

Contents

Operations Guide

1 Fidelia NetVigil™ Overview

1.1 Introduction	3
1.2 NetVigil Architecture	6
1.3 Overview of System Operation	9
1.4 NetVigil Terms	9

2 Installation and Upgrade Guide

2.1 Overview	13
2.2 Supported Platforms	14
2.3 Recommended Hardware	15
2.3.1 Disk Space Requirements	15
2.3.2 Sizing Considerations for Large Sites	16
2.4 Additional Software Requirements	16
2.5 System Performance Tuning	16
2.5.1 Increasing Java Memory (JVM) Size	17
2.5.2 System Security Issues.	18
2.6 First-time Installation	18
2.6.1 Planning Checklist	19
2.6.2 Linux & Solaris Installations	20
2.6.3 Windows Installation	22
2.7 Upgrading From Previous Versions	22
2.8 Adding an Additional DGE	22
2.9 Quick Start (Running NetVigil)	23
2.10 What Next	24
Scheduled tasks (cron jobs).	25

3 Configuration and Operations

3.1 Overview	27
3.2 Installing A New License Key.	27
3.3 Starting/Stopping NetVigil	28
3.3.1 Starting the system.	29
3.3.2 Stopping the system.	29



- 3.3.3 Verifying proper operation 30
- 3.4 Configuration Files 30
 - 3.4.1 Application installation path 31
 - 3.4.2 BVE Config Database host/location. 31
 - 3.4.3 Logging configuration. 32
 - 3.4.4 Test Definitions & Defaults 33
 - 3.4.5 Web application external help 33
 - 3.4.6 Web application external authentication 34
 - 3.4.7 DGE Identity. 34
 - 3.4.8 DGE controller port/password. 35
 - 3.4.9 EDF server port/password 35
 - 3.4.10 E-mail servers 36
 - 3.4.11 Web server TCP/IP port 37
 - 3.4.12 Web User Interface Appearance 38
 - 3.4.13 Customizing Device Tag Labels 38
- 3.5 SSL Support on Web Application. 39
- 3.6 Operating NetVigil Behind Firewalls 41
 - 3.6.1 Requirements for the BVE Provisioning Database 41
 - 3.6.2 Requirements for Web Server(s) 42
 - 3.6.3 Requirements for DGE (monitors). 42
- 3.7 NetVigil Operation in NAT Networks 44

4 Configuration for Actions & Notifications

- 4.1 Overview 47
- 4.2 E-mail Notifications 47
 - Email Relay servers 48
- 4.3 Alphanumeric Paging 48
 - 4.3.1 Modem Configuration. 49
 - 4.3.2 Paging Central Configuration 50
- 4.4 Customizing the Notification Content. 52
- 4.5 Smart Suppression (Alarm Floods) 53
- 4.6 Extending the Action Framework 53
- 4.7 Remedy ARS Plugin. 53
 - 4.7.1 Pre-requisites 54
 - 4.7.2 Installation. 54
 - 4.7.3 Configuration 55
 - 4.7.4 Troubleshooting 55
- 4.8 RT Trouble Ticketing Plugin. 56
 - 4.8.1 Pre-requisites 56
 - 4.8.2 Installation. 57





4.8.3 Configuration 58
 4.8.4 Troubleshooting 59

5 Network & Topology Discovery

5.1 Overview 61
 5.1.1 Configuring Scope of Discovery 62
 5.1.2 Manual Batch Creation of Devices and Tests 67

6 NetVigil Monitors

6.1 Overview 71
 6.2 SNMP 71
 6.2.1 SNMP v1 and v2 72
 6.2.2 SNMP v3 72
 6.2.3 SNMP MIB 72
 6.2.4 Security Concerns 73
 6.2.5 RMON2 73
 6.3 Windows monitoring using WMI 74
 6.3.1 Overview 74
 6.3.2 Installing the NetVigil WMI Query Server 75
 6.3.3 DGE Configuration for Proxy WMI Server 78
 6.3.4 Provision WMI Hosts in NetVigil 78
 6.3.5 Troubleshooting WMI Issues 79
 6.4 Setting up Apache Web Monitor 79
 Editing NetVigil Configuration 80
 6.5 SQL Performance Monitor for Databases 81
 6.6 Internet Services (Mail, HTTP, etc) 82
 6.7 URL Transaction Monitor 83

7 Message Handler for Traps & Logs

7.1 Overview 85
 7.2 Starting the Message Handler 86
 7.3 Configuring the Message Handler 86
 7.4 Configuring the Message Sources 88
 Adding Custom Message Sources 88
 7.5 Adding Rulesets 89
 7.5.1 Rule Specifications 89
 7.5.2 Regular Expressions 92
 7.6 Provisioning Devices on the DGE 93
 7.7 Processing Log files 93



- 7.7.1 The “File” message source 93
- 7.8 Processing SNMP Traps. 94
 - 7.8.1 SNMP Traps Overview 94
 - 7.8.2 The “Trap” message source 94
 - 7.8.3 Relaying SNMP Traps 95
 - 7.8.4 Passing SNMP Traps to External Scripts 96
 - 7.8.5 Loading Enterprise MIBs for SNMP Traps 96
- 7.9 Processing data from the socket interface. 97
 - 7.9.1 The “Socket” message source. 97
 - Client Commands. 99
 - 7.9.2 Input Stream Monitor (ISM). 99
- 7.10 Processing Windows Events 100
 - 7.10.1 The NetVigil WMI Event Listener (nvwmiel) 100
 - Installing the WMI Event Listener. 100
 - 7.10.2 The “WinEvt” message source. 100
- 7.11 Example 101

8 Users and Departments

- 8.1 Security Model Overview 105
 - 8.1.1 End-users and Departments. 107
 - 8.1.2 User-Classes and Privileges 108
 - 8.1.3 Administrators and Admin-Groups 109
 - 8.1.4 Admin-Classes and User-Class Mapping. 110
 - 8.1.5 Superusers. 112
- 8.2 Putting it all Together: A Case Study 113
 - Case Study: End-users and Departments 113
 - Case Study: User-Classes and Privileges 113
 - Case Study: Administrators and Admin-Groups. 114
 - Case Study: Admin-Class to User-Class Mapping. 114
 - Case Study Diagram 116
- 8.3 Managing the Security Model. 118
 - 8.3.1 Managing User-Classes. 118
 - 8.3.2 Managing Departments 120
 - 8.3.3 Managing End-Users. 123
 - 8.3.4 Managing Admin-Classes. 124
 - 8.3.5 Managing Admin-Groups 127
 - 8.3.6 Managing Administrators 129
 - 8.3.7 Representing Users 129

9 Administrator Action Profiles & Thresholds

- 9.1 Overview 131





- 9.2 Action Profiles Created by End-Users 132
- 9.3 Action Profiles Created by Administrators. 132
 - 9.3.1 User-Class Action Profiles 132
 - 9.3.2 Administrator Action Profiles 133
 - 9.3.3 Comparing User-Class and Administrator Action Profiles. 134
- 9.4 Thresholds Configured by Administrators. 134
 - 9.4.1 User-Class Default Thresholds 134
 - 9.4.2 Admin and SLA Thresholds. 135
- 9.5 Managing Action Profiles and Thresholds 137
 - 9.5.1 Managing User-Class Action Profiles 137
 - 9.5.2 Setting Default Action Profiles and Thresholds for User-Classes 138
 - 9.5.3 Managing Administrator Action Profiles. 139
 - 9.5.4 Setting Admin Action Profiles and Thresholds. 140
 - 9.5.5 Setting SLA Action Profiles and Thresholds 141

10 DGE Management

- 10.1 Configuring Data Gathering Engines (DGEs) 143
 - 10.1.1 Configuring a New DGE. 143
 - 10.1.2 Changing DGE Database Type 144
 - 10.1.3 Changing DGE Aggregation Scheme 145
 - 10.1.4 Disk Space Requirements for DGE Aggregation. 147
- 10.2 Adding a new DGE 148
 - 10.2.1 Adding Locations and DGEs via web. 148
 - 10.2.2 DGE Audit Report 150
 - 10.2.3 Understanding DGE Load Balancing 150
- 10.3 Using the DGE Controller 151
 - 10.3.1 Monitoring DGE operation/capacity 151
- 10.4 Upgrading DGE Hardware 153

11 Maintenance And Disaster Recovery

- 11.1 BVE Database Maintenance. 155
- 11.2 DGE database Maintenance 157
 - 11.2.1 Optimizing the DGE Database. 158
- 11.3 Transferring NetVigil to Another Platform 158
- 11.4 Password Recovery 159
- 11.5 Expire Messages From Message Window. 160
- 11.6 Changing IP Address of BVE 160



12 Advanced NetVigil Topics

12.1 External Help	163
12.2 High Availability Configurations	164
12.3 Customizing NetVigil	166
Changing Skin	166
Changing Languages	166

13 Integrating with External Applications

13.1 HP OpenView Network Node Manager	167
13.1.1 Introduction	167
13.1.2 Limitations	167
13.1.3 Importing Devices From NNM	168
13.1.4 Setting Up Automatic Node Synchronization	169
13.2 NOCOL/SNIPS	170

Web User Guide

14 NetVigil Web Interface

14.1 Introduction	175
14.1.1 Permissions & User-Classes	175
14.2 Logging In	176
14.2.1 The NetVigil Web Interface	176
14.2.2 Site Map	178

15 Real-time Status Monitoring

15.1 Introduction	181
15.1.1 NetVigil Terms	181
15.2 NetVigil Status View	182
Test Timeouts	184
15.2.1 Device Status Summary View	185
15.2.2 Test Summary View	187
15.2.3 Test Details View	188
15.2.4 Service Container Summary View	190
15.2.5 Device Display Filters	191
15.2.6 Device Comment Field	192
15.2.7 Context-sensitive Help or Action	192
15.3 Threshold Violation Reports	193





- 15.4 Messages & Traps 193
- 16 Manage NetVigil**
- 16.1 Adding Devices For Monitoring 199
 - Auto-Update for Device Capacity Change 204
- 16.2 Managing Standard Tests 205
 - 16.2.1 Before You Provision Tests..... 205
 - 16.2.2 Test Autodiscovery 205
 - 16.2.3 Grouping Tests by Subtype 205
- 16.3 Managing Advanced Tests 212
 - 16.3.1 Monitoring Databases Using SQL Query..... 212
 - 16.3.2 URL Transaction Tests 213
 - 16.3.3 Advanced SNMP Tests 215
 - 16.3.4 Advanced Port Tests 217
 - 16.3.5 External Tests 219
- 16.4 Suppressing Tests 222
- 16.5 Smart Thresholds Using Baselines 224
 - The Baseline Data Set 224
 - Managing Baselines 225
- 16.6 Configuring Test Schedules 227
- 16.7 Device Dependency 228
 - Dependency Restrictions 229
- 16.8 Managing Account Preferences 229
- 17 Managing Actions And Notifications**
- 17.1 Overview 231
- 17.2 Managing Action Profiles 231
 - 17.2.1 Assigning Time Schedules to Actions..... 238
 - 17.2.2 Suspending Actions for Acknowledged Tests..... 238
- 17.3 Smart Notifications..... 238
- 18 Containers**
- 18.1 Overview 241
- 18.2 Managing Service Containers..... 242
 - Device Tags 243
 - Rule-Based Device Containers 244
- 18.3 Controlling Severity of Containers..... 250
 - Example 250



19 Event Manager

- 19.1 Overview 251
- 19.2 Managing Messages on the DGE 251
 - 19.2.1 Event Filters 252
 - 19.2.2 Notifications 254
 - 19.2.3 Device Aliases 254
- 19.3 Using the Event Manager Console 255
 - Filtering Display Results 255
 - The EM Console 256
 - 19.3.1 Acknowledge / Suppress Events 257

20 Reports

- 20.1 Summary Reports 259
 - 20.1.1 Technical Summary Report 260
 - 20.1.2 Business Impact Summary 261
 - Event Correlation Chart 261
- 20.2 Advanced Reports 262
 - 20.2.1 Fault Management Reports 262
 - 20.2.2 Performance and Capacity Planning Reports 263
 - 20.2.3 SLA Reports 264
 - 20.2.4 Alarm Reports 264
- 20.3 Custom Reports 265
- 20.4 Stored and Scheduled Reports 266

21 The Panorama Client

- 21.1 About Panorama 269
- 21.2 Installing and Removing Panorama 269
 - Software Requirements 269
 - Recommended Hardware 270
 - NetVigil Compatibility and Licensing Requirements 270
- 21.3 Getting Started with Panorama 271
 - 21.3.1 The Panorama Interface 271
 - 21.3.2 Refreshing Device and Service Container Status 273
 - 21.3.3 Adjusting the Display 274
- 21.4 Topology Layout 275
- 21.5 Container Layout 276

22 Administrator Web Guide

- 22.1 NetVigil Administration Basics 277
 - 22.1.1 Logging In 277





- 22.1.2 Department Status Summary View 278
- 22.1.3 Device Status Summary View 279
- 22.1.4 Test Summary View 280
- 22.1.5 Event Logs..... 281
- 22.2 Administrative Reports 282
 - 22.2.1 Management Reports 283
 - User Audits..... 283
- 22.3 Creating Read-Only Devices..... 284

Developers Guide

23 BVE FlexAPI Protocol Reference

- 23.1 Overview 287
 - 23.1.1 Connecting to the Server..... 287
 - 23.1.2 Disconnecting from the server 288
- 23.2 Command/Reply formatting rules 288
 - Client Command Format 288
 - Server Response Format 289
 - 23.2.1 Client Commands 291
 - Login 291
 - Logout | Quit 291
 - Action.create 291
 - Action.update 291
 - Action.delete 292
 - Action.list 292
 - AdminGroup.x 292
 - AdminClass.create 292
 - AdminClass.update 292
 - AdminClass.delete 293
 - AdminClass.list 293
 - Container.status 293
 - Department.create 293
 - Department.update 293
 - Department.delete 294
 - Department.suspend 294
 - Department.resume 294
 - Department.list 294
 - Device.create 295
 - Device.update 295
 - Device.delete 296
 - Device.suspend 296
 - Device.resume 296



- Device.list 296
- Device.status 296
- DeviceDependency.create 296
- DeviceDependency.delete 296
- DeviceDependency.list 297
- DGE.create 297
- DGE.update 297
- DGE.delete 298
- DGE.list 298
- Event.list 298
- Location.create 298
- Location.update 298
- Location.delete 299
- Location.list 299
- Result.list 299
- Test.create 299
- Test.update 302
- Test.delete 302
- Test.suspend 303
- Test.resume 303
- Test.suppress 303
- Test.list 303
- Test.status 304
- User.create 304
- User.update 305
- User.delete 305
- User.list 305
- User.represent 305
- UserClass.create 305
- UserClass.update 306
- UserClass.delete 306
- UserClass.list 306
- 23.3 Examples 306

24 External Data Feed (EDF) Reference

- 24.1 Overview 309
 - 24.1.1 Connecting To The Server 309
 - 24.1.2 Disconnecting From the Server 310
 - 24.1.3 Command-reply Formatting Rules 310
 - Client Command Format 311
 - Server Response Format 311
- 24.2 Client Commands 311
 - Login 311
 - Logout | Quit 311
 - Result.insert 312
- 24.3 Templates for EDF Tests 312
- 24.4 EDF Monitors vs. Plugin Monitors 313





24.5 Example 313

25 NetVigil Perl API

25.1 Introduction 317

25.2 NetVigil::ExternalData - EDF API 317

 25.2.1 Methods 317

 new 317

 GetErrorMsg 318

 Login 318

 Logout 318

 InsertResult 319

25.3 NetVigil::Message - ISM API 319

 25.3.1 Methods 320

 new 320

 GetErrorMsg 320

 Login 320

 Logout 321

 InsertMessage 321

25.4 NetVigil::Provisioning - BVE API 322

 25.4.1 Methods 323

 new 323

 GetErrorMsg 323

 GetResultCount 323

 GetResultRef 324

 GetResultSet 324

 Login 325

 Logout 325

 CreateX, ListX, UpdateX, DeleteX, SuspendX, ResumeX 325

25.5 Examples 326

26 Plugin Actions

26.1 Overview 331

26.2 Creating New Plugin Actions 331

26.3 Examples 334

27 Plugin Monitors

27.1 Overview 337

27.2 Adding A New Test Type 337

27.3 Creating A New Plugin Java Monitor 341

 27.3.1 Overview 341

 27.3.2 Configuration File Format 341

 27.3.3 Writing The Plugin Class 342



- 27.3.4 Setting up the Plugin Package 343
- 27.3.5 Provisioning Plugin Tests 344
- 27.4 Creating A New Plugin Script Monitor 344
 - 27.4.1 Configuration File Format 344
 - 27.4.2 Writing The Plugin Script 347
 - 27.4.3 Sample plugin monitor with Discrete Thresholds 347
- 27.5 Extending the Message Handler 349

28 External Authentication

- 28.1 Overview 351
- 28.2 Authentication Plugin Java Class 351
- 28.3 Authentication Plugin Script 353
- 28.4 Web Portal Authentication 355
- 28.5 Architectural Description 355

Appendix

A Troubleshooting

- A.1 Troubleshooting the DGE - BVE Connection 359
- A.2 Log Files Used in Troubleshooting 359
- A.3 Other Common Problems 360
- A.4 Querying SNMP Devices Manually 364
 - For Windows: 364
 - For Unix: 364

B Frequently Asked Questions (FAQs)

- B.1 Installation And Upgrade 365
- B.2 Using and Configuring NetVigil 366
 - B.2.1 Using the Web Application 368
 - B.2.2 Actions/Notifications 368
- B.3 Integration And Advanced Topics 368

C Installing SNMP Agents

- C.1 NET-SNMP 369
 - C.1.1 Pre-compiled SNMP agents 369
 - C.1.2 Editing the snmpd.conf file 370





- C.1.3 Configuring SNMP v3 in net-snmp 370
- C.2 Solaris..... 371
- C.3 Windows 2003/XP/2000..... 372
- C.4 Oracle SNMP agent 373
 - Installing the agent on Windows 373
 - Configure the Agent on Windows..... 373
 - Configuring Oracle Agent on Unix 374
- C.5 Lotus Notes SNMP agent 375
- C.6 BEA Weblogic SNMP 377
- C.7 SCO Unix..... 377

D Supported Monitors and Tests

- D.1 Overview..... 379
- D.2 Available Monitors 380
 - D.2.1 Network Monitors 380
 - D.2.2 Server Monitors..... 383
 - D.2.3 Application Monitors 384
 - D.2.4 Custom Monitors 387
 - External Data Feed (EDF) Monitors..... 387
 - Message Handler 388
 - Plugin Monitor Framework 388
- D.3 WMI Variables Supported 388
- D.4 SNMP MIBs Supported..... 390
 - D.4.1 RFC/Standard MIBs 390
 - D.4.2 Vendor-Specific MIBs..... 391

