



Script Examples Gallery Reference

Summary

Technical Reference
TR0123 (v1.7) 2 May 2007

This reference manual describes the script examples available in Altium Designer.

The script examples are in the **\Examples\Scripts** folder and within the Scripts folder are the subfolders that are organized by the scripting language set that the scripts belong to. For example DelphiScript scripts are in the DelphiScript Scripts folder. The following examples are available:

- DelphiScript Examples
- EnableBasic Examples
- JScript Examples
- TCL Examples
- VBScript Examples.

Script Examples Gallery

The script examples are in the Altium's **\Examples\Scripts** folder and within the Scripts folder are the subfolders that are organized by the scripting language set that the scripts belong to. For example DelphiScript scripts are in the DelphiScript Scripts folder.

DelphiScript Script Examples

Since the Scripting system is written in Borland Delphi, and the Tool palette consisting of multiple pages of different components that can be dropped on a script form are written in Borland Delphi as well. All DelphiScript scripts whether they are units or forms have a pas extension.

The DelphiScript script examples are sorted in the following script folders:

- General Scripts
- DXP Scripts
- PCB Scripts
- SCH Scripts
- Processes Scripts
- Workspace Manager Scripts

Scripts Examples

General scripts

\\Scripts\DelphiScript Scripts\General Folder

General_Scripts.PRJSCR

| Script Filename | Description |
|---------------------|---|
| MM.pas | This script demonstrates the use of TMediaPlayer component. The Protel.avi file is needed for this MM script. |
| ShowModalEg.pas | This script demonstrates the use of ShowModal property for the script form. |
| IniFileEg.pas | This script demonstrates the use of TIniFile object and the Read/Write methods. |
| TextFileConvert.pas | The input.txt file is provided for demo purposes. |
| TicTac.pas | A Tic Tac Toe game! |
| UpdateTime | This script demonstrates the use of TTimer component and the Time function. |
| SineWave | This script demonstrates how to generate and plot a sine wave on a script form. |
| Mandelbrot | This script demonstrates the use of DelphiScript graphics to build a Mandelbrot set on a script form. |

\\Scripts\DelphiScript Scripts\General Folder

HelloWorld.PRJSCR

| Script Filename | Description |
|------------------|--|
| HelloWorldDialog | A simple hello world message using the Script form. |
| HelloWorld | A simple hello world - an introduction to DelphiScript language. |

\\Scripts\DelphiScript Scripts\General Folder

Zipper.PRJSCR

| Script Filename | Description |
|-----------------|---|
| Zipper | This script facilities the use of zipping facilities in the scripting engine and zips up a DXP 2004 project and its associated files. |

DXP scripts**\\Scripts\DelphiScript Scripts\DXP Folder**

DXP_Scripts.PrjScr

| Script Filename | Description |
|----------------------------------|--|
| ClientServerInterfacesReport.pas | This script demonstrates how to use Client interfaces and retrieves information on server installation files, window kinds, commands and panels. |
| ExtractFilesFromIntLibs.pas | This script demonstrates how to extract source library files from integrated library files with an INTLIB extension. |
| IntLibSearchDemo.pas | This script demonstrates how to find footprints and 3d models in integrated library files and in PCBLIB files. |
| OpenADoc.pas | This script demonstrates how to open a text document using Client's OpenDocument method. |
| ReportIntLibData.pas | This script demonstrates use of Integrated Library Manager and Model Type Manager interfaces to extract data associated with each interface. |
| ReportPCBViews.pas | This script reports all opened PCB documents and its views in DXP. |
| ServerProcessReport.pas | This script demonstrates how to generate a report for all installed servers' processes in DXP. |
| SettingDocumentDirty.pas | This script demonstrates how to set a document dirty, so it gets saved when Save command is invoked. |

\\Scripts\DelphiScript Scripts\DXP Folder

DXPVersion.PrjScr

| Script Filename | Description |
|------------------------|---|
| DXPVersionUnit.pas | This script demonstrates how to find the version number of the DXP application. |

Scripts Examples

PCB scripts

Examples\Scripts\DelphiScript Scripts\PCB folder

PCB_Scripts.PrjScr

| Script Filename | Description |
|---------------------------|--|
| CreateAVia | This script demonstrates how to create a new Via object on a PCB document. |
| CreateComponentOnPCB | This script demonstrates how to create a new component on a PCB document. |
| CreateFootprintInLibrary | This script demonstrates how to create a new footprint on a Library document. |
| CreateNetClass | This script demonstrates how to create a new Object Class that targets nets with a GND property for the currently focussed PCB document. |
| CreatePCBObjects | This script has various functions to create different PCB objects on a PCB document. This script uses the SendMessageToRobots method to send PCB messages |
| CreateRules | This script demonstrates how to create two different rules – maximum – minimum width rule and a room definition rule (confinement constraint). |
| Cycle_Pcb_Cursor_Type | This script cycles through available cursor types on a PCB document. |
| DeletePCBObjects.pas | This script demonstrates how to delete PCB Objects and update the Undo System properly. |
| EmbeddedObjects.pas | This script demonstrates the use of embedded objects; that is, creates and fetches these embedded objects on a current PCB document. |
| NetObjectAssign.pas | This script demonstrates how to assign a net property to a new object that has been placed on a PCB document. |
| PadStackInfo.pas | This script demonstrates how to fetch different pad stack information for pads on a PCB document. A pad can have one of the three different stack up types - Simple, Local Stack up (Top, Middle and Bottom) and Full Stack up (these layers that a full stack can have is dependent on which layers are defined in the Layer Stack Manager in PCB.) |
| PadViaCacheProperties.pas | This script demonstrates the use of TPadCache record and GetObjectAtCursor method for Pad and Via Objects. Load PadViaExamples.PcbDoc from Examples » Scripts » DelphiScript Scripts\PCB folder before running the script. |

| | |
|----------------|--|
| QueryBoard.pas | This script queries the current PCB document for board settings information. |
| Undo.pas | This script demonstrates the PCB's Undo system. Two procedures to demonstrate how the Undo system works - as one large Undo or multiple smaller Undos 1/ Execute UndoEach procedure to undo each object repeatedly with several Undo clicks 2/ Execute UndoAll procedure to remove all objects with one Undo click |

Examples\Scripts\DelphiScript Scripts\PCB\BoardOutline Copier folder

CopyBoardOutline.PrjScr

| Script Filename | Description |
|--------------------------|---|
| CopyBoardOutlineForm.pas | This script copies the board outline as tracks and arcs onto specified layer. Layer and Width values to be specified by the user before proceeding. |

Examples\Scripts\DelphiScript Scripts\PCB\CreateRegionsFromBitmap folder

PCBPictureCreator.PrjScr

| Script Filename | Description |
|--------------------------------|---|
| ConvertPicture | Main form for the script. |
| ConstructContourSetFromPicture | Script that deals with creating the contour set from loaded bitmap. |
| ConstructRegionsFromContourSet | Script that deals with creating regions from each contour set. |

Examples\Scripts\DelphiScript Scripts\PCB\FootprintFinder folder

FootprintFinder.PrjScr

| Script Filename | Description |
|-----------------------|---|
| FindFootprintUnit.pas | Look for a footprint in a PCB library using PCB API |

Examples\Scripts\DelphiScript Scripts\PCB\FromTo_Generator folder

FromTo_Generator.PrjScr

| Script Filename | Description |
|---------------------------------|---|
| CreateInterComponentFromTos.pas | A script to ask the user to select two components then connects pads with same net assignment. Limitations of this script: You need to move the cursor away from a component to exit. No nets excluded (e.g. GND and VCC will be used to) All nets need to be rebuilt |

Scripts Examples

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|-----------------|---|
| | manually after this script (kbd shortcuts: N-H-A followed by N-S-A) |
| FromTosForm.pas | Form for this project. |

Examples\Scripts\DelphiScript Scripts\PCB\Hole Size Editor folder

Hole Size Editor.PrjScr

| Script Filename | Description |
|-----------------|---|
| Customsort.pas | This customsort script contains sorting routines for the Hole Size Editor script. |
| HSEditForm.pas | This is the main script for the Hole Size editor. |
| HSForm.pas | This is the Specific Hole Size Editor dialog to change one of the hole sizes. |

Examples\Scripts\DelphiScript Scripts\PCB\PCB Iterators folder

PCB_Iterators.PrjScr

| Script Filename | Description |
|------------------------|---|
| Count_pads | This script counts the number of pads on a current PCB document. |
| CountTracksInComponent | This script counts tracks of five different components on a current PCB document. |
| IterateComponentBodies | This script fetches component bodies from the current PCB document. |
| IterateNets | This script demonstrates how to iterate for Nets of the current PCB document. |
| IteratePolygons | This script iterates Polygons from the current PCB document. |
| IterateRegions | This script iterates regions from the current PCB document. |
| LibraryIterator | This script demonstrates the use of the library iterator and displays the number of child objects (primitives of a footprint) for each footprint found in a PCB library |
| SpatialIterator | This script demonstrates the use of ChooseRectangleByCorners method and the spatial iterator. Selects free primitives only on the focussed PCB. |

Examples\Scripts\DelphiScript Scripts\PCB\PCB Layers folder

PCB_Layers.PrjScr

| Script Filename | Description |
|---------------------|--|
| Layers_info.pas | This script fetches Layers information based on the current PCB layer stack of the PCB document. |
| QueryLayerPairs.pas | This script queries the current PCB document for PCB Layer pairs. |

| | |
|-----------------------|---|
| QueryLayersOfMechType | This script queries the current PCB document for mechanical layers and extracts the IPCB_MechanicalLayer interface for each mechanical layer found. |
| QueryLayerStack.pas | This script queries the Layer Stack of the current PCB document. |
| QueryMechLayers.pas | This script queries mechanical layers of the current PCB document. |
| QueryUsedLayers.pas | This script queries the current PCB document for layers that are used. |

Examples\Scripts\DelphiScript Scripts\PCB\PCB Logo Creator folder

PCBLogoCreator.PrjScr

| Script Filename | Description |
|-------------------|---|
| Converter.pas | Script form as the dialog that prompts user to load a monochrome image and then choose thickness of tracks, whether to mirror or not etc. |
| CreatePCBLogo.pas | Script unit that does the creation of tracks on a new blank PCB document. |

Examples\Scripts\DelphiScript Scripts\PCB\PCBObjectsMover folder

PCBObjectsMover.PrjScr

| Script Filename | Description |
|-----------------------|---|
| OffsetObjects.pas | Demonstrate the use of ChooseRectangleByCorners method and the spatial iterator. Moves the objects within the defined boundary on the PCB document. |
| OffsetObjectsForm.pas | Form for the project. |

Examples\Scripts\DelphiScript Scripts\PCB\PCBOutputs folder

PCBOutputsProject.PrjScr

| Script Filename | Description |
|------------------------|--|
| PCBOutputGenerator.pas | This unit does the following: 1/ LookForFiducials 2/ Check Board Outline Dimensions 3/ Generate an output (PickPlace and BOM) |
| GetObjectClasses.pas | Object Classes Reporter Script Form. You choose which object class before generating a list of object classes of a particular kind as a text file. |
| Violations.pas | Fetch existing violation objects and generate a report outlining different violations |

Examples\Scripts\DelphiScript Scripts\PCB\PCBLIB Outputs folder

FootprintInfo.PrjScr

Scripts Examples

| Script Filename | Description |
|-------------------------|--|
| FootprintInfoReport.pas | This script generates a CSV formatted report of all footprints with their footprint names, heights and descriptions. |

Examples\Scripts\DelphiScript Scripts\PCB\SwapOrRotateComponents folder

SwapOrRotateComponents.PrjScr

| Script Filename | Description |
|------------------------|---|
| SwapComponentsUnit.pas | Swaps two similar components or rotate a component. A script to ask the user to select two components then have their positions swapped OR if the same component is selected twice, have it rotated Limitations of this script: You need to move the cursor away from a component to exit |

Examples\Scripts\DelphiScript Scripts\PCB\Unique Object Checker folder

UniqueObjectChecker.PrjScr

| Script Filename | Description |
|-------------------|---|
| ObjectChecker.pas | Checks for duplicated Nets and Components on a current PCB document |
| Common.pas | Common routines to use for the project |

Examples\Scripts\DelphiScript Scripts\PCB\ UnRoute Net Class folder

UnRoute Net Class.PrjScr

| Script Filename | Description |
|---------------------|---|
| Form_ChooseNetClass | This script form prompts you to choose which net class so that the objects belonging to this net class can be unrouted. |
| UnrouteNetClass | This is the unit that does the processing of objects belonging to the selected net classes. |

Examples\Scripts\DelphiScript Scripts\PCB\Values Checker folder

ValuesChecker.PrjScr

| Script Filename | Description |
|-------------------|---|
| ValuesCheckerUnit | This Script checks whether objects on the PCB document contain valid values before generating an output for loading in Camtastic. |
| PCBAPIFunctions | Script unit that contains functions to be used for the Values Checker dialog. |

SCH scripts

\\Scripts\\Examples\\DelphiScript Scripts\\SCH folder

Sch_Scripts.Prjscr

| Script Filename | Description |
|----------------------------|---|
| CountPorts.pas | This script uses an iterator to count ports |
| CreateComponent_on_Sch.pas | This script demonstrates how to place a component on a schematic document. |
| CreateSchObjects.pas | This script creates Schematic Objects two ways; 1/ the first procedure places two ports and only one undo will remove both 2/ the second procedure places two ports and need two undos to remove both. This script uses the RobotManager interface to send schematic messages. |
| DeleteSchObjects.pas | The script demonstrates how to delete Schematic Objects and Updating the Undo System by using the RobotManager interface to send schematic messages. |
| FetchParameters.pas | This script fetches system parameters (document parameters) and how to fetch parameters of a component. |
| IterateSchSheets.pas | This script shows how to fetch open schematic sheet handles in Altium Designer. |
| ModelsOfAComponent.pas | This script obtains models for each component on a schematic document and generate a report with a list of components and their associated (linked) models. |
| ModifySchObjects.pas | This script shows how to fetch and modify Schematic Objects and update the undo system by using the RobotManager interface to send schematic messages. |
| MoveParameters.pas | This script shows how to move parameters graphically of a parent object such as a component using the Location property and its get/set methods. |
| ParentChild_Iterators.pas | This script uses an iterator to look for sheet symbols and then within each sheet symbol, use the sheet symbol's iterator to look for sheet entries. |

Scripts Examples

| | |
|--------------------------|---|
| PlaceAPort.pas | This simple script shows how to place a new port object on a Schematic sheet. |
| PlaceSchObjects.pas | This simple script places different objects on a schematic sheet. |
| ReplaceSchObjects.pas | This script replaces cross sheet connectors with port objects and transferring net information automatically. |
| SchDocsRenamer.pas | This script utilises the FileCopy function from Windows unit in Borland Delphi to copy existing files with different filenames. |
| UndoRedo.pas | This script demonstrates how to use the Undo system when a schematic document is being modified. |
| UsingSpatialIterator.pas | This script demonstrates the use of a spatial iterator to conduct a search within a defined region. |
| UsingSchInterfaces.pas | This script demonstrates the Schematic interfaces. |
| UsingWSMInterfaces.pas | This script demonstrates the WorkSpace Manager interfaces. |

Schematic Library scripts

\\Scripts\\Examples\\DelphiScript Scripts\\SCH folder

SchLib_Scripts.Prjscr

| Script Filename | Description |
|-----------------------------------|---|
| CheckPins.pas | This script checks for valid pins of symbols in a library. |
| CreateComp_in_Lib.pas | This script demonstrates how to create a new symbol in the library. |
| CompLibReader.pas | This script uses the CreateLibCompInfoReader method to extract component data of a specified Schematic Library. |
| LibIterator.pas | This script shows how to iterate through a schematic library and fetch symbols. |
| ParametersOfSymbolsInALibrary.pas | This script shows how to fetch parameters of symbols in a schematic library using an iterator. |
| SymbolPrimsIterator | This script shows how to fetch primitives of a symbol. |

\\Scripts\\Examples\\DelphiScript Scripts\\SCH\\Import Pins folder

ImportPins.PrjScr

| Script Filename | Description |
|-----------------------|---|
| ImportPinsForm.pas | <p>The ImportPinsForm is the main form. You need a CSV file that contains data for pins to import and create new Pins onto a SchLib document.</p> <p>To use the script:</p> <ol style="list-style-type: none"> 1/ Execute the ImportPins procedure and the Pins Importer dialog appears. 2/ Click on browse button to load in the CSV file of schematic pins data. 3/ Click on the Update Mapping button to refresh the links between text fields and pin properties, then click on Import button to generate a list of different pins on a Sch library page. |
| ChangeMappingForm.pas | Change Mapping Dialog to map fields from a CSV text file. This script is used by the main Import Pin dialog |
| ConvUtils.pas | This script has the Conversion of Schematic Types To Strings and Vice Versa routines |
| Test.CSV | This file contains pin information which is used for the ImportPins script. |

\\Scripts\\Examples\\DelphiScript Scripts\\SCH\\Font Editor folder

Fonts Editor.PrjScr

| Script Filename | Description |
|-----------------|---|
| FontsDialog.pas | This script demonstrates the use of Schematic Font Manager interface. |

\\Scripts\\Examples\\DelphiScript Scripts\\SCH\\UpdateFootprintLocations folder

FootprintPathUpdater.PrjScr

| Script Filename | Description |
|---------------------------------|---|
| UpdateFootprintPathsOfComps.pas | <p>A Schematic Component has a Footprint (PCB Model) property and its Library Path property. There are situations when components have the same footprint name but come from different libraries.</p> <p>This script allows you to choose a footprint name from the currently open schematic and then choose one of available footprint locations. The locations are based on existing components footprint' locations. Then when dialog is closed, all the components that have the same</p> |

Scripts Examples

footprint name have their locations updated with the specified location.

Make sure you have libraries installed for the Sch Components so that footprint library locations (paths) can appear.

Processes scripts

\Scripts\DelphiScript Scripts\Processes Folder

Process_Scripts.PrjScr

| Script Filename | Description |
|---------------------|---|
| QuikCopy.pas | This script demonstrates how to select objects, then copy and paste them using ToggleSelection, Deselect, Paste and Copy processes. |
| RunCommonDialog.pas | This script demonstrates how to invoke the Client module's Common dialog and to fetch parameters. |
| ShowNetlist.pas | This script demonstrates how easy it is to generate a report using WorkspaceManager's GenerateReport process. |
| SimpleExample.pas | This script demonstrates the use of AddIntegerParameter and GetIntegerParameter functions. |
| PCBColor.pas | This script demonstrates how to change PCB Colors for a PCB document using the SetupPreferences process. |
| PCBLayer.pas | This script demonstrates how to toggle the visibility of PCB Layers using the DocumentPreference process. |
| PlacePCBPolygon.pas | This script places a new PCB polygon object on a PCB document using the PlacePolygonPlane process. |
| PlaceSchPort.pas | This script places a new Schematic Port object on a Schematic document using the PlacePort process. |
| CirWiz | This script form generates a simple filter circuit and place on a schematic sheet. |
| Clrins1.pas | This script demonstrates how to delete objects within an area defined by user. |
| Clrins2.pas | This script demonstrates how to delete objects within an area defined by user. But the user is prompted before objects are cleared. |

Scripts Examples

Workspace Manager scripts

\Examples\Scripts\DelphiScript Scripts\WSM

WSM_Scripts.PrjScr

| Script Filename | Description |
|-----------------------|---|
| AddDocToProject.pas | This script demonstrates how to insert a schematic sheet in a new PCB Project. There needs to be a sheet1.schdoc file in C:\ folder first. |
| UsingMessagePanel.pas | This script demonstrates how to insert text messages in the Message Panel in DXP. This is a useful debugging tool. |
| Netlister.pas | This script demonstrates how to generate a specific PackingList format file for a Schematic project |
| ProjectReporter.pas | This script finds currently open projects including Free projects in DXP. A free project is a group of documents that are not related to any project. |

\Examples\Scripts\DelphiScript Scripts\WSM

ScripterProtelNetlist.PrjScr

| Script Filename | Description |
|---------------------------|--|
| ScripterProtelNetlist.pas | <p>This script demonstrates the use of WorkSpaceManger interfaces to generate a Protel Netlist. The Netlist file is generated in Generated folder for the current Project on the Projects Panel.</p> <p>To run this script, you need to have the ScripterProtelNetlist.PRJSCR project opened, then call Run script command from the DXP System menu and select the ScripterProtelNetlist.pas file from the Select Item to Run dialog.</p> <p>The script will then generate a netlist for the current project, so make sure you have that project focused before you run the script.</p> |

EnableBasic Script Examples

The script examples are in \Examples\Scripts\EnableBasic\ Scripts folder. The EnableBasic scripts have a bas extension.

EnableBasic Script examples

| Script Filename | Description |
|------------------|---|
| Clrins1.bas | Delete objects within an area defined by user. |
| Clrins2.bas | Delete objects within an area defined by user. Confirm before deleting. |
| PcbColor.bas | This script demonstrates the use of processes in changing PCB Colors. |
| PcbLayer.bas | This script demonstrates the use of processes in changing PCB Layers. |
| Quikcopy.bas | This script demonstrates how to select objects and then Copy and Paste using processes. |
| CirWiz.bas | The script demonstrates the use of processes in placing/connecting parts together. |
| PlaceSchPort.bas | Place Schematic Port Object with the PlacePort process. |

Scripts Examples

JScript Script Examples

The script examples are in the \Examples\Scripts\JScript Scripts\ folder. The JScript scripts have a js extension.

JScript examples

| Script Filename | Description |
|----------------------|---|
| SineWave | This script demonstrates how to generate and plot a sine wave on a script form. Uses Components and a Script form. |
| ViaCreation | This script demonstrates how to create a new Via object on a PCB document. Uses PCB Object model. |
| ParentChildIterators | This script uses an iterator to look for sheet symbols and then within each sheet symbol, use the sheet symbol's iterator to look for sheet entries. Uses Schematic Object Model. |
| HelloWorld | A simple hello world - an introduction to JScript language. |
| GetScriptEngineInfo | Retrieves the Microsoft Scripting Engine version number. |
| CopyBoardOutline | This script copies the board outline as tracks and arcs onto specified layer. Layer and Width values to be specified by the user before proceeding. Uses PCB Object Model. |
| AddDocToProject | This script demonstrates how to insert a schematic sheet in a new PCB Project. There needs to be a sheet1.schdoc file in C:\ folder first. |
| ServerProcessReport | This script demonstrates how to generate a report for all installed servers' processes in DXP. |

TCL Script Examples

No examples at present.

VBScript Script Examples

The script examples are in the \Examples\Scripts\VBScript Scripts\ folder. The VBScript scripts have a vbs extension.

VBScript examples

| Script Filename | Description |
|----------------------|---|
| SineWave | This script demonstrates how to generate and plot a sine wave on a script form. Uses Components and a Script form. |
| ViaCreation | This script demonstrates how to create a new Via object on a PCB document. Uses PCB Object model. |
| ParentChildIterators | This script uses an iterator to look for sheet symbols and then within each sheet symbol, use the sheet symbol's iterator to look for sheet entries. Uses Schematic Object Model. |
| HelloWorld | A simple hello world - an introduction to VBScript language. |
| GetScriptEngineInfo | Retrieves the Microsoft Scripting Engine version number. |
| CopyBoardOutline | This script copies the board outline as tracks and arcs onto specified layer. Layer and Width values to be specified by the user before proceeding. Uses PCB Object Model. |
| AddDocToProject | This script demonstrates how to insert a schematic sheet in a new PCB Project. There needs to be a sheet1.schdoc file in C:\ folder first. |
| ServerProcessReport | This script demonstrates how to generate a report for all installed servers' processes in DXP. |

Query Script Examples

The script examples are in \Examples\Scripts\Query Scripts\ folder.

Query Script examples

| Script Filename | Description |
|----------------------|---|
| SimpleExpression.pas | Demonstration of a query script to execute in the Filter panel's query window for a PCB document. Query scripts need to be installed in the Installed Projects list from DXP » Preferences » DXP System » Scripting System |

Revision History

| Date | Version No. | Revision |
|-------------|-------------|--|
| 09-Dec-2004 | 1.0 | New product release |
| 26-Apr-2005 | 1.1 | Updated for Altium Designer 2004 |
| 9 Nov 2005 | 1.2 | New release for Altium Designer 6 |
| 2 Feb 2006 | 1.3 | Updated for Altium Designer 6 |
| 31 Mar 2006 | 1.4 | New script examples added |
| 5-Apr 2006 | 1.5 | Fixed up formatting inconsistencies with footers and text. |
| 21-Apr 2006 | 1.6 | Reformatting applied. |
| 1 May 2007 | 1.7 | New script examples added. |

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