The ArcaOS Installer

The Graphical Installer Elements

- The Installer is made up from a number of elements:

    - The pre-boot process

    - The Graphical Installer

    - The installation routine

The Graphical Installer History

- Late in 2015 it became apparent that a new graphical installer was required
- The preliminary designs were formulated
- Initially the outlines were vague
- January 2016 coding started
- And the project grew

The Graphical Installer Team

Alex Taylor

David Azarewicz

Keith Merrington

Lewis Rosenthal

Plus the many beta testers

The Graphical Installer Requirements

- The basic requirement was:
  - Guide the user through an easy-to-use path for selecting installation options (using a graphical 'wizard')
  - Should be easy to modify

The Graphical Installer Modes

It was decided that there would be 3 modes in which the installer would operate:

Mode 1
- This mode would have a left and a right panel. The left panel would contain a read-only index, used to show steps and progress
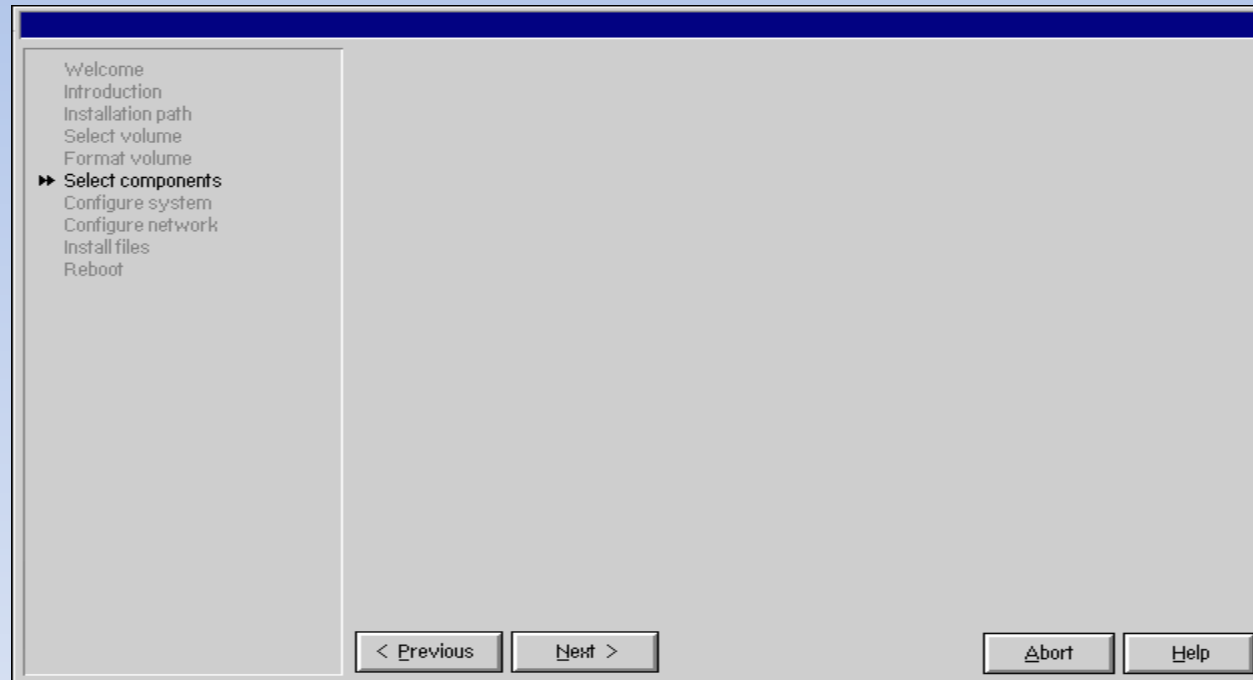
Mode 2
- This mode is similar to Mode 1, except the left panel becomes a navigable list. This makes it useful as a SmartGuide replacement

Mode 3
- This mode dispenses with the left panel entirely. This is useful for simple, linear wizards. In this mode the window can be resized and moved and is shown in the task list.
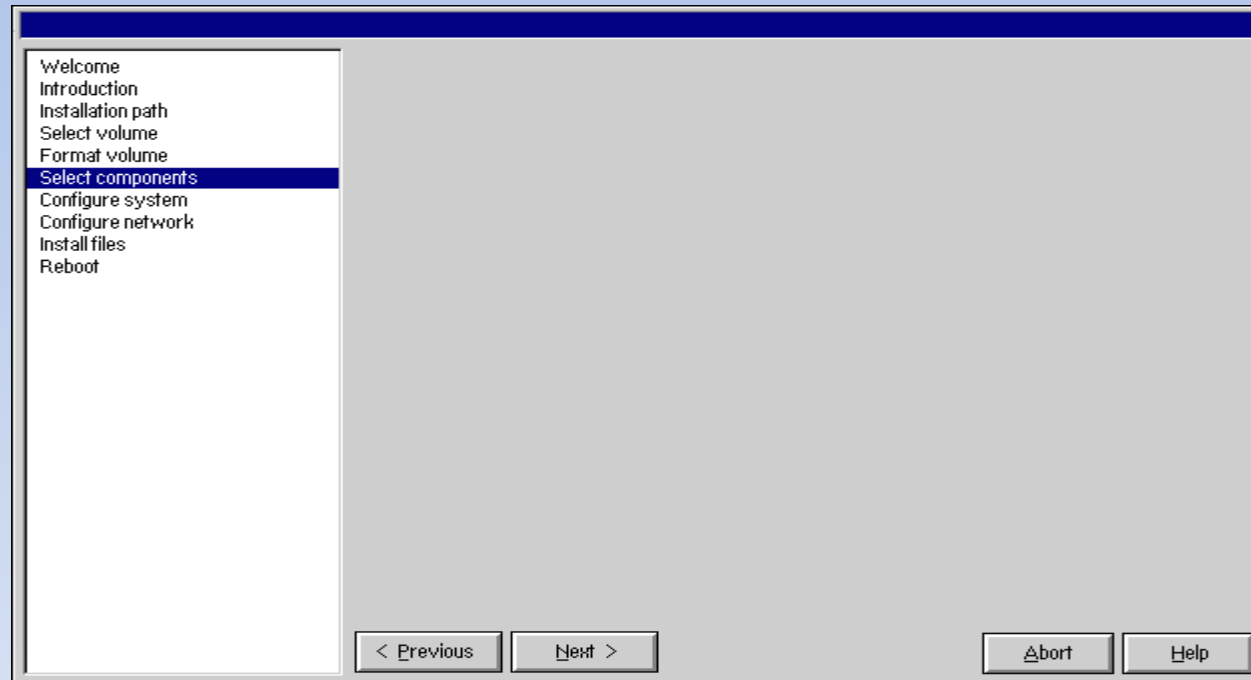
The Graphical Installer

- Mode 1

The Graphical Installer

- Mode 2

The Graphical Installer

- Mode 3

The Graphical Installer Internals

- The GUI Installer is script driven

- Each page layout is defined in a DLL

- Selections and data are exported to a file for backend handling

- Page data is stored and restored when a page is re-selected

- Internal programs are available

The Graphical Installer Internals-Consequences

- If an error was reported there were always more than one area were the fault might originate:
    - The install.exe code
    - The DLL code
    - The Script
    - Or any combination of the above
    - Or a different interpretation on how something worked

The Graphical Installer Syntax

INSTALL scriptname [mode] [size and position] [/t] [/Logs=]

The Graphical Installer Syntax

INSTALL scriptname [mode] [size and position] [/t] [/Logs=]

Scriptname   The name of the first script to execute (by default startfile1)

The Graphical Installer Syntax

INSTALL scriptname [mode] [size and position] [/t] [/Logs=]

Scriptname   The name of the first script to execute (by default startfile1)

Mode   The installer mode

The Graphical Installer Syntax

INSTALL scriptname [mode] [size and position] [/t] [/Logs=]

Scriptname   The name of the first script to execute (by default startfile1)

Mode   The installer mode

Size & Position   Horiz_size, Vert_size, Horiz_pos, Vert_pos **(all as 1/1000 of screen size)**

The Graphical Installer Syntax

INSTALL scriptname [mode] [size and position] [/t] [/Logs=]

Scriptname   The name of the first script to execute (by default startfile1)

Mode   The installer mode

Size & Position   Horiz_size, Vert_size, Horiz_pos, Vert_pos (all as 1/1000 of screen size)

/t   Test mode (allows repositioning and adds min/max and close buttons)

The Graphical Installer Syntax

INSTALL scriptname [mode] [size and position] [/t] [/Logs=]

Scriptname   The name of the first script to execute (by default startfile1)

Mode   The installer mode

Size & Position   Horiz_size, Vert_size, Horiz_pos, Vert_pos (all as 1/1000 of screen size)

/t   Test mode (allows repositioning and adds min/max and close buttons)

/Logs=   Log file name and location (default is install.log)

The Graphical Installer
Script identifiers

The Graphical Installer
Script identifiers

Only specific identifiers may be used for specific types of windows and buttons in the resource file.

The Graphical Installer
Script identifiers

Only specific identifiers may be used for specific types of windows and buttons in the resource file.

IC_n*   These items can have their text fields set in a script via the CAPTION command, Typically the elements are :- LTEXT, RTEXT, GROUPBOX, AUTOCHECKBOX, AUTORADIOBUTTONS, PUSHBUTTONS, CONTROL, etc.

* number

The Graphical Installer
Script identifiers

Only specific identifiers may be used for specific types of windows and buttons in the resource file.

IC_n*   These items can have their text fields set in a script via the CAPTION command, Typically the elements are :- LTEXT, RTEXT, GROUPBOX, AUTOCHECKBOX, AUTORADIOBUTTONS, PUSHBUTTONS, CONTROL, etc.

ID_n*   Data items which may be the elements :- COMBOBOX, LISTBOX, ENTRYFIELD, CONTAINER, etc.

* number

The Graphical Installer
Script identifiers

Only specific identifiers may be used for specific types of windows and buttons in the resource file.

IC_n*   These items can have their text fields set in a script via the CAPTION command, Typically the elements are :- LTEXT, RTEXT, GROUPBOX, AUTOCHECKBOX, AUTORADIOBUTTONS, PUSHBUTTONS, CONTROL, etc.

ID_n*   Data items which may be the elements :- COMBOBOX, LISTBOX, ENTRYFIELD, CONTAINER, etc.

IL_n*   Only to be used with lists

**   * number**

The Graphical Installer
Script identifiers

Only specific identifiers may be used for specific types of windows and buttons in the resource file.

IC_n*   These items can have their text fields set in a script via the CAPTION command, Typically the elements are :- LTEXT, RTEXT, GROUPBOX, AUTOCHECKBOX, AUTORADIOBUTTONS, PUSHBUTTONS, CONTROL, etc.

ID_n*   Data items which may be the elements :- COMBOBOX, LISTBOX, ENTRYFIELD, CONTAINER, etc.

IL_n*   Only to be used with lists

IT_n*   HTML text ID's. These are placeholders for html text set in a script via the TEXT command or StatusList command. The last (highest) IT_n identifier is given the remaining vertical space.

* number

The Graphical Installer
Script identifiers

Only specific identifiers may be used for specific types of windows and buttons in the resource file.

IC_n*   These items can have their text fields set in a script via the CAPTION command, Typically the elements are :- LTEXT, RTEXT, GROUPBOX, AUTOCHECKBOX, AUTORADIOBUTTONS, PUSHBUTTONS, CONTROL, etc.

ID_n*   Data items which may be the elements :- COMBOBOX, LISTBOX, ENTRYFIELD, CONTAINER, etc.

IL_n*   Only to be used with lists

IT_n*   HTML text ID's. These are placeholders for html text set in a script via the TEXT command or StatusList command. The last (highest) IT_n identifier is given the remaining vertical space.

-1   for any item not used by any script command

**   * number**

The Graphical Installer
Script Items

Action   Enable/Disable Show /Hide items execute a program

The Graphical Installer
Script Items

Action   Enable/Disable Show /Hide items execute a program

Button   Define text for one of the four buttons

The Graphical Installer
Script Items

Action   Enable/Disable Show /Hide items execute a program

Button   Define text for one of the four buttons

Captions   Define caption text to an item an export name

The Graphical Installer
Script Items

Action   Enable/Disable Show /Hide items execute a program

Button   Define text for one of the four buttons

Captions   Define caption text to an item an export name

Comment   Comment in a script. Ignored in execution

The Graphical Installer
Script Items

Action	Enable/Disable Show /Hide items execute a program
Button	Define text for one of the four buttons
Captions	Define caption text to an item an export name
Comment	Comment in a script. Ignored in execution
Data	Control item data (sorting, line selection, Next button enabling)

The Graphical Installer
Script Items

Action	Enable/Disable Show /Hide items execute a program
Button	Define text for one of the four buttons
Captions	Define caption text to an item an export name
Comment	Comment in a script. Ignored in execution
Data	Control item data (sorting, line selection, Next button enabling)
EntryFieldText	Text to be placed in an entry field (may use system variables)

The Graphical Installer Script Items

Action	Enable/Disable Show /Hide items execute a program
Button	Define text for one of the four buttons
Captions	Define caption text to an item an export name
Comment	Comment in a script. Ignored in execution
Data	Control item data (sorting, line selection, Next button enabling)
EntryFieldText	Text to be placed in an entry field (may use system variables)
Execute	Execute an internal or external program (wait, once)

The Graphical Installer
Script Items

HelpID   Indicate which help panel to display when the help key is used.

The Graphical Installer
Script Items

HelpID   Indicate which help panel to display when the help key is used.

KeyPress   Simulate a button being pressed (start action)

The Graphical Installer
Script Items

HelpID   Indicate which help panel to display when the help key is used.

KeyPress   Simulate a button being pressed (start action)

Label   Define a symbolic label

The Graphical Installer
Script Items

HelpID   Indicate which help panel to display when the help key is used.

KeyPress   Simulate a button being pressed (start action)

Label   Define a symbolic label

List   Define a list (blankline, beginitem, selected, selected depends, item, subitem, disabled depends, radiobuttons text, info_text, numeric identifier)

List_Add   Add to an existing list

The Graphical Installer
Script Items

HelpID   Indicate which help panel to display when the help key is used.

KeyPress   Simulate a button being pressed (start action)

Label   Define a symbolic label

List   Define a list (blankline, beginitem, selected, selected depends, item, subitem, disabled depends, radiobuttons text, info_text, numeric identifier)

List_Add   Add to an existing list

Logo   Display a logo (left panel)

The Graphical Installer
Script Items

HelpID   Indicate which help panel to display when the help key is used.

KeyPress   Simulate a button being pressed (start action)

Label   Define a symbolic label

List   Define a list (blankline, beginitem, selected, selected depends, item, subitem, disabled depends, radiobuttons text, info_text, numeric identifier)

List_Add   Add to an existing list

Logo   Display a logo (left panel)

Menu   Provide menu items (submenu, menuitem, separator, menu text, program)

The Graphical Installer
Script Items

Module   The DLL name

The Graphical Installer
Script Items

Module   The DLL name

NextScript   Define next script to execute

The Graphical Installer
Script Items

Module   The DLL name

NextScript   Define next script to execute

Protocol   Add one or more protocols to the first LAN

The Graphical Installer
Script Items

Module   The DLL name

NextScript   Define next script to execute

Protocol   Add one or more protocols to the first LAN

Select   Next script selection dependency

The Graphical Installer
Script Items

Module	The DLL name
NextScript	Define next script to execute
Protocol	Add one or more protocols to the first LAN
Select	Next script selection dependency
StatusList	Define an item to be added to the status list (init, show, sorted, add).

The Graphical Installer
Script Items

Module   The DLL name

NextScript   Define next script to execute

Protocol   Add one or more protocols to the first LAN

Select   Next script selection dependency

StatusList   Define an item to be added to the status list (init, show, sorted, add).

TaskList   Init, destroy, or add an item to the task list (left panel)

The Graphical Installer Script Items

Module	The DLL name
NextScript	Define next script to execute
Protocol	Add one or more protocols to the first LAN
Select	Next script selection dependency
StatusList	Define an item to be added to the status list (init, show, sorted, add).
TaskList	Init, destroy, or add an item to the task list (left panel)
TaskListItem	Indicate which item in the tasklist should be shown selected

The Graphical Installer
Script Items

Text (HTML)   Define text to be displayed

The Graphical Installer Script Items

Text (HTML)   Define text to be displayed

Title   The title text

The Graphical Installer
Internal Programs

The Graphical Installer
Internal Programs

EXIT   Terminate the installer **(only available in menu command)**

The Graphical Installer Internal Programs

EXIT   Terminate the installer **(only available in menu command)**

CHECK   Check that data meets the criteria specified

The Graphical Installer
Internal Programs

EXIT   Terminate the installer **(only available in menu command)**

CHECK   Check that data meets the criteria specified

CHECK_IP   Check that data meets the criteria for an IP address

The Graphical Installer
Internal Programs

EXIT   Terminate the installer **(only available in menu command)**

CHECK   Check that data meets the criteria specified

CHECK_IP   Check that data meets the criteria for an IP address

DISKINFO   Get disk information

The Graphical Installer Internal Programs

EXIT   Terminate the installer **(only available in menu command)**

CHECK   Check that data meets the criteria specified

CHECK_IP   Check that data meets the criteria for an IP address

DISKINFO   Get disk information

DISKLIST   Display the list of installable/available drives

The Graphical Installer
Internal Programs

EXIT   Terminate the installer **(only available in menu command)**

CHECK   Check that data meets the criteria specified

CHECK_IP   Check that data meets the criteria for an IP address

DISKINFO   Get disk information

DISKLIST   Display the list of installable/available drives

ENABLE   Enable/disable items depending on a checkbox state

The Graphical Installer
Internal Programs

EXIT   Terminate the installer **(only available in menu command)**

CHECK   Check that data meets the criteria specified

CHECK_IP   Check that data meets the criteria for an IP address

DISKINFO   Get disk information

DISKLIST   Display the list of installable/available drives

ENABLE   Enable/disable items depending on a checkbox state

FILEMGR   Open the default file dialog and save selected item

The Graphical Installer
Internal Programs

EXIT   Terminate the installer **(only available in menu command)**

CHECK   Check that data meets the criteria specified

CHECK_IP   Check that data meets the criteria for an IP address

DISKINFO   Get disk information

DISKLIST   Display the list of installable/available drives

ENABLE   Enable/disable items depending on a checkbox state

FILEMGR   Open the default file dialog and save selected item

FONT   Switch font

The Graphical Installer
Internal Programs

HWDETECT   Detect hardware

The Graphical Installer
Internal Programs

HWDETECT   Detect hardware

KB   Switch keyboard layout

The Graphical Installer
Internal Programs

HWDETECT   Detect hardware

KB   Switch keyboard layout

LANG   Switch current language and help file

The Graphical Installer
Internal Programs

HWDETECT   Detect hardware

KB   Switch keyboard layout

LANG   Switch current language and help file

MOUSE   Switch mouse left handed / right handed

The Graphical Installer
Internal Programs

HWDETECT   Detect hardware

KB   Switch keyboard layout

LANG   Switch current language and help file

MOUSE   Switch mouse left handed / right handed

NETWORK   Detect network cards etc.

The Graphical Installer Internal Programs

HWDETECT	Detect hardware
KB	Switch keyboard layout
LANG	Switch current language and help file
MOUSE	Switch mouse left handed / right handed
NETWORK	Detect network cards etc.
PROGRESS	Create a ribbon showing a progress indicator in percent

The Graphical Installer
Internal Programs

HWDETECT   Detect hardware

KB   Switch keyboard layout

LANG   Switch current language and help file

MOUSE   Switch mouse left handed / right handed

NETWORK   Detect network cards etc.

PROGRESS   Create a ribbon showing a progress indicator in percent

PATHMGR   Open dialog and select a directory

The Graphical Installer DLL

- The DLL is in three parts:
  - RC include statements and comments
  - The window definitions
  - A string table
    - The positioning override table
    - The tab sequence table

The Graphical Installer
DLL - RC include statements

#include <os2.h>

#include "h:\bluelion\installer\install.h"

/* #Language Dependent English */

The Graphical Installer
DLL – window definitions

```
DLGTEMPLATE ID_INSTALL LOADONCALL MOVEABLE DISCARDABLE
BEGIN
DIALOG  "", ID_INSTALL, 0, 0, 188, 162, FS_ICON | NOT FS_DLGBORDER | WS_VISIBLE
BEGIN
CONTROL    "", IT_2,  4, 120, 170,  46, WC_STATIC, SS_FGNDRECT |  WS_GROUP | WS_VISIBLE
CONTROL    "", ID_4, 50,  37, 131,  54, WC_COMBOBOX,   CBS_DROPDOWNLIST | WS_GROUP |          WS_TABSTOP |
WS_VISIBLE
CONTROL    "", ID_3, 50,  43, 131,  34, WC_COMBOBOX, CBS_DROPDOWNLIST | WS_GROUP |       WS_TABSTOP WS_VISIBLE
CONTROL    "", ID_2, 50,   1, 131,  48, WC_COMBOBOX, CBS_DROPDOWNLIST | WS_GROUP |       WS_TABSTOP |  WS_VISIBLE
CONTROL    "", ID_1, 50,   1, 131,  34, WC_COMBOBOX, CBS_DROPDOWNLIST | WS_GROUP |       WS_TABSTOP | WS_VISIBLE
LTEXT      "", IT_1,  6, 105, 140,  18, DT_MNEMONIC
GROUPBOX   "", IC_6,  5,  62, 180,  41
LTEXT      "", IC_5,  8,  80,  39,  12, DT_VCENTER
LTEXT      "", IC_4,  8,  66,  39,  12, DT_VCENTER
GROUPBOX   "", IC_3,  5,  18, 180,  41
LTEXT      "", IC_2,  8,  38,  39,  12, DT_VCENTER
LTEXT      "", IC_1,  8,  24,  39,  12, DT_VCENTER
END
END
```

The Graphical Installer
DLL – A string table

```
STRINGTABLE
BEGIN
        TABLIST "IC_3, ID_1, IC_2, IC_1"


//                    [% size]          [per 1/1000 of screen size]
//         ID      Fac HMul VMul        XSize   YSize   Xpos    Ypos


        ID_2    "21,  50, 100,          380,    25F,    540,   797"
        IL_1    "48,  50, 110,          460,    860,     30,    30"
        ID_1    "49,  50, 100,          460,    860,    520,    30"
        IC_3    "4,  100, 100,          900,     30,     30,   930"
        IC_2    "5,   50, 100,          900,     30,    540,   840"
        IC_1    "5,   50, 100,          900,    35F,    540,   750"
END
```

The Graphical Installer

Questions / Suggestions?

The Graphical Installer Demo

The Graphical Installer

Thank You