



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.

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	<p>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</p> <p>1/ Execute UndoEach procedure to undo each object repeatedly with several Undo clicks</p> <p>2/ Execute UndoAll procedure to remove all objects with one Undo click</p>

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

	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_ChoseNetClass	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	<p>This script creates Schematic Objects two ways;</p> <p>1/ the first procedure places two ports and only one undo will remove both</p> <p>2/ the second procedure places two ports and need two undos to remove both.</p> <p>This script uses the RobotManager interface to send schematic messages.</p>
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.
UsingaSpatialIterator.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> <p>1/ Execute the ImportPins procedure and the Pins Importer dialog appears.</p> <p>2/ Click on browse button to load in the CSV file of schematic pins data.</p> <p>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.</p>
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.

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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