

# Configuring Log Parsers Step-by-Step

**Quick Start Guide** 

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English

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# Introduction

The VSA is capable of monitoring data collected from many standard log files. Log Monitoring extends that capability by extracting data from the output of any text-based log file. Examples include application log files and syslog files created for Unix, Linux, and Apple operating systems, and network devices such as Cisco routers. To avoid uploading all the data contained in these logs to the Kaseya Server database, Log Monitoring uses parser definitions and parser sets to parse each log file and select only the data you're interested in. Parsed messages are displayed in Log Monitoring, which can be accessed using the Agent Logs tab of Live Connect > Agent Data or the Machine Summary page or by generating a report using the Agent > Logs - Log Monitoring page. Users can optionally trigger alerts when a Log Monitoring record is generated, as defined using Assign Parsing Sets or Parser Summary.

#### Parser Definitions vs. Parser Sets

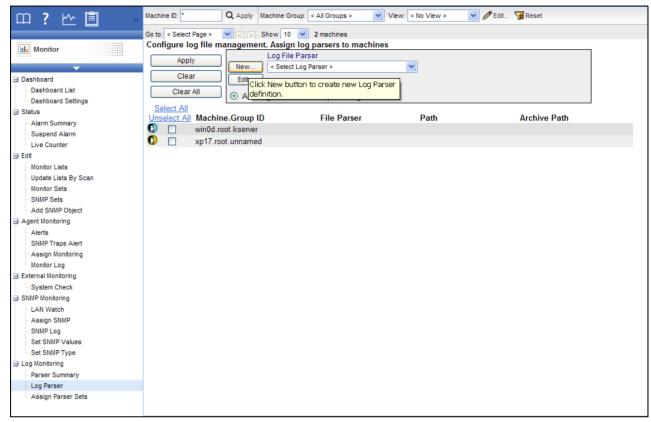
When configuring Log Monitoring it's helpful to distinguish between two kinds of configuration records: parser definitions and parser sets.

A parser definition is used to:

- Locate the log file being parsed.
- Select log data based on the log data's *format*, as specified by a template.
- Populate parameters with log data values.
- Optionally format the log entry in Log Monitoring.

A parser set subsequently *filters* the selected data. Based on the *values* of populated parameters and the criteria you define, a parser set can generate log monitoring entries and optionally trigger alerts. Without the filtering performed by the parser set, the Kaseya Server database would quickly expand. For example a log file parameter called \$FileServerCapacity\$ might be repeatedly updated with the latest percentage of free space on a file server. Until the free space is less than 20% you may not need to make a record of it in Log Monitoring, nor trigger an alert based on this threshold. Each parser set applies only to the parser definition it was created to filter. Multiple parser sets can be created for each parser definition. Each parser set can trigger a separate alert on each machine ID it is assigned to.

# **Step 1: Create a new log parser definition**



Go to the **Monitor** tab in the VSA. Select **Log Parser** under **Log Monitoring**. Click the **New** button to create a new log parser definition.

# **Step 2: Enter Parser Name, Log File Path**

Log File Parser	Definition	Close
Save		
Parser Name	SysLog Parser	
Log File Path	c:\logs\message.log	
Log Archive Path		
Description		
Template	Multi-line Template	
	·	
Output Templets		
Output Template	}	1
		l.
	~	
		2

Enter the following:

Parser name - The name of this log parser definition.

Log File Path - The full path of the log file to be processed. This path must be accessible by the agent. The log file should contain formatted log entries. Unicode files are not supported yet. Example: c:\logs\message.log.

Note: The asterisk (\*) wildcard character can be used in the filename. The most recent file will be processed in this case. Example: c:\logs\message\*.log.

Click the **Save** button after entering the parser name and log file path. The window expands to include parameter definitions.

### **Optional Information**

Log Archive Path - The log parser checks changes of the target log file periodically. The log entries may be archived into different archive files before the log parser can process those entries. So you can specify the archive file path in the field of Log Archive Path. Example: If message.log is archived daily to a file in messageYYYYMMDD.log format, then you can specify c:\logs\message\*.log for the Log Archive Path. Log Parser is able to locate the file it processed last since it keeps a bookmark for the log file.

Description - The detail description of the log parser.

# Step 3: Specify templates and define parameters

#### Template

The template is used to compare with the log entry in the log file to extract out the required data into parameters. Parameters are enclosed with \$ character in template. It is important that you must have texts around the parameters so the parameters can be clearly distinguished. Characters in log entry

are compared case sensitively against the template.

Single line temple to parser single line log entry - The template only contains one line entry and the log file is processed line by line.

Multi-line template to parse multi-line log entries - The template contains multiple line entries and the log file is processed by block of lines delimited by a line boundary.

Note: The character string {tab} can be used as a tab character and {n1} can be used as a new line break. {n1} cannot be used in single line template. % can be used as wildcard character.

Hint: It is easier to copy and paste the log entry into the **Template** edit box and replace the needed data with parameter names, instead of trying to create a log entry template by typing it all in.

### **Output Template**

This is an optional field. It can be used to format the message when the log entry is saved into the database, otherwise, the log entry itself is saved as the message in the database.

### Log File Parameters

Once the template is created, you need to define the list of parameters used by the template. All the parameters in the template have to be defined, otherwise the parser returns an error. Available parameters are *integer, unsigned integer, long, unsigned long, float, double, datetime, string.* The length of parameter name is limited to 32 characters.

### **Date Time Format String**

A template string can contain a date and time format that is used to parse the date time information from log entries. Example: YYYY-MM-DD hh:mm:ss

Formats:

- yy, yyyy, YY, YYYY two or four digit year
- M single or two digit month
- MM two digit month
- MMM abbreviation of month name, ex." Jan"
- MMMM full month name, ex. "January"
- D, d single or two digit day
- DD, dd two digit day
- DDD, ddd abbreviation name of day of week, Ex." Mon"
- DDDD, dddd full name of day of week, ex. "Monday"
- H, h single or two digit hour
- HH, hh two digit hour
- m single or two digit minute
- mm two digit minute
- s single or two digit second
- ss two digit second
- **f** one or more digit of fraction of second
- ff fffffffff two to nine digit
- t one character time mark, ex. "a"
- tt two-character time mark, ex. "am"

Note: Each date time parameter must contain at least the month, day, hour, and second data. The value from the *\$Time\$* parameter is used as the event time if it is specified. Otherwise, the time when the entry is processed is used as the event time in the database.

### **Example 1 - Single Line Log Entry**

Start with a typical log entry from the log file you want to monitor:

<189> 2009 Aug 31 06:57:48 (FVS114-ba-b3-d2) 71.121.128.42 ICMP Packet[Destination Unreachable] - Source:192.168.0.186 - Destination:192.168.0.1 - [Receive]

Identify the parts of the log entry you want to populate parameters with:

<<u>189</u>> <u>2009 Aug 31 06:57:48</u> (FVS114-ba-b3-d2) <u>71.121.128.42</u> ICMP Packet[<u>Destination</u> <u>Unreachable</u>] - Source:<u>192.168.0.186</u> - Destination:<u>192.168.0.1</u> - [<u>Receive</u>] In the template, replace the underline text with parameters:

<\$code\$> \$Time\$ (\$device\$) \$HostName\$ \$PackType\$ Packet[\$Action\$] - Source:\$SrcAddr\$
- Destination:\$DestAddr\$ - \$Msg\$

Log File Parameters

Note: Click the Save button at least once to display the Log File Parameters section of the dialog box.

Text not used to populate parameters must match text in the log entry. For example: the string '] - Source:' must match the text in the log entry, including the space character just before the hyphen. Define the parameters:

Parameter name	Parameter Type	ParsedResult
code	Integer	189
Time	datetime in "YYYY MMM DD hh:mm:ss" format, not UTC	2006-11-08 11:57:48
device	String	FVS114-ba-b3-d2
HostName	String	71.121.128.42
PackType	String	ICMP
Action	String	Destination Unreachable
SrcAddr	String	192.168.0.186
DestAddr	String	192.168.0.1
Msg	String	[Receive]

#### Step 3: Specify templates and define parameters

Log File Parser Definition			Close
Save Save As Delete Sha	re Click to set the	access rights for the Log Parser	
Parser Name SysLog Parser			
Log File Path c:\logs\message.log			
Log Archive Path			
Description			
Template Multi-line Template			
	me\$ \$PackType\$ Pa	acket[\$Action\$] - Source:\$SrcAddr\$ -	~
Output Template			
			~
Log File Parameters			
Apply Clear All			
Name			
Type < Select Parameter Type > 💙			
Name	Туре	Date Format	UTC
× ≝ code	Integer		
× ≝ Time	Date Time	YYYY MMM DD hh:mm:ss	
× ≝ device	String		
➤ II HostName	String		
× ≝ PackType	String		
×  I Action	String		
≻ 🖻 SrcAddr	String		
≻ 🗐 DestAddr	String		
≻ ≝I Msg	String		

### Example 2 – Including the % Symbol (wildcard)

Start with a typical log entry from the log file you want to monitor:

```
<189> 2009 Aug 31 06:57:48 (FVS114-ba-b3-d2) 71.121.128.42 ICMP Packet[Destination
Unreachable] - Source:192.168.0.186 - Destination:192.168.0.1 - [Receive]
Identify unneeded text in the log file you want to monitor:
```

<<u>189</u>> <u>2009 Aug 31 06:57:48</u> (FVS114 ba b3 d2) <u>71.121.128.42</u> ICMP Packet[Destination Unreachable] - Source:<u>192.168.0.186</u> - Destination:<u>192.168.0.1</u> - [Receive]

In the template, replace the unneeded strikethrough text above with a percent sign (%) wildcard character. Replace other text with parameters:

<\$code\$> \$Time\$ % \$HostName\$ \$PackType\$ Packet% Source:\$SrcAddr\$ - Destination:\$DestAddr\$ -

Define the parameters:

Parameter name	Parameter Type	ParsedResult
code	Integer	189
Time	datetime in YYYY MMM DD hh:mm:ss format	2006-11-08 11:57:48

HostName	String	71.121.128.42
PackType	String	ICMP
SrcAddr	String	192.168.0.186
DestAddr	String	192.168.0.1

### **Example 3 - Multiple Line Log Entries**

Start with a typical multiple line log entry from the log file you want to monitor:

Identify text that should be ignored and text that should be populated by parameters.

Summary Of This Scan

In the template, replace the strikethrough text with a percent sign (%) wildcard. Replace the underlined text with parameters.

Summary Of This Scan %scanning time:\$ScanTime\$ %scanned:\$Scanned\$ %identified:\$Identified\$ %ignored:\$Ignored\$ %critical objects:\$Critical\$

Define the parameters:

Parameter name	Parameter Type	ParsedResult
ScanTime	String	00:02:32.765
Scanned	Integer	91445
Identified	Integer	0
Ignored	Integer	0
Critical	Integer	0

Log File Parser	Definition				Close
Save	ave As Delete				
Parser Name	Ad-Aware Results Summ	nary			
Log File Path	c:\Logs\ad-aware log.txt				
l °					
Log Archive Path					
Description					
Template 🛛 🗹	Aulti-line Template				
	his Scan%scanning	time:\$ScanTin	ne\$		*
<pre>%scanned:\$Sc</pre>					E
%identified: %ignored:\$Ig					
	jects:\$Critical\$				-
Output Template					
					*
					Ŧ
Log File Parame	ators				
Apply	Clear All				
Name					
Type < Select P	arameter Type > 🔻				
Name		Туре	Date Forma	at	UTC
× 🖹 ScanTime		String			
🔀 🕄 Scanned		Integer			
× 🖹 Identified		Integer			
× 🖹 Ignored		Integer			
🗡 🗐 Critical		Integer			
4					
Done			Internet   Protected	Mode: Off	€ 100% <del>-</del>

### Example 4 – Output template

Start with a typical multiple line log entry from the log file you want to retrieve:

All the above data will be logged as the body of the message in the monitor log if an output template is not specified. Here is example of the output in Log Monitoring without specifying an output template:

Select Log	Log Monite	oring	•	Ad-Aware Results Summ 👻	Events per Page	30	•	
Start Date :				Refresh				
End Date :			8	Log Record Count: 6				
dell-dim92	200.unnam	ed						
<li>9:18:03</li>	3 am 13-May-	08	-	>>				
Tir	ne	Messag	je					
9:18:03 am	13-May-08	Summa	iry Of Th	nis Scan				
				*****	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>			
				time:00:02:32.765				
				ed:91445				
		Objects						
		Objects						
		New crit	-	•				
		Scan	Time: (	00:02:32.765				
		Scan	ned: 91	1445				
		Ident	i <mark>fied</mark> : 0					
		Ignor	red: 0					
		Critic	al: 0					

In the output template, specify a template by using defined parameters:

Total \$Scanned\$ objects are scanned in \$ScanTime\$. Found object: \$Identified\$ identified, \$Ignored\$ ignored, and \$Critical\$ critical.

Here is an example of the output in Log Monitoring after specifying an output template:

Select Log	Log Monitoring	✓ Ad-Aware Results Summ ▼ Events per Page 30 ▼
Start Date :		Refresh
End Date :		Log Record Count: 7
dell-dim92	00.unnamed	
9:36:17	am 13-May-08	$\checkmark$
Tim	ne Message	
9:36:17 am	· · · · · · · · · · · · · · · · · · ·	objects are scanned in 00:02:32.765. Found object: 0 identified, 0 ignored, and 0 critical. e: 00:02:32.765 : 91445
	Identified	d: 0
	Ignored:	0
	Critical: (	A

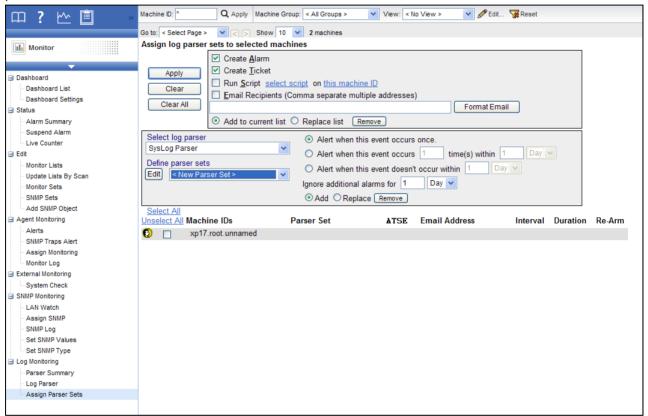
# **Step 4: Assign the Log Parser Definition**

A completed log file parser definition must be assigned to one or machine IDs using the **Log Parser** function. Select the machines IDs to apply the definition to and click the **Apply** button. This means that the parser definition can be used by the selected machines, but parsing does not occur until you select the filter criteria for the log data being collected and assign alert conditions, as described in Steps 5 and 6.

口? [^   ] 、	Machine ID: * Q Apply Machine G	Group: < All Groups > 🛛 🗸 Vie	ew: < No View > 🛛 🖌 Edit	Reset
	Go to: < Select Page > 🗸 < > Show 10	2 machines		
Monitor	Configure log file management. Assig			
Moritor	Log Fil	e Parser		
<b>•</b>	Apply New SysLo	g Parser	<b>~</b>	
Dashboard	Clear Click Apply button to assig	n selected log file		
Dashboard List	Olean Minarcor to all colocted Mac	hing IDe		
Dashboard Settings		er Orkeprace Log Parsers		
∃ Status	Select All	<b>5</b> 11 <b>D</b>		
Alarm Summary	Unselect All Machine.Group ID	File Parser	Path	Archive Path
- Suspend Alarm	😧 🔲 win0d.root.kserver			
Live Counter	🚯 🔽 xp17.root.unnamed	× SysLog Parser	c:\logs\message.log	
🖃 Edit				
- Monitor Lists				
Update Lists By Scan				
Monitor Sets				
- SNMP Sets				
Add SNMP Object				
Agent Monitoring				
Alerts				
··· SNMP Traps Alert				
- Assign Monitoring				
Monitor Log				
External Monitoring				
System Check				
SNMP Monitoring				
- LAN Watch				
Assign SNMP				
- SNMP Log				
Set SNMP Values				
Set SNMP Type				
Log Monitoring				
Parser Summary				
Log Parser				
Assign Parser Sets				

# **Step 5: Define collection and alerts conditions**

Click Assign Parser Sets under Log Monitoring in the function list. Select the log parser definition from the Select log parser drop-down list. Then select <New Parser Sets> from the Define parser sets drop-down list. A log parser set is a set of conditions that must be true about the parsing of a log entry to include it in the 'log monitoring' log and optionally create an alert for it. This ensures that only relevant log entries are posted to the "log monitoring' log. Note that a log parser set is specific to a log parser. You could define multiple log parser sets for the same log parser and trigger a different set of alert for each log parser set.



Define the alert conditions. In the following example, an entry is created in the 'log monitoring' log if a log entry is parsed such that the Action parameter contains the text Unreachable.

Parser S	Set Definition					<u>Close</u>	
	Parser Set Name						
Renan	ne Check Action					Delete	
Add	Parser Column Action	•	Operator Contains	•	Parameter Filter Unreachable		
			No Log F	ile Fil	ers defined		
No alerts will be generated until Logs Filters are added.							

### **Operators for Parameters**

 String - begins with, does not begin with, contains, does not contain, ends with, does not end with, equals, does not equal

- Numeric equal, not equal, over, under
- Time equal, not equal, over, under

The **Parameter Filter** for **Time** can be in one of the following formats. A filter string ending with a **Z** indicates an UTC time.

- YYYY-MM-DDThh:mm.ss
- YYYY/MM/DDThh:mm.ss
- YYYY-MM-DD hh:mm.ss
- YYYY/MM/DD hh:mm.ss
- YYYY-MM-DDThh:mm.ssZ
- YYYY/MM/DDThh:mm.ssZ
- YYYY-MM-DD hh:mm.ssZ
- YYYY/MM/DD hh:mm.ssZ

Example: 2008-04-01 15:30:00.00

#### **Parser Sets and Conditions**

The conditions are defined in a parser set. You can assign multiple conditions to a parser set. You can also assign multiple parser sets to a log parser. A log entry has to meet all the conditions inside a parser set in order to trigger data collection and/or alert. Please note this behavior is different from event log alerts and other monitor sets. For example:

Log contents:

05/09/2008 12:21:34 192.168.0.1 error "lookup failed" 05/09/2008 12:21:35 192.168.0.1 error "syslog stopped" 05/09/2008 12:21:37 192.168.0.1 information "syslog starts" 05/09/2008 12:21:38 192.168.0.2 warning "ping failed" 05/09/2008 12:22:04 192.168.0.2 warning "unknown message"

Single line template:

#### \$Time\$ \$hostname\$ \$errortype\$ \$message\$

To collect entries which meet one of following conditions you need to define two parser sets and assign both to the log parser:

\$errortype\$ is "error"

```
$errortype$ is "warning" AND $message$ contains "failed"
```

Here are the corresponding screen captures for these two parser sets:

Parser Set Definition				
Renar	Parser Set Name Error			Delete
Add	Parser Column errortype	Operator <select opera'="" td="" ▼<=""><td>Parameter Filter</td><td></td></select>	Parameter Filter	
Edit	errortype	Equal	error	×

Parser S	et Definition			Close
	Parser Set Name			
Renam	ne Failure			Delete
Add	Parser Column message	Operator <select operat="" td="" ▼<=""><td>Parameter Filter</td><td></td></select>	Parameter Filter	
Edit	errortype	Equal	warning	×
Edit	message	Contains	failed	×

# Step 6: Assign Parser Set

Select a machine ID, alarm options, and types of alerts, then click the **Apply** button to assign the log parser set to a machine ID. Once the machine ID receives the log parser configuration, the agent on the managed machine will start parsing the log file *whenever the log file is updated.* 

### Notification

The agent collects log entries and creates an entry in the 'log monitoring' log based on the criteria defined by the parser set, *whether or not any of the notification methods are checked.* You don't have to be notified each time a new log monitoring entry is created. You can simply review the 'Log Monitoring' log periodically at your convenience.

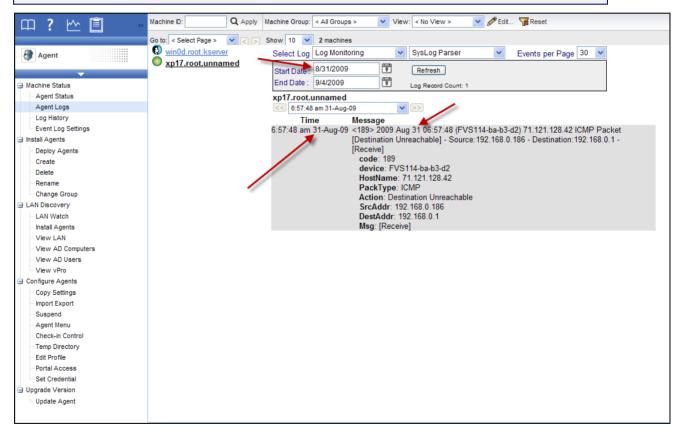
四?脸首 »	Machine ID: * Q Apply Machine Group: < All Groups > 💙 View: < No View > 💙 Sett 😨 Reset
	Go to: < Select Page > 🗸 <> Show 10 🗸 machines
Monitor     Dashboard     Dashboard List     Dashboard Settings     Status     Alarm Summary     Live Counter     Edit     Monitor Lists     Update Lists By Scan     Monitor Sets	Assign log parser sets to selected machines          Apply       Create Alarm         Clear       Run Script select script on this machine ID         Email Recipients (Comma separate multiple addresses)       Format Email         Oter All       Add to current list         Replace list       Remove         Select log parser       Alert when this event occurs once.         SysLog Parser       Alert when this event doesn't occur within O Day M         Define parser sets       Alert when this event doesn't occur within O Day M         Image: Check Action       Image: Check Action Image: Check
SNMP Sets     Add SNMP Object     Agent Monitoring     Alerts     SNMP Traps Alert     Assign Monitoring     System Check     SNMP Monitoring     LAN Watch     Assign SNMP     SNMP Log     Set SNMP Values     Set SNMP Type     Log Monitoring     Parser Summary     Log Parser     Assign Parser Sets	Select All       Machine IDs       Parser Set       ATSE       Email Address       Interval       Duration       Re-Arm         Image: All Machine IDs       Parser Set       ATSE       Email Address       Interval       Duration       Re-Arm         Image: All Machine IDs       Parser Set       ATSE       Email Address       Interval       Duration       Re-Arm         Image: All Machine IDs       Parser Set       ATSE       Email Address       Interval       Duration       Re-Arm         Image: All Machine IDs       Parser Set       ATSE       Email Address       Interval       Duration       Re-Arm         Image: All Machine IDs       Parser Set       ATSE       Email Address       Interval       Duration       Re-Arm         Image: All Machine IDs       Parser Set       AT       1       1       1

# **Step 7: Review the 'Log Monitoring' Log**

Log Monitoring entries are displayed in Log Monitoring, which can be accessed using:

- Agents > Agent Logs > Log Monitoring > (parser definition)
- Live Connect > Agent Data > Agent Logs > Log Monitoring > (parser definition). Live Connect is displayed by clicking the check-in status icon of a selected machine ID.
- Audit > Machine Summary > Agent Logs tab > Log Monitoring > (parser definition). The Machine Summary page can also be displayed by *alt-clicking* the check-in status icon of a selected machine ID.
- The Info Center > Reporting > Reports > Monitor Logs > Log Monitoring report.

These sample images show the \$Time\$ parameter being used for Log Monitoring entries. Date and time filtering in views and reports are based on the log entry time. If you include a \$Time\$ parameter using the Date Time data type in your template, Log Monitoring uses the time stored in the \$Time\$ parameter as the log entry time. If a \$Time\$ parameter is not included in your template, then the time the entry was added to Log Monitoring serves as the log entry time. Be sure to select a date range that displays the log entry dates.



In contrast, alarms dates are based on the date the alarm was created, not the date of entries in the 'Log Monitoring' log.

四? 🗠 📋 🔹	Machine ID:	Q Apply Machine Group: < All	Groups > View: < 1	No View > 🕑 🖋 Edit 🧏 Reset	
	Go to: < Select Page >	💙 < > Show 10 💌 2 m	nachines		
Monitor	Alarm State:	Open 🗸	Update	Alarm Filters	
<b>•</b>	Notes:			Alarm ID:	<b>D</b>
Dashboard				Monitor Type: < All Types >	
Dashboard List				Alarm State: < All States >	*
Dashboard Settings					
∃ Status			~	Alarm Type: <a>All Types &gt;</a>	~
Alarm Summary Suspend Alarm	Delete			Alarm Text:	
Live Counter	Delete		\ \	Filter Alarm Count: 1	
∃ Edit	<< Select Page >	▼ >>			
Monitor Lists	Select All			\	
Update Lists By Scan	Unselect All Alarm	ID Machine.Group ID	State Alarm Date	🔰 Type Ticket Na	me
Monitor Sets	□ □1×	xp17.root.unnamed	Open 10:22:30 am	4-Sep-09 Log Monitoring processing	
SNMP Sets		[xp17.root.unnamed] SysL	.og Parser log parser genera	ted an alert	
Add SNMP Object	Me			named, the following log entry occurred: <189> 2009	
Agent Monitoring		(FVS114-ba-b3-d2) /1.121.1.	28.42 ICMP Packet[Destination Ur	nreachable] - Source:192.168.0.186 - Destination:192	2.168.0.1 - [Receive]
Alerts		The following parameter crite			
SNMP Traps Alert		Action Contain Unreachable:	Value = Destination Unreachable		
- Assign Monitoring					
Monitor Log					
Monitor Log External Monitoring					
Monitor Log External Monitoring System Check					
Monitor Log External Monitoring System Check SNMP Monitoring					
Monitor Log External Monitoring System Check SNMP Monitoring LAN Watch					
Monitor Log External Monitoring System Check SNMP Monitoring LAN Watch Assign SNMP					
Monitor Log     External Monitoring     System Check     SNP Monitoring     LAN Watch     Assign SNNP     SNMP Log					
- Monitor Log External Monitoring - System Check SNMP Monitoring - LAN Watch - Assign SNMP - SNMP Log - Set SNMP Values					
Monitor Log External Monitoring System Check NMP Monitoring LAN Watch Assign SNMP SNMP SNMP SNMP SNMP Start					
Monitor Log External Monitoring System Check SNMP Monitoring LAN Watch Assign SNMP SNMP Log Set SNMP Values Set SNMP Type Log Monitoring					
Monitor Log External Monitoring System Check SNMP Monitoring LAN Watch Assign SNMP SNMP Log Set SNMP Values Set SNMP Values					

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