 	<p><small>CAPTURE #3</small></p> 	<p><small>CAPTURE #5</small></p> 
<p><small>CAPTURE #2</small></p> 	<p><small>CAPTURE #4</small></p> 	<p><small>CAPTURE #6</small></p> 

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- 8 Close the preview window and return to the ActiveReports Designer.



- 9 Save the file.



Note: If you opened TUTORIAL Setup Sheet (MILL) -4.rpx, be sure to save it as TUTORIAL SETUP SHEET (MILL).rpx or under a new name, so that you do not overwrite the original file.

You have created a multi-column subreport and added it to the main template file. In the next lesson, you use the Script tab to create hyperlinks to quickly jump to different sections of electronic versions of the setup sheet.

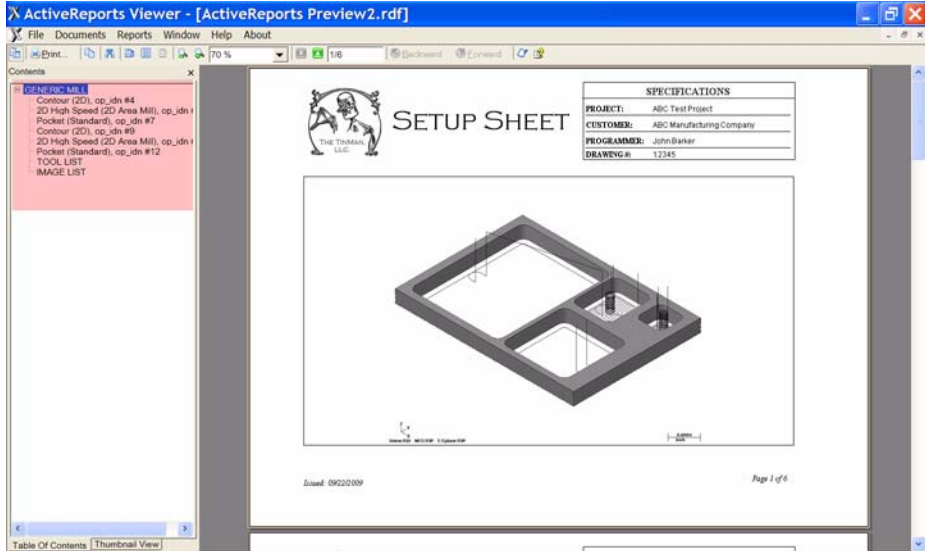
LESSON 5

Creating Bookmarks

If your audience uses an electronic method to view ActiveReport setup sheets, electronic bookmarks are a useful way to navigate through the different parts of the report. Bookmarks display in the ActiveReports Viewer and Preview window in the Table Of Contents pane on the left side of the report window. By default, the ActiveReports Viewer and Preview window open template files (RPX) and report files (RDF) with an active Table Of Contents pane.

In this lesson, you create a multi-level set of electronic bookmarks. Although the ActiveReports Designer uses C# script to create the bookmarks, you do not need to know this computer language to create the bookmarks that are in the tutorial template. Two text files provided with the tutorial—ARD-BOOKMARKSCRIPT-TOPLEVEL.txt and ARD-BOOKMARKSCRIPT-SUBLEVEL.txt—contain all of the necessary code. After you complete this tutorial, you can use or modify this sample code to create bookmarks for your own custom templates.

Note: The electronic bookmarks you create in your ActiveReports template (RPX) are converted to PDF bookmarks when you export a report files to PDF. See Mastercam's Help for more information about the ActiveReports Viewer.



Lesson Goals

- Create a multi-level set of electronic bookmarks.
- Modify code in the ActiveReports script editor to customize your bookmarks.

Exercise 1: Creating a Top-Level Bookmark

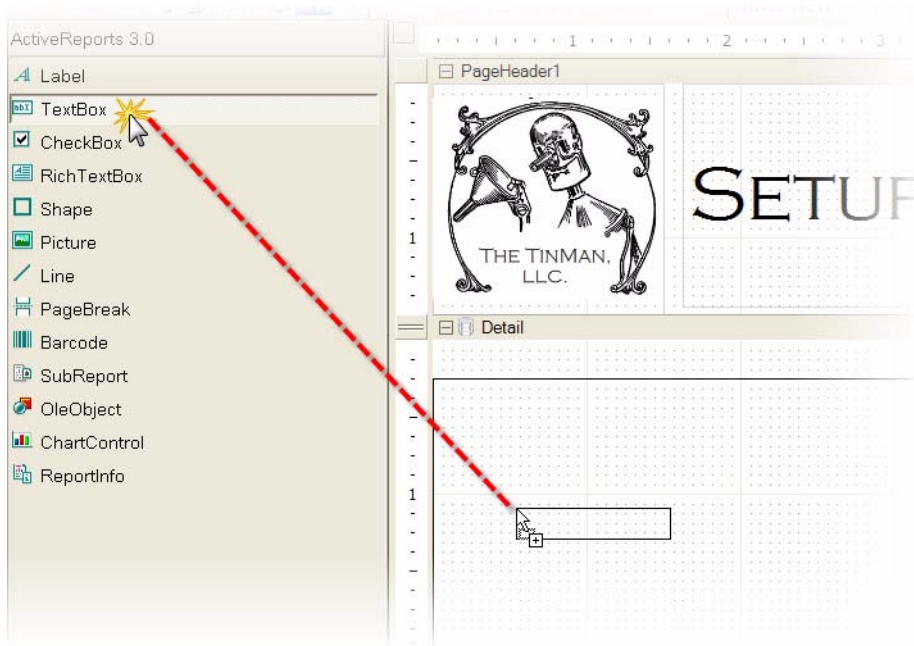
In this exercise, you use a script to create an electronic bookmark. When clicked, this bookmark returns the user to the first page of the setup sheet.

- 1 If necessary, open the file: TUTORIAL SETUP SHEET (MILL) .rpx.

Alternatively, you can open the file TUTORIAL Setup Sheet (MILL) -5.rpx, which is provided with this tutorial.

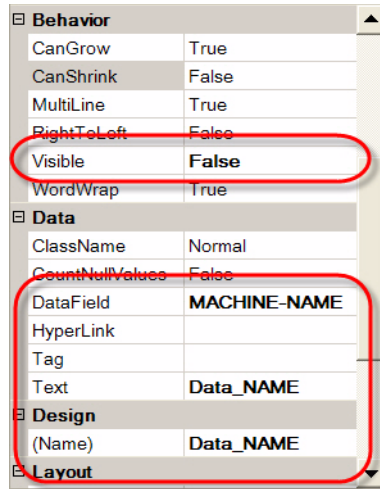
Note: If you open TUTORIAL Setup Sheet (MILL) -5.rpx, be sure to save it as TUTORIAL SETUP SHEET (MILL) .rpx or under a new name, so that you do not overwrite the original file.

- 2 Select, drag, and drop the **TextBox** control from the Report Controls Toolbox onto the detail section.



3 Make sure that the control has the following properties:

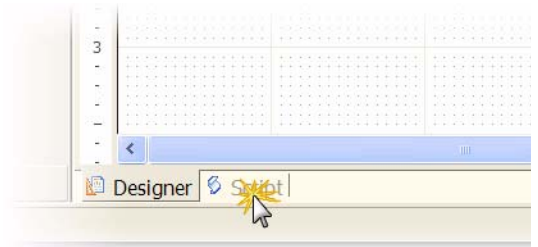
- ♦ Visible: **False**
- ♦ DataField: **MACHINE-NAME**
- ♦ Text: **Data_NAME**
- ♦ (Name): **Data_NAME**



4 Scroll to the tabs at the bottom of the workspace. Click the **Script** tab to open the ActiveReports script editor.

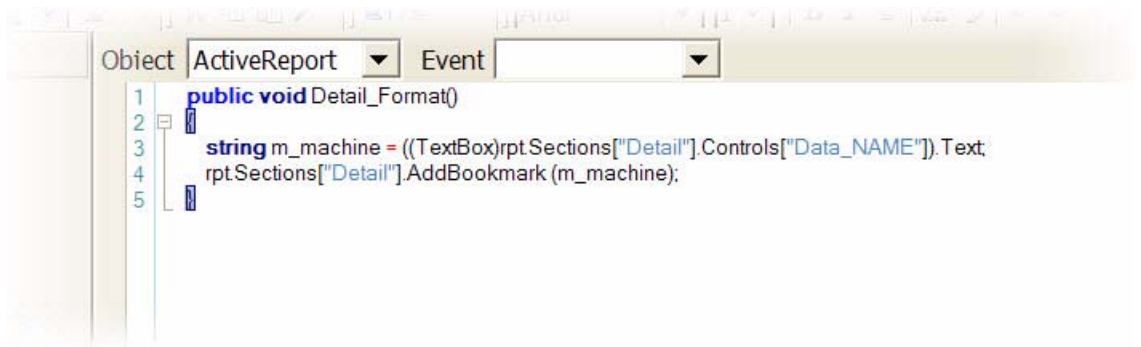
5 Using a text editor (such as Notepad), open the file:

ARD-BOOKMARKSCRIPT-TOPLEVEL.txt.

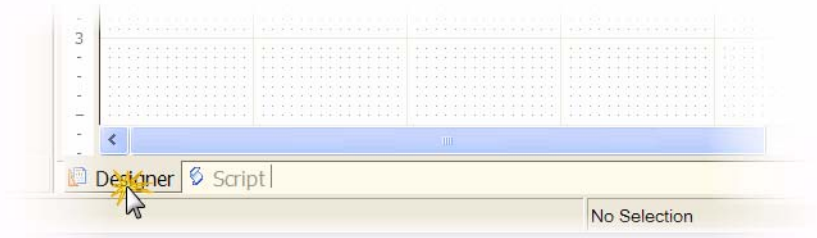


6 Copy the entire script from the text file and paste it into the script editor.

The script editor contains five lines of code as shown in the following image.



- 7 Click the **Designer** tab to return to the design surface.

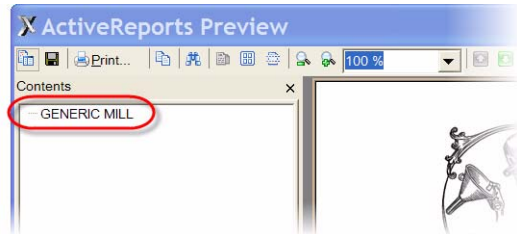


- 8 Preview the file.



The machine name from the sample part's machine definition appears in the Table of Contents pane on the left side of the preview window.

When you are on another page of the report, clicking this bookmark returns you to the first page.



- 9 Close the preview window.



- 10 Save the RPX and leave it open to continue with the next exercise.



Exercise 2: Creating Sub-Level Bookmarks

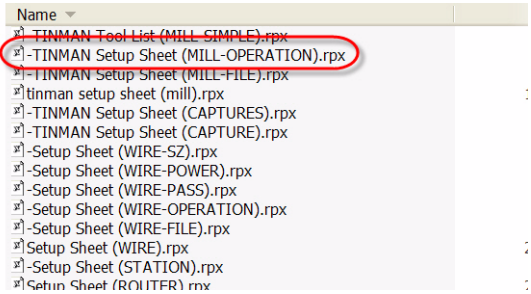
In this exercise, you use another script to create sub-level bookmarks for each of the setup sheet's operations. You modify this script to create electronic bookmarks for other parts of your setup sheet.

► Create Operation Bookmarks

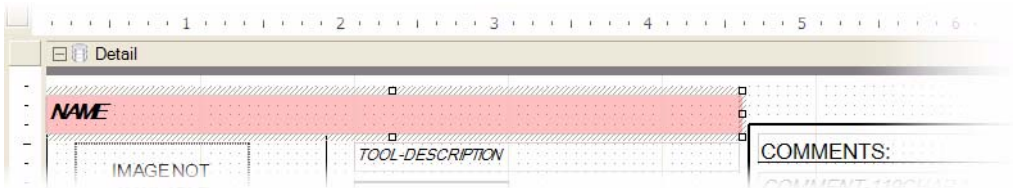
- 1 From Windows Explorer, open `-TINMAN Setup Sheet (MILL-OPERATION) .rpx`.

If you have not already associated the RPX file type with ActiveReports Designer, double-click `ActiveReports_Designer.exe` and choose **File, Open**. The rest of this tutorial assumes that you have associated the file type to the application.

Note: ActiveReports Designer is not a multi-window application. To view two RPX files simultaneously, you must open two instances of the application.

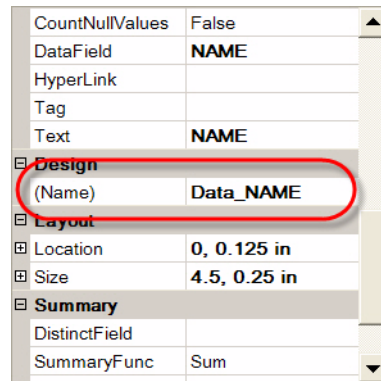


- 2 Select the **NAME** text box.

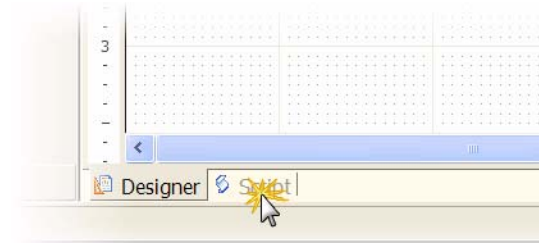


- 3 In the Design section of the Properties Grid, change the (Name) property to **Data_NAME**.

The (Name) property is the unique name of the control. The bookmark script references this property.



- 4 Click the **Script** tab to open the ActiveReports script editor.
- 5 Using a text editor (such as Notepad), open the file:
ARD-BOOKMARKSCRIPT-SUBLEVEL.txt.

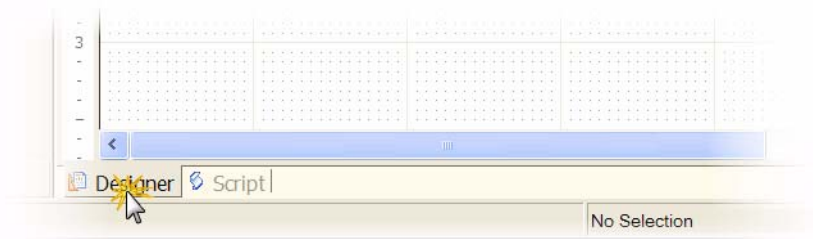


- 6 Copy the entire script from the text file and paste it into the script editor.

The script editor contains six lines of code as shown in the following image.



7 Click the **Designer** tab to return to the design surface.



8 Save the file.

The main report reflects only saved changes.



9 Switch focus to the main report template (TUTORIAL SETUP SHEET (MILL) .rpx) and preview the file.

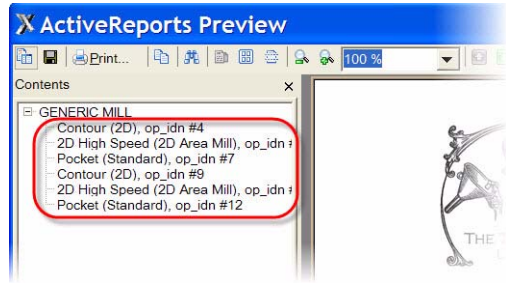


IMPORTANT: You must view the work you did in the operation subreport from the main report since line 3 of the operation bookmark code references information in the parent report.

```
1 public void Detail_Format()
2 {
3 string m_machine = ((TextBox)rpt.ParentReport.Sections[\"Detail\"]).Text;
4 string m_list = ((TextBox)rpt.Sections[\"Detail\"].Controls[\"Data_NAME\"]).Text;
5 rpt.Sections[\"Detail\"].AddBookmark (m_machine + \"\\\" + m_list);
6 }
```


The Table Of Contents pane on the left side of the preview window lists six operations. These bookmarks are beneath the top-level bookmark you created in the previous exercise.

Click these bookmarks to jump to information about each operation.



- 10 Close the preview window.



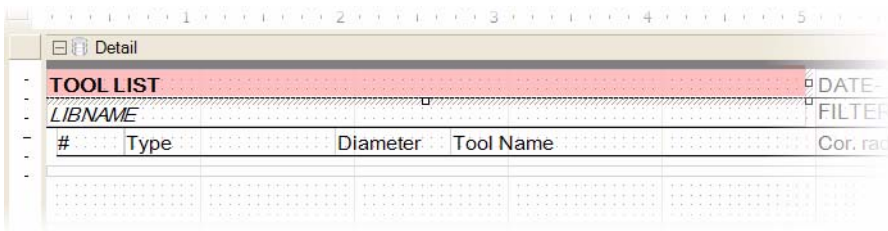
- 11 Save TUTORIAL SETUP SHEET (MILL) .rpx and leave it open to continue with the next part of the exercise.



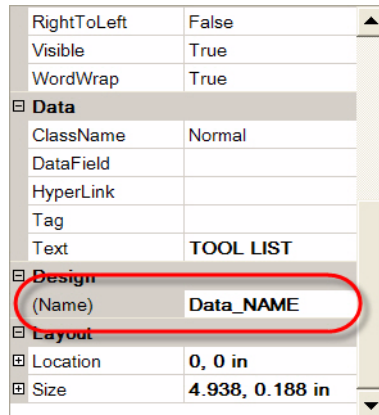
- 12 Close TINMAN Setup Sheet (MILL-OPERATION) .rpx.

► Create a Tool List Bookmark

- 1 From Windows Explorer, open the file: -TUTORIAL Tool List (MILL-SIMPLE) .rpx.
- 2 Select the **TOOL LIST** label.



- 3 In the Design section of the Properties Grid, change the (Name) property to **Data_NAME**.



- 4 Click the **Script** tab to open the ActiveReports script editor.

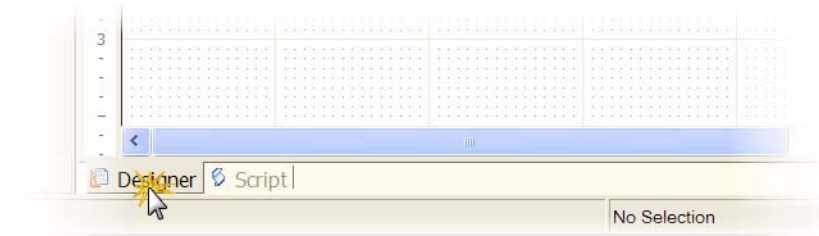


- 5 Copy the script from the file ARD-BOOKMARKSCRIPT-SUBLEVEL.txt and paste it into the script editor.

- 6 Edit lines 4 and 5 of the code as follows (edited text is emphasized):

```
4 string m_tools = ((Label)rpt.Sections["Detail"].Controls["Data_NAME"]).Text;
5 rpt.Sections["Detail"].AddBookmark (m_machine + "\\\" + m_tools);
```

- 7 Click the **Designer** tab to return to the design surface.



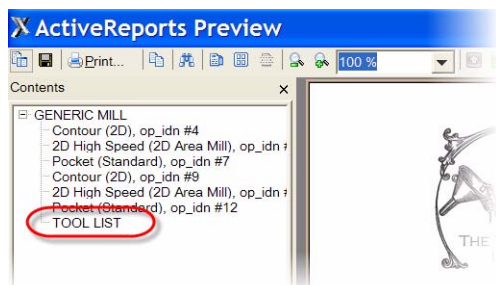
- 8 Save the file.



- 9 Switch focus to the main report template (TUTORIAL SETUP SHEET (MILL).rpx) and preview the file.



The Table Of Contents pane displays a bookmark for the tool list beneath the top-level bookmark.



- 10 Close the preview window.



- 11 Save

TUTORIAL SETUP SHEET (MILL).rpx
and leave it open to continue with the next
part of the exercise.



- 12 Close -TUTORIAL Tool List (MILL-SIMPLE).rpx.

► Create an Image List Bookmark

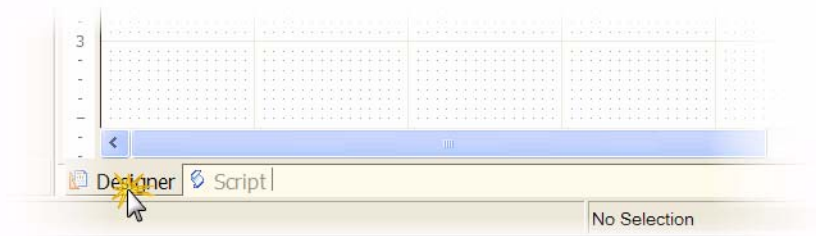
- 1 From Windows Explorer, open the file: -TUTORIAL Setup Sheet (CAPTURES).rpx.
- 2 Click the **Script** tab to open the ActiveReports script editor.



- 3 Copy the sample code from the file ARD-BOOKMARKSCRIPT-SUBLEVEL.txt and paste it into the script editor.
 - 4 Edit lines 4 and 5 of the code as follows (edited text is emphasized):
- ```

4 string m_captures =
 ((Label)rpt.Sections["GroupHeader1"].Controls["IMAGE_LIST").Text;
5 rpt.Sections["Detail"].AddBookmark (m_machine + "\\\" + m_captures);

```
- 5 Click the **Designer** tab to return to the design surface.



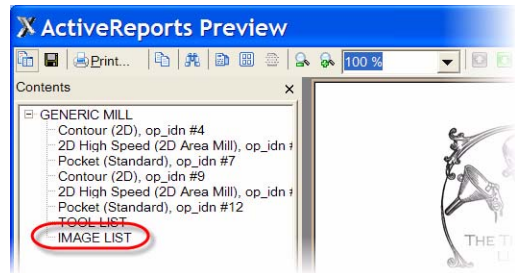
- 6 Save the file.



- 7** Switch focus to the main report template (TUTORIAL SETUP SHEET (MILL) .rpx) and preview the file.



The Table of Contents pane displays a bookmark for the image list beneath the top-level bookmark.



- 8** Close the preview window.



- 9** Save and close TUTORIAL SETUP SHEET (MILL) .rpx.



- 10** Close -TUTORIAL Setup Sheet (CAPTURES) .rpx.

You have successfully created a custom ActiveReports setup sheet template that includes a set of electronic bookmarks. In the next lesson, you learn two ways to apply the custom template to setup sheets generated in Mastercam.

## LESSON 6

# Applying the Template

For each installed product (Mill, Router, Lathe, Wire), Mastercam provides a default ActiveReports template file. These files are located in the Mastercam installation in the `..\common\reports\sst` directory. Mastercam assigns the default template to a setup sheet according to the machine group's machine definition.

If you do not wish to use these pre-assigned template files, there are two ways that you can apply a customized RPX to a setup sheet. Use the **Select Template** dialog to assign a custom template to a single setup sheet. If you plan to use the customized template for most of your setup sheets, you can make it the new default by modifying the setup sheet template's **Files usage** definitions in the Control Definition Manager.

In the final lesson of this tutorial, you assign the template you created by choosing it from the **Select Template dialog box**. Later, you modify a control definition to make the tutorial template the product default.

## Lesson Goals

- Choose a setup sheet program type in Mastercam.
- Assign the tutorial template to a setup sheet.
- Change Mastercam's default setup sheet template.

## Exercise 1: Selecting the Setup Sheet Program

In this exercise, you choose the program that Mastercam uses to generate setup sheets.

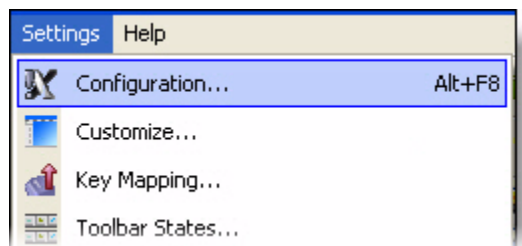
- 1 Start Mastercam.



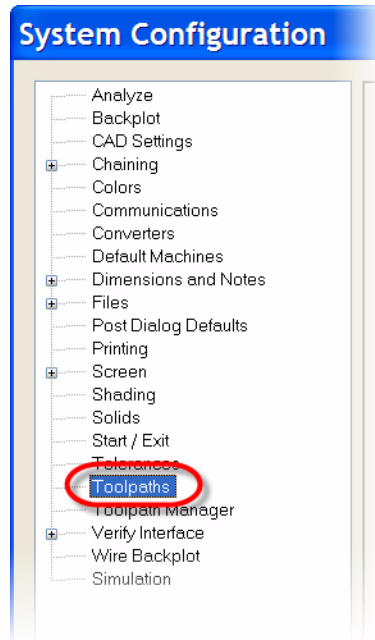
**IMPORTANT:** You must have a seat of Mastercam X4 MU1 or higher to complete this tutorial. Contact your Mastercam Reseller for any updates.



- 2 Choose **Settings, Configuration** from the menu bar to open the System Configuration dialog box or press **[Alt+F8]**.

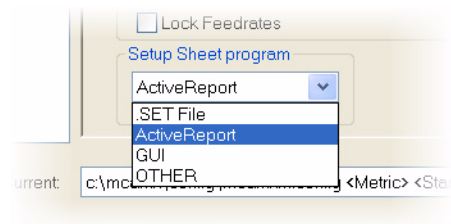


- 3 From the list of configuration topics on the dialog's left side, select **Toolpaths**.



- 4 If necessary, select **ActiveReport** from the Setup Sheet program list.

ActiveReport is Mastercam's default setup sheet program.



- 5 Click **OK**.

If you would like ActiveReport to be your default setup sheet program, choose **Yes** at the system prompt to apply your changes to the configuration file.

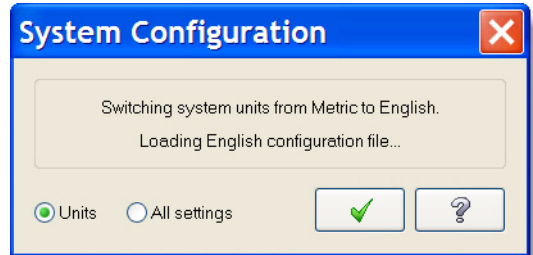


## Exercise 2: Assigning a Template to a Setup Sheet

In this exercise, you assign your custom template to a Mastercam setup sheet.

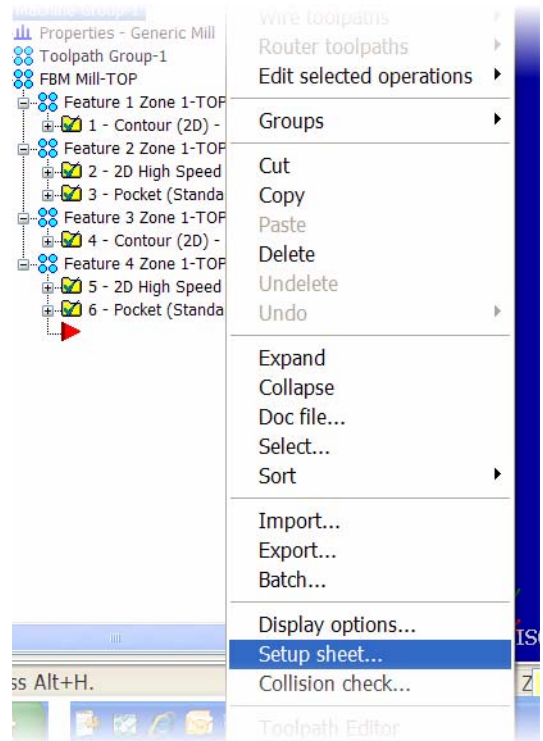
- 1 Open the part file `..\common\reports\sst\samples\Mill\Mill.MCX`.
- 2 Click **OK** if prompted to switch to an English configuration.

Select **Units** to use only the units from the new configuration file. (default)

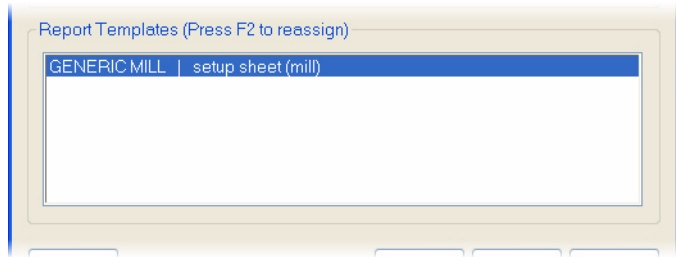


- 3 Select all operations in the Toolpath Manager list.
- 4 Right-click in the Toolpath Manager, and choose **Setup Sheet** from the right-click menu.

The Setup Sheet dialog box opens.



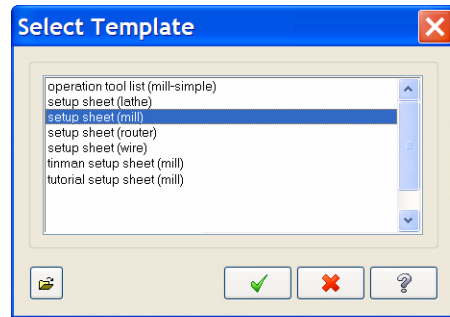
- 5 In the Setup Sheet dialog box, select the default template from the list in the Report Templates window.



- 6 Press [F2].

The Select Template dialog box opens.

The Select Template dialog box displays a list of all RPX files in the `.. \common \reports \sst` directory. This includes any custom templates that you create with the ActiveReports Designer.

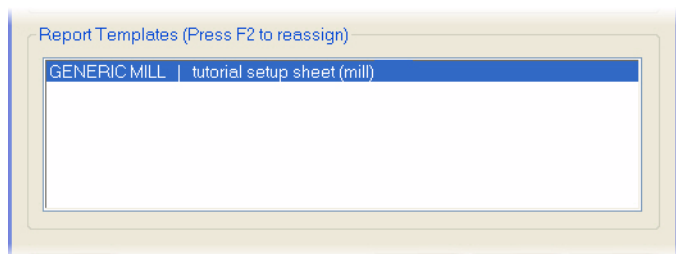


**TIP:** Click the **Browse** button to select an RPX file from another location.



- 7 Select **tutorial setup sheet (mill)** and click **OK**.

Mastercam returns you to the Setup Sheet dialog box and assigns the tutorial template to the setup sheet.





- 8 Click **OK** to create a setup sheet.



Mastercam generates the setup sheet, and the ActiveReports Viewer opens with a report that is built on the tutorial template.

---

*Note: ActiveReports Designer retrieves dynamic text from the XML file that Mastercam generates at run-time. The job information and multi-column images that you previewed in Lessons 2 and 4 refer to data that is only in the sample XML file, SSM.XML. When you run the setup sheet from Mastercam, newly generated XML data in . . \common\reports\xml\SSM1.XML overrides the data in the previously associated file.*

---

- 9 When you finish viewing the setup sheet, close the ActiveReports Viewer.




---

**IMPORTANT:** To return to Mastercam, you must close the ActiveReports Viewer.

---

- 10 Choose **File, New** from Mastercam's menu bar to exit the part.

You do not need to save the MCX file.

## Exercise 3: Changing the Default Template

In this exercise, you replace Mastercam's default setup sheet with your own.




---

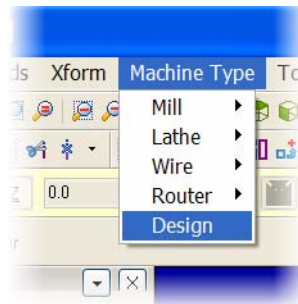
**CAUTION:** In the exercise, you edit the default machine definition, MILL\_DEFAULT.MMD. You will need to undo these changes if you wish to revert to the original machine definition.

---

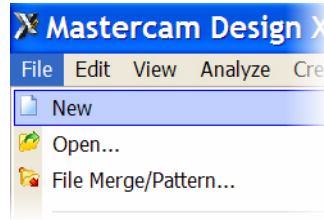
See Mastercam Help for more information about machine and control definitions.

---

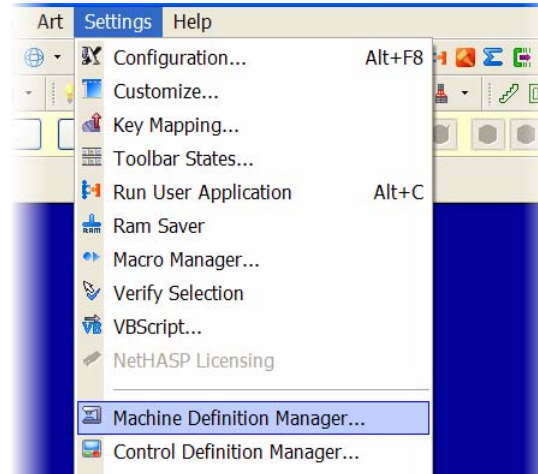
- 1 Choose **Machine Type, Design** from Mastercam's menu bar.



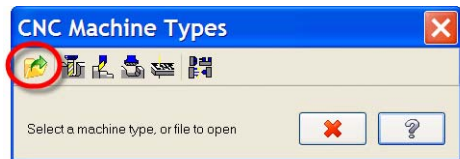
- 2 Select **File, New** to clear the Toolpath Manager.



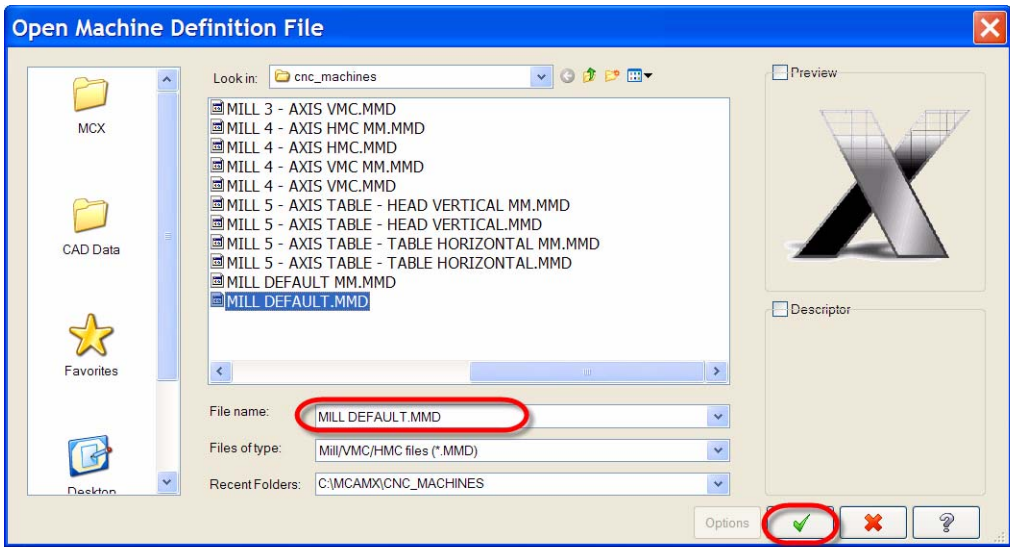
- 3 From Settings menu, select **Machine Definition Manager**.



- 4 Choose **Open** from the CNC Machine Types dialog to open an existing machine definition.



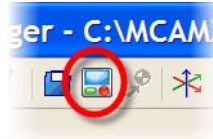
- 5 Select the machine definition `MILL_DEFAULT.MMD` and click **OK**.



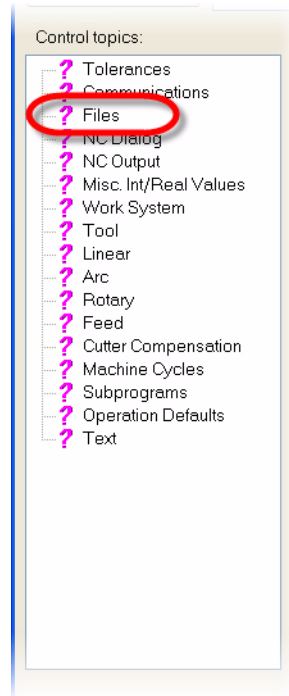
The Machine Definition Manager opens.

- 6 Select **Control Definition Manager** from the menu bar.

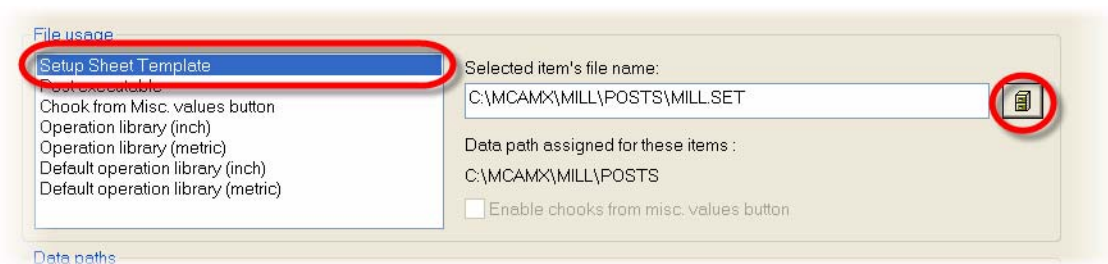
The Control Definition Manager opens.



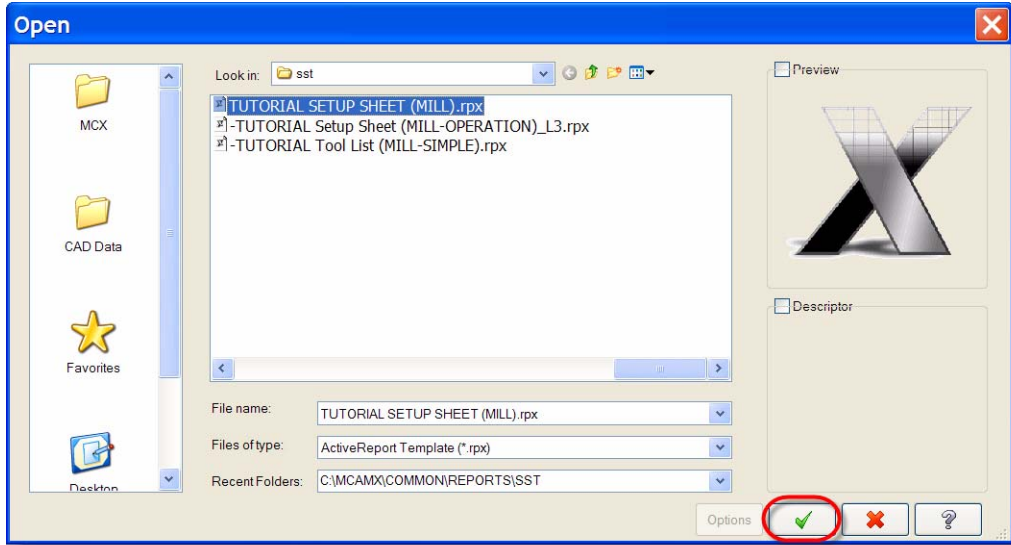
**7** Choose **Files** from the Control topics window



**8** Select **Setup Sheet Template** from the File usage window, and then click the file cabinet icon to the right of the **Selected item's file name** field.



- 9 Browse to `..\common\reports\sst\TUTORIAL SETUP SHEET (MILL).rpx` and click **OK**.



- 10 Click **Save** to write the changes on the disk.



- 11 Click **OK** to return to Machine Definition Manager.



- 12 In the Machine Definition Manager, click **Save** to save the changes to the current machine definition file, then click **OK** to return to the main interface.

This new control definition is applied to any new part you create. Existing parts retain their original definitions and the original default template.



**IMPORTANT:** Control definitions may be used by more than one machine. Any changes you make are reflected by any machine that uses that control.

See Mastercam Help for more information about machine and control definitions.

## Conclusion

Congratulations! You have completed the *Creating Setup Sheets with the ActiveReports Designer* tutorial. Now that you have mastered the skills in this tutorial, we encourage you to explore Mastercam's other features and functions. Additional tutorials may be available in this or other series. Please contact your authorized Mastercam Reseller for further training.







***cnc software, inc.***

671 Old Post Road  
Tolland, CT 06084 USA  
[www.mastercam.com](http://www.mastercam.com)

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