

A

`accept_passive_host_checks` option, 201
`accept_passive_service_checks` option, 200
acknowledgments, notification, 31–32
Adams, Russell, NACE, 79
`admin_email` option, 203
`admin_pager` option, 203
administrators, systems monitoring, 1–4
 E2E, 11
 failover systems, 11–12
 layered notifications, 9–10
 network locations, 6–7
 overhead, 4–5
 security, 7–9
`aggregate_status_updates` option, 202
Apache, configuration, 72–73
`authorized_for_all_host_commands`
 option, 204
`authorized_for_all_hosts` option, 204
`authorized_for_all_service_commands`
 option, 204
`authorized_for_all_services` option, 204
`authorized_for_configuration_information`
 option, 204
`authorized_for_system_commands`
 option, 204
`authorized_for_system_information`
 option, 204
auto-discovery tools, 79
 GUI configuration, 82
 Fruity, 82–83
 Monarch, 83–84
 NACE, 79–81

auto-discovery tools, GUI configuration
 (*continued*)
 namespace, 81–82
 Nmap, 79–81
`auto_reschedule_checks` option, 199
`auto_rescheduling_interval` option, 199
`auto_rescheduling_window` option, 199

B

bandwidth, processing considerations, 4–5
best practices
 E2E Monitoring, 11
 failover systems, 11–12
 layered notifications, 9–10
 network locations, 6–7
 processing
 bandwidth considerations, 4–5
 remote versus local, 4
 security, 7–9
 systems monitoring, 1–4
--`bindir=DIR` option, installation
 directories, 193
`broker_module` option, 198

C

callbacks, function pointers, 173–175
`cfg_dir` option, 197
`cfg_file` option, 197
cgi.config files
 configuration, 57–58
 option, 204–205
`check_disk` command, 213–215
`check_external_commands` option, 197

- check_for_orphaned_services option, 202
- check_host_freshness option, 202
- check_http command, 211–213
- check_load command, 213
- check_ping command, 208–209
- check_procs command, 215–216
- check_service_freshness option, 202
- check_tcp command, 209–210
- code listings
 - Apache Sample VirtualHost Config, 72–73
 - BgpLastError Command Definition, 125
 - Broker's make_callback code for SERVICE_STATUS_DATA, 187
 - Calling Load_Checker, 22
 - CDEFs Data Summarization, 154
 - CDEF Syntax, 151
 - Ceck_Disk Definition for NagioGraph, 148
 - Check_clust Plugin in Perl/WMI, 104–105
 - Check_dllhost Command Definition, 110
 - Check_dllhost Service Definition, 110
 - Check_dll Host, 102–105
 - Check_http Service Definition, 88–89
 - Check_load Command Definition with Argument Passing, 116
 - Check_load Service Definition, 116
 - Check_nt_cpuload Command Definition, 111
 - Check_nt_cpuload Service Definition, 112
 - Check_ping_service Definition, 87
 - Check_ping Command Definition, 86
 - Check_ssl Service Definition, 94
 - Check_swap Command Definition, 118
 - Check_tcp Wrapper, 90–92, 103–105
 - code listings (*continued*)
 - Command Example, 61
 - Command to Perform SMTP Handshake, 92
 - Config.xml for WebInject, 95
 - Contact Example, 62–64
 - Creating Multi-Counter RRD, 143
 - Creating Single-Counter RRD, 140
 - Enabling SNMP on Cisco Routers, 122
 - Event Broker Sending Data, 185–186
 - Event Handler Function, 186–187
 - Generic Check_tcp Definition, 88
 - Grepable Nmap Output, 80
 - Hostdependency Example, 70
 - Hostescalation Example, 69
 - Hostextendedinfo Example, 72
 - Hostgroup Example, 68
 - Host Example, 64
 - Host Template and Consumer Definition, 59
 - Host Template Skeleton, 76
 - Includes, 181
 - init Function, 182
 - Installing Nagios for the Impatient Person, 42
 - Installing Nagios with Patches, 47
 - List of Hosts, 77
 - MIB snmpwalk Output, 125
 - Modifying RRAs in NagiosGraph, 146
 - NagiosGraph Check_Ping Definition, 148
 - Nebmodule Struct, 183
 - nebstruct_service_status_data struct, 188
 - NEB Module that Implements Filesystem Interface, 178–180
 - Notification Command Definition, 63

code listings (*continued*)

- Output from Configure, 45
- Output from Namespace Command, 81
- Output from Plugins Configure, 48
- Output from Sensors Program, 128–129
- Performance Data Wrapper for Plugins, 38
- Ping Plugin, 19
- Ping with Summary Output, 20
- Process-Service-Perfdata Command, 147
- Protocol-Specific Check_tcp Command Definition, 89
- Realistic Nagios Installation, 45
- Remote Load Average Checker, 21
- Remote Load Average Checker with Exit Codes, 21–22
- Sample Host Definition, 54
- Sell Scriptto Create hosts.cfg from Skeletons and Host List, 77
- service_struct def from nagios.h, 188–190
- Serviceescalation Example, 69
- Servicegroup Example, 69
- Services Definition Skeleton, 78
- Service Dependency Example, 71
- Service Example, 66
- Service Template to Use with Definition Skeleton, 20–22, 63, 77–78, 91, 103–105, 179–180, 187–190
- Specifying Object Config Files Individually, 55
- Template, 87
- Test Case File for WebInject, 96
- Timeperiod Example, 60
- Unrecognizable SNMP, 123
- Using Function Pointers, 174
- Verbose Output from WebInject, 97
- WebInject Command Definition, 97
- WebInject Service Definition, 98

code listings (*continued*)

- collection, data visualization, 145**
 - glue layer, 145–146
 - NagiosGraph, 146–149
- colored statusmap patches, 46–47**
- COM (Component Object Model), 100–101**
- command-line options**
 - Nagios binary, 207–208
 - plugins, 208
 - check_disk*, 213–215
 - check_http*, 211–213
 - check_load*, 213
 - check_ping*, 208–209
 - check_procs*, 215–216
 - check_tcp*, 209–210
- command_check_interval optin, 198**
- command_file option, 198**
- commands**
 - configuration, 61–62
 - object, 52
- comment_file optin, 198**
- Component Object Model (COM), 100–101**
- configurations**
 - Apache, 72–73
 - cgi.cfg file options, 204–205
 - commands, 61–62
 - contact group, 64
 - contact object, 63
 - dependencies, 71
 - escalations, 70
 - extended information, 72
 - files
 - cgi.cfg*, 57–58
 - nagios.cfg*, 54–56
 - objects*, 52–54

configurations (*continued*)

- hostgroups, 68–69
- hosts, 65–66
- nagios.cfg file options, 197–203
- Nagios installation, 42–43
- services, 67–68
- templates, 58–60
- timeperiods, 60

configure scripts

- installation directories, 193–194
- optional features, 194
- options, 193
- packages, 195

contactgroups

- configuration, 64
- object, 52

contact objects, 52, 63**CPAN Web site, 84****CPU, UNIX monitoring, 113–116****Cygwin feature, 194****D****daemon_dumps_core option, 203****data visualization, 132–135**

- front-end, 149
 - draw*, 155, 158
 - RPN (Reverse Polish Notation)*, 152–154
 - RRDTool Graph Mode*, 149–152
 - selection*, 154–155
- management interface, 158–159, 162
 - GD Graphics Library*, 164–165
 - GraphViz*, 167–168
 - jsvis force directed graphs*, 171–172
 - NagVis*, 166–167
 - RRDTool Fetch Mode*, 162–164
 - Sparklines*, 169–170

MRTG, 135**data visualization, (*continued*)**

- polling and collection, 145
 - glue layer*, 145–146
 - NagiosGraph*, 146–149
- RRDTool, 135–136
 - data types*, 136
 - heartbeat and step*, 137–138
 - minimum and maximum range*, 139
 - Round Robin Archives*, 139–140
 - syntax*, 140–144

--datadir=DIR option, installation directories, 193**date_format option, 202****DEBUG0 feature, 194****DEBUG1 feature, 194****DEBUG2 feature, 194****DEBUG3 feature, 194****DEBUG4 feature, 194****DEBUG5 feature, 194****DEBUGALL feature, 194****default_statusmap_layout option, 205****default_statuswrl_layout option, 205****default_user_name option, 204****definitions, configuration objects, 52–54****dependencies**

- configuration, 71
- Nagios installation, 41

directives, cgi.cfg file, 57–58**directories, installation, 193–194****disks, UNIX monitoring, 118****Dondich, Taylor, Fruity, 82–83****downtime, notification, 31–32****downtime_file option, 198****draw, data visualization, 155, 158****E****E2E (End to End) Monitoring, 11****embedded-perl feature, 194**

- enable-embedded-perl option, 43
- enable_event_handlers option, 201
- enable_flap_detection option, 202
- enable_notifications option, 201
- enablers, global, 55–56
- End to End (E2E) Monitoring, 11
- environment sensors, monitoring, 126–127
- escalations
 - configuration, 70
 - notification, 31–32
- event-broker feature, 194
- event_broker_options option, 198
- event_handler_timeout option, 200
- events, scheduling
 - check interval and states, 23–26
 - load distribution, 26–27
 - service parallel execution, 27–28
- Event Broker
 - function pointers, 173–175
 - I/O interface, 38
 - NEB
 - architecture*, 175–178
 - filesystem interface implementation*, 178–191
- event handler functions, 186–187
- exec-prefix=EPREFIX option, installation directories, 193–194
- execute_host_checks option, 201
- execute_service_checks option, 200
- exit codes, plugins, 18–20
- extended information, configuration, 72
- external command files, I/O interface, 37

F

- failover systems, 11–12
- FHS (File System Hierarchy Standard), 40

- files
 - cgi.cfg, 57–58
 - configuration object, 52–54
 - FHS (File System Hierarchy Standard), 40
 - local installs, 40
 - nagios.cfg, 54–56
- filesystems, NEB, 178–191
- File System Hierarchy Standard (FHS), 40
- front-end data visualization, 149
 - draw, 155, 158
 - RPN (Reverse Polish Notation), 152–154
 - RRDTool Graph Mode, 149–152
 - selection, 154–155
- Fruity, 82–83
- function pointers, 173–175

G

- Galstad, Ethan, 176
- GD Graphics Library, 164–165
- global_host_event_handler option, 199
- global_service_event_handler option, 199
- global enablers, 55–56
- global enable settings, notifications, 28–29
- global time-outs, 55–56
- glue layer, data visualization, 145–146
- GraphViz, 167–168
- GUI, configuration tools, 82
 - Fruity, 82–83
 - Monarch, 83–84

H

- h option, configure script, 193
- high_host_flap_threshold option, 202
- high_service_flap_threshold option, 202

host_check_timeout option, 200
 host_freshness_check_interval option, 202
 host_inter_check_delay_method option, 199
 host_perfdata_command option, 201
 host_perfdata_file_mode option, 201
 host_perfdata_file_processing_command option, 201
 host_perfdata_file_processing_interval option, 201
 host_perfdata_file_template option, 201
 host_perfdata_file option, 201
 host_unreachable_sound option, 205
 hostdependency object, 53
 hostescalation object, 53
 hostextendedinfo objec, 53
 hostgroups, configuration, 68–69
 hostgroup object, 53
 hosts
 configuration, 65–66
 defining, 15–16
 limited function, 17–18
 Host Definition Skeleton, 76
 host object, 52

I

I/O interfaces, 32
 Event Broker, 38
 external command file, 37
 monitoring, 33–35
 performance data, 37–38
 reporting, 36
 Web interface, 32–33
 ICMP (Internet Message Control Protocol), 14
 illegal_macro_output_chars option, 203
 illegal_object_name_chars option, 203

--infodir=DIR option, installation directories, 194
 installation, 41–42
 configuration, 42–43
 directories, 193–194
 make install, 45
 make targets, 44
 NRPE, 48–49
 patches, 45
 colored statusmap, 46–47
 secondary IP, 46
 SNMP community string, 46
 plugins, 47–48
 steps, 41
 supported operating systems, 39–40
 Intelligent Platform Management Interface (IPMI), monitoring, 129–130
 interdependence, 16–17
 interfaces, management, 158–159, 162
 GD Graphics Library, 164–165
 GraphViz, 167–168
 jsvis force directed graphs, 171–172
 NagVis, 166–167
 RRDTool Fetch Mode, 162–164
 Sparklines, 169–170
 Internet Message Control Protocol (ICMP), 14
 interval_length option, 200
 IPMI (Intelligent Platform Management Interface), monitoring, 129–130

J–L

jsvis, force directed graphs, 171–172
 --libdir=DIR option, installation directories, 194
 --libexecdir=DIR option, installation directories, 193
 Linux, Nagios support, 39

listings

- Apache Sample VirtualHost Config, 72–73
- BgpLastError Command Definition, 125
- Broker's make_callback code for SERVICE_STATUS_DATA, 187
- Calling Load_Checker, 22
- CDEFs Data Summarization, 154
- CDEF Syntax, 151
- Ceck_Disk Definition for NagioGraph, 148
- Check_clust Plugin in Perl/WMI, 104–105
- Check_dllhost Command Definition, 110
- Check_dllhost Service Definition, 110
- Check_dll Host, 102–105
- Check_http Service Definition, 88–89
- Check_load Command Definition with Argument Passing, 116
- Check_load Service Definition, 116
- Check_nt_cpuload Command Definition, 111
- Check_nt_cpuload Service Definition, 112
- Check_ping_service Definition, 87
- Check_ping Command Definition, 86
- Check_ssl Service Definition, 94
- Check_swap Command Definition, 118
- Check_tcp Wrapper, 90–92, 103–105
- Command Example, 61
- Command to Perform SMTP Handshake, 92
- Config.xml for WebInject, 95
- Contact Example, 62–64
- Creating Multi-Counter RRD, 143
- Creating Single-Counter RRD, 140
- Enabling SNMP on Cisco Routers, 122
- Event Broker Sending Data, 185–186

listings (continued)

- Event Handler Function, 186–187
- Generic Check_tcp Definition, 88
- Grepable Nmap Output, 80
- Hostdependency Example, 70
- Hostescalation Example, 69
- Hostextendedinfo Example, 72
- Hostgroup Example, 68
- Host Example, 64
- Host Template and Consumer Definition, 59
- Host Template Skeleton, 76
- Includes, 181
- init Functioin, 182
- Installing Nagios for the Impatient Person, 42
- Installing Nagios with Patches, 47
- List of Hosts, 77
- MIB snmpwalk Output, 125
- Modifying RRAs in NagiosGraph, 146
- NagiosGraph Check_Ping Definition, 148
- Nebmodule Struct, 183
- nebstruct_service_status_data struct, 188
- NEB Module that Implements Filesystem Interface, 178–180
- Notification Command Definition, 63
- Output from Configure, 45
- Output from Namespace Command, 81
- Output from Plugins Configure, 48
- Output from Sensors Program, 128–129
- Performance Data Wrapper for Plugins, 38
- Ping Plugin, 19
- Ping with Summary Output, 20
- Process-Service-Perfdata Command, 147
- Protocol-Specific Check_tcp Command Definition, 89

listings (*continued*)

- Realistic Nagios Installation, 45
- Remote Load Average Checker, 21
- Remote Load Average Checker with Exit Codes, 21–22
- Sample Host Definition, 54
- Sell Scriptto Create hosts.cfg from Skeletons and Host List, 77
- service_struct def from nagios.h, 188–190
- Serviceescalation Example, 69
- Servicegroup Example, 69
- Services Definition Skeleton, 78
- Service Dependency Example, 71
- Service Example, 66
- Service Template to Use with Definition Skeleton, 20–22, 63, 77–78, 91, 103–105, 179–180, 187–190
- Specifying Object Config Files Individually, 55
- Template, 87
- Test Case File for WebInject, 96
- Timeperiod Example, 60
- Unrecognizable SNMP, 123
- Using Function Pointers, 174
- Verbose Output from WebInject, 97
- WebInject Command Definition, 97
- WebInject Service Definition, 98

LMSensors, monitoring, 128–129

local processing *versus* remote, 4

local queries, monitoring

- pings, 86–88
- port queries, 88–90
- querying multiple ports, 90–92
- service checks, 92–94
- WebInject, 96–98

--localstatedir=DIR option, installation directories, 194

- lock_file option, 198
- log_archive_path option, 198
- log_event_handlers option, 198
- log_external_commands option, 199
- log_file option, 197
- log_host_retries option, 198
- log_initial_states option, 199
- log_notifications option, 198
- log_passive_checks option, 199
- log_rotation_method option, 198
- log_service_retries option, 198
- low_host_flap_threshold option, 202
- low_service_flap_threshold option, 202

M

- main_config_file option, 204
- make cgis target, 44
- make contrib target, 44
- make fullinstall target, 44
- make install, Nagios installation, 45
- make install-base target, 44
- make install-cgis target, 44
- make install-commandmode target, 44
- make install-config target, 44
- make install-html target, 44
- make install-init target, 44
- make modules target, 44
- make nagios target, 44
- make targets, Nagios installation, 44
- make uninstall target, 44
- management interface (data visualization), 158–159, 162
 - GD Graphics Library, 164–165
 - GraphViz, 167–168
 - jsvis force directed graphs, 171–172
 - NagVis, 166–167
 - RRDTool Fetch Mode, 162–164
 - Sparklines, 169–170

- mandir=DIR option, installation directories, 194**
 - max_concurrent_checks option, 199**
 - max_host_check_spread option, 199**
 - max_service_check_spread option, 199**
 - memory, UNIX monitoring, 116–118**
 - Monarch, 83–84**
 - monitoring**
 - data visualization, 132–135
 - front-end, 149–155, 158*
 - management interface, 158–159, 162–172*
 - MRTG, 135*
 - polling and collection, 145–149*
 - RRDTool, 135–144*
 - environmental sensors, 126–127
 - hosts
 - defining, 15–16*
 - limited function, 17–18*
 - I/O interface, 33–35
 - IPMI (Intelligent Platform Management Interface), 129–130
 - LMsensors, 128–129
 - local queries
 - pings, 86–88
 - port queries, 88–90*
 - querying multiple ports, 90–92*
 - service checks, 92–94*
 - WebInject, 96–98*
 - scheduling scripts, 15
 - services
 - defining, 15–16*
 - limited function, 17–18*
 - SNMP, 119–126
 - stand-alone sensors, 127–128
 - systems, 1–4
 - E2E, 11*
 - failover systems, 11–12*
 - layered notifications, 9–10*
 - monitoring, systems (*continued*)
 - network locations, 6–7*
 - overhead, 4–5*
 - security, 7–9*
 - UNIX, 112
 - CPU, 113–116*
 - disk, 118*
 - memory, 116–118*
 - NRPE, 113*
 - Windows, 98
 - COM (Component Model Object), 101*
 - NRPE, 109–110*
 - NSClient, 111–112*
 - PowerShell, 107–109*
 - scripting environment, 98–100*
 - VBScript, 106–107*
 - WMI, 101–105*
 - WSH, 105–106*
 - MRTG, data visualization, 135**
 - multiple ports, local queries, 90–92**
- ## N
- n option, configure script, 193**
 - NACE (Nagios Automated Configuration Engine), 79–81**
 - Nagios-Plugins project, 18**
 - nagios.cfg files**
 - configuration, 54–56
 - options, 197–203
 - nagios_check_command option, 204**
 - nagios_group option, 197**
 - nagios_user option, 197**
 - NagiosGraph, data visualization, 146–149**
 - Nagios Automated Configuration Engine (NACE), 79–81**
 - Nagios binary, 207–208**
 - Nagios Event Broker**
 - function pointers, 173–175
 - I/O interface, 38

Nagios Event Broker (*continued*)

NEB

architecture, 175–178

*filesystem interface implementation,
178–191*

Nagios Plugin Project, 39

Nagios Remote Plugin Executor (NRPE), 8

monitoring Windows, 109–110

Nagios installation, 48–49

UNIX monitoring, 113

NagVis, 166–167

namespace, auto-discovery tools, 81–82

nanosleep feature, 194

NEB, Event Broker

architecture, 175–178

*filesystem interface implementation,
178–191*

nebstruct_service_status_data structs, 188

networks, locations, 6–7

Nmap, 79–81

normal_sound option, 205

notifications, 28

escalations, acknowledgments, and
scheduled downtime, 31–32

global enable setting, 28–29

layered, 9–10

options, 29–30

templates, 30

time periods, 30–31

notification_timeout option, 200

**NRPE (Nagios Remote Plugin
Executor), 48**

monitoring Windows, 109–110

Nagios installation, 48–49

UNIX monitoring, 113

NSClient, monitoring Windows, 111–112

O

object_cache_file option, 197

objects, configuration

commands, 61–62

contactgroups, 64

contacts, 63

dependencies, 71

escalations, 70

extended information, 72

files, 52–54

hostgroups, 68–69

hosts, 65–66

services, 67–68

templates, 58–60

timeperiods, 60

obsess_over_services option, 201

ocsp_timeout option, 200

**--oldincludedir=DIR option, installation
directories, 194**

operating systems, Nagios support, 39–40

operation

hosts

defining, 15–16

limited function, 17–18

I/O interfaces, 32

Event Broker, 38

external command file, 37

monitoring, 33–35

performance data, 37–38

reporting, 36

Web interface, 32–33

interdependence, 16–17

notification, 28

acknowledgments, 31–32

escalations, 31–32

operation, notification (*continued*)

global enable setting, 28–29

options, 29–30

scheduled downtime, 31–32

template, 30

time periods, 30–31

plugins

exit codes, 18–20

remote execution, 20–23

scheduling

check interval and states, 23–26

load distribution, 26–27

monitoring scripts, 14–15

service parallel execution, 27–28

services

defining, 15–16

limited function, 17–18

options, configure script, 193**oscp_command option**, 202**P****p1_file option**, 203**packages, configure scripts**, 195**patches, Nagios installation**, 45

colored statusmap, 46–47

secondary IP, 46

SNMP community string, 46

perfd_data_timeout option, 200**performance data, I/O interface**, 37–38**physical_html_path option**, 204**ping_syntax option**, 205**pings, local queries**, 86–88**plugins**

command-line options, 208

check_disk, 213–215

check_http, 211–213

check_load, 213

plugins, command-line options (*continued*)

check_ping, 208–209

check_procs, 215–216

check_tcp, 209–210

exit codes, 18–20

monitoring

environmental sensors, 126–127

IPMI (Intelligent Platform Management Interface), 129–130

LMSensors, 128–129

local queries, 86–98

SNMP, 119–126

stand-alone sensors, 127–128

UNIX, 112–118

Windows, 98–112

Nagios installation, 41, 47–48

remote execution, 20–23

polling data visualization, 145

glue layer, 145–146

NagiosGraph, 146–149

port queries, local queries, 88–90**PowerShell, Windows monitoring**, 107–109**--prefix=PREFIX option, installation directories**, 193**procedural approaches, systems monitoring**, 1–4**process_performance_data option**, 201**processing**

bandwidth considerations, 4–5

remote versus local, 4

Q**-q option, configure script**, 193**queries (local), monitoring**

pings, 86–88

port queries, 88–90

querying multiple ports, 90–92

queries (local), monitoring (*continued*)
 service checks, 92–94
 WebInject, 96–98

R

refresh_rate option, 205
 remote execution, plugins, 20–23
 remote processing versus local, 4
 reporting, I/O interface, 36
 resource_file option, 197
 retain_state_information option, 200
 retention_update_interval option, 200
 Reverse Polish Notation (RPN), 152–154
 Round Robin Archives, 139–140
 routing, processing bandwidth considerations, 5
 RPN (Reverse Polish Notation), 152–154
 RRDTool
 data visualization, 135–136
 data types, 136
 heartbeat and step, 137–138
 minimum and maximum range, 139
 Round Robin Archives, 139–140
 syntax, 140–144
 Fetch Mode, 162–164
 Graph Mode, 149–152

S

--sbindir=DIR option, installation directories, 193
 scheduling
 check intervals and states, 23–26
 load distribution, 26–27
 service parallel execution, 27–28
 scripts
 configure. *See* configure scripts
 scheduling for monitoring, 15

scripts (*continued*)
 templates, 76–78
 Windows monitoring, 98–100
 secondary IP patches, 46
 security
 best practices, 7–9
 cgi.cfg directives, 58
 service_check_timeout option, 200
 service_critical_sound option, 205
 service_freshness_check_interval option, 202
 service_inter_check_delay_method option, 199
 service_interleave_factor option, 199
 service_perfdata_command option, 201
 service_perfdata_file_mode option, 201
 service_perfdata_file_processing_command option, 201
 service_perfdata_file_processing_interval option, 201
 service_perfdata_file_template option, 201
 service_perfdata_file option, 201
 service_reaper_frequency option, 199
 service_struct def from nagios.h, 188–190
 service_unknown_sound option, 205
 service_warning_sound option, 205
 servicedependency object, 53
 serviceescalation object, 53
 serviceextendedinfo object, 53
 servicegroup object, 53
 services
 configuration, 67–68
 defining, 15–16
 limited function, 17–18
 local queries, 92–94
 object, 53
 parallel execution, 27–28

--sharedstatedir=DIR option, installation directories, 194
show_context_help option, 204
Simple Network Management Protocol (SNMP), 8
 community string patches, 46
 monitoring, 119–126
sleep_time option, 199
SNMP (Simple Network Management Protocol), 8
 community string patches, 46
 monitoring, 119–126
Sparklines, 169–170
--srcdir=DIR option, configure script, 193
stand-alone sensors, monitoring, 127–128
state_retention_file option, 200
status_file option, 197
status_update_interval option, 202
statusmap_background_image option, 205
Statusmap feature, 194
statuswrl_include option, 205
Statuswrl feature, 194
--sysconfdir=DIR option, installation directories, 193
systems monitoring, 1–4

T

temp_file option, 198
templates
 configuration, 58–60
 notification, 30
 scripts, 76–78
time-outs, global, 55–56
timeperiods
 configuration, 60
 notification, 30–31
timeperiod object, 52

tools, auto-discovery, 79
 GUI configuration, 82–84
 NACE, 79–81
 namespace, 81–82
 Nmap, 79–81
Tuftte, Edward, *The Visual Display of Quantitative Information*, 159
two-tiered networks, 6

U

UNIX

monitoring, 112
 CPU, 113–116
 disk, 118
 memory, 116–118
 NRPE, 113
supported operating systems, 39
url_html_path option, 204
use_aggressive_host_checking option, 200
use_authentication option, 204
use_regexp_matching option, 203
use_retained_program_state option, 200
use_retained_scheduling_info option, 200
use_syslog option, 198
use_true_regexp_matching option, 203

V

-V option, configure script, 193
VBScript, Windows monitoring, 106–107
visualization (data), 132–135
 front-end, 149
 draw, 155, 158
 RPN (*Reverse Polish Notation*), 152–154
 RRDTool *Graph Mode*, 149–152
 selection, 154–155

visualization (data) (*continued*)

- management interface, 158–159, 162

- GD Graphics Library*, 164–165

- GraphViz*, 167–168

- jsvis force directed graphs*, 171–172

- NagVis*, 166–167

- RRDTool Fetch Mode*, 162–164

- Sparklines*, 169–170

- MRTG, 135

- polling and collection, 145

- glue layer*, 145–146

- NagiosGraph*, 146–149

- RRDTool, 135–136

- data types*, 136

- heartbeat and step*, 137–138

- minimum and maximum range*, 139

- Round Robin Archives*, 139–140

- syntax*, 140–144

W–Z

- WebInject, local queries, 96–98

- Web interface, 32–33

- Wilson, Chris, 130

- Windows, monitoring, 98

- COM (Component Object Model), 101

- NRPE, 109–110

- NSClient, 111–112

- PowerShell, 107–109

- scripting environment, 98–100

- VBScript, 106–107

- WMI, 101–105

- WSH, 105–106

- Windows Management Instrumentation (WMI), 101–105

- `--with-cgiurl=<local-url>` package, 195

- `--with-cgiurl=<path>` option, 43, 47

- `--with-command-group=<grp>` option, 43

- `--with-command-group=<grp>` package, 195

- `--with-command-user=<user>` package, 195

- `--with-command-user=<usr>` option, 43

- `--with-gd-inc=DIR` package, 195

- `--with-gd-lib=DIR` package, 195

- `--with-htmurl=<local-url>` package, 195

- `--with-htmurl=<path>` option, 43

- `--with-init-dir=<path>` option, 43

- `--with-init-dir=<path>` package, 195

- `--with-lockfile=<path>` package, 195

- `--with-mail=<path_to_mail>` package, 195

- `--with-nagios-group=<group>` option, 47

- `--with-nagios-group=<grp>` option, 43

- `--with-nagios-group=<grp>` package, 195

- `--with-nagios-user=<user>` option, 47

- `--with-nagios-user=<user>` package, 195

- `--with-nagios-user=<usr>` option, 43

- `--with-perlcache` package, 195

- `--with-trusted-path=<colon delimited:list:of:paths>` option, 47

- WMI (Windows Management Instrumentation), 101–105

- WSH, Windows monitoring, 105–106