

Index

A

accessibility
 defined, 69
 incorporating into
 development lifecycle, 51
Accessibility Interoperability Alliance (AIA), 69
Accessible Event Watcher, 48–49, 69
alternative text for graphics, 11, 69
APIs, 69. *See also* Microsoft Active Accessibility API; UI Automation API
application programming interfaces (APIs), 69. *See also* Microsoft Active Accessibility API; UI Automation API
applications. *See* providers
arrow keys, navigating with, 24
assistive technology (AT)
 products. *See* ATs (assistive technology products)
ATs (assistive technology products). *See also* clients
 defined, 69
 order in which elements read, 13
 overview of, 1
 standard mapping scheme, 14
 user feedback on, 50
automated test drivers, 48
Automation Elements
 Control Types and Patterns, 3
 defined, 69
 overview of, 59
 properties, 6, 32–34, 61
 structure of, 3
Automation Events, 62
Automation IDs, 69
automation tree. *See* UIA Tree

B

beta products, 69
bugs, 69
button control, 3

C

calendar grid control, 33–34
child elements, 69
clients
 actions performed by, 2–3
 defined, 69
 provider communication with, 1–2
ComboBox control, 3
Common Controls, 69
containers
 defined, 12
 in logical hierarchies, 12
content view of UIA Tree, 5, 61
contextual elements, vs.
 decorative, 24
control libraries, 15
Control Patterns
 correlation to Control Types, 68
 custom, 7
 for custom controls,
 determining which apply, 31–32, 36–37
 defined, 29, 70
 examples of, 3, 5
 overview of, 5, 61
 properties. *See* properties
 Properties, required, 35–36
 supported in UI Automation, 15
 in Windows Automation API, 61
Control Types
 assigning to elements, 61
 Automation Element Properties, 32–34
 correlation to Control Patterns, 68
 defined, 29, 70
 examples of, 3
 generic, 6
 mapping, 16
 mapping custom controls to, 27, 31–38
 multiple elements for, marking, 21
 overview of, 5, 61
 pre-defined, number of, 62
 supported in UI Automation, 15
control view of UIA Tree, 4, 61
controls. *See also* custom controls
 Control Patterns and Properties, determining, 36
 defined, 70
 designing, 9
 determining which need custom UIA solutions, 28
 functionality, determining, 36–37
 generic control type for, 6
 mapping, 11, 22
 programmatically access to, 43
 standard, advantages of, 25
 standard, identifying, 20
 standard, UI framework guidelines and, 27
 structures, examining, 22
custom controls
 Control Patterns, determining which apply, 31–32
 defined, 70
 identifying, 16, 20
 implementation table for, 30
 mapping to UIA Control Type, 27, 31–38, 40
 native UIA solutions. *See* native UIA solutions for controls
 publishing Control Type specifications, 41
 UIA Methods, determining required, 42
 UIA Specification list, checking against, 37–38

D

data grids, 12. *See also* containers
DataGrid Control Type, 32–33
decorative elements, vs.
 contextual, 24

delivering product

delivering product, 50
 depth-first search tree traversal
 pattern, 14, 70
 designing UI, 9–10
 desktop, as root element of UIA
 Tree, 3
 development lifecycle. *See*
 product lifecycle
 diagram format for logical
 hierarchy, 15
 diagramming user elements.
See logical hierarchy
 digital inclusion, 70
 disability, 70

E

elements. *See* UI elements
 end user experience,
 importance of, 46
 events, 7, 62, 70

F

formatting logical hierarchy,
 14–15
 framework, UI
 choosing, 9
 decisions dependent on, 43
 defined, 70

G

graphics
 alternative text for, 11, 69
 decorative vs. contextual, 24
 Grid Pattern property, 35
 grouping elements. *See*
 containers

H

header files for UIA, 66–67
 high contrast, 70
 high dots per inch (DPI), 70

I

IAccessibleEx interface, 62, 70
 icons. *See* graphics
 images. *See* graphics
 implementation table, 30, 70

Information Technology
 Industry Council (ITIC), 71
 in-process, 71
 Inspect Objects tool, 47–49, 71
 investigation tools, 45–46
 Accessible Event Watcher,
 48–49
 defined, 71
 Inspect Objects, 47
 pros and cons, 47
 UI Spy, 49
 UIA Verify, 49

K

keyboard access, testing, 45, 49
 keyboard focus, 43
 keyboard navigation, designing,
 24

L

libraries, 71
 List control, 3
 logging UIA Events, 47
 logical hierarchy
 containers in, 12
 defined, 71
 designing, 16, 24–25
 diagram format, 15
 diagramming, 10–11
 elements, identifying which to
 include, 16
 elements and controls in, 11
 ellipses in nodes, 21
 formatting, 14–15
 keyboard navigation and, 24
 mapping symbols, 21
 navigation and, 12
 navigational order, 19
 outline format, 14
 overview of, 10
 relationships in, 22–23
 standard mapping scheme, 14
 table format, 14
 timecard example, 18–19
 UI element mapping, 11
 vs. UIA Tree, 10–11

M

mapping scheme, 14

mapping symbols for logical
 hierarchy, 21
 Microsoft Accessibility
 Developer Center, 71
 Microsoft Active Accessibility
 (MSAA) API
 architecture of, 55
 COM interface, 54
 components of, 55
 defined, 71
 IAccessibleEx interface, 62
 interoperability with UI
 Automation API, 56–57
 limitations of, 58
 supporting UI Automation, 62
 vs. UI Automation API, 54
 UI element representation
 in, 54
 Microsoft Active Accessibility
 (MSAA) properties, 46
 Microsoft Developer Network
 (MSDN), 71
 Microsoft UI Automation
 Community Promise, 71
 mouse actions, correlating
 keyboard actions to, 17

N

Name property, 46
 naming UI elements, 11
 native UIA solutions for
 controls, 27
 navigational order in UI, 12–13,
 16, 19
 decorative elements vs.
 contextual elements, 24
 nodes, 71

O

OLEACC.dll, 55, 66, 71
 on-screen keyboard, 72
 outlining logical hierarchy, 14
 out-of-process, 72

P

patterns. *See* Control Patterns
 persona, 72
 pictures. *See* graphics
 platform, 72

product lifecycle
 accessibility considerations
 for, 51
 defined, 72
 programmatic access
 defined, 72
 testing, 45
 programmatically significant
 elements, defined, 16
 properties, 61
 changes in, event for, 7
 for Control Patterns, 35–36
 custom, 7
 for custom controls, 32–34
 for custom controls,
 determining which apply,
 36–37
 defined, 29, 72
 specifications for, 6
 in UI Automation
 specification, 61
 prototypes, 15
 providers
 actions performed by, 2
 communication with clients,
 1–2
 defined, 72
 overview of, 1

R

rasterization, 72
 raw view of UIA Tree, 4, 61
 relationships, element, 12
 in logical hierarchies, 22–23

S

screen magnifiers, 72
 screen readers. *See also* ATs
 (assistive technology
 products); clients
 defined, 73
 order of elements read by, 13
 Selection Pattern property, 35
 specifications, 73
 standard controls
 advantages of, 25
 UI framework guidelines and,
 27
 structuring UI. *See* logical
 hierarchy
 system-wide settings, 73

T

tab order, 73
 tab stops, 73
 table format for logical
 hierarchy, 14
 Table Pattern property, 35
 testing
 automated drivers for, 48
 conflicts of interest when, 46
 with investigation tools. *See*
 investigation tools
 keyboard access, 45, 49
 programmatic access, 45
 tools for, using variety of, 47
 with UIA Verify. *See* UIA Verify
 timecard example of logical
 hierarchy, 18–19
 tree structure. *See* UIA Tree

U

UI accessibility APIs. *See* UI
 Automation API
 UI Automation. *See* UIA (UI
 Automation)
 UI Automation API, 66
 architecture of, 56
 benefits of, 59
 interoperability with Microsoft
 Active Accessibility API,
 56–57
 vs. Microsoft Active
 Accessibility API, 54
 properties in, 61
 proxy objects in, 56
 recommended, 62–63
 specification for, 58–59
 UI element representation
 in, 54
 unmanaged code, 54
 updating Microsoft Active
 Accessibility with, 63
 UI Automation core, 66
 UI Automation Elements. *See*
 Automation Elements
 UI Automation Events, 62
 UI design, 9–10
 intuitive, 25
 navigational order, 12–13,
 16, 19
 UI elements
 binding other objects. *See*
 containers

control types for. *See* Control
 Types
 decorative vs. contextual, 24
 defined, 70
 diagramming. *See* logical
 hierarchy
 functionality, designing, 25
 grouping. *See* containers
 identifying for logical
 hierarchy, 16
 keyboard focus, 43
 MSAA properties as
 identifiers, 46
 multiple, for Control Type, 21
 naming, 11
 navigational order, 19
 order in which read by ATs, 13
 overview of, 11
 programmatically significant,
 16
 properties. *See* properties
 relationships, in logical
 hierarchy, 12, 22–23
 UI framework
 choosing, 9
 decisions dependent on, 43
 defined, 70
 UI hierarchy. *See* logical
 hierarchy
 UI implementation table, 30, 70
 UI prototypes, 15
 UI Spy, 47, 49, 67, 73
 UI testing. *See* testing
 UIA (UI Automation)
 applications in. *See* providers
 ATs and, 1. *See also* ATs
 (assistive technology
 products)
 components of, 66
 Control Types supported in,
 15
 defined, 73
 events. *See* UIA Events
 goals of, 1
 header files, 66–67
 history of, 65
 interface for, 67–68
 model for, 67–68
 native solutions for controls.
See native UIA solutions for
 controls
 navigation through UI. *See*
 UIA Tree

UIA Control Patterns

UIA (UI Automation) *continued*
 operating system
 compatibility, 65
 overview of, 1, 65
 planning for custom controls,
 9
 properties, 6
 providers. *See* providers
 run-time library, 66
 specifications, creating native
 solutions for controls with,
 29–30
 technical specifications, 15
 testing framework, 45–46
 UIA Control Patterns. *See*
 Control Patterns
 UIA Control Types, mapping
 custom controls to, 41
 UIA Events, 68
 for custom controls,
 determining, 42
 logging, 47
 overview of, 1–2
 subscription model, 7
 types of, 7
 UIA Methods for custom
 controls, 42
 UIA Providers
 example of, 4
 UIA Tree and, 4
 UIA Specification list, checking
 custom controls against,
 37–38
 UIA Tree
 child elements, 3, 69
 defined, 73
 fluidity of, 3
 vs. logical hierarchy, 10–11
 navigation in, 4
 nodes, 71
 overview of, 60
 parent elements, 72
 purpose of, 3
 root element of, 3
 structure change, event for, 7
 UIA Providers and, 4
 views for, 4–5
 views in, 60–61

UIA Verify, 45–46, 49
 bug reports in, 48
 defined, 73
 error alerts, 48
 overview of, 48
 pros and cons, 48
 visual interface for, 48
 usability
 checking for, 10
 defined, 74
 user elements. *See* UI elements
 user experience, 74
 user feedback, 50
 user interface, 74
 user scenario, 74

V

Verify. *See* UIA Verify
 Voluntary Product Accessibility
 Template (VPAT), 74

W

Windows Automation API, 54
 Control Patterns in, 61
 defined, 74
 Windows Presentation
 Foundation (WPF), 74
 WinEvents, 55, 74
 word processing programs. *See*
 providers
 workaround, 74