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# PeopleTools 8.53: Crystal Reports for PeopleSoft

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PeopleTools 8.53: Crystal Reports for PeopleSoft  
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# Preface

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## Understanding the PeopleSoft Online Help and PeopleBooks

The PeopleSoft Online Help is a website that enables you to view all help content for PeopleSoft Applications and PeopleTools. The help provides standard navigation and full-text searching, as well as context-sensitive online help for PeopleSoft users.

## PeopleSoft Hosted Documentation

You access the PeopleSoft Online Help on Oracle's PeopleSoft Hosted Documentation website, which enables you to access the full help website and context-sensitive help directly from an Oracle hosted server. The hosted documentation is updated on a regular schedule, ensuring that you have access to the most current documentation. This reduces the need to view separate documentation posts for application maintenance on My Oracle Support, because that documentation is now incorporated into the hosted website content. The Hosted Documentation website is available in English only.

## Locally Installed Help

If your organization has firewall restrictions that prevent you from using the Hosted Documentation website, you can install the PeopleSoft Online Help locally. If you install the help locally, you have more control over which documents users can access and you can include links to your organization's custom documentation on help pages.

In addition, if you locally install the PeopleSoft Online Help, you can use any search engine for full-text searching. Your installation documentation includes instructions about how to set up Oracle Secure Enterprise Search for full-text searching.

See *PeopleTools 8.53 Installation* for your database platform, "Installing PeopleSoft Online Help." If you do not use Secure Enterprise Search, see the documentation for your chosen search engine.

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**Note:** Before users can access the search engine on a locally installed help website, you must enable the Search portlet and link. Click the Help link on any page in the PeopleSoft Online Help for instructions.

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## Downloadable PeopleBook PDF Files

You can access downloadable PDF versions of the help content in the traditional PeopleBook format. The content in the PeopleBook PDFs is the same as the content in the PeopleSoft Online Help, but it has a different structure and it does not include the interactive navigation features that are available in the online help.

## Common Help Documentation

Common help documentation contains information that applies to multiple applications. The two main types of common help are:

- Application Fundamentals

- Using PeopleSoft Applications

Most product lines provide a set of application fundamentals help topics that discuss essential information about the setup and design of your system. This information applies to many or all applications in the PeopleSoft product line. Whether you are implementing a single application, some combination of applications within the product line, or the entire product line, you should be familiar with the contents of the appropriate application fundamentals help. They provide the starting points for fundamental implementation tasks.

In addition, the *PeopleTools: PeopleSoft Applications User's Guide* introduces you to the various elements of the PeopleSoft Pure Internet Architecture. It also explains how to use the navigational hierarchy, components, and pages to perform basic functions as you navigate through the system. While your application or implementation may differ, the topics in this user's guide provide general information about using PeopleSoft Applications.

## Field and Control Definitions

PeopleSoft documentation includes definitions for most fields and controls that appear on application pages. These definitions describe how to use a field or control, where populated values come from, the effects of selecting certain values, and so on. If a field or control is not defined, then it either requires no additional explanation or is documented in a common elements section earlier in the documentation. For example, the Date field rarely requires additional explanation and may not be defined in the documentation for some pages.

## Typographical Conventions

The following table describes the typographical conventions that are used in the online help.

<b><i>Typographical Convention</i></b>	<b><i>Description</i></b>
Key+Key	Indicates a key combination action. For example, a plus sign (+) between keys means that you must hold down the first key while you press the second key. For Alt+W, hold down the Alt key while you press the W key.
... (ellipses)	Indicate that the preceding item or series can be repeated any number of times in PeopleCode syntax.
{ } (curly braces)	Indicate a choice between two options in PeopleCode syntax. Options are separated by a pipe ( ).
[ ] (square brackets)	Indicate optional items in PeopleCode syntax.
& (ampersand)	When placed before a parameter in PeopleCode syntax, an ampersand indicates that the parameter is an already instantiated object.  Ampersands also precede all PeopleCode variables.
⇒	This continuation character has been inserted at the end of a line of code that has been wrapped at the page margin. The code should be viewed or entered as a single, continuous line of code without the continuation character.

## ISO Country and Currency Codes

PeopleSoft Online Help topics use International Organization for Standardization (ISO) country and currency codes to identify country-specific information and monetary amounts.

ISO country codes may appear as country identifiers, and ISO currency codes may appear as currency identifiers in your PeopleSoft documentation. Reference to an ISO country code in your documentation does not imply that your application includes every ISO country code. The following example is a country-specific heading: "(FRA) Hiring an Employee."

The PeopleSoft Currency Code table (CURRENCY\_CD\_TBL) contains sample currency code data. The Currency Code table is based on ISO Standard 4217, "Codes for the representation of currencies," and also relies on ISO country codes in the Country table (COUNTRY\_TBL). The navigation to the pages where you maintain currency code and country information depends on which PeopleSoft applications you are using. To access the pages for maintaining the Currency Code and Country tables, consult the online help for your applications for more information.

## Region and Industry Identifiers

Information that applies only to a specific region or industry is preceded by a standard identifier in parentheses. This identifier typically appears at the beginning of a section heading, but it may also appear at the beginning of a note or other text.

Example of a region-specific heading: "(Latin America) Setting Up Depreciation"

### Region Identifiers

Regions are identified by the region name. The following region identifiers may appear in the PeopleSoft Online Help:

- Asia Pacific
- Europe
- Latin America
- North America

### Industry Identifiers

Industries are identified by the industry name or by an abbreviation for that industry. The following industry identifiers may appear in the PeopleSoft Online Help:

- USF (U.S. Federal)
- E&G (Education and Government)

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## Using and Managing the PeopleSoft Online Help

Click the Help link in the universal navigation header of any page in the PeopleSoft Online Help to see information on the following topics:

- What's new in the PeopleSoft Online Help.
  - PeopleSoft Online Help accessibility.
  - Accessing, navigating, and searching the PeopleSoft Online Help.
  - Managing a locally installed PeopleSoft Online Help website.
- 

## Understanding Crystal Reports for PeopleSoft

Crystal Reports for PeopleSoft enables you to generate both standard and custom-printed reports containing data from your PeopleSoft applications.

Crystal Reports has many more features than are described in this book. See your Crystal Reports documentation for more information. You must have Crystal Reports installed to gain access to this documentation.

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**Note:** Crystal reports in PeopleTools are language-sensitive.

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See [Understanding How to Work with Multiple Languages](#).

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## PeopleTools Related Links

[Oracle's PeopleSoft PeopleTools 8.53 Documentation Home Page \[ID 1494462.1\]](#)

[PeopleSoft Information Portal on Oracle.com](#)

[My Oracle Support](#)

[PeopleSoft Training from Oracle University](#)

[PeopleSoft Video Feature Overviews on YouTube](#)

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Send us your suggestions Please include release numbers for the PeopleTools and applications that you are using.

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## Chapter 1

# Getting Started with Crystal Reports for PeopleSoft

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## Crystal Reports for PeopleSoft Overview

Crystal Reports for PeopleSoft enables you to generate both standard and custom-printed reports containing data from your PeopleSoft applications.

Crystal Reports has many more features than are described in this book. See your Crystal Reports documentation for more information. You must have Crystal Reports installed to gain access to this documentation.

---

**Note:** Crystal reports in PeopleTools are language-sensitive.

You can use Crystal Reports 2011 or Crystal Reports 2008 to create and edit report definitions for your PeopleSoft application. As delivered, PeopleSoft applications are configured to work with these Crystal Reports runtime (print engine) environments. The runtime engine supported for both Crystal Reports versions for PeopleSoft PeopleTools 8.53 is the Crystal Reports runtime engine for .NET Framework 4 (Crystal Reports version for Visual Studio 2010).

This documentation may use “Crystal Reports” to refer to both Crystal Reports 2011 and Crystal Reports 2008.

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## Crystal Reports Concepts

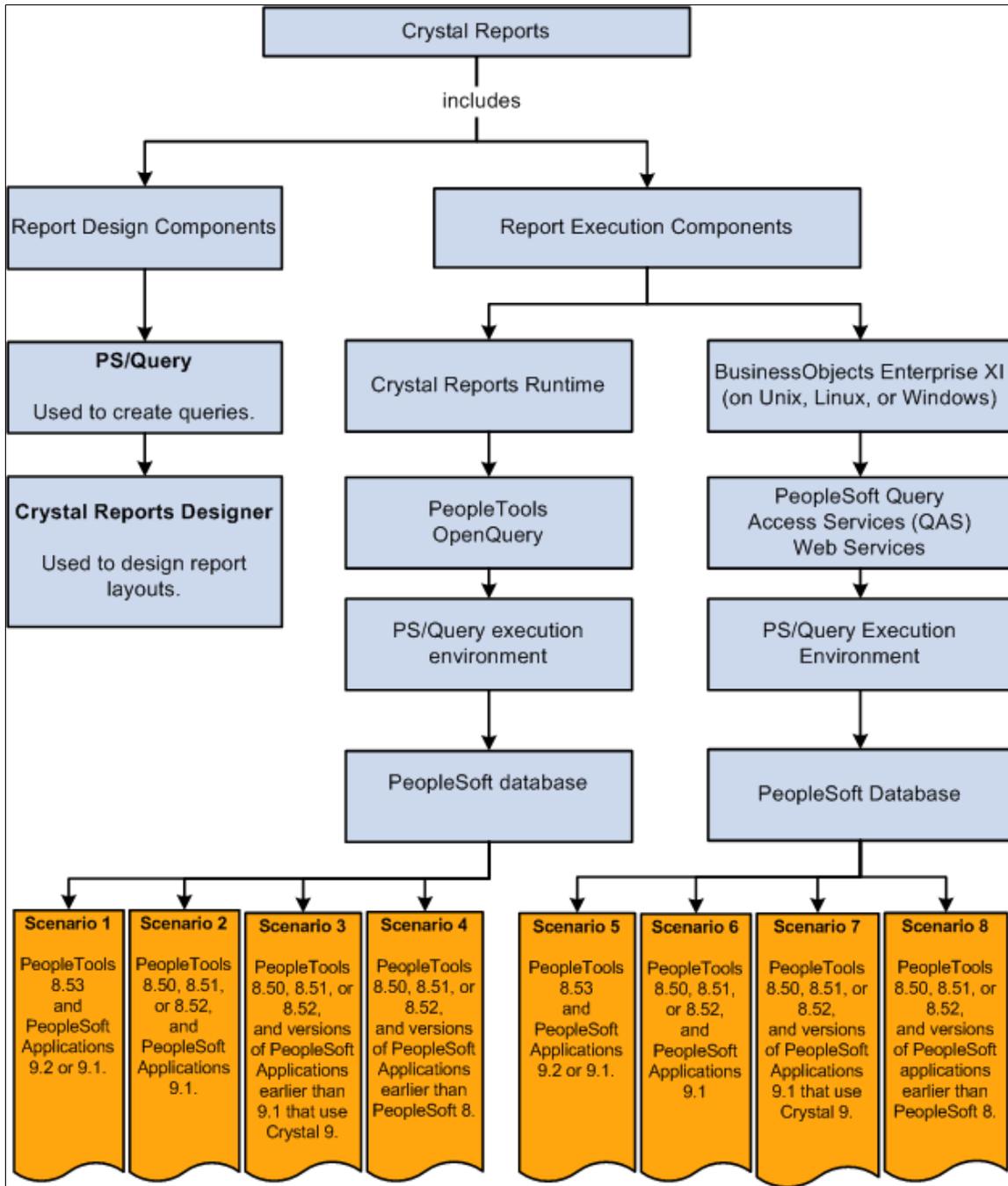
Crystal Reports has two key sets of components as it relates to PeopleSoft applications:

- Report design components.

- Report execution components.

**Image: High-level depiction of Crystal Reports components**

The following diagram illustrates, at a high level, the components of Crystal Reports.



**Report Design Components**

The Report Design Components include:

- PS/Query.

- Crystal Reports 2011 Designer or Crystal Reports 2008 Designer.

You first create queries using the PS/Query Designer, and then you design report layouts in the Crystal Reports 2011 Designer or Crystal Reports 2008 Designer application referencing the fields defined in the queries that you created.

## Report Execution Components

You can run Crystal Reports in these two alternative environments:

- Crystal Reports 2011 or Crystal Reports 2008 Runtime (Print Engine).

Crystal Reports Runtime is the standard execution environment requiring minimal setup and seamless integration with PeopleTools Process Scheduler. Crystal Reports Runtime connects to PeopleSoft data sources using PeopleSoft OpenQuery (Windows-based data connectivity). OpenQuery interacts with the PS/Query execution environment, which gets data from the PeopleSoft database.

- BusinessObjects Enterprise XI.

BusinessObjects Enterprise is the optional Crystal Reports execution environment. You can install BusinessObjects Enterprise and the BusinessObjects Enterprise PeopleSoft Integration Kit on a Unix, Linux, or Windows server. BusinessObjects Enterprise connects to PeopleSoft data sources using PeopleSoft Query Access Services (QAS), a collection of standards-based web services. QAS interacts with the PS/Query execution environment, which gets data from the PeopleSoft database.

The following table summarizes the two alternative report execution technology options.

<b>Alternative 1</b>	<b>Alternative 2</b>
<b>Crystal Reports Runtime</b>	<b>BusinessObjects Enterprise XI</b>
Seamless integration with PeopleTools Windows Process Scheduler	Installed on Unix, Linux, or Windows
PeopleTools OpenQuery	PeopleSoft Query Access Services (QAS) Web Services
PS/Query execution environment	PS/Query Execution Environment
PeopleSoft database	PeopleSoft Database

---

## Crystal Reports Execution Environments

Depending on the Crystal Report execution environment that you use with PeopleTools 8.50 or later, and your current Crystal Report execution environment, you may have different considerations as described in the following table.

<b>PeopleTools 8.50 or later, and Crystal Runtime Report Execution</b>	<b>PeopleTools 8.50 or later, and BusinessObjects Enterprise XI Report Execution</b>
<b>Scenario 1:</b> You use PeopleTools 8.53 and PeopleSoft Applications 9.2 or 9.1.	<b>Scenario 5:</b> You use PeopleTools 8.53 and PeopleSoft Applications 9.2 or 9.1.

<b><i>PeopleTools 8.50 or later, and Crystal Runtime Report Execution</i></b>	<b><i>PeopleTools 8.50 or later, and BusinessObjects Enterprise XI Report Execution</i></b>
<b>Scenario 2:</b> You use PeopleTools 8.50, 8.51, or 8.52, and PeopleSoft Applications 9.1.	<b>Scenario 6:</b> You use PeopleTools 8.50, 8.51, or 8.52, and PeopleSoft Applications 9.1
<b>Scenario 3:</b> You use PeopleTools 8.50, 8.51, or 8.52, and versions of PeopleSoft applications earlier than PeopleSoft Applications 9.1 that use Crystal Reports 9.  For example, a Tools-only upgrade.	<b>Scenario 7:</b> You use PeopleTools 8.50, 8.51, or 8.52, and versions of PeopleSoft applications earlier than PeopleSoft Applications 9.1 that use Crystal 9.  For example, a Tools-only upgrade.
<b>Scenario 4:</b> You use PeopleTools 8.50, 8.51, or 8.52, and versions of PeopleSoft applications prior to PeopleSoft 8.  For example, a Tools-only upgrade.	<b>Scenario 8:</b> You use PeopleTools 8.50, 8.51, or 8.52, and versions of PeopleSoft applications prior to PeopleSoft 8.  For example, a Tools-only upgrade.

## PeopleTools 8.50 or Later, and Crystal Runtime Report Execution

**Scenario 1:** If you are using PeopleTools 8.53 and PeopleSoft Applications 9.2 or 9.1, note that.

- Crystal reports are delivered in Crystal Reports 2008 format.
- Applications 9.2 or 9.1 Crystal reports are delivered in Crystal Reports 2008 format.
- Custom reports being brought forward from releases earlier than Crystal Reports 2008 need to be converted to Crystal Reports 2008 format using the pscvtrpt.exe conversion utility program.

See the *PeopleTools Installation Guide* for your database platform: “Converting Crystal Reports.”

**Scenario 2:** If you are using PeopleTools 8.50, 8.51, or 8.52, and PeopleSoft Applications 9.1, note that:

- Crystal reports are delivered in Crystal Reports 2008 format.
- Applications 9.1 Crystal reports are delivered in Crystal Reports 2008 format.
- Custom Crystal Reports being brought forward from earlier releases need to be converted to the Crystal Reports 2008 format using the pscvtrpt.exe conversion utility program.

See the *PeopleTools Installation Guide* for your database platform: “Converting Crystal Reports.”

- You should review changed behavior in Crystal 2008 for your custom reports.

**Scenario 3:** If you are using PeopleTools 8.50, 8.51, or 8.52, and versions of PeopleSoft applications earlier than PeopleSoft Applications 9.1 that use Crystal 9, note that:

- Crystal reports are delivered in Crystal Reports 2008 format.
- Delivered application Crystal 9 reports and custom Crystal reports being brought forward from earlier releases need to be converted to the Crystal Reports 2008 format using the pscvtrpt.exe conversion utility program.

See the *PeopleTools Installation Guide* for your database platform: “Converting Crystal Reports.”

- You should review changed behavior in Crystal 2008 for your application-delivered and custom reports.

**Scenario 4:** If you are using PeopleTools 8.50, 8.51, or 8.52, and versions of PeopleSoft applications earlier than PeopleSoft 8, note that:

- Crystal reports are delivered in Crystal Reports 2008 format.
- Delivered application Crystal 9 reports and custom Crystal reports being brought forward from earlier releases will need to be converted to the Crystal Reports 2008 format using the pscvtrpt.exe conversion utility program.

See the *PeopleTools Installation Guide* for your database platform: “Converting Crystal Reports.”

- You should review changed behavior in Crystal 2008 for your application-delivered and custom reports.

## PeopleTools 8.50 or Later, and BusinessObjects Enterprise XI Report Execution

**Scenario 5:** If you are using PeopleTools 8.53 and PeopleSoft Applications 9.2 or 9.1, note that:

- Crystal reports are delivered in Crystal Reports 2008 format.
- Applications 9.2 or 9.1 Crystal reports are delivered in Crystal Reports 2008 format.
- Custom reports being brought forward from releases earlier than Crystal Reports 2008 need to be converted to the Crystal Reports 2008 format using the pscvtrpt.exe conversion utility program.
- You should review changed behavior in Crystal 2008 for your custom reports.

**Scenario 6:** If you are using PeopleTools 8.50, 8.51, or 8.52, and PeopleSoft Applications 9.1, note that:

- Crystal reports are delivered in Crystal Reports 2008 format using OpenQuery as the data connectivity.

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**Note:** Reports must be converted by the standalone conversion program PSCRCONV.EXE to use QAS.

---

- Applications 9.1 Crystal reports are delivered in Crystal Reports 2008 format using OpenQuery as the data connectivity.

---

**Note:** Reports must be converted by the standalone conversion program PSCRCONV.EXE to use QAS.

---

- Custom Crystal 9 reports being brought forward from earlier releases must be converted by the standalone conversion program PSCRCONV.EXE to use QAS.

One exception: If you used BOE XI with PeopleTools 8.48 and PeopleTools 8.49, your custom reports being brought forward will run with BOE XI and PeopleTools 8.50 or greater.

- You should review changed behavior in Crystal 2008 for your custom reports.

**Scenario 7:** If you are using PeopleTools 8.50, 8.51, or 8.52, and versions of PeopleSoft applications earlier than PeopleSoft Applications 9.1 that use Crystal Reports 9, note that:

- Crystal reports are delivered in Crystal Reports 2008 format using OpenQuery as the data connectivity.

---

**Note:** Reports must be converted by the standalone conversion program PSCRCONV.EXE to use QAS.

---

- Application and custom Crystal 9 reports being brought forward from earlier releases must be converted by the standalone conversion program PSCRCONV.EXE to use QAS.

One exception: If you used BOE XI with PeopleTools 8.48 and PeopleTools 8.49, your application and custom reports being brought forward will run with BOE XI and PeopleTools 8.50 or greater.

- You should review changed behavior in Crystal 2008 for your custom reports.

**Scenario 8:** If you are using PeopleTools 8.50, 8.51, or 8.52, and versions of PeopleSoft applications earlier than PeopleSoft 8, note that:

- Crystal reports are delivered in Crystal Reports 2008 format using OpenQuery as the data connectivity.

---

**Note:** Reports must be converted by the standalone conversion program PSCRCONV.EXE to use QAS.

---

- Application and custom Crystal reports being brought forward from earlier releases must be converted using the standalone conversion program PSCVTRPT.EXE unless you are already running these reports on a version of PeopleTools 8.

- Application and custom Crystal reports being brought forward from earlier releases must then be converted by the standalone conversion program PSCRCONV.EXE to use QAS.

One exception: If you used BOE XI with PeopleTools 8.48 and PeopleTools 8.49, your application and custom reports being brought forward will run with BOE XI and PeopleTools 8.50 or greater.

- You should review changed behavior in Crystal 2008 for your custom reports.

---

**Note:** Crystal Reports 2008 is more particular than earlier versions of Crystal Reports about null values being passed to its in-built functions.

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## Related Links

[Understanding Crystal Reports Compatibility Issues](#)

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## Crystal Reports Environments for PeopleSoft Applications

PeopleSoft applications are delivered to work with the Crystal Reports 2010 runtime environment. PeopleSoft Crystal process definitions are configured to use the Crystal Reports 2010 runtime, and the delivered Crystal Report definition files are in the Crystal Reports 2008 format. You use the Crystal Reports 2011 or Crystal Reports 2008 designer to create and edit report definitions.

If you are using PeopleSoft PeopleTools 8.48 or later, you can optionally use the BusinessObjects Enterprise XI (BOE XI) runtime environment to run and view your reports. With PeopleTools 8.50, 8.51, or 8.52, the Crystal Reports 2008 designer can be used to create and edit report definitions for use in either the Crystal Reports 2008 or the BOE XI runtime environment. With PeopleTools 8.53, the Crystal Reports 2011 or Crystal Reports 2008 designer can be used to create and edit report definitions for use in

either the Crystal Reports 2008, Crystal Reports 2011, or BOE XI runtime environment. A PeopleSoft-supplied conversion program, pscrconv.exe, can be used to convert preexisting Crystal Report definition files for use within the BOE runtime environment.

For PeopleSoft applications, you must use either the Crystal Reports 2010 runtime environment or the BOE runtime environment, which allows you to run Crystal reports on UNIX and Linux in addition to Microsoft Windows. You cannot run a mixed environment in which some reports run using Crystal Reports and some reports run using BOE.

---

## Crystal Reports Integrations

Crystal Reports work with PeopleSoft Query. You use PeopleSoft Query to extract specific subsets of data from your database. You can then use Crystal Reports to format that data and present the information in an easy-to-understand layout.

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## Crystal Reports Implementation

Crystal Reports implementation can be divided into the following phases:

- Install Crystal Reports.
- Create and save queries in PeopleSoft Query.
- Create and save report definitions in Crystal Reports.

### Installing Crystal Reports

If you want to design new Crystal reports, you must install Crystal Reports 2011 or Crystal Reports 2008.

To install Crystal Reports on your PeopleTools Development Environment (a Windows-based workstation) and Crystal Reports Runtime Redistributable on your PeopleTools Process Scheduler Server environment, see the *PeopleTools Installation Guide* for your database platform: “Installing and Configuring Software for Crystal Reports.”

### Creating and Saving Queries in PeopleSoft Query

Before you can generate formatted output in Crystal Reports, you need to create and save queries in PeopleSoft Query.

To create and save a query to extract a selected subset of your data, see "Creating New Queries" (PeopleTools 8.53: PeopleSoft Query).

### Creating and Saving Report Definitions in Crystal Reports

After you have generated and saved queries, you can create report definitions in Crystal Reports to format the fields (columns) used in the queries.

<b>Step</b>	<b>Cross-Reference</b>
Create and save the report definition.	See <a href="#">Creating and Formatting Reports in Crystal Reports</a> .
Run the report.	See <a href="#">Running Crystal Reports</a> .

---

**Note:** Crystal report definitions do not contain actual data from your database, so each time you use Crystal Reports, PeopleSoft Query retrieves the most recent data. This action ensures that your printed reports always contain current information. However, if you want to track the changes over time, you can save the data with a report.

---

## Other Sources of Information

This section provides information to consider before you begin to use Crystal Reports for PeopleSoft products.

Other PeopleSoft sources of information include the installation guides, release notes, PeopleSoft product documentations, red papers, the Updates and Fixes area of the My Oracle Support website, and PeopleSoft curriculum courses.

## Chapter 2

# Using Crystal Reports

---

## Understanding Crystal Reports Compatibility Issues

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**Note:** This section may use “Crystal Reports” to refer to both Crystal Reports 2011 and Crystal Reports 2008.

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When you upgrade to Crystal Reports 2011 or Crystal Reports 2008, consider the following compatibility issues:

- Crystal Reports can run a report that is saved in an earlier version of Crystal Reports format.

However, if you save the report definition from the Crystal Reports 2011 or Crystal Reports 2008 designer, the report will be saved in Crystal Reports 2011 or Crystal Reports 2008 format and can not be opened by any version of Crystal Reports earlier than version 9. In addition, if you open a Crystal Reports 2011 or Crystal Reports 2008 report in Crystal Reports 9, you will be warned that the report is in a later format and certain features may not be supported.

When you run an earlier format Crystal report in the Crystal Reports 2011 or Crystal Reports 2008 application or through the PeopleSoft Process Scheduler, the Crystal Reports application runs the Verify Database function, which picks up any errors—such as missing fields—in the report. If errors are detected, you must correct the report before you can run it successfully.

- When you run reports using the PeopleSoft Process Scheduler in the PeopleSoft Pure Internet Architecture, they are created in the Crystal Reports 2011 or Crystal Reports 2008 .rpt format and you cannot open them using any version of Crystal Reports earlier than version 9.

You can use earlier format report templates to generate reports; however, to ensure compatibility, you should always create the reports in the Crystal Reports 2011 or Crystal Reports 2008 format.

See the *PeopleTools Installation Guide* for your database platform: “Installing and Configuring Software for Crystal Reports,” Converting Crystal Reports.

- If you use the PeopleSoft Process Scheduler to run Crystal Reports, do not install a version of Crystal Reports on the Process Scheduler server that is different from the version of the Crystal Runtime Redistributable already installed on the machine.
- Crystal Reports 2011 and Crystal Reports 2008 are more particular than earlier versions of Crystal Reports about null values being passed to its in-built functions.

To prevent errors occurring in formulas, check that the values you are passing are not null. For example, instead of:

```
compare = toText({CUSTOMER_SALES.END_DATE});
```

use:

```
if (IsNull({CUSTOMER_SALES.END_DATE})) then
```

```
chooseDate := "";  
else  
chooseDate := {CUSTOMER_SALES.END_DATE};
```

- If you are upgrading from previous versions of PeopleSoft PeopleTools, your pre-PeopleTools 8.50 Crystal reports need to be converted to the Crystal Reports 2011 or Crystal Reports 2008 format.

The PeopleTools RPT Conversion utility pscvtrpt.exe is a standalone program that converts your .rpt files from the format used in previous releases to the Crystal Reports 2011 or Crystal Reports 2008 format.

See the *PeopleTools Installation Guide* for your database platform: “Installing and Configuring Software for Crystal Reports,” Converting Crystal Reports.

---

## Configuring Crystal Reports

This section discusses how to:

- Specify Crystal/Business Interlink/JDeveloper options.
- Specify the path for production of Crystal reports.
- Install the PeopleSoft ODBC Driver and Crystal Runtime.
- Sign in to a PeopleSoft Database.

---

**Note:** These configuration options are relevant only if you have installed Crystal Reports 2011 or Crystal Reports 2008.

---

See the *PeopleTools Installation Guide* for your database platform: “Installing and Configuring Software for Crystal Reports.”

## Specifying Crystal/Business Interlink/JDeveloper Options

Use the Crystal/Bus. Interlink/JDeveloper tab to specify the locations of Crystal Reports executables and the default location for Crystal Reports that are generated through PeopleSoft Query; the default location for Crystal Reports must be a directory to which the user has write access. This tab also enables you to specify the location of Business Interlink drivers and the JDeveloper Home Directory.

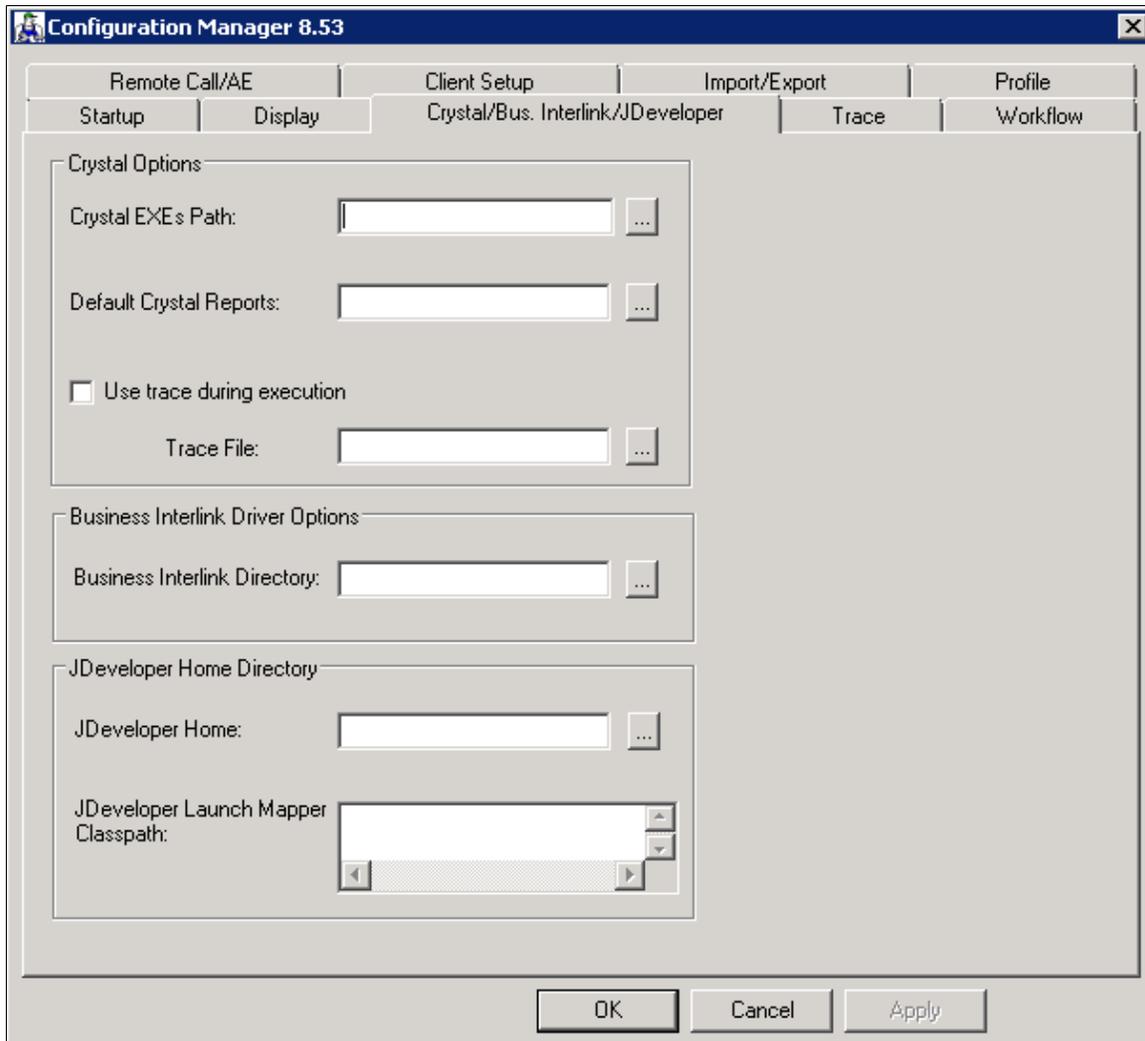
## Navigation

Access the Crystal/Bus. Interlink/JDeveloper tab by selecting Start, Programs, PeopleTools 8.5x, Configuration Manager.

Alternatively, go to <PS\_HOME>\bin\client\winx86\ and launch pscfg.exe.

### Image: Configuration Manager dialog box, Crystal/Bus. Interlink/JDeveloper tab

This example illustrates the Configuration Manager - Crystal/Bus. Interlink/JDeveloper tab.



**Note:** PeopleSoft Business Interlinks is a deprecated product. These options currently exist for upgrade compatibility and transition.

### Crystal EXEs Path

Set the Crystal EXEs Path parameter to reflect the location of the Crystal Reports executables.

- For Crystal 2008, the path is *C:\Program Files\Business Objects\BusinessObjects Enterprise xx\win32\_x86*.
- For Crystal 2011, the path varies depending on your settings; for example, *Program Files (x86)\SAP*

*BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win32\_x86.*

### Default Crystal Reports

This option enables you to specify the default location of your Crystal reports.

---

**Note:** If you are creating a Crystal report from PeopleSoft Query and this path is invalid, you will receive an error message. If a path is not specified, PeopleSoft Query tries to write the file to the language directory beneath the directory containing Crystal Reports (CRWRPTPATH).

---

### Use trace during execution

When this option is selected, Crystal writes the trace statements to a log file that you specify in the Trace File field. This file is written to the workstation's %TEMP% directory by default.

---

**Note:** When you are tracing Crystal reports through the Process Scheduler, edit the settings in the Crystal section of the psprcs.cfg configuration file. (This file is located in <PS\_CFG\_HOME>\appserv\pres\<dbname> for Microsoft Windows.) Change *Trace=YES* and specify a location for *TraceFile*, supplying a full path and file name.

---

## Specifying the Path for Production of Crystal Reports

To access the PeopleSoft Configuration Manager and specify the path for production of Crystal Reports:

1. Select Start, Programs, PeopleTools 8.x, Configuration Manager.
2. Select the Profile tab, and select a profile to edit.
3. Select the Process Scheduler tab.
4. In the Crystal Reports [CRWRPTPATH] field, enter the path to your Crystal production reports.

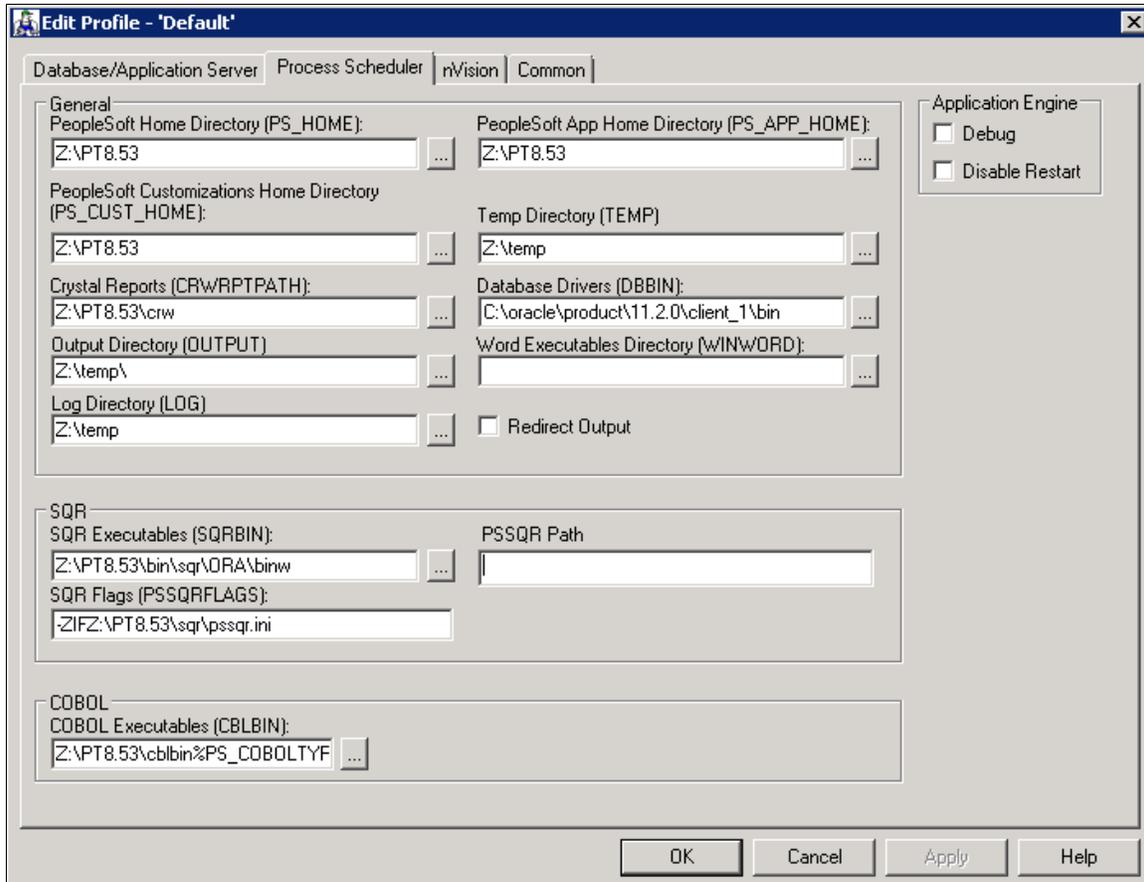
---

**Note:** CRWRPTPATH is a read-only directory that is intended to hold production reports.

---

### Image: Configuration Manager - Process Scheduler dialog box

This example illustrates the Configuration Manager - Process Scheduler dialog box and the Crystal Reports (CRWRPTPATH) field is set to Z:\PT8.5x\crw:



See "Configuring User Profiles" (PeopleTools 8.53: System and Server Administration), [Configuration of Crystal Reports for Multilingual Environments](#), [Translated Report Searches](#).

## Installing the PeopleSoft ODBC Driver and Crystal Runtime

If you have installed Crystal Reports 2011 or Crystal Reports 2008 on your Microsoft Windows-based development workstation, refer to the PeopleTools Installation Guide to install the PeopleSoft ODBC driver and Crystal runtime. This installation is required to successfully use Crystal Reports designer or Process Scheduler to create and run reports.

See the *PeopleTools Installation Guide* for your database platform: "Installing the PeopleSoft ODBC Driver and Crystal Runtime."

---

**Note:** You can run two copies of the same version of PeopleTools on one machine; however, we support only one version of the PeopleSoft ODBC driver on one machine. This means that you cannot have PeopleTools 7.5 and PeopleTools 8 on the same machine and expect Crystal Reports to work with both PeopleTools builds. For instance, you cannot get PeopleTools 7.5 Crystal Reports to work with the PeopleTools 8.x PeopleSoft ODBC driver.

---

## Signing In to a PeopleSoft Database

You must sign in to a PeopleSoft database before you can generate a PeopleSoft report from Crystal Reports. When you open Crystal Reports and create a new report, Crystal Reports prompts you to sign in to a PeopleSoft database using the Crystal Reports sign-in dialog. When you run a preexisting report, you sign in to a PeopleSoft database using the PeopleSoft sign-in dialog. After successfully signing in to a database, you have full reporting flexibility.

---

## Creating and Formatting Reports in Crystal Reports

This section discusses how to:

- Create reports in Crystal Reports.
- Format reports in Crystal Reports.
- Modify default settings in Crystal Reports.

See the *Crystal Reports* documentation.

## Creating Reports in Crystal Reports

To create reports in Crystal Reports 2011 or Crystal Reports 2008:

1. Select Start, Programs, Crystal Reports 20xx.

The Crystal Reports start page appears.

2. Click the Report Wizard link under the Start a New Report section.

The Report Wizard guides you through the creation of a typical report.

3. Click the + (plus) sign to the left of the Create New Connection folder to display its contents.
4. Click the + (plus) sign to the left of the ODBC (RDO) folder.

The ODBC (RDO) dialog box appears.

5. Select *PeopleSoft PeopleTools* as the DSN.

---

**Note:** When signing in to two-tier, make sure that the Server Name and other three-tier fields are not populated in the PeopleSoft PeopleTools DSN. These will be picked up as defaults for the connection information that you enter.

---

6. Click the Finish button.

The PeopleSoft Signon window appears.

7. Enter the database name, user ID, and password.
8. Click the OK button.

9. If needed, click the + (plus) sign to the left of the PeopleSoft PeopleTools folder under ODBC (RDO), and then click the + (plus) sign to the left of QUERY to display a list of queries.

The list contains all of the queries from which you can create a report.

10. Highlight a query from the list, and click the next-in-list (>) button.

The query that you selected appears in the Selected Tables group box, indicating that it has been added.

11. You can select additional queries if necessary.

When you have completed your selections, click the Next button to navigate to the Fields dialog box.

---

**Note:** If you have selected multiple queries, clicking the Next button at this point takes you to the Link dialog box.

---

12. Highlight one or more fields and click the next-in-list (>) button, or click the last-in-list (>>) button to add all the fields from the query that you want to appear on your report.

When fields have been added, the previous-in-list (<) and the first-in-list (<<) buttons become active.

13. (Optional) Click the Next button, and select from the following dialog boxes:

- Grouping: Sort records by their values in the Group By fields.
- Record Selection: Select a subset of information.

The data can be filtered so that only a subset appears on the report.

- Template: Select a template for the report.

14. Click the Finish button.

15. Select the Design tab or Preview tab to format your report.

## Formatting Reports in Crystal Reports

To format reports in Crystal Reports 2011 or Crystal Reports 2008:

1. Access Crystal Reports by selecting Start, Programs, Crystal Reports 20xx.
2. Open the report that you want to format, and select the Design tab.
3. Enter the appropriate values:

---

**Note:** In most cases, you need to enter the appropriate field type (text field, and so on) before you can enter information.

---

- *Report Header:* Enter the title of the report and other information that you want to appear at the top of the first page.
- *Page Header:* Enter or modify the column headings and other identifying information that you want to appear at the top of each page.

- *Details:* This is the main section of the report that includes the rows of data from your database.
- *Report Footer:* Enter the information that you want in the footer of the report.

You can include a summary on the last page of your report.

- *Page Footer:* Enter a page number or other information that you want to appear at the bottom of the page.

4. Select the Preview tab to preview your report.

The page orientation is portrait or landscape by default according to the number and width of the columns that are in your query. If the query columns do not fit in landscape, Crystal Reports displays as many columns as will fit on the page and does not display the others.

You adjust the formatting from within the print preview window. For example, you can resize headings or recenter the report title.

5. Select the Design tab to return to the report template.
6. Click the Refresh button to refresh your data after making changes.
7. Click the Save button to save your report.

---

**Important!** If your reports contain numeric fields that are formatted to have single-line or double-line borders at the top of the container, you may experience incorrect justification of numbers in the HTML output. To resolve this issue, either draw lines above the numeric fields using the line drawing tool or insert summary fields into a blank text object and then format the container text object to include borders above the text.

---

## Modifying Default Settings in Crystal Reports

You can set a number of different defaults in Crystal Reports 2011 or Crystal Reports 2008.

---

**Note:** If you modify a query to include additional fields, you need to modify the report definition in Crystal Reports to include the new fields in your report. To modify the report definition, select Database, Verify Database.

---

### Changing Default Column Headings and Report Titles

Access your report in Crystal Reports 2011 or Crystal Reports 2008 by selecting Start, Programs, Crystal Reports 20xx.

1. Select the Design tab and, in the Page Header section, double-click the column heading or report title that you want to change.

(You can also click the text object and select Edit, Edit Text.)

A ruler appears above the text object and a box appears around the text. The Crystal text formatting features (such as font, bold, italics, and so on) are available in this mode.

2. Edit the text, and then click a blank area of the report to deselect the text object.

The system displays the new text in the display window.

---

**Note:** You can make the column headings as long as you want. However, if you make them much longer than the current heading, you will need to enlarge the text box to fit the heading.

---

## Changing Fonts

Access your report in Crystal Reports 2011 or Crystal Reports 2008 by selecting Start, Programs, Crystal Reports 20xx.

1. Open the report that you want to change fonts in the Design tab.
2. Select the items that you want to change, and select Format, Format Text.

The Format Editor dialog box appears.

3. Select the Font tab.
4. Select the appropriate font, style, size, and color.

## Adding a Print Date Field

Access your report in Crystal Reports 2011 or Crystal Reports 2008 by selecting Start, Programs, Crystal Reports 20xx.

1. If the Field Explorer is not already displayed, select View, Field Explorer to display it.
2. If necessary, click the + (plus) sign to the left of Special Fields.
3. Drag the Print Date field from the Field Explorer to the appropriate area of the report.

The Print Date dialog box appears where you dragged the field.

4. To modify the format of the Print Date field, right-click the Print Date box and select the Format option.

---

## Running Crystal Reports

This section discusses how to:

- Run Crystal reports from PeopleSoft Process Scheduler.
- Run standard reports from within Crystal Reports.
- Launch Crystal Reports with Microsoft Windows-based PeopleSoft Query.
- Print Crystal reports.

---

**Note:** As part of the upgrade procedure, when you are experiencing problems with a report that has already been converted to the Crystal 2011 or 2008 format, you can use the PeopleSoft RPT Conversion utility pscvtrpt.exe to repair .rpt files.

---

See the *PeopleTools Installation Guide* for your database platform: “Installing and Configuring Software for Crystal Reports,” Converting Crystal Reports.

## Running Crystal Reports from PeopleSoft Process Scheduler

Crystal 2011 or Crystal 2008 reports can be run from PeopleSoft Process Scheduler in the following ways:

- As a process definition.
- As part of a job.
- As part of a scheduled jobset.
- From an application page.

For any of these run methods, a process type and process definition must exist for each report. To run a process definition or a job, a system process request must be created. This request creates a run control to associate the selected items. After items are selected to be run and are queued in the PeopleSoft Process Scheduler, Process Monitor shows the status of the processes. You can view completed reports in the Report Manager.

If you submit a process request, you can run the report on a client workstation or on a Microsoft Windows server without having to quit the PeopleSoft system or use a third-party scheduling program. If you schedule processes to run on a Microsoft Windows server, you can run the report at a future date and time.

When Crystal reports are run through PeopleSoft Process Scheduler, you can do one of the following actions:

1. Specify an output file name.
2. Use the default file name.

The default file name is the report name concatenated with the process instance; this name guarantees uniqueness. You can also tie the default name to information about the process that generated the output by using the process instance as the key to the process request table.

---

**Note:** You cannot run alias Crystal reports from the Crystal Reports 2011 or Crystal Reports 2008 application or from PeopleSoft Process Scheduler if the alias name contains certain characters. If your alias Crystal report does not run, check the InvalidAliasCharList entry under the following registry key: *HKEY\_CURRENT\_USER\Software\Business Objects\Suite 12.0\Crystal Reports\Database\*. If any of the characters in your alias tablename are listed in the entry, either change these characters to characters that are not listed in the entry or change the entry to remove any characters that you want to be able to include in your alias tablename. The entry must contain at least one character.

---

If you use PeopleSoft Process Scheduler to run a report and you select the File/XLS option, the totals may not align with the detail columns that the totals represent. In this event, you can address these alignment issues by following the guidelines that are available on the SAP Support Portal ([service.sap.com/support](http://service.sap.com/support)).

See "Scheduling Process Requests" (PeopleTools 8.53: PeopleSoft Process Scheduler)"Submitting Process Requests" (PeopleTools 8.53: PeopleSoft Process Scheduler).

## Formatting Reports in PeopleSoft Process Scheduler

You can format Crystal reports that will be run through the PeopleSoft Process Scheduler by specifying output options for:

- System settings
- Process types
- Process definitions
- Scheduled JobSet items
- Process requests

### Formatting System Settings

System settings are system defaults that are related to all processes.

To format system settings:

1. Select PeopleTools, Process Scheduler, System Settings.
2. Select the Process Output Type tab.
3. Define the active and default output types for each process type by selecting the appropriate Active and Default Output options.
4. Click the Save button to save your changes.

---

**Note:** The Process Output Format Settings page uses information about output types; therefore, save any changes made to output type settings before attempting to change an output format setting.

---

5. Click the Process Output Format tab.
6. Define the active and default output formats for each combination of process type and output destination type by selecting the desired Active and Default options.
7. Click the Save button to save your changes.

See "Defining System Settings" (PeopleTools 8.53: PeopleSoft Process Scheduler).

### Formatting Process Type Definitions

Process type definitions globally define the command line, parameter list, working directory and other general parameters for a specific process type.

To format process type definitions:

1. Select PeopleTools, Process Scheduler, Process Types.

The Type Definition page appears.

2. In the Parameters List field, enter the `%%OUTDESTTYPE%%` value for the *-OT* variable and the `%%OUTDESTFORMAT%%` value for the *-OF* variable.

3. Click the Save button to save your changes.

See "Defining Process Type Definitions" (PeopleTools 8.53: PeopleSoft Process Scheduler).

## Formatting Process Definitions

A process definition needs to exist for each Crystal report that is to be run or scheduled using PeopleSoft Process Scheduler.

To format process definitions:

1. Select PeopleTools, Process Scheduler, Processes.

The Process Definition page appears.

2. Select the Destination tab.
3. In the Output Destination Options region, select the output options in the Type andFormat drop-down list boxes.

These drop-down list boxes display only those output types and output formats that were made active on the System Settings page. Output options set on the Process Definition page cannot be overridden on the Process Scheduler Request page.

4. Click the Save button to save your changes.

See "Defining Process Definitions" (PeopleTools 8.53: PeopleSoft Process Scheduler).

## Formatting Scheduled JobSet Items

Jobs can be created if the user needs to run a series of processes.

To format scheduled JobSet items:

1. Select PeopleTools, Process Scheduler, Schedule JobSet Definitions.

The Schedule JobSet Definition page appears.

2. Select the Schedule JobSet Items tab.
3. Select the Output Settings tab.
4. Specify the output type and output format from the Type andFormat drop-down list boxes.
5. To specify options for individual jobs or processes, expand the hierarchical view of the job and select the output type and output format for the required items from the Type andFormat drop-down list boxes.

---

**Note:** Individual jobs and processes options override the output options that are specified for the parent job. Output options set at the job level apply to all items of that job.

---

6. Click the Save button to save your changes.

See "Defining Scheduled JobSets" (PeopleTools 8.53: PeopleSoft Process Scheduler).

## Formatting Process Requests

To format process requests:

1. Select PeopleTools, Process Scheduler, System Process Requests.
2. Select a run control ID and click the Run button to submit a process request and be routed to the Process Scheduler Requests page.
3. Select the output type and output format from the Type andFormat drop-down list boxes.
4. To specify output options for jobs or processes within a job, click the description of the main job to access the Job Detail page and select the output type and output format from the Type andFormat drop-down list boxes.

---

**Note:** Individual jobs and processes options override the output options that are specified for the parent job. Output options set at the job level apply to all items of that job.

---

See "Scheduling Process Requests" (PeopleTools 8.53: PeopleSoft Process Scheduler).

## Runtime Prompts

When you are running a Crystal report that has runtime prompts in PeopleSoft Pure Internet Architecture, the prompt values need to be passed using the command line. You can do this either by hard-coding static values in the Process Definition page or by creating a PeopleSoft Pure Internet Architecture page to gather values from the users and dynamically pass them into the command line.

---

**Note:** The number and order of the prompt values must be exact. Prompt values for the date fields must be in *YYYY-MM-DD* format.

---

For example, if you have a report whose query prompts on business unit and you want the report to run only for business unit BU001, you could hard-code that prompt value in quotes into the Process Definition - Override Options page (PRCSDEFNOVRD).

## Navigation

PeopleTools, Process Scheduler, Processes, Override Options

### Image: Process Definition – Override Options page

This example illustrates the Process Definition - Override Options page with Parameter List is set to -*ORIENTL "BU001"*.

Process Definition		Process Definition Options	Override Options	Destination	Page Transfer
Process Type:	Crystal				
Name:	BU001				
<b>Override Options</b>					
<b>Parameters</b>					
*Parameter List:	Append	-ORIENTL "BU001"			
*Command Line:	None				
*Working Directory:	None				

The resulting command line would look similar to this:

```
C:\PT8xx\BIN\CLIENT\WINX86\PSCRRUN.EXE -CTMICROSFT -CDPT851 -COUSER1
-CPOPRPSWD -I45 -RP"Employees by Department for BU001" -OT5
-OPDistribution List -LGENG -OF8 -ORIENTL "BU001"
```

---

**Note:** The executable program for Crystal Reports 2011 or Crystal Reports 2008 is PSCRRUN.EXE. The executable used with BusinessObjects Enterprise XI is PSBOERUN.EXE. The command line executable changes when you convert your reports to the Crystal Reports XI format.

---

See the *PeopleTools Installation Guide* for your database platform: “Installing and Configuring Software for Crystal Reports,” Converting Crystal Reports, Converting Reports from Crystal Reports 2008 format to Crystal Reports XI format.

To enable users to dynamically select prompt values at runtime:

1. Select Start, PeopleTools 8.x, Application Designer to access PeopleSoft Application Designer.

Alternatively, if you have set up a shortcut on your desktop, you can open the application from there. At the PeopleSoft Signon dialog box, enter the Database Name or Application Server Name, (depending on your connection type) User ID, and Password. PeopleTools opens automatically to PeopleSoft Application Designer.

See "Starting PeopleSoft Application Designer" (PeopleTools 8.53: PeopleSoft Application Designer Developer's Guide).

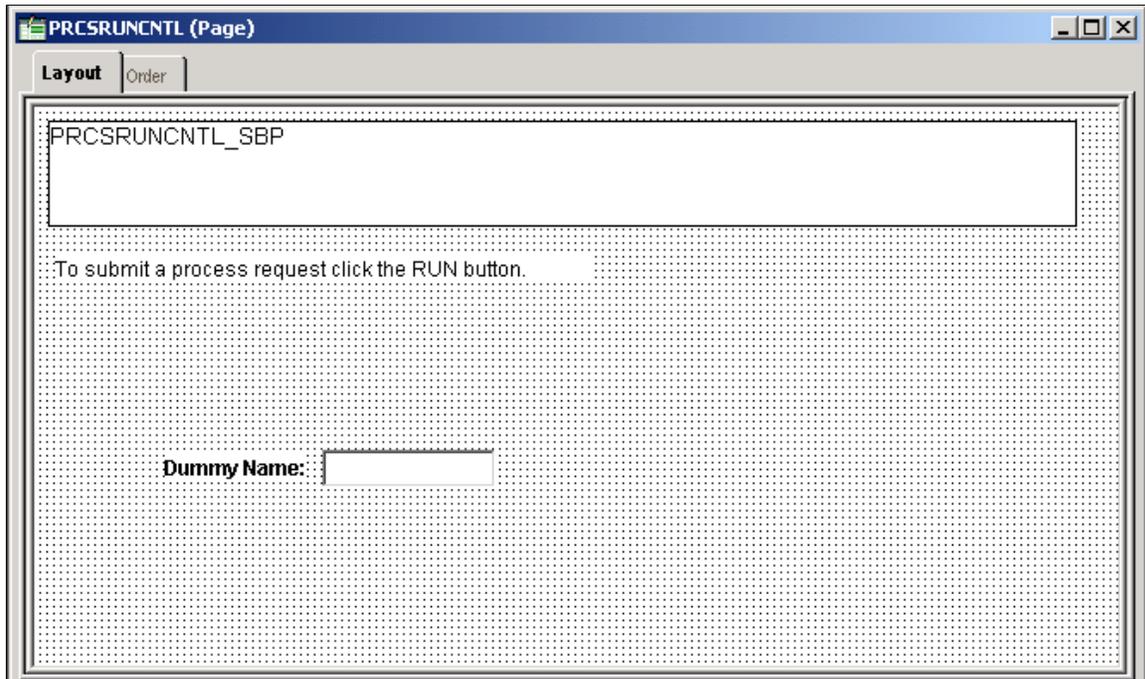
2. Using PeopleSoft Application Designer, create a PeopleSoft Pure Internet Architecture Run Control page.
3. Insert an edit box for each prompt field.
4. Click the newly inserted edit box to display the Edit Box Properties dialog box.
5. Use the drop-down list boxes to select the record and field that you are prompting on.
6. Save your changes.
7. Access PeopleSoft Process Scheduler by selecting PeopleTools, Process Scheduler, Processes, Process Definition, Override Options.
8. Modify the process definition parameter list to include your prompt field using the format *:RECORD.FIELD*.

See "Defining Process Definitions" (PeopleTools 8.53: PeopleSoft Process Scheduler).

**Note:** The resulting command line would look the same as the preceding example except, instead of *BU001*, it would contain the selected value.

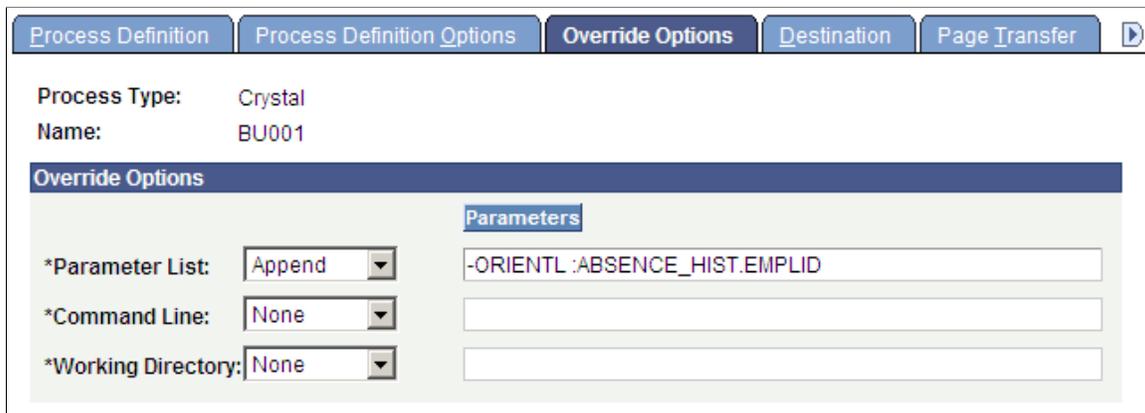
### Image: Example of PeopleSoft Application Designer - Run Control page

This example illustrates PeopleSoft Pure Internet Architecture Run Control page in PeopleSoft Application Designer.



### Image: Example of Process Definition - Override Options page

This is an example of the Override Options page, where you can modify the Process Scheduler Process Definition parameter list to include your prompt field.



## Running Standard Reports from Within Crystal Reports

To run standard reports from within Crystal Reports 2011 or Crystal Reports 2008, the system uses a query that is created in PeopleSoft Query and a report definition that is created in Crystal Reports. All the elements are predefined; you can only view and print the reports.

Use these steps to run standard reports from within Crystal Reports:

1. Select Start, Programs, Crystal Reports 20xx.

The Crystal Reports start page appears, including the My Recent Reports section that lists all recently opened files.

2. Click any of the files to open them.

If the report that you need is not listed, click the Open File link in the list, navigate to the crystal report that you want to open, and double-click it.

3. Select File, Print Preview or click the Print Preview button on the Crystal Reports toolbar to view the report before you print.

When you are signed in to your database, Crystal Reports displays a print preview containing the rows of data that will appear in the printed report. You can perform the following actions:

- Select Report, Refresh Report Data or click the Refresh button on the Crystal Reports toolbar to refresh the data and ensure that you see the most current information.
- Optionally, adjust the fields and objects in the report so that the report prints properly on your printer.
- Select File, Print, Printer or click the Print button on the Crystal Report toolbar to print the report.

Select the appropriate options in the Print dialog box and click the OK button.

## Launching Crystal Reports with Microsoft Windows-based PeopleSoft Query

If you have access to the Microsoft Windows version of Query Designer, which means that if you have a Microsoft Windows-based workstation set up as a PeopleTools development environment, you can run queries directly to Crystal Reports 2011 or Crystal Reports 2008 from Query Designer. This option is not available from web-based Query Manager or Query Viewer. However, users who do not have access to Windows Query Designer can schedule a predefined Crystal Report to run on a Process Scheduler server, and the results can be routed to PeopleSoft Report Manager.

You can export queries to Crystal Reports to create default reports. When you create a default Crystal report from PeopleSoft Query, PeopleSoft Query creates a report using the file name (ACTQRY).RPT. PeopleSoft Query uses the selected column list to define the content of the default Crystal report.

If you want to run your report directly from Microsoft Windows-based PeopleSoft Query, the query and report names must match to use the formatting that you have created in Crystal Reports every time you print the report. If you always update and print the report from within Crystal Reports, name-matching is not a concern.

When using Microsoft Windows-based Query Designer, any modification to a previously saved query needs to be saved before downloading query results to Crystal Reports 2011 or Crystal Reports 2008. A message will appear in Query Designer reminding you to save your work to ensure accurate data are displayed.

---

**Note:** End users should create and maintain reports in Crystal Reports. PeopleSoft Query is used to create and maintain the queries that generate report contents.

---

To run a query with Crystal Reports output:

1. Launch Application Designer by selecting Start, PeopleTools 8.x, Application Designer.
2. Select Go, Query from the Application Designer toolbar.
3. Select File, Open or click the Open Query button to display the Open Query dialog box.
4. Click the down arrow to the right of the Name field to display a list of existing queries.
5. Highlight the name of the query that you want to base the report on and click the OK button.

If none of the saved queries meets your needs, you can create a new query.

6. Click the Run Query button to run the query.
7. Click the Run to Crystal Report button to run the query to Crystal Reports.

The system automatically opens the Crystal Reports application and creates a new Crystal report.

8. Use Crystal Reports to format your data, add a report title, modify column headings, and so on.

### Repeated Query Prompts

PeopleSoft Query cannot supply values to Crystal Reports at runtime. Crystal Reports stores the default values as *NULL* and does not allow you to change stored procedure values, so you must enter the prompt values twice.

When queries include prompts, you are prompted once at design time and once at runtime to enter the appropriate values. This behavior is related to the definition of a stored procedure.

Most databases can return any number of result-set columns based solely on the input to a stored procedure. For Crystal Reports to create a static report template, it must run the stored procedure with the default parameter values once before it can request the definition of the result set. Because of this, the stored procedure (the query) is run once at design time (to fill in the result set descriptions) and again at runtime (as expected).

---

**Note:** You are prompted when verifying the database in the report. The issue is the same as the design-time prompt followed by the runtime prompt issue just described. Enter the appropriate values after choosing to verify the database.

---

### Related Links

"Creating New Queries" (PeopleTools 8.53: PeopleSoft Query)

## Printing Crystal Reports

After running the Crystal 2011 or 2008 report and saving the file, you can print the report by clicking the Print button or selecting File, Print, Printer. As with many Microsoft Windows applications, you can choose to print the entire report or only a few pages, specify the number of copies to print, and indicate whether you want the copies collated.

---

**Note:** If you want to run your report directly from Microsoft Windows-based PeopleSoft Query, the query and report names must match to use the formatting that you have just created in Crystal Reports every time you print the report. If you always update and print the report from within Crystal Reports, it does not matter if the query and report names match.

If you print reports using the PeopleSoft Process Scheduler, you must have the Windows service Oracle's BEA ProcMgr Log On value set to *This Account* and the specified Windows user account should have printing permission to the printer where the reports will be printed. You must also define the appropriate paper size in the Crystal process type definition.

---

See "Entering Global Definitions for Processes" (PeopleTools 8.53: PeopleSoft Process Scheduler).

To print HTML reports from Crystal Reports, open the appropriate HTML file and print it from the browser. Crystal Reports uses the default page setting to print the report. Sometimes the right side of the report is cut off when it is sent to the printer, even though it appears in the Crystal Report viewer.

To change your default page settings to print HTML reports:

1. Select File, Page Setup.
2. Change the left and right margin settings to create smaller margins.

## Chapter 3

# Working with Multiple Languages

---

## Understanding How to Work with Multiple Languages

This section discusses:

- Data returned by the report.
- Report layout and boilerplate text.
- Crystal Reports Designer/Runtime language versions.
- Language parameter for pserrun.exe.
- Configuration of Crystal Reports for multilingual environments.
- Translated report searches.

### Data Returned by the Report

Data that is returned by Crystal Reports 2011 or Crystal Reports 2008 is fetched from the database using PeopleSoft Query; data that is returned by BusinessObjects Enterprise XI is fetched from the database using Query Access Services (QAS). Therefore, the data is already language-sensitive due to the automatic joining to related language tables that PeopleSoft Query performs. No special logic is required to ensure that appropriate descriptions from related language tables are returned in Crystal Reports output.

See "PeopleSoft Query Overview" (PeopleTools 8.53: PeopleSoft Query).

See the *PeopleTools Installation Guide* for your database platform: "Installing and Configuring Software for Crystal Reports," Install BusinessObjects Enterprise XI, Understanding QAS.

### Report Layout and Boilerplate Text

The Crystal Reports .rpt file contains the layout of the report and any text that is hard-coded into the layout, such as column headings, headers, and footers. Because Crystal Reports does not provide any ability to maintain multiple translations of this boilerplate text in a single .rpt file, you must maintain a separate copy of the report layout for each language.

For use with the Crystal Reports 2011 or Crystal Reports 2008 runtime environment, PeopleSoft PeopleTools maintains separate directories on the file and report servers within the <PS\_HOME>\CRW directory that correspond to the language codes that are available for your PeopleSoft implementation. Each directory contains the appropriate report in the specified language if the report has been translated. PeopleSoft PeopleTools reads the report from the directory that corresponds to the user's preferred language. If it cannot find the report there, Crystal Reports uses the report in the base language directory <PS\_HOME>\CRW. Finally, if the report is not in the directory corresponding to the user's current language or in the base directory, PeopleSoft PeopleTools uses the copy of the report in the <PS\_HOME>\CRW\ENG directory.

For use with the BusinessObjects XI runtime environment, PeopleSoft PeopleTools maintains separate language subdirectories in the BusinessObjects Enterprise report repository.

## Crystal Reports Designer/Runtime Language Versions

Crystal Reports supports several different languages. You choose the preferred language during the install of the Crystal Reports application. Each language version of Crystal Reports is functionally identical; the primary difference is the language of the Crystal Reports Designer user interface. You do not need to match the language of the Crystal Reports design or runtime engine to the language of the report that you are creating unless you are using the Crystal ToWords function. You can overcome this limitation by using the PStoWords or PStoWordsLoc functions.

### Using PStoWords and PStoWordsLoc

PStoWords and PStoWordsLoc are similar to the Crystal ToWords function in that they convert a numerical amount into a textual representation of that amount, as you see on checks. But unlike ToWords, these functions are independent of the installed language of Crystal Reports Designer. After you configure the location of the supporting .dlls, these functions appear in the Crystal Function Editor as new Additional Functions.

### Configuring Crystal Reports Designer to Use PStoWords

PStoWords and PStoWordsLoc functionality is contained in three files called icudt34.dll, psicu34.dll, and psicuuc34.dll. These files are located in your <PS\_HOME>\bin\client\winx86 directory. Unlike in prior releases, in PeopleTools 8.51 or 8.52, you do not need to manually copy these files to your local directory where crw32.exe is installed; for example, *C:\Program Files\Business Objects\Business Objects Enterprise xx\win32\_x86*. These files are automatically copied for you when you install the PeopleSoft ODBC and Crystal Runtimes.

In PeopleTools 8.53, crw32.exe is available only in the machine that has Crystal Reports designer installed. Note that you can run Crystal reports on the machines that do not have Crystal Report designer installed; for example, the Process Scheduler machine that has runtime only. The installation locations of Crystal Reports 2010 runtime and Crystal Reports 2011 designer are different. For example, Crystal Reports 2010 runtime is installed at *C:\Program Files (x86)\SAP BusinessObjects\Crystal Reports for .NET Framework 4.0\Common\SAP BusinessObjects Enterprise XI 4.0\win32\_x86*, but Crystal Reports 2011 designer is installed by default at *D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win32\_x86* if there is not a user-defined location from the previous installations.

See the *PeopleTools Installation Guide* for your database platform: “Installing the PeopleSoft ODBC Driver and Crystal Runtime”

Similarly, for Crystal Reports XI, you don't have to copy the files because the installation program automatically does this for you. For Process Scheduler to use these functions in a scheduled report, you do not need to configure anything because <PS\_HOME>\bin\client\winx86 is the current directory for the Process Scheduler.

You can enter *PStoWords* or *PStoWordsLoc* directly in the Function Editor, or you can select these functions from the list of additional functions in the Function Editor of the Crystal Reports 2011 or Crystal Reports 2008 Designer. To confirm that the .dlls are loaded in Crystal Designer, select Help, About, More Info and check that the three psicu files are listed.

## Syntax for PStoWords and PStoWordsLoc

The syntax for *PStoWords* is `PStoWords (number, places)`, where `number` is a numeric amount and `places` is the number of decimal places or precision to print. For instance, `PStoWords (12.345, 2)` prints `twelve and 35 / 100`.

The syntax for *PStoWordsLoc* is `PStoWordsLoc (locale, number, places)`, where the `locale` parameter specifies an International Organization for Standardization (ISO) language or locale code. For instance, `PStoWordsLoc ("es", 12.345, 2)` prints `doce y 35 / 100`. For examples of ISO locales that are used in PeopleSoft products, see the following cross-references.

See "Adding New Language Codes to the System" (PeopleTools 8.53: Global Technology), "Applying Browser Language Preferences" (PeopleTools 8.53: Global Technology).

## Converting Entities to Characters

Crystal Reports is Unicode-enabled, except in Application Protocol Interface (API) function calls. To work around this limitation, *PStoWords* and *PStoWordsLoc* return any non-USASCII characters as HTML decimal entities. To convert these entities to Unicode characters, you need to include a report custom function in your `.rpt` file. In Crystal Reports Designer Formula Workshop, create a new Report Custom Function called *PStoUChar* and paste in the following code:

```
Function (StringVar instring)
  local StringVar outstring := "";
  local NumberVar i;
  local StringVar curtoken;
  local NumberVar toklen;
  local StringVar widechar;

  //Convert Entities to ChrW

  for i := 1 to (Length(instring)) Do
  (
    curtoken := mid(instring, i, 2);
    toklen := instr(i+2, instring, ";") - (i+2);

    if curtoken = "&#" then widechar := chrw(val(mid(instring, i+2, toklen)));
    if curtoken = "&#" then outstring := outstring + widechar;
    if curtoken = "&#" then i:=i+toklen+2;

    if curtoken <> "&#" then outstring := outstring + mid(instring, i, 1);
  );
  outstring;
```

A report-defined function enables you to define a function to be saved within the `.rpt` file. The syntax for this function is

```
PStoUChar (PStoWords (number, places))
```

or

```
PStoUChar (PStoWordsLoc (locale, number, places))
```

## Limitations

The largest number converted to words is 999,999,999.999 for most languages. Numbers higher than that amount, or where the encoded string of words would exceed 254 bytes, appear as digits rather than as words.

Because Thai words for numbers often exceed the 254-byte limit when encoded as entities, you can use the special locale `x-th` instead of `th` to return the Thai characters without encoding them as entities. Using

the special locale allows a longer string to be processed, but requires a server with a system default locale set to Thai. The syntax for Thai processed in this way is: `ToWordsLoc("x-th", number, places)`.

## Language Parameter for pscrrun.exe

PeopleSoft Process Scheduler uses the pscrrun.exe process to run Crystal Reports 2011 or Crystal Reports 2008. The process's language code parameter specifies the language directory that pscrrun.exe uses to fully qualify the report path. Unlike Structured Query Reports (SQRs), pscrrun.exe searches for a separate Crystal Reports file for each translation of the report. The language directory parameters are needed because each language-specific report is stored in a separate language directory. If the report is not found in the language that is specified by the parameter, pscrrun.exe looks in the default, base-language directory.

Typically, the language parameter is passed to pscrrun.exe from the run control that is associated with your Crystal report.

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**Note:** The executable program for Crystal Reports 2011 or Crystal Reports 2008 is PSCRRUN.EXE. The executable program for BusinessObjects Enterprise XI is PSBOERUN.EXE. The command line executable changes when you convert your reports to the Crystal XI format.

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See the *PeopleTools Installation Guide* for your database platform: “Installing and Configuring Software for Crystal Reports,” Converting Crystal Reports, Converting Reports from Crystal Reports 2008 format to Crystal Reports XI format.

### Related Links

"PeopleSoft Process Scheduler Overview" (PeopleTools 8.53: PeopleSoft Process Scheduler)

## Configuration of Crystal Reports for Multilingual Environments

The PeopleSoft system allows you to use a single Crystal Reports server for all languages. The following features support this functionality:

- Unicode support

Crystal Reports for PeopleSoft products support Unicode.

- Locale formatting

Locale formatting is based on the user personalizations of the user who is scheduling the report, not the formatting set on the report server. If you do not want locale formatting to be based on the user personalizations of the user who is scheduling the report—for example, if the user wants to preserve the date or time formatting that is hard-coded in the report file—then use the `-LX0` parameter to disable locale processing.

- ToWords functionality

The ToWords function (used in printing checks) is supplemented by PStoWords, which can support any PeopleSoft-supported language instead of just the language of the installed version of Crystal Reports.

See [Crystal Reports Designer/Runtime Language Versions](#).

## Translated Report Searches

To call up translated production reports in the correct language, the Crystal Reports for PeopleSoft application performs the following steps in this order:

1. The -RP parameter specifies a path and report name, including the .rpt extension.

If the report exists, the Crystal Reports for PeopleSoft application selects the report. If the report does not exist, the search for the report fails.

2. The -RP parameter specifies a path but does not specify the full report name, including the .rpt extension.

Crystal Reports looks for translated reports based on the path in the -RP parameter as follows. If the report is not found in any of these directories, the search fails:

- a. The Crystal Reports for PeopleSoft application appends the language code, as defined by the -LG parameter of the command line, to the path that is set in the -RP parameter and searches for the report.
- b. If the report does not exist, the application appends the language code that uses the preferred language as specified on the user's machine to the path that is set in the -RP parameter and searches for the report.
- c. If the report still does not exist, the application appends the language code that uses the base language as defined for the PeopleSoft system to the path that is set in the -RP parameter and searches for the report.
- d. If the report still does not exist, the application searches for the report using the path that is set in the -RP parameter.

3. The -RP parameter is not specified.

Crystal Reports 2011 or Crystal Reports 2008 looks for translated reports based on the CRWRPTPATH environment variable as follows. If the report is not found in any of these directories, the search fails:

- a. The Crystal Reports for PeopleSoft application appends the language code, as defined by the -LG parameter of the command line, to the path that is set in the directory that is specified by the CRWRPTPATH environment variable and searches for the report.
- b. If the report does not exist, the application appends the language code that is the preferred language as specified on the user's machine to the path that is set in the directory specified by CRWRPTPATH and searches for the report.
- c. If the report still does not exist, the application appends the language code that is the base language as defined for the PeopleSoft system to the path that is set in the directory that is specified by CRWRPTPATH and searches for the report.
- d. If the report still does not exist, the application searches for the report using the path that is set in the directory that is specified by CRWRPTPATH.

BusinessObjects Enterprise XI searches for translated reports in the BusinessObjects Enterprise report repository in the same way.

See "Understanding PeopleSoft Process Scheduler Support Information" (PeopleTools 8.53: PeopleSoft Process Scheduler), [Configuring Crystal Reports](#).