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## Flex2Crystal™

### The Future of Crystal Reports for VDF Users

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## Introduction

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Crystal Reports is a popular tool for designing and creating complex reports and for embedding reports within applications. Crystal Reports has long been the reporting tool of choice by Visual DataFlex developers for in-house corporate use and by Independent Software Vendors (ISVs) for embedding reports into commercial application packages.

Reports created with Crystal Report Designer are integrated into Visual DataFlex applications by means of the Crystal Report Design Component (RDC) interface. The RDC is a COM component, which uses ActiveX controls to allow developers to run a report and dynamically control report settings.

In 2006, Business Objects (acquired by SAP in 2007) announced that the RDC interface would no longer be enhanced or delivered in future Crystal Reports products and that new versions of Crystal Reports would instead have a .NET interface. This decision signaled the demise of Crystal Reports as a reporting tool for Visual DataFlex users since DataFlex does not support the use of .NET-based components. As a result, even though new versions of Crystal Reports are being made available by SAP, Visual DataFlex users cannot use them.

This change in Crystal Reports left DataFlex developers with two challenges: a) to preserve their legacy reports without redesigning them, and b) to locate a replacement reporting tool with the same feature set as Crystal Reports.

### The Merteck Solution

Merteck used a two-step approach to address both challenges: 1) Merteck built support for .NET within Visual DataFlex, 2) Merteck developed a compatibility layer to integrate Crystal Reports with existing Visual DataFlex code.

The result is Flex2Crystal. Flex2Crystal allows seamless integration of new Crystal Reports versions with Visual DataFlex and allows developers to continue to use their existing reports. In other words, Crystal Reports is no longer a dead end for DataFlex users!

## Flex2Crystal Product Fact Sheet

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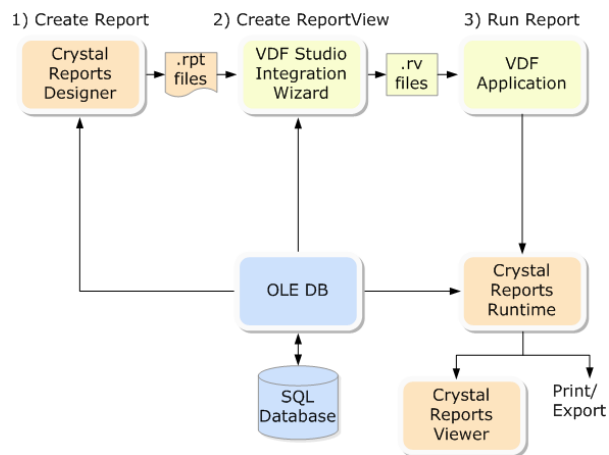
- Provides seamless integration with VDF applications and Studio
- Allows newer versions of Crystal Reports to be adopted without changing source code
- Is a cost effective way to protect investments in Crystal Reports
- Ensures support for new features as they are added to Crystal Reports
- Does not compromise on report launching or data fetching performance
- Supports VDF version 12 (the first version to use RDC) through the latest versions
- Is easy to install and distribute

## Crystal Reports Interaction with Visual DataFlex

Three fundamental steps are required to add a Crystal Report to a VDF application. 1) A report (.rpt file) is created using the Crystal Reports Designer component. 2) The report is wrapped in a report view (.rv file) in the VDF Studio RDC Integration Wizard. 3) The report view is included in application source code, where it can be run and output to the selected device.

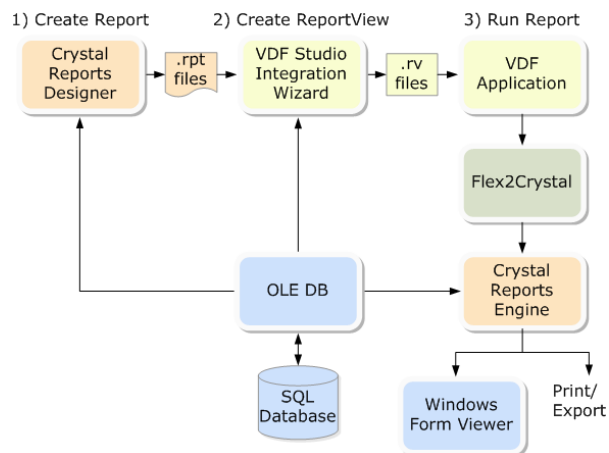
### RDC (.COM) Environment

The entire RDC interface is imported into VDF as a Class library. The Integration Wizard associates the Crystal report file to a report object (based on the cCrystal class). The report object is placed inside a view object (based on the ReportView class). Methods inside the cCrystal class are used to define output options, set files and formulas, define the location of the database tables, and to run the report.



### .NET Environment

The Flex2Crystal interface simulates the RDC interface by overriding the lowest level VDF Crystal classes and tying these into the COM Interop bridge. By replacing the low level classes, all of the abstraction that VDF provides in the classes above can be maintained without rewriting any code.



All functionality supported by the current Crystal Reports RDC interface and all new functionality introduced in Crystal Reports 2011 is supported by Flex2Crystal. New features added to future releases of Crystal Reports will also be available with Flex2Crystal.

Flex2Crystal works by replacing the exposed cCrystal .COM classes with .NET-aware cFlex2Crystal classes. All properties, events, methods, and helper functions accessible in cCrystal classes are accessible in the new cFlex2Crystal classes.

## Minimal Code Changes

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Transitioning to Flex2Crystal is simple and requires minimal change to existing code. A few simple search and replace operations in your report view (.rv) files are all that is required so that your existing reports run with newer versions of Crystal Reports. The following tables outline the changes required to run Flex2Crystal with your existing reports.

<b>Replace</b>	<b>With</b>
Use cCrystal.pkg	Use cFlex2Crystal.pkg
Use Crystal\CheckForCrystal.dg	Use CheckForFlex2Crystal.dg

**Table 1 Packages to substitute**

To use the new Flex2Crystal class definitions, replace all occurrences of cCrystal with cFlex2Crystal. For example,

<b>Replace</b>	<b>With</b>
cCrystal	cFlex2Crystal
cCrystalAreas	cFlex2CrystalAreas

**Table 2 Invoking the new classes**

## A Sample Migration

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Code extracted from the OrdersByCustomer example is shown below. Changes required to make this code work with Crystal Reports version 2011 are highlighted.

```
Use CheckForFlex2Crystal.dg
Use dfrptvw.pkg
Use dfRadio.pkg
Use Windows.pkg
Use cFlex2Crystal.pkg

Deferred_view Activate_oOrdersByCustomerCR for ;
;
Object oOrdersByCustomerCR is a ReportView
  Set Label to "Orders by Customer"
  Set Location to 2 23
  Set Size to 72 185
  Set piMinSize to 72 185
  .
  .
  .
Object oRunButton is a Button
  Set Label to "Run Report"
  Set Size to 14 53
  Set Location to 20 122
  Set Default_State to True

  Procedure OnClick
    Boolean bCrystalOK

    Get CheckCrystalEnvironment of oCheckForFlex2Crystal to bCrystalOK
    If (bCrystalOK) Begin
      Send RunReport of oCrystalReport1
    End
    Else Begin
      Send DisplayDialog of oCheckForFlex2Crystal
    End

  End_Procedure

End_Object // oRunButton
.
.
.
Object oCrystalReport1 is a cFlex2Crystal

  Procedure MakeSectionsInvisible integer eSectionType Integer iGroup
    Handle hoReport
    Handle hoAreas hoArea
    Variant vAreas vArea
    Integer iAreas iArea iKind

    Get ReportObject to hoReport

    Get Create of hoReport U_cFlex2CrystalAreas to hoAreas // areas collection
    Get Create of hoReport U_cFlex2CrystalArea to hoArea // area object
```

## Contact Information

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If you would like to know more about Merteck's products, please visit our web site at [www.mertechdata.com](http://www.mertechdata.com) or contact us at

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