RSA NetWitness

Version 11.7

Log Parser Customization Guide



Contact Information

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Log Parser Customization

Note: The JSON Mapping information in this guide applies to NetWitness Version 11.5 and later.

You use the Log Parser Rules view (available from the 🖻 (Configure) view) to customize rules and to map meta for your log parsers.

The *default log parser* parses logs that do not match any installed log parsers. The information contained in such a log is processed against the default log parser's rules, and metadata is then extracted by those rules and is available for Enrichment, Investigation, Reporting, and Alerting. This provides immediate visibility into logs from custom or unsupported sources.

You can also add or extend a log parser. For example, you may need to parse certain fields differently than in the manner provided by the log parser for a particular event source. You can add rules that change the way meta information is extracted from the logs for the event source. And you can then map the extracted information to NetWitness meta keys.

Finally, you can view and test sample log messages and rules for your log parsers, including the default log parser.

To access this tab, go to (Configure) > Log Parser Rules. For more details, see Parser Rules Tab.

Dynamic Rules

The **Dynamic Rules** entry for a log parser displays the following information:

- The default log parser that parses logs that are not associated with a particular log parser
- Native XML-defined device parsers that have been extended with dynamic log parser rules, and
- User-created custom device parsers used to parse unsupported custom event sources

The dynamic parse rules are used to parse arbitrary values triggered by a literal token on the left hand side of the value in unstructured logs. Currently, this is used to parse name-value pairs.

Following are some examples (the token is in bold red):

```
src: 1.2.3.4
src = 1.2.3.4
src=1.2.3.4
Source address is 1.2.3.4
```

JSON Mapping

This allows you to parse JSON nodes from Logstash as well as Log Collection Plugins by mapping JSON nodes to an appropriate meta on which the value should be saved.

The JSON Mappings for a log parser displays the following information:

- Sample JSON Message This allows you paste the log messages.
- The list of JSON Mappings: these are the names that represent the meta information.
- Details of each mapping: for each mapping, the display name, path, NetWitness meta key, and a text description.

The JSON mapping functionality is for strictly paring structured JSON logs, and mapping values from the log to meta or fine parsing. The parsing is not applied to arbitrary logs; only logs where we know the exact structure of the data.

For example:

{ "event": { "source": { "address": "1.2.3.4", "port":8080 } } }

NetWitness knows the structure of logs when it knows the event source type, or when you add specific JSON mappings.

Add or Delete a Log Parser

Note: The information in this topic applies to NetWitness Version 11.2 and later.

For version 11.2, RSA has added the ability to add log parsers through the UI. You can also delete log parsers, as long as they have never been deployed to a Decoder. You can create a new log parser definition from scratch, or extend an existing one.

You can add a log parser to extend the functionality for an existing parser. For example, if you have some unknown messages for the Cisco Pix parser, you could add rules to match your unknowns.

IMPORTANT: If you are adding a new log parser, for example when onboarding an event source, you must map the event source IP to the new log parser in order for messages to be parsed. For details, see "Acknowledging and Mapping Event Sources" in the *Event Source Management User Guide*.

Add a Log Parser

- 1. In the NetWitness UI, navigate to Configure) > Log Parser Rules.
- 2. From the Log Parsers pane, click Add Parser.

The Add Dynamic Log Parser dialog box is displayed.

Add Dynamic Log Parser	
Use dynamic parser rules to create a new dynamic log parse or add to an existing log parser. SELECT LOG PARSER Aventail SSI VPN	
DEVICE TYPE	
aventail	
DEVICE DISPLAY NAME	
DEVICE CLASS	
VPN	~
CLONE DYNAMIC PARSER RULES FROM	
default ×	
Add Parser	

- 3. Fill in details for this dialog box. For details, see Add Dynamic Log Parser Parameters below.
- 4. Click **Save** to save the new log parser.

This updates the definition file in the file system. It does not deploy the changes.

5. To deploy your changes to all of your Decoders, click **Deploy**.

Delete a Log Parser

You can use the UI to delete a log parser.

To delete a log parser:

- 1. In the NetWitness UI, navigate to (Configure) > Log Parser Rules.
- 2. From the Log Parsers pane, select a log parser, then click Delete.

Delete Parser dialog box is displayed.

3. Click **Delete Parser** to remove the log parser from the system.

Note: If you have encounter any issues when you attempt to delete a parser, see the Troubleshooting section, Delete a Log Parser Manually.

Add Dynamic Log Parser Parameters

When you are adding a log parser, the following parameters are available.

Field	Details
SELECT LOG PARSER	Select NEW, or choose an existing log parser.
	By choosing an existing log parser, you can add rules to that parser, essentially extending its parsing capabilities.
	Note: If you select an existing log parser, the remaining fields are auto-filled based on the values for selected log parser.
DEVICE TYPE	Enter a string to define the device type. The name must be between 3 and 30 alphanumeric characters (including underscores), and must not match the name of any existing log parsers.
DEVICE DISPLAY	Enter the display name for the log parser.
NAME	Note: The display name must be 64 characters or fewer, and must not match the name of any other device display name.
DEVICE CLASS	Select a device class.
CLONE DYNAMIC PARSER RULES FROM	Leave blank to start with no rules, or select one of the existing log parsers to clone its rules.

Import or Export a Log Parser

To import the log parser:

- 1. In the NetWitness UI, navigate to (Configure) > Log Parser Rules.
- 2. From the Log Parsers panel, click Import.

3. Select a log parser to import. The log parser is imported successfully. This will import the selected log parser rules along with the JSON mapping (if any).

To export the log parser:

- 1. In the NetWitness UI, navigate to (Configure) > Log Parser Rules.
- 2. Select the log parser to export.
- 3. In the Log Parsers panel, click Export. The selected parser is exported successfully in a .json format. This will export the selected log parser rules along with the JSON mapping (if any).

JSON Mappings

JSON mappings is applicable from version NetWitness Platform 11.5 and Later.

View JSON Mappings

- 1. In the NetWitness UI, go to (Configure) > Log Parser Rules.
- 2. From the Log Parsers pane, select a parser, then click JSON Mappings.

The JSON Mappings and Mapping Details are shown for the parser you selected.

RSA Investigate Respond			
LIVE CONTENT SUBSCRIPTIONS		NS ESA RULES CUSTOM FEED	S LOG PARSER RULES
Log Parsers			
+ Add 🗈 Import 🗊 Delete	🗘 Deploy 📓 Save Parser 👘 Discard Changes 🛃 Export		
Amazon Web Services Dynamic Rules	Sample JSON Message		
JSON Mappings	Editing Mode Mapping Mode	+ × Remove Un-Mapped	Use 'Add' or 'Add Selection to Mappings' to create a new
✓ Amazon Web Services		You do not have any mannings yet	mapping, then select a mapping to see its details.
Dynamic Rules			
JSON Mappings	ENTER JSON MESSAGE		
→ AWS Route53			
Dynamic Rules			
JSON Mappings			
✓ Microsoft Azure			
Dynamic Rules			
JSON Mappings			
✓ default			
Dynamic Rules			

The Mapping Details pane displays the following information.

Field	Details
DISPLAY NAME	This name corresponds to the name displayed in the JSON Mappings panel.
РАТН	The path to where the values for this portion of the log are stored.
DESCRIPTION	Optionally, you can enter a text description for this mapping.
META	Select a meta key to which this value from the log is mapped. Select a value from the drop-down menu. Optional if you choose a Value Format.

Field	Details
VALUE FORMAT	Choose a value format parser onto which to pass this JSON value. You can either select an existing meta or Custom Regex Type . If you select custom regex type, you must define the regex and capture to <i>fine</i> parse the value in the meta. Optional if you choose a Meta.
CUSTOM REGEX TYPE	Select Custom Regex Type from the Value Format drop-down, which allows you to add new custom regex type.
REGEX PATTERN	Specify a regex to identify different pieces of data contained within a JSON node value.
FIRST CAPTURE	Select a meta key that should be captured first based on the value defined in the Regex pattern.
ADD A CAPTURE	New capture field is added. By default, it is loaded with meta keys in the drop-down. You can add maximum of 20 captures and this option will be disabled once it reaches maximum.

Note: You need to select a meta or enter a Value Format, but you do not need to fill in values for both settings.

Add a JSON Mapping

After you add a parser, as described in Add a Log Parser, you can then add JSON mappings.

- 1. Follow the procedure to add a parser.
- 2. Select the JSON Mappings entry for the newly-added parser.

The following screen shows an example where an Accurev is added:

RSA Investigate Respond			👌 🗷 拨 🕜 admin
LIVE CONTENT SUBSCRIPTIONS			DS LOG PARSER RULES
Log Parsers			
+ Add	🗇 Deploy 📓 Save Parser 🔋 Discard Changes 🛃 Export		
Dynamic Rules	Sample JSON Message		
JSON Mappings	Editing Mode Mapping Mode		Define the JSON value to capture by its hierarchical path. Select the appropriate meta and/or value format parser to complete the mapping. For the mappings to be applied, the parser must be saved
Dynamic Rules		 EventTime 	
JSON Mappings	ENTER JSON MESSAGE		PATH Provide the full hierarchical path to the JSON value.
✓ custombaseparser	Paste or type up to 60k characters of reference JSON here. Click 'Render JSON' below to view the		
Dynamic Rules JSON Mappings			
✓ customparser3			
Dynamic Rules JSON Mappings			
✓ ↔ customparser5			
Dynamic Rules			
JSON Mappings			META Choose which NetWitness meta this JSON value should be assigned to. Selecting a meta is optional if you have chosen a value format.
Dynamic Rules	Render JSON		event.time.str (Text) × ~

- 3. Click Add New to begin adding a mapping.
- 4. Enter values for display name, path, meta or value format (or both), and (optionally) a description.
- 5. Click Save Parser to save your new mapping.

Auto Discover JSON Mappings

Beginning with NetWitness version 11.5.1, you can automatically create the mappings without the need to manually enter the name and path of the mapping.

As an example, we are using the following JSON log:

```
{"terminal":"WIN-OT2OAJHG9NN","@timestamp":"2020-05-21T05:45:31.787Z","host_
name":"WIN-OT2OAJHG9NN","global_userid":null,"dbusername":"C##TET_
USER","object_schema":null,"os_process":"7992:5208","audit_
option":null,"role":null,"unified_audit_policies":"ORA_LOGON_
FAILURES","action_name":"LOGON","entry_id":1,"audit_
type":"Standard","authentication_type":"(TYPE=(DATABASE));(CLIENT ADDRESS=
((PROTOCOL=beq)(HOST=10.31.204.34)));","dbproxy_username":null,"external_
userid":null,"@version":"1","new_schema":null,"new_name":null,"external_
userid":null,"@version":"1","new_schema":null,"sql_
binds":null,"timestamp":"2020-05-21 10:22:12","client_program_
name":"sqlplus.exe","sessionid":4125005309,"userhost":"WORKGROUP\\WIN-
OT2OAJHG9NN\,"rman_device_type":null,"object_name":null,"event_timestamp_
utc":"2020-05-20T23:22:12.452Z","system_privilege_used":null,"return_
code":1017,"version":"19.0.0.0.0","instance_name":"orcl","sql_
text":null,"tbid":1566661212,"rman_operation":null}
```

To auto-discover JSON mappings:

- 1. Select the JSON Mappings entry for the appropriate parser.
- 2. Paste JSON formatted log message in to the **Sample JSON message** text box, and click **Render JSON**.

RSA Investigate Respond	Users Hosts Files Dashboard Reports		👌 🖻 发 ② admin >
LIVE CONTENT SUBSCRIPTIONS O		NS ESA RULES CUSTOM FEED	S LOG PARSER RULES
Log Parsers			
+ Add Import Delete Symantec Critical Systems Protecti	🕞 Deploy 📓 Save Parser 🔯 Discard Changes 🛃 Export		
Dynamic Rules	Sample JSON Message	Meta Mappings	Mapping Details
JSON Mappings	Editing Mode Mapping Mode		Use 'Add' or 'Add Selection to Mappings' to create a new manning then select a manning to see its details
Dynamic Rules	Auto-Discover Mappings + Add Selection to Mappings	You do not have any mappings yet.	melshurði men serec a melshuð se ses te sestinor
JSON Mappings			
✓ custombaseparser			
Dynamic Rules JSON Mappings	terminal: *WIN-OTZOAHGYNN, *@timestamp**2020-05-2110545:31.787Z*, *host_name*: *WIN-OTZOAJHG9NN*,		
✓ customparser3	"global_userid": null, "dbusername": "C##TET_USER",		
Dynamic Rules	"object_schema": null, "os_process": "7992:5208",		
JSON Mappings	"audit_option": null, "role": null,		
✓ ↔ customparser5	"unified_audit_policies": "ORA_LOGON_FAILURES", "action_name": "LOGON",		
Dynamic Rules	"entry_id": 1, "audit_type": "Standard".		
JSON Mappings	"authentication_type": "(TYPE=(DATABASE));(CLIENT ADDRESS=((PROTOCOL=beq) (HOST=10.31.204.34))):"		
✓ ↔ Accurev	9.4kmean		
Dynamic Rules	Render JSON		
JSON Mappings			

The screen looks like this:

Rendering JSON in Editing Mode allows you to view and edit (if needed) the logs in a pretty format. Additionally, if your text is not valid JSON, the text field is displayed in red.

3. Click **Mapping Mode**, to view the JSON in a collapsable tree format which also highlights the mapping.

Note: In Mapping mode, you cannot edit the sample Log.

4. Click Auto-Discover Mappings to discover the JSON nodes and create mappings.

The Meta Mappings panel is populated as shown here:

RSA Investigate Respond			
LIVE CONTENT SUBSCRIPTIONS	CAPTURE POLICIES CENTRAL CONFIG INCIDENT RULES INCIDENT NOTIFICATIONS ESA RULES CUSTOM FEEDS	ES	
Log Parsers + Add _ 1 Import @ Delete	Accurev - JSON Mappings		
Isim Websphere DataPower Dynamic Rules JSON Mappings Kaspersky Anti-Virus	Sample JSON Message Editing Mode Magaing Model # Add Solide	Meta Mappings	
Dynamic Rules JSON Mappings V Microsoft Office 365 Dynamic Rules	V Concession Concession (Environme) - SAMA-9-2110-66-01.17/72 http://www.iwike/2020/00000 - 201001 - www.iwike/2020/00000	 ▲ host_name ▲ global_userid ▲ obuzername ▲ object_schema 	DISPLAY NAME Display name is how the mapping will be identified for user reference. terminal
JSON Mappings Microsoft Office 365 Message Trace Dynamic Rules JSON Mappings	10000000000000000000000000000000000000	 ▲ os_process ▲ ausit_option ▲ role ▲ unified_audit_policies 	PATH Provide the full hierarchical path to the JSCN value. Aerminal
Oracle WebLogic Dynamic Rules JSON Mephings Logic de la dela dela dela dela dela dela del	<pre>infing mail policies : 000,1000 [ATLINES action_mes : LOOM action_text = Loom action</pre>	 ▲ action_name ▲ entry_id ▲ audit_type ▲ audit_type 	Distantifica (or floras) Enter optional description
Proorpoint Email Security Dynamic Rules JSON Mappings KRA SecurID Access	acconnections (see - (recommend)), commende (recommend) (acconnection)))) deren (see = - mail external, see 2 = - mail external (see = - mail external = - mail external = - mail	 ▲ obpraxy_username ▲ external_userid ▲ givenion ▲ givenion 	MEYA Choose which NetWitness meta this JSON value should be asopput to Selecting a meta is optional if you have chosen a
Dynamic Rules JSON Mappings V Sonicwall-FW Dynamic Rules	inclusion intervent tetratement[d: 1 proc_security is 0 e.g., secure and the STADARGHAMMANIstrator systems problems in mall	A new name A statement id A pray sessionid	Value formale. Select a meta key A meta or value format selection is required. VILUE format Control a value format Control a value format
JSON Mappings V Symantec Critical Systems Protecti	timettap : 2020-05-21 10-22 11 client program anno : anjatan anno sutattap same : anjatan anno	A Signature A system_privilege ING Key_SI Value A sql_binds	Choose a value format is copass in 2000 Value (o. Selecting a value format is copies in 2000 Value (o. A value format or meta selection is required.

5. After you auto-discover, note that all the mappings are invalid (preceded by this icon:). You cannot save your changes until all the mappings are valid (mapping is preceded by this icon:) or removed.

Note:

The meta value is highlighted in blue if it matches the selected mapping including the regex (if used).

The meta value is highlighted in green if it matches any other mappings that are not selected.

6. To make a mapping valid, you need to select a **Meta Key** or **Value Format** for all the mappings that you want to parse and save.

Note: In the Value Format you can either select an existing meta or Custom Regex Type.

7. If you want to *fine* parse the value in the meta in the Value Format drop-down, select Custom Regex Type and enter the regex in the Regex Pattern field. For example,\s*(\b(?:[0-9] {1,3}\.){3}[0-9]{1,3}\b):?(\d*).

Note: The custom regex will be added to the database, when you Save Parser.

- 8. For a value in the Regex, you can select a meta key and store the capture as below:
 - **First capture**: The first portion of the string, up to the period character is stored to the meta key. For example, ip.src
 - To add more capture, click **Add Capture** and select the meta key. For more information on Regex, see Regex Values.
- 9. If there are mappings that you do not want to save, you can select the mapping and click **Delete**. Alternatively, after you complete all of the mappings that you want to keep, you can click **Remove Unmapped** to remove all mappings that you have not yet validated.
- 10. After you have either completed or removed all of your mappings, click **Save Parser** to save your new mappings. Note that the icon preceding each mapping is removed.

Deploy JSON Parser

You need to deploy a JSON parser so that logs coming in to any decoder are parsed appropriately and meta is generated and stored correctly.

To deploy a parser, select it from the list and click **Deploy**. The parser, its dynamic rules, and its mappings are sent to all Log Decoders.

Note: A JSON parser must have at least one rule or mapping to enable deployment.

Add or Delete a Log Parser Rule

Note: The information in this topic applies to NetWitness Version 11.2 and later.

For version 11.2, RSA has added the ability to create custom rules for log parsers. You can create rules to change how meta values are parsed for a particular log parser. Prior to version 11.2, you could only view the out-of-the-box log parser rules.

About Log Parser Rules

Parsers are described within their XML files. Each log parser has an XML file that contains rules on how to parse messages for that parser. The out-of-the-box rules are contained within these XML files. For details, see the Log Parser Customization topic in the RSA Link space for RSA Content.

Custom Log Parser Rules

When you create a new log parser rule, it is saved to another XML definition file for the parser. These files are known as token files. This is important, since the out-of-the-box rules are overwritten if you update the parser through RSA Live, but any custom log parser rules are not overwritten, since Live does not update the token files for log parsers.

To create a custom log parser rule:

- 1. In the NetWitness UI, navigate to (Configure) > Log Parser Rules.
- 2. From the Log Parsers pane, select a log parser, then Dynamic Rules.
- 3. From the Rules pane, click Add Rule.

The Add Rules dialog box is displayed.



IMPORTANT: If you click outside of the Add Rule dialog box before you save your rule, your changes will be lost.

- 4. Enter a name for the new rule, and click Add New Rule.
- 5. Add at least one meta key and a value to match, in order to create a valid rule.
- 6. Click **Save** to save your new rule.

This updates the definition file in the file system. It does not deploy the changes.

7. To deploy your changes to all of your Decoders, click **Deploy**.

Guidelines for Custom Rules

When you are creating a custom rule, keep in mind the following:

- For the list of tokens that match strings from the log file, very short tokens are not useful. For example, a one- or two-character string can match more items than desired.
- Remember to add the delimiter (especially if it is a space) as part of the token. For example "domain=" or "email ".
- When constructing regular expressions, the more complexity you add, the more performance overhead added to the system to compare against the rule.
- To see examples of good tokens and regular expressions, examine the rules that are provided for the default log parser.

Default Log Parser and Log Parser Rules

Note: The information in this topic applies to NetWitness Version 11.1 and later.

This tab displays information about pattern matching and rules for the parsers in your system. The features on this tab apply to all log parsers, including the Default Log Parser.

Default Log Parser

The NetWitness default log parser is used to parse logs coming from the Log Decoder that do not match any of the configured log parsers. This default parser parses these logs by using a default set of rules and tokens.

You can view the default log parser and its details by going to Admin > Event Sources > Log Parser Rules and selecting default from the Log Parsers panel.

Note: If you do not see the default log parser and its rules, you might need to go to Live and deploy the RSA Content to your log decoders. Additionally, you must have at least one Log Decoder at version 11.2 to view the default log parser.

You can view the default log parser and its details, depending on your version:

- For NetWitness version 11.1, go to Admin > Event Sources > Log Parser Rules, then select default from the Log Parsers panel.
- For NetWitness version 11.2 and later, go to **Configure > Log Parser Rules**, then select **default** from the Log Parsers panel.

Note: The list of log parsers is based on the first Log Decoder that is installed or registered by the Orchestration Server. If you have more than one Log Decoder, this tab only lists log parsers that have been configured on the first one.

This is a view of the Log Parser Rules tab, showing the **Default Log Parser** and **Any Domain** rule selected:

RSA Investigate Respond	Users Hosts Files	Dashboard Re	eports		🖃 % 🕜 admin >
LIVE CONTENT SUBSCRIPTIONS	CAPTURE POLICIES INCIDE	ENT RULES INC	IDENT NOTIFICATIONS ESA RULES	S CUSTOM FEEDS LOG PARS	ER RULES
Log Parsers	default - Dynamic R				
Add Parser Delete					
∨ default	Any Domain				Rules
Dynamic Rules					
\checkmark Microsoft Windows	TOKENS				Add Rule Delete
Dynamic Rules		Hostname	~	FULL CAPTURE	
JSON Mappings		түре	Hostname	domain	Client Domain [RSA]
✓ ↔ Test plugin raw					Destination Domain [RSA]
Dynamic Rules		MATCHING	This matches Hostname		Source Domain [RSA]
ISON Mannings					Any Domain [RSA]
					Client Username [RSA]
					Username [RSA]
Dynamic Rules					Destination Port [RSA]
JSON Mappings					Source Port [RSA]
					Any Port [RSA]
	Sample Log Messages (Test up to	60K characters of log	g messages)		Destination MacAddress [RSA]
					Source MacAddress [RSA]
	date=2017-08-12 type=tra	affic subtype=vi	lolation user=matt status=deny s	rc= <mark>192.168.24.49</mark> dst= <mark>192.56.4</mark>	Any MacAddress [RSA]
	May 5 2018 15:55:49 swit	tch : %ACE-4-400	00: IDS:1000 IP Option Bad Option	n user: admin@test.com from 1	Source IP or IP:Port [RSA]
					Destination IP or IP:Port [RSA]
	*113-4-440: 2017-08-12 1	13:53:34 192.170			Any IP or IP:Port [RSA]
	Dec 20 13:20:20 instance	el info mod-mail	from=matt@rsa.com to=alex@dell	. COM	Source Email Address [RSA]
					Destination Email Address [RSA]

The Parser Rules Tab topic describes the items available for the Log Parsers tab.

Highlight Matching Patterns

You can paste logs into the Log Messages text box, and the system highlights the matching literals and patterns for the rules for the selected event source type. Use this feature to confirm that the parser is behaving as expected.

- 1. In the NetWitness UI, navigate as follows, depending on your version:
 - For NetWitness version 11.1, go to Admin > Event Sources > Log Parser Rules.
 - For NetWitness version 11.2 and later, go to 🖾 (Configure) > Log Parser Rules.
- 2. From the Log Parsers pane, select the Dynamic Rules entry for a log parser.
- 3. From the **Rules** pane, select a rule.

For example, this screen shows the Source Port rule for the Actiance Vantage log parser:

RSA Investigate Respond	Users Hosts Files	Dashboard Reports		z % 🕐 admin >
LIVE CONTENT SUBSCRIPTIONS	CAPTURE POLICIES INC	IDENT RULES INCIDENT NOTIFICATIONS ESA RUL	ES CUSTOM FEEDS LOG PARS	ER RULES
Log Parsers	Actiance Vantage	e - Dynamic Rules		
Add Parser Delete	Deploy Save			
✓ default Dynamic Rules	Source Port			Rules
✓ Microsoft Windows	TOKENS	VALUES	META FULL CAPTURE	Add Rule Delete
Dynamic Rules	Please Enter New Token	- Unsigned 16-bit Integer	∕ − port.src X ∨	Client Domain
JSON Mappings	sport	TYPE Uint16		Destination Domain
✓ ☉ Test_plugin_raw	eroport	MATCHING This matches unsigned 16-bit integer		Source Domain
Dynamic Rules	are_port	<u> </u>	-	Any Domain
JSON Mappings	are port	[⊕]		Client Username
✓ ↔ Blue Coat ELFF	sourceport	- 11		Username
Dynamic Rules	on port:	- 		Destination Port
JSON Mappings				
✓ ↔ Actiance Vantage				Any Port
Dynamic Rules	Sample Log Messages (Test u	ip to 60K characters of log messages)		Destination MacAddress
JSON Mappings	date=2017-08-12 type	-traffic subtype=violation user=matt status=deny	src=192.168.24.49 dst=192.56.4	Source MacAddress
				Any MacAddress
	May 5 2018 15:55:49	switch : %ACE-4-4000: 1DS:1000 IP Option Bad Opti	on user: admin@test.com from 1	Source IP or IP:Port
	%IIS-4-440: 2017-08-	12 13:53:34 192.170.28.192 - W4S31 url=https://te	st.domain.edu/exchange GET /ex	Any IP or IP Port
	Dec 20 13:20:20 inst	ancel info mod=mail from=matt@rsa.com to=alex@del	1.com	Source Email Address
				Destination Email Address

4. Add text or paste in a sample log message.

Strings that match tokens for the selected rule are highlighted in blue. Strings that match other rules for the parser (and the rules themselves) are highlighted in orange.

RSA Investigate Respond	Users Hosts Files	Dashboard	Reports				*	admin >
LIVE CONTENT SUBSCRIPTIONS	CAPTURE POLICIES INC	IDENT RULES IN	ICIDENT NOTIFICATIONS ESA RUL	LES CUSTOM FEEDS	G PARSER	RULES		
Log Parsers	Actiance Vantage	e - Dynamic Ru						
Add Parser Delete	Contraction Deploy Save							
∨ default	Destination Dom				I	Rules		
Dynamic Rules	TOKENS			META				
V Microsoft Windows		Hostnama		FULL CAPTURE		Add Rule	Delete	
Dynamic Rules	Please Enter New Token			domain.dst	<u>× ~</u>	Client Domain		
JSON Mappings	ed.domsin.det	- Түре	Hostname			Destination Domain		
✓ ↔ Test_plugin_raw	destinationDnsDomain	MATCHING	This matches Hostname			Source Domain		
Dynamic Rules	domain.dat	Ē				Any Domain		
JSON Mappings	dst_domainneme	Ē				Client Username		
✓ ↔ Blue Coat ELFF	detdomein	-				Username		
Dynamic Rules	ed.domein.det:	-				Destination Port		
JSON Mappings						Source Port		
✓ ↔ Actiance Vantage						Any Port		
Dynamic Rules	Sample Log Messages (Test u	p to 60K characters of	log messages)			Destination MacAd	dress	
JSON Mappings						Source MacAddress		
	date=2017-08-12 type=	traffic subtype≕	violation user=matt dstdomain=co	om status=deny src=192.16	8.24.4	Any MacAddress		
	May 5 2018 15:55:49 s	witch : %ACE-4-4	000: IDS:1000 IP Option Bad Opt:	ion user: admin@test.com	from 1	Source IP or IP:Port		
	\$TTS-4-440: 2017-08-1	2 13:53:34 192.1	70.28.192 - ₩4531 url=https://te	est.domain.edu/exchange G	ET /ex	Destination IP or IP	:Port	
				and the second se		Any IP or IP:Port		
	Dec 20 13:20:20 insta	ncel info mod≕ma:	il from=matt@rsa.com to=alex@de:	11.com		Source Email Addre	ss	
						Destination Email A	ddress	

For example, in the previous screen, note:

- The destination domain address, matching the **dstdomain** token, is highlighted in blue. The token is in dark blue, and the matching string is highlighted in light blue. This is because the **Destination Domain** is the currently selected Rule.
- The strings highlighted in orange match tokens for rules for Username, Source IP or IP:Port, Destination IP or IP:Port, Source Port, Source Email Address, and Destination Email Address. This is because they are in rules for the default parser that are not currently selected.

Highlight Overlapping Patterns

When you have patterns that overlap rules (that is, one pattern matches more than one rule), the behavior is as follows:

- The pattern is displayed in a single color (yellow)
- When you select one of the matching rules, the exactly-matched pattern is displayed in light and dark blue

For example, the pattern user: admin@test.com from 10.100.229.59 matches several rules.

RSA Investigate Respond Users Hosts Files Dashboards Reports						📰 % 🕜 admin >
LIVE CONTENT SUBSCRIPTIONS				TIONS ESA RULES CUSTOM FEEDS	ARSER RULES	
Log Parsers						
Add Parser Delete						
∨ default	entirelog					Duloc
Dynamic Rules	entil clog					Rules
✓ Microsoft Windows	TOKENS		VALUES		META	
Dynamic Rules	Please Enter New Token		Regex Pattern		FULL CAPTURE	Add Rule Delete
JSON Mappings	words	-	TYPE		content V	username [RSA]
✓ ↔ test		ш	1175		FIRST CAPTURE	hostip (RSA)
Dynamic Rules			MATCHING	This matches Regex	None 🗸 🗸	
					SECOND CAPTURE	anticelog (BCA)
Accurev			PATTERN		None	
JSON Mappings						ip [RSA]
✓ ⊕ Actiance Vantage					THIRD CAPTURE	entirelog2 [RSA]
Dynamic Rules					None	srcipport_overlap [RSA]
JSON Mappings						dest_email [RSA]
✓ ↔ My Device						😌 user email
Dynamic Rules	Sample Log Messages (Test up	to 60K (characters of lo	g messages)		
JSON Mappings						
∽ JSON Test	ype=violation user=matt st	tatus=	deny src=192		ain=com sent=0 src port=4135	
Dynamic Rules	-4-4000: IDS:1000 IP Optic	on Bad	Option <mark>user</mark>	admin@test.com from 10.100.229.5	9 port 12345.	
	92.170.28.192 - W4S31 url=	https=	://test.doma	in.edu/exchange GET /exchweb/bin/a	uth/owalogon.asp 440 ▼	

RSA Investigate Respond	Users Hosts Files Dashbo	ards f	Reports			2 % (③ admin >
LIVE CONTENT SUBSCRIPTIONS				TIONS ESA RULES CUSTOM FEEDS LOG P.	ARSER RULES		
Log Parsers							
Add Parser Delete	😔 Deploy Save Discard						
∨ default							
Dynamic Rules	hostip					Rules	
✓ Microsoft Windows							
Dynamic Rules	TOKENS		VALUES		META		
JSON Mappings	Please Enter New Token		IPV4 Address	~	FULL CAPTURE	username [RSA]	
Dumarnic Pulses	from	ŵ	ТҮРЕ	IDv/		hostip [RSA]	
JSON Mappings						sourceipport [RSA]	
✓ Accurev			MATCHING	This matches IPV4 addresses		entirelog [RSA]	
Dynamic Rules						in (PSA)	
JSON Mappings							
✓ ↔ Actiance Vantage						enurelogz [RSA]	
Dynamic Rules						srcipport_overlap [
JSON Mappings						dest_email [RSA]	
✓ ↔ My Device						😔 user email	
Dynamic Rules	ļ						
JSON Mappings	Sample Log Messages (Test up	to 60K c	haracters of log	g messages)			
✓ JSON Test							
Dynamic Rules	ype=violation user=matt s	tatus=0	deny src=192	.168.24.49 dst=192.56.43.56 dstdoma	ain=com sent=0 src_port=4135		
	4 4000, TDC-1000 TD O-+-		Onting war				
	4 4000: 1D3:1000 1P Opti	on bad	opcion user	. admine dest. com 110m 10.100.229.59	pore 12343.		
	92.170.28.192 - W4S31 url	=https	://test.doma	in.edu/exchange GET /exchweb/bin/au	th/owalogon.asp 440		

When you select the **hostip** rule, the highlighting that matches only this rule is shown in dark and light blue.

Use Cases

This topic describes the procedures you use to either on board a new event source, or to extend the parsing capabilities for an existing log parser.

Use Case 1: On Board a New Event Source

In this case, a customer has an event source and wants to add it into the NetWitness. Perform the following tasks:

- I. For your event source, get examples of the logs.
- II. In the **CONFIGURE > Log Parser Rules** view, add the Log Parser.
- III. From your sample logs, paste applicable sections into the Sample Log Messages section of the Log Parser Rules screen.
- IV. Use the sample area to understand which items are being parsed by the current parser, and note the items that are not being parsed.
- V. For anything that is not currently being parsed, add rules.
 - If the new rules apply to all parsers, you can add them to the Default parser.
 - If not, add them only to the new log parser you are creating.
- VI. Save the new rules, and deploy them to all Log Decoders.
- VII. Map the IP address for the newly added event source to the newly-created log parser. For details, see "Acknowledging and Mapping Event Sources" in the *Event Source Management User Guide*.

Use Case 2: Modify an Existing Parser

In this case, a customer wants to parse some items from the logs that are not currently being parsed by the existing log parser. Perform the following tasks:

- I. For your event source, get examples of the logs.
- II. In the CONFIGURE > Log Parser Rules view, add the Log Parser.
- III. From your sample logs, paste applicable sections into the Sample Log Messages section of the Log Parser Rules screen.
- IV. Use the sample area to understand which items are being parsed by the current parser, and note the items that are not being parsed.
- V. For anything that is not currently being parsed, add rules.
- VI. Save the new rules, and deploy them to all Log Decoders.

For a detailed walk through of some of the steps in these use cases, see <u>Extend an Existing Log Parser</u> <u>Example</u>.

Extend an Existing Log Parser Example

Note: The information in this topic applies to NetWitness Version 11.2 and later.

Parse Rules can be used to parse unknown logs from existing devices. If a log is identified as a particular type (**device.type** is populated), and is not already being parsed (**msg.id** is not populated), then Parse Rules can be added to pull out relevant data from these logs.

If the neither **device.type** nor **msg.id** are populated for the logs from an existing device, then you need to map the device before Parse Rules can be processed against these logs.

Note: If a log message is already being parsed (msg.id is populated) then Parse Rules will not be processed against that log.

Task Overview

In this example, a customer wants to parse some items from the logs that are not currently being parsed by the existing log parser. Perform the following tasks:

- I. For your event source, get examples of the logs.
- II. In the CONFIGURE > Log Parser Rules view, Add the Log Parser
- III. From your sample logs, paste applicable sections into the Sample Log Messages section of the Log Parser Rules screen.
- IV. Use the sample area to understand which items are being parsed by the current parser, and note the items that are not being parsed.
- V. For anything that is not currently being parsed, add rules as described in Add Rules and Deploy.
- VI. Save the new rules, and deploy them to all Log Decoders.

Notes

Note: All the procedures in the topic use the CONFIGURE > Log Parser Rules view.

In the Log Parser Rules tab, you may see the Refresh icon (\circ) next to an item. This indicates that the item has undeployed changes.

Add the Log Parser

The first step in the process is to add a log parser, based on an existing log parser that you want to customize.

To add a log parser

- 1. In the NetWitness menu, navigate to (Configure) > Log Parser Rules.
- 2. In the Log Parsers panel, click Add Parser.

The Add Dynamic Log Parser dialog box is displayed.

3. In the **SELECT LOG PARSER** field, select the existing parser to extend. In this example, we use Blue coat ELFF.

Note: Values for Device Type, Device Display Name, and Device Class are filled in automatically, based on the log parser you selected.

Add Dynamic Log Parser ×
Use dynamic parser rules to create a new dynamic log parser or add to an existing log parser.
SELECT LOG PARSER
Blue Coat ELFF ~
DEVICE TYPE
cacheflowelff
DEVICE DISPLAY NAME
Blue Coat ELFF
DEVICE CLASS
Web Logs ~
CLONE DYNAMIC PARSER RULES FROM
×
Add Parser

You can clone the rules from any of your existing parsers, including the **default** parser. For simplicity, in this example we leave this field blank: thus, only the rules we create are added to the new parser.

4. Click Add Parser to create the new parser.

The new parser is listed in the Log Parsers panel. Note the symbol next to the new parser—this indicates that your changes have not yet been saved.

Log Parsers
Add Parser Delete
Dynamic Rules
JSON Mappings
\sim JSON Test
Dynamic Rules
JSON Mappings
> 🌣 Aventail SSL VPN
✓ ↔ Blue Coat ELFF
Dynamic Rules
JSON Mappings

About Custom Rules

When you create a new log parser rule, it is saved to an XML definition file for the parser. These files are known as token files. This is important, because the built-in rules are overwritten if you update the parser through RSA Live, but any custom log parser rules are not overwritten, since Live does not update the token files for log parsers.

Add Rules and Deploy

After you have added the parser, the next step is to add one or more rules.

For example, you know that your log messages have some email addresses that follow a "source_mail" string. You could add the following rule to parse these strings:

IMPORTANT: If you click on another parser in the **Log Parsers** panel, before you save your rule, your changes are lost.

1. Make sure the Dynamic Rules entry for the Blue Coat ELFF parser is selected.

RSΛ	Investigate	Respond	Users	Hosts	Files	Dashbo	ard Reports
LIVE CONTE	NT SUBSCR	IPTIONS	CAPTURE	POLICIES	INCI	DENT RULE	S INCIDENT
Log Pars	ers		Blue	Coat El	_FF -	Dynami	c Rules
Add Parser	Delete		😔 D	eploy	Save	Discard	Changes
Dynamic Rul	les		Clien	t Doma	in		
V & Actianc	ce Vantage		TOKENS		-	VALUES	
Dynamic Ru	les		Please Entr	er New Token	+	Hostname	
JSON Mappi	ings		Caller Don	nain		ТҮРЕ	Hostname
✓ Acme Fire	wall		Client Don	nain	Ū	MATCHING	This matches Hostr
Dynamic Ru	les		Target Don	nain	Ū		
JSON Mappi	ings		Target Use	r Domain	_ 		
> Test JSON	Device		Caller Don	nain:	_ 		
🗸 🕂 Blue Co	oat ELFF		Client Don	nain:	_ 		
Dynamic Ru	les						
JSON Mappi	ings						

2. In the Rules panel, click Add Rule.

The Add New Rule dialog box is displayed.

3. Enter a name for the rule, and click Add New Rule.

The center panel is updated to reflect that you are working on a new rule.

RSA Investigate Respond	Users Hosts Files Dash	board Reports		z % 🕜 admin >
LIVE CONTENT SUBSCRIPTIONS	CAPTURE POLICIES INCIDENT RI	ULES INCIDENT NOTIFICATIONS ESA RULES	S CUSTOM FEEDS LOG PARS	ER RULES
Log Parsers	Blue Coat ELFF - Dynai			
Add Parser Delete	Save Discard	d Changes		
V default Dynamic Rules Misscooff Windows	Source Email	VALUES		Rules
Dynamic Rules		Regex Pattern ~	At least one meta capture selection is	Add Kule Delete
JSON Mappings	Please Enter New Token +	TYPE regex	FULL CAPTURE	🛆 Source Email
∨ ↔ Test_plugin_raw		MATCHING This matches Regev	None ~	
Dynamic Rules		PATTERN		
			SECOND CAPTURE	
Dynamic Rules			None	
JSON Mappings			THIRD CAPTURE	
		Invalid regular expression.	None ~	
	Sample Log Messages (Test up to 60K c date=2017-08-12 type=traffic	haracters of log messages) subtype=violation user=matt status=deny s:	rc=192.168.24.49 dst=192.56.4	
	May 5 2018 15:55:49 switch :	*ACE-4-4000: IDS:1000 IP Option Bad Option	n user: admin@test.com from 1	
	%IIS-4-440: 2017-08-12 13:53	:34 192.170.28.192 - W4S31 url=https://tes	t.domain.edu/exchange GET /ex	
	Dec 20 13:20:20 instance1 in	fo mod=mail from=matt@rsa.com to=alex@dell	.com	

In the TOKENS section, enter a string for the token that you want to match, then click +.

In this example, we entered email.

Note: Make sure to include a delimiter for your token. For example, in this case, the token consists of 6 characters: the string "email," and then a space. Some tokens might use a colon, semicolon, or some other character as the delimiter, but it can be easy to forget to add the space character when that is the delimiter.

4. You can enter more tokens, or continue to add values.

5. In the VALUES section, choose the value for the rule. If you choose to match a Regex Pattern, you need to enter the pattern in the PATTERN field. Other values do not require any options.

In this example, we selected Email Address.

- 6. In the META section, click 🗹 to select a meta key to which the rule stores its information. Some notes:
 - Enter characters to filter the list of available meta keys.
 - For Regex values, you can select "pieces" of the value, and store each piece to its own meta key.

Note: If any new meta keys are added to the Log Decoder, they do not appear in the list of Meta immediately. They appear automatically after 24 hours, or you can restart the **content server** service to view them.

In this example, we selected the **email.src** meta key.

The following image shows an example rule:

Blue Coat ELFF -	Dyna Disca	mic Rules	3			
Source Email						Rules
TOKENS		VALUES		META		Add Rule Delete
Please Enter New Token		Email Address		FULL CAPTURE	x ~	
email	Û	ТҮРЕ	EMail			Source Email
		MATCHING	This matches Email addresses			

- 7. Click Save to save the rule. Repeat this procedure to continue adding rules.
- 8. After you have added all of your rules, click **Deploy** to deploy the new parser to your Log Decoders. Some notes about deploying rules:
 - You deploy an entire set of rules for a parser. That is, you can continue adding rules for a specific parser until you have all of your rules, and then you can deploy them all at once.
 - After you deploy a custom parser, you can no longer delete it. You can only delete parsers that you have not yet deployed.

Note: In this example, we extended an existing log parser. However, if you are creating a new log parser for a new event source, make sure to map the new log parser to the IP address of the event source, as described in "Acknowledging and Mapping Event Sources" in the *Event Source Management User Guide*.

Regex Values

Custom Log Parser Rules can match regular expression patterns. If you select a Regex pattern for your Value, you can capture the entire matched token, or sections of it:

- Full capture: the entire matched string is stored to your selected meta key.
- First capture: the first portion of the string, up to the period character, is stored to the meta key.
- Second capture: the second portion of the string, starting after the first period character, is stored to the meta key.
- Third capture: the third portion of the string, starting after the second period character, is stored to the meta key.

You can choose any or all four of these captures, depending on the token you are matching.

For example, we examine the **Source IP or IP:Port** RSA rule:

- Regex Pattern: $s*(b(?:[0-9]{1,3}.){3}[0-9]{1,3}b):?(d*)$
- Full capture: none

- First capture: **ip.src**
- Second capture: **port.src**
- Third capture: none
- Assume example string of "src=192.168.24.4:8080", where **src** is one of the tokens defined for this rule:
 - 192.168.24.4 is saved to the ip.src meta key.
 - **8080** is saved to the **port.src** meta key.

For more details, see any online reference that describes PERL regular expressions. There are many tutorials available online.

IMPORTANT: Be careful when constructing regular expressions in your custom rules. Badly constructed regular expressions could impact your performance.

Appendix A: Select the Reference Log Decoder

For version 11.2, RSA has added the ability to add log parsers and log parsing rules through the UI, using the Log Parsers view. The Log Parsers tab is populated based on your reference Log Decoder. If you have more than one Log Decoder, you can select which acts as the reference one for populating the tab in the UI. This topic describes the procedure to do so.

Note: If you have previously set a reference log decoder, make sure that it is at NetWitness version 11.5 or later to get full functionality.

To change the reference log decoder:

- 1. In the NetWitness UI, navigate to (Admin) > Services.
- 2. For the **Content Server**, select **View > Explore**.
- 3. From the left navigation panel, expand **content > parser**.
- 4. To set the reference log decoder, enter a value for preferred-log-decoder-name-for-sync.

Enter the name listed in the **Name** column on the **ADMIN** > **Services** screen for your preferred log decoder.

RSA Investigate Respond	Users Hosts Files Dashboard Reports
HOSTS SERVICES EVENT SOURC	ES ENDPOINT SOURCES HEALTH & WELLNESS SYSTEM SECURITY
A Change Service adminserver - Conte	nt Server Explore
🖹 SAUII - Content Server 🔇	/rsa/content/parser SAUII - Content Server
	cache-duration 24 HOURS
SAUII - Content Server (CONTENT_SERVER)	database-initialization-enabled true
admin/security/settings	las decedes sus interval 12 HOURS
C configuration	max-try-counter-for-ld-sync-failure 3
Content	preferred-lag-decoder. Lag Decoder L. Lag Decoder
Darser	preterred-log-decoder-name+or-sync
	previously-synced-log-decoder-id 74d327e6-239c-45e7-9d02-e1821424635e
data/control	remove-previous-sync-parsers-for-new-log-decoder false
filesystem	retrieval-timeout 30 SECONDS
C formats	sleep-interval-after-notification 60 SECONDS
🗋 health	sync-from-log-decoder-enabled true
🖬 🗀 logging	
🖬 🗋 metrics	

- 5. The change takes effect during the next system sync, based on the log-decoder-sync-interval. To sync sooner, you can do either of the following:
 - To sync immediately, restart the Content Sever: in the Actions menu for the Content Server, select > Restart.
 - Change the log-decoder-sync-interval parameter from its default of 12 hours to your preferred interval. Note that the minimum value for this parameter is 1 HOUR.

Appendix B: Move Log Parsers to Production

You may have a development or test environment where you work on new and updated log parsers and log parser rules. In this case, at some point you need to move your new and updated log parsers into your production environment. This topic describes how to do this.

To move custom log parsers and log parser rules from development to production environment:

- 1. On the development system, do the following:
 - a. SSH to the NetWitness Server
 - b. Export the log parser information by running the following command:

```
mongodump --host localhost --port 27017 --db "content-server" --username
"deploy_admin" --password "netwitness" --authenticationDatabase admin
```

- c. Copy the "dump" folder to your production NetWitness Server.
- 2. On the production system, do the following:
 - a. SSH to the NetWitness Server
 - b. Drop the content-server table from Mongo by running below commands in the order listed:

```
mongo --username deploy_admin --password netwitness --
authenticationDatabase admin
use content-server
db.logDeviceParser.drop()
db.patternFormatType.drop()
exit
```

c. Run the following restore command:

```
mongorestore --host localhost --port 27017 --db "content-server" --
username "deploy_admin" --password "netwitness" --authenticationDatabase
admin PATH TO DUMP FOLDER
```

Make sure to replace *PATH_TO_DUMP_FOLDER* with the actual path to the "dump" folder.

d. Restart the content-server by running the following command:

systemctl restart rsa-nw-content-server

Appendix C: Troubleshooting and Limitations

This section describes some common issues that can occur when you customize log parsers and log parser rules.

Troubleshooting

You do not see any log parsing against a newly created parser.	You may have forgotten to map the new parser. To map a parser, go to (Admin) > Event Sources > Discovery tab. See the "Discovery Tab" topic in the <i>Event Source Management Guide</i> for details.
Deployment fails	If you click Deploy to deploy a new or updated log parser, and it fails, you should check the log for your reference log decoder. You access this log in the following location on the NetWitness Server:
	/var/log/netwitness/content-server/content-server.log

Delete a Log Parser Manually

If you have any issues when you attempt to remove a Log Parser through the UI, you can manually delete a log parser by using **NwConsole**.

To delete a log parser that has been deployed:

- 1. Access the RSA NetWitness Console, using the **NwConsole** command. For details, see "Access NwConsole and Help" in the *NwConsole User Guide*.
- 2. Run the following command:

```
[localhost:50002] /decoder/parsers> send . delete file=filename.xml
type=device
```

where *filename* is the name of the XML file for the log parser. For example, to delete the log parser for Oracle Access Manager, run the following command:

```
[localhost:50002] /decoder/parsers> send . delete file=oracleam.xml
type=device
```

Notes about the log parser filename:

• Log parser files are located on the Log Decoder in the following path:

```
/etc/netwitness/ng/envision/etc/devices
```

• Each log parser has its own sub-folder. For example, the Cisco ASA parser files are in the following folder:

/etc/netwitness/ng/envision/etc/devices/ciscoasa

Some log parser file names begin with v20_, while others do not—the only way to tell is by examining the devices folders. For Cisco ASA, the log parser file name is v20_ ciscoasamsg.xml. However, in the previous command, when you specify the filename, do *not* use the v20_ prefix.

NwLogPlayer

NwLogPlayer is a troubleshooting tool that simulates syslog traffic. NwLogPlayer.exe is a command line utility located on the Log Decoder host in /usr/bin.

At the command line, type nwlogplayer.exe -h to list the available options, as reproduced here:

Option	Description
priority arg	set log priority level
-h [help]	show this message
-f [file] arg (=stdin)	input message; defaults to stdin
-d [dir] arg	input directory
-s [server] arg (=localhost)	remote server; defaults to localhost
-p [port] arg (=514)	remote port; defaults to 514
-r [raw] arg (=0)	Determines raw mode.
	• 0 = add priority mark (default)
	• 1= File contents will be copied line by line to the server.
	• 3 = auto detect
	• 4 = enVision stream
	• 5 = binary object
-m [memory] arg	Speed test mode. Read up to 1 Megabyte of messages from the file content and replays.
rate arg	Number of events per second. This argument has no effect if rate > eps that the program can achieve in continuous mode.
maxcnt arg	maximum number of messages to be sent
-c [multiconn]	multiple connection
-t [time] arg	simulate time stamp time; format is yyyy-m-d-hh:mm:ss
-v [verbose]	If true , output is verbose
ip arg	simulate an IP tag
ssl	use SSL to connect
certdir arg	OpenSSL certificate authority directory
clientcert arg	use this PEM-encoded SSL client certificate
udp	send in UDP

Limitations

Please note the following limitations when using the Log Parser Rules tab:

- Log Decoder must be at version 11.2: For the functionality in the Log Parser Rules tab to work, your installation must have at least one Log Decoder running NetWitness version 11.2 or later.
- JSON Mapping: Log Decoder must be at version 11.5: For the JSON Mapping Beta functionality to work, your installation must have at least one Log Decoder running NetWitness version 11.5 or later.
- **Mixed Mode:** If any Log Decoders are at version 11.2 or later, and the NetWitness Server is at version 11.2 or later, the Log Decoders will have parseall rules enabled by default, and thus will begin to parse logs accordingly. However, the 11.2 NetWitness Server does not support Log Decoders with versions less than 11.2, so the Log Parser Rules tab in the UI stays blank.
- Meta key fields list refresh: If any new meta keys are added to the Log Decoder, they do not appear in the list of Meta in the Log Parser Rules tab immediately. They appear automatically after 24 hours, or you can restart the **content server** service to view them.
- Field Restrictions: Note the following field restrictions:
 - Rule name must be 64 characters or fewer.
 - **Parser Name** must be between 3 and 30 alphanumeric characters (including underscores), and must not match the name of any existing log parsers.
 - **Parser Display Name** must be 64 characters or fewer, and cannot match any other parser display name.
 - Regex Expression must be 1-255 characters, and a valid regex (closed capture list allowed).
 - Tags cannot be duplicates.
- **Deploy only to 11.2 Log Decoders:** The Deploy operation only deploys log parsers to version 11.2 or later Log Decoders.
- Cannot Remove Deployed Parsers: Once deployed, you cannot delete a log parser using the UI.
- See log for errors: Refer to content-server logs for more details on deploy failure details and log decoder names.

Parser Rules Tab

Note: The information in this topic applies to NetWitness Version 11.1 and later.

This tab contains details about the rules for the default log parser, as well as any other custom rules and log parsers that have been defined.

To access this tab, go to (Configure) > Log Parser Rules.

Workflow

This workflow shows processes available from the Log Parser Rules view.



What do you want to do?

Role	I want to	Documentation
Administrator	*View log parser rules.	Default Log Parser and Log Parser Rules
Administrator	*Add, edit or delete a log parser rule (version 11.2 and later)	Add or Delete a Log Parser Rule
Administrator	*Add or remove a log parser (version 11.2 and later)	Add or Delete a Log Parser

*You can perform this task here.

Related Topics

Default Log Parser and Log Parser Rules

Quick Look

Note: The list of log parsers is based on the first Log Decoder that is installed or registered by the Orchestration Server. If you have more than one Log Decoder, this tab only lists log parsers that have been configured on the first one.

The Log Parser Rules tab organizes and displays information about the configured log parsers in your system.

If you select the Dynamic Rules entry for a parser, the screen displays the dynamic rules:

RSA Investigate Respond	Users Hosts Files Dashboards Reports		🛃 % 🕐 admin >
LIVE CONTENT SUBSCRIPTIONS	CAPTURE POLICIES INCIDENT RULES INCIDENT NOTIFICATIO	NS ESA RULES CUSTO	DM FEEDS LOG PARSER RULES
Log Parsers Add Parser Delete	Actiance Vantage - Dynamic Rules <hr/> O Deploy Save Discard Changes		
 ✓ default Dynamic Rules ✓ Microsoft Windows 	Client Domain tokens values	мета	Rules
Dynamic Rules JSON Mappings V O test	Presse Enter New Token + Hostname ~ Caller Domain III TYPE Hostname —	FULL CAPTURE	Client Domain Destination Domain Source Domain
JSON Mappings V Accurev Dynamic Rules JSON Mappings	Terget Domain 🗊 Terget User Domain 🗊 Calier Domain: 🔟 Cilient Domain: 🔟		Any Domain Client Username Username Destination Port Source Port
O Actiance Vantage Dynamic Rules JSON Mappings O M D D	Sample Log Messages (Test up to 60K characters of log messages)	status=denu src=192 1	Any Port Destination MacAddress Source MacAddress
Dynamic Rules JSON Mappings	May 5 2018 15:55:49 switch : %ACE-4-4000: IDS:1000 IP Op %IIS-4-440: 2017-08-12 13:53:34 192.170.28.192 - W4531 u	tion Bad Option user:	Any MacAddress Source IP or IP:Port Destination IP or IP:Port

Note: The icon indicates that there is some uncompleted or unsaved work. For example, next to a parser name, it means that the parser has not yet been deployed.

If you select JSON Mappings, the screen displays JSON mappings for the parser.

Log Parsers Panel

	The Log Parsers Panel lists the configured log parsers.		
Log Parsers	• Until you add rules to existing XML parsers on your reference		
Add Parser Delete	Log Decoder, (or add a new, custom log parser) only the default parser is listed here.		
\checkmark default	• Select a specific log parser to view its details in the Details and		
Dynamic Rules	Rules panels.		
✓ Microsoft Windows	Click Add Parser to open the Add Dynamic Log Parser dialog hox		
Dynamic Rules	Click Delete to delete a lag nemer		
JSON Mappings	• Click Delete to delete a log parser.		
∨ ⊖ test	IMPORTANT: Once you deploy a log parser, you can no longer delete it through this interface. The Delete button is not		
Dynamic Rules	available for deployed parsers. To manually delete a log		
JSON Mappings	parser, see <u>Add or Delete a Log Parser</u> .		

The Add Dynamic Log Parser dialog box allows you to add a custom log parser.

Add Dynamic Log Parser	×
Use dynamic parser rules to create a new dynamic log parse or add to an existing log parser.	er
SELECT LOG PARSER	
New	
DEVICE TYPE	
particle_board	
DEVICE DISPLAY NAME	
Particle Board Rider	
DEVICE CLASS	
Access Control	
CLONE DYNAMIC PARSER RULES FROM	
default ×	
Add Parser	

When you are adding a log parser, the following parameters are available.

Field	Details
SELECT LOG PARSER	Select NEW, or choose an existing log parser. By choosing an existing log parser, you can add rules to that parser, essentially extending its parsing capabilities. Note: If you select an existing log parser, the remaining fields are auto-filled based on the values for selected log parser.
DEVICE TYPE	Enter a string to define the device type. The name must be between 3 and 30 alphanumeric characters (including underscores), and must not match the name of any existing log parsers.
DEVICE DISPLAY NAME	Enter the display name for the log parser. Note: The display name must be 64 characters or fewer, and must not match the name of any other device display name.
DEVICE CLASS	Select a device class.
CLONE DYNAMIC PARSER RULES FROM	Leave blank to start with no rules, or select one of the existing log parsers to clone its rules.

Dynamic Rules

If you select the Dynamic Rules entry for a parser, you see the following panes:

- Details
- Rules

Details Pane

The details pane shows the three pieces for the selected rule:

- **Tokens:** one or more tokens to match in the message. For example, the Any Port rule looks for the following strings to match against: **port:**, **port=**, and others.
- Values: the value that follows the token. This is a string that is captured as meta. For example, assume a log contains the following string:

```
port 12345
```

The Any Port rule has a token that matches "port". When it encounters that string, it assigns the token value, "12345" to a meta key.

• Meta: the meta keys to which the value is mapped. For example, the Any Port rule maps the port value to the **port** meta key.

Essentially, a rule says, "when you are parsing a message, if you match one of my tokens, assign the value that follows the token to the meta key that I want it stored as."

The bottom section of the Details panel contains sample log messages, and how they would be parsed for the selected log parser.

default - Dynamic Rules 🛶 💶					
C Deploy Save Discard Changes					
CI	ient Doma	ain 🔶	2		
ток	ens 🔶 3		VALUES ←	4	мета 5
Plea		_+	Hostname	v	FULL CAPTURE
Call	er Domain	<u></u>	ТҮРЕ	Hostname	
Clie	nt Domain	Û	MATCHING	This matches Hostname	-
Targ	et Domain	Ū			-
Targ	et User Domain	_ _			
Call	er Domain:				
Clie	nt Domain:				
Sample Log Messages (Test up to 60K characters of log messages)					
date=2017-08-12 type=traffic subtype=violation user=matt status=deny src=192.1					
date 2017 to 12 type trained babtype vibiation abor matte					
May 5 2018 15:55:49 switch : %ACE-4-4000: IDS:1000 IP Option Bad Option user:					
% II	s-4-440: 201	7-08-1	2 13:53:34	192.170.28.192 - W4s31	url=https://test.domain
1	Displays the na discarding char	ume of the nges. Thi	e selected lo s value chan	g parser, and the buttons for d ges when you select a differen	eploying, saving, and t parser.
2 Displays the name of the selected rule. This value changes when you select a different rule for this parser.					
3 Displays the list of tokens defined for the selected rule.					
4 Displays the type and pattern of the value matching for the selected parser. The values here are determined by the type of the selected value. You can also use the Regex option to define a custom regular expression.					
5	5 Displays the NetWitness meta to which the selected rule maps any matched tokens. The values				
6 Displays a sample log message, and highlights strings that match tokens in the selected log parser. You can edit this field, and add in your own logs to preview how the selected parser will parse your logs.					
	Note: The sam	nple sect	tion refreshes	s whenever a rule is changed o	r updated, as well as when you

paste in samples from your logs.

For example, consider the following scenario:

- The **default** parser is selected.
- The Any Domain rule is selected.
- The Tokens matching list displays all of the tokens that are matched when found in a log message: **Domain, Domain Name, domain, ADMIN_DOMAIN**, and so on.
- The Meta list displays the NetWitness meta to which the value for the token is mapped: domain.

So, let's say the sample log message area has the following text:

```
Below are sample log messages:
May 5 2010 15:55:49 switch : %ACE-4-400000: IDS:1000 IP Option Bad Option
List by user admin@test.com from 10.100.229.59 to 224.0.0.22 on port 12345.
Apr 29 2010 03:15:34 pvg1-ace02: %ACE-3-251008: Health probe failed for
server 218.83.175.75:81, connectivity error: server open timeout (no SYN ACK)
domain google.com with mac 06-00-00-00-00.
```

In this case, the Sample Log Message area looks like this:

default - Dynamic Rules					
Any Domain					Rules
TOKENS		VALUES		META	Add Rule Delete
	_ + I	Hostname		FULL CAPTURE	
		ТҮРЕ	Hostname		Destination Domain [RSA]
		MATCHING	This matches Hostname		Source Domain [RSA]
					Any Domain [RSA]
					Client Username [RSA]
					Username [RSA]
					Destination Port [RSA]
					Source Port [RSA]
					Any Port [RSA]
Sample Log Messages (Test u	Sample Log Messages (Test up to 60K characters of log messages)				Destination MacAddress [RSA]
					Source MacAddress [RSA]
date=2017-08-12 type=	date=2017-08-12 type=traffic subtype=violation user=matt status=deny src=192.168.24.49 dst=192.56.			rc=192.168.24.49 dst=192.56.4	Any MacAddress [RSA]
May 5 2018 15:55:49 switch : %ACE-4-4000: IDS:1000 IP Option Bad Option user: admin@test.com from 1			Source IP or IP:Port [RSA]		
STIS / //// 2017 00 12 12 52 2/ 102 170 20 102 deptin google con H/621 uni-https://test.domain.e			Destination IP or IP:Port [RSA]		
*115-4-440: 2017-08-12 15:55:54 192.170.28.192 - domain google.com w4551 uri-https://test.domain.e			Any IP or IP:Port [RSA]		
Dec 20 13:20:20 instance1 info mod=mail from=matt@rsa.com to=alex@dell.com			Source Email Address [RSA]		
					Destination Email Address [RSA]

Note that some strings are highlighted, and that there are two "pairs" of highlight colors:

- Dark blue and light blue highlighting is applied to the strings that match the currently selected rule.
 - Dark Blue highlighted strings match a token in the selected rule. In this case, **domain** is the token that is matched for the **Any Domain** rule.
 - Light Blue highlighted strings are the values that correspond to the tokens in dark blue. For example, **google.com** is highlighted in light blue, because it corresponds to the **domain** token.
- Orange and yellow highlighting is applied to the strings that match rules for the current parser that are *not* currently selected.
 - Orange highlighted strings match a token in a rule that is not currently selected.
 - Yellow highlighted strings are the values that correspond to the tokens in orange. For example, the **user** token matches the **Username** rule (which is not currently selected).

In this example, the **domain** meta would be assigned a value of **google.com** for this log message, if it was parsed using the default log parser.

Rules Pane

The Rules pane displays the list of rules used by the selected log parser. When you select a rule, you change the values that are displayed in both the **Tokens** and **Values** areas of the panel.

Rules				
Add Rule Delete				
Test1				
Client Domain [RSA]				
Destination Domain [RSA]				
Source Domain [RSA]				
Any Domain [RSA]				
Client Username [RSA]				
Username [RSA]				
Destination Port [RSA]				
Source Port [RSA]				
Any Port [RSA]				
Destination MacAddress [RSA]				
Source MacAddress [RSA]				
Any MacAddress [RSA]				
Source IP or IP:Port [RSA]				
Destination IP or IP:Port [RSA]				
Any IP or IP:Port [RSA]				
Source Email Address [RSA]				
Destination Email Address [RSA]				
URL [RSA]				

Note the highlighted rules:

- The currently selected rule is highlighted in blue.
- Other rules that match tokens in the sample log message area are highlighted in orange.

Other notes for the Rules panel:

• RSA rules (the rules provided out-of-the-box for each log parser) are identified by **[RSA]** following the rule name.

You can copy these rules when adding a new log parser, and then change them as needed.

- The **Delete** button is only available for custom rules; for RSA rules, it is greyed out.
- Use the Add Rule button to add a custom rule.

JSON Mappings

If you select the JSON Mappings entry for a parser, you see the following panes:

- Sample JSON Message
- Meta Mappings
- Mapping Details

Sample JSON Message

You can enter or paste sample JSON text. Click the **Render JSON** button to automatically format the text into JSON code. If the text is not valid JSON, you receive a message and the text is not formatted.

The following screen shows the Sample JSON Message area with some JSON that has been pasted in:



Since this is valid JSON, clicking Render JSON produces the following:



Note that you can see the tree mode of the sample JSON if you click Mapping Mode:

Sample JS(ON Message
Editing Mode	Mapping Mode
•	
terminal: "W	/IN-OT2OAJHG9NN"
@timestamp	: "2020-05-21T05:45:31.787Z"
host_name:	"WIN-OT2OAJHG9NN"
global_userio	d: null
dbusername	: "C##TET_USER"
object_scher	na : null
os_process:	"7992:5208"
audit_option	: null
role: null	
unified_audi	t_policies: "ORA_LOGON_FAILURES"
action_name	:: "LOGON"
entry_id: 1	
audit_type: "	Standard"
authenticati	on_type: "(TYPE=(DATABASE));(CLIENT ADDRESS=((PROTOCOL=beq)
(HOST=10.31	.204.34)));"
dbproxy_use	rname : null
external_use	erid: null
@version: "1	
new_schema	: null
new_name: r	
statement_io	1:1
proxy_sessio	onid: 0

Note: You can edit the sample JSON in Editing mode, but not in Mapping mode. Mapping mode is read only.

On the other hand, if you enter text that is not valid JSON, the screen looks as follows:



Auto Discover JSON Mappings

Beginning with NetWitness version 11.5.1, you can automatically create the mappings without the need to manually enter the name and path of the mapping. For details, see .<u>Auto Discover JSON Mappings</u>.

When the system auto discovers mappings, the path is filled in automatically, based on the structure of the mappings. For simple name-value pairs, this is straightforward. For example, for this pair, "host_name": "WIN-OT2OAJHG9NN", the path is set to /host_name.

However, the rules for nested mappings and arrays are as follows:

• For a nested structure, names are separated with a forward slash (/).

```
{
    "parent": {
        "child": "value"
    }
}
```

The path is set to /parent/child.

• Arrays are accessed by omitting the index.

```
{
    "array": [
    "x",
    "y",
    "z"
}
```

The path is set to /array/.

```
{
    "array": [
    {
        "name": "value"
    }
]
}
```

The path is set to /array//name.

• Variable names are accessed by omitting them from the path.

```
{
    "root": {
        "x": {
            "name": "value"
        },
        "y": {
            "name": "value"
        }
    }
}
```

The paths are set to /root/x/name and /root/y/name.

Remove Unmapped Entries

If there are mappings that you do not want to save, you can remove them. After you validate all of the mappings that you want to keep, you can click **Remove Unmapped** to remove all mappings that you have not yet validated.

For example, assume you have auto-discovered some mappings as shown here:



After you click Remove Unmapped, you can see that only mapped entries remain:



Note: You cannot save your work until all of the entries have either been mapped or removed from the list.

Meta Mappings

This panel lists the mappings that exist for this parser. You can add a mapping by using the Add New button, or delete an existing mapping by selecting it and clicking **Delete**.

Mapping Details

The Mapping Details pane displays the following information.

Field	Details
DISPLAY NAME	This name corresponds to the name displayed in the JSON Mappings panel.
РАТН	The path to where the values for this portion of the log are stored.
DESCRIPTION	Optionally, you can enter a text description for this mapping.
META	Select a meta key to which this value from the log is mapped. Select a value from the drop-down menu. Optional if you choose a Value Format.
VALUE FORMAT	Choose a value format parser onto which to pass this JSON value. You can either select an existing meta or Custom Regex Type . If you select custom regex type, you must define the regex and capture to <i>fine</i> parse the value in the meta. Optional if you choose a Meta.
CUSTOM REGEX TYPE	Select Custom Regex Type from the Value Format drop-down, which allows you to add new custom regex type.
REGEX PATTERN	Specify a regex to identify different pieces of data contained within a JSON node value.
FIRST CAPTURE	Select a meta key that should be captured first based on the value defined in the Regex pattern.

ADD A CAPTURE New capt default, it	
in the dro maximum option wi reaches n	ure field is added. By is loaded with meta keys p-down. You can add of 20 captures and this ll be disabled once it haximum.

Note: You need to select a meta or enter a Value Format, but you do not need to fill in values for both settings.

Disable log Parser Rules

You can disable log parser rules, so that none of them are processed by the Log Decoder. You might have your log parsers working as you like, and do not want any extra processing that you do not need.

You disable them from the reference Log Decoder.

- 1. Go to **(Admin) > Services**.
- 2. In the Administration Services view, select the Decoder and Services > View > Config. The Services Config view is displayed with the General tab open.
- 3. Under **Parsers Configuration**, look at the Config Value for **PARSERULESCAN**. If it is **Enabled**, log parser rules are processed. If it is **Disabled**, they are not processed.
- 4. If the rules are Enabled, click Enabled and select Disabled to disable the log parser rules. To save the changes, click **Apply**.