

Borland Delphi 6 Product Certification

Borland --- **Study Guide**

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Introduction

This study guide is designed to walk you through requisite information to become product certified in Delphi. The material in this document is organized in the following four sections:

Test Overview – describes the rules and the organization of the test

Technical Resources – recommends training courses, books and manuals that can help acquire the knowledge required to pass the test

Test Sections – lists topics tested in each test section

Sample Questions – provides sample questions with answers

Test Overview

General Details

The test is organized as follows:

- Online test (hosted by Prometric Prime web based testing system)
- Maximum time allowed for test is **60 minutes**
- Test will contain **60 questions** (randomly selected from a total pool of several hundred questions)
- Minimum score required to pass is **80%** (= 48 or more correct answers)
- All test questions are multiple choice. Most questions are of a multiple choice / single answer type. Some questions are multiple choice / multiple answer type. No partial credit is given for the multiple answer type of question.
- All test questions are equally weighted, and thus count equally toward the final score.

Organization of Questions

The test's questions are grouped into the following sections of knowledge:

- Delphi Interface and Configuration
- Delphi VCL/CLX
- Working with Components
- Pascal/Object-Oriented Programming
- Database Concepts/Data Access Techniques
- dbExpress
- Writing DLLs and Packages
- Windows Concepts
- Component Design Basics
- Internet Programming Basics
- Porting Delphi to Kylix
- XML Concepts

Each section contains a large pool of questions. At least one question is randomly chosen from each section. Every iteration of the test contains the same number of questions from each section. We do not provide the actual number of questions per section.

Notice that some subject areas are considered to be advanced topics, for instance, XML or Internet Programming. Questions are asked on advanced topics. However, those questions test only fundamental knowledge of these topics. Thus a fundamental understanding and familiarity of advanced Delphi topics is necessary for successful Borland Delphi Product Certification.

Resources

Training Course

Application Development with Delphi. A 5-day instructor led course available through Borland and Borland Certified Training Partners. See <http://www.borland.com/services/training/classes/Delphi/> for details.

On-line Documentation

Borland Delphi documentation can be obtained from <http://www.borland.com/Delphi/>. You can also review the following white papers at <http://www.borland.com/delphi/papers/>:

- Migrating Your Delphi 5 Projects to Kylix (*Note: though this speaks specifically to D5, the techniques apply to D6*)
- Internet Programming with Delphi

Books

- Steve Teixeira and Xavier Pacheco. *Delphi 6 Developer's Guide*. SAMS, 2001.
- Marco Cantu. *Mastering Delphi 6*. Sybex, 2001.
- Keith Wood. *Delphi Developer's Guide to XML*. McGraw-Hill Professional Publishing. 2001.
- Andrew J. Wozniewicz. *Web Programming with Delphi*. Optimax Publishing. 2001.

Test Sections

Delphi Interface and Configuration

This section tests your knowledge of the Delphi interface and configuration. You will be expected to know the following:

- How to access and manipulate the Component Palette, Object Inspector, Form Designer and Project Manager.
- Effective use of the Code Editor.
- How to effectively change project options and understand their affect on the way Delphi manages your project.
- How to configure and use the integrated debugger. Know the various debugger options and their effect on the debugging process.

Delphi VCL/CLX

This section tests your knowledge of general VCL/CLX concepts. You will be expected to know the following:

- The general hierarchy of the VCL/CLX libraries.
- Differences between the VCL and CLX libraries.
- Understand the Exception object and it's descendants.
- How to override default methods.
- Ways to raise an exception manually.
- How to handle exceptions.
- Exception propagation.
- How to create and use a user-defined exception.

Working with Components

This section tests your knowledge of Delphi's component model and its use. You will be expected to know the following:

- Component ownership and containership.
- Component interaction.
- How to manipulate component properties.

- Basic component methods and events

Pascal/Object-Oriented Programming

This section tests your knowledge of the Pascal language and OOP concepts. You will be expected to know the following:

- Pascal syntax, reserved words and supported data types.
- OOP concepts such as inheritance, polymorphism, abstraction and encapsulation.
- Method overloading.
- Invoking constructors and destructors.
- Controlling application behavior.

Database Concepts/Data Access Techniques

This section tests your knowledge of general database and data access concepts. You will be expected to know the following:

- How to create a database application.
- How the data access components in Delphi work together.
- General requirements and usage of the data-aware components.
- Methods of the data access components and a general knowledge of the sequence of these methods in the context of a transaction.

DbExpress

This section tests your knowledge of general dbExpress concepts. You will be expected to know the following:

- The components available in dbExpress and a fundamental knowledge of how they work together.
- The advantages and disadvantages of unidirectional datasets.
- Differences between TSQLDataset, TSQLQuery, TSQLTable, TSQLStoredProc.
- Use and configuration of the TSQLConnection component.
- How to debug dbExpress applications.

Writing DLLs and Packages

This section tests your knowledge of writing DLLs and the use of Packages. You will be expected to know the following:

- Requirements for writing effective DLLs.
- Package fundamentals such as package structure.
- Understand the *contains* and *requires* clauses of a package.
- How to avoid circular references.

Windows Concepts

This section tests your knowledge of the Windows-specific components of Delphi. You will be expected to know the following:

- General knowledge of the Windows API, including base constants
- Windows message handling techniques
- General knowledge of the Windows Registry

Component Design Basics

This section tests your knowledge of basic component design. You will be expected to know the following:

- How to create new or extend existing components.
- The definition and use of getters and setters.
- Creating properties and fields.
- How to hide or expose component properties and methods.
- Adding new components to the component palette or the object repository.

Internet Programming Basics

This section tests your knowledge of general Internet programming concepts. You will be expected to know the following:

- The Internet components provided in Delphi and how they are used.
- Types of web server applications.
- How to debug server applications.

Porting Delphi to Kylix

This section tests your knowledge of porting Delphi projects to Kylix. You will be expected to know the following:

- How Delphi and Kylix differ.
- CLX equivalents of VCL components.

XML Concepts

This section tests your knowledge of general XML concepts as they relate to Delphi. You will be expected to know the following:

- XML syntax.
- What a Document Type Definition (DTD) is.
- What a XML Schema Definition (XSD) is.
- What a XML Data Reduced (XDR) is.
- How the content and structure of an XML document is validated.
- What components are used in XML applications.
- Working with XML nodes.
- The use of the Data Binding Wizard.
- How to provide the necessary mappings to correlate an XML document and a data packet.

Sample Questions with Answers

Questions

1. Which most accurately describes what should occur when an application is run with the "Stop on Delphi Exceptions" debugger option checked?
 - A) It pauses execution when an exception occurs and invokes the Delphi debugger
 - B) It shuts down the Delphi environment when an Access Violation occurs
 - C) It causes the application to abort when a potentially damaging error occurs
 - D) It honors debugger breakpoints set in the source code. When the option is unchecked, the breakpoints are ignored

2. Which most accurately describes a Component Template?
 - A) A component whose methods are abstract and which has no published properties
 - B) A special component designed to generate parameterized methods at compile time based on the parameter types
 - C) A component that is saved to the Object Repository for the purpose of providing a boilerplate for visually subclassing new components
 - D) A collection of one or more components that has been saved to the component palette and can be retrieved in one single operation

3. Delphi supports which of the following:
- A) Method overloading when the number of parameters differs
 - B) Method overloading when the type of the parameters differs
 - C) Method overloading only when the number and type of the parameters differ
 - D) Method overloading as long as there are default values set for the parameters
4. Given that a user is inputting data for a new record, which event is the correct place to examine and change the user entered data before it is written to the record buffer?
- A) OnValidate
 - B) OnUpdate
 - C) OnDisplayText
 - D) OnChange
5. Which following statement about the "Locate" method is true?
- A) If Locate finds a match, the last record containing the match becomes the current record.
 - B) If Locate does not find a match, the last record becomes the current record.
 - C) If Locate finds a match, the first record containing the match becomes the current record.
 - D) If Locate does not find a match, the first record becomes the current record.
6. What does the Contains clause of a package include?
- A) Unit files contained in current package
 - B) Packages contained in the current package
 - C) Resource files contained in the current package
 - D) Forms contained in the current package

7. Which Win32 construct does the Handle property of a TCanvas component represent?
- A) Bitmap
 - B) Palette
 - C) Window handle
 - D) Device context
8. Which information does the Register procedure require when writing a component?
- A) The name of all the events in the component
 - B) The names of all the methods of the component
 - C) The exported list of all the properties of the component
 - D) The common ancestors of the component
 - E) The page of the Component Palette where the component should appear
9. True or False: TClientSocket is used to manage a single client connection to a TCP/IP server.
10. How is the content and structure of an XML document validated?
- A) With a Document Type Definition (DTD)
 - B) With an XML Schema Definition (XSD)
 - C) With an XML Data Reduced (XDR)
 - D) All of the above

Answers

1. Correct answer: A. Also, an exception dialog is presented to the developer with additional information about the exception thrown.
2. Correct answer: D. A collection of one or more components that has been saved to the component palette and can be retrieved in one single operation.
3. Correct answer: A and B. Methods may be overloaded by varying either the type or number of parameters.
4. Correct answer: A. The onValidate event is called prior to the onPost event. If the input fails validation, the onPost event can be programmatically skipped.
5. Correct answer: C. If Locate finds a match, the first record containing the match becomes the current record.
6. Correct answer: A. The contains clause of a package lists the unit files contained in the package.
7. Correct answer: D. Device context
8. Correct answer: E. The page of the Component Palette where the component should appear
9. Correct answer: TRUE.
10. Correct answer: D. All of the above.