ME: Configuration

MQTT Engine provides a configuration section to the Ignition Gateway and this can be seen in the left side bar of the Ignition Gateway web UI.

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A	BACNET	Config > System > Overview			
lome	Local Devices	Trial Mode 0:36:41 We're glad you're test driving our software. Have fun.			Activate Ignitie
🗘 onfig	Setup				
	SEQUENTIAL FUNCTION CHAR	s			
	MQTT DISTRIBUTOR				
	MQTT ENGINE Settings				
			Ignition by Inductive Automation.	inductive	Ignition

The configuration options for each of the three tabs - General, Servers, Sets, and Namespaces - are detailed below.

General

The configuration sections available are Main, Command Settings, Alarm Settings, Miscellaneous and Advanced.

General - Main

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Ignitio	n Gateway									_		≛admin	Log Ou
lgni	tion										Help 🕜	Get Des	signer
♠	SYSTEM	🌣 Confi	g > Mqttengine >	MQTT Engin	ne Settings								
ome	Overview	Trial M	ode 1:13:30 W	e're glad you're	test driving our	software. Have fun.						Activat	te Igniti
հ	Backup/Restore												
atus	Ignition Exchange												
¢	Licensing	_	General	Servers	Sets	Namespaces							
onfig	Modules												
	Projects		Main Setting	75									
	Cotowow Sottings												
			Enabled	🛃 Ena	ble the MQTT	Engine							

• Enabled

° Whether or not the MQTT Engine module is enabled and connecting to configured MQTT Servers.

General - Command Settings

← -	> C		alhost:8088/web/cor	ifig/mqttengine.settings?128	☆	
	Email Settings	🌣 Confi	g > Mqttengine > MO	TT Engine Settings		
Home	SECURITY	Trial M	ode 1:13:38 We're g	lad you're test driving our software. Have fun.		Activate Ignition
ы	General					
itatus	Auditing		Command Settin	igs		
*	Users, Roles		Block Node	_		
onfig	Service Security		Commands	Block outbound edge node tag writes		
	Identity Providers					
	Security Levels		Block Device Commands	Block outbound device tag writes		
	Security Zones					
	DATABASES		Include Security Context	U Whether or not to include the Security Context in write commands to be validated at the Edge Node		
	Connections					
	Drivers		Security Context	Choose One		
	Store and Forward		Algorithm	The hashing algorithm to use when encrypting the Security Context		
			-			
	ALARMING		Password?	Check this box to change the existing password.		
	General					
	Journal		Password			
	Notification			The hashing password to use when encrypting the Security Context		
	On-Call Rosters					
	Schedules		Password			
-	Consult			Re-type password for verification.		

- Block Node Commands
 - Whether or not to block outgoing commands from MQTT Engine to Edge Nodes. This is true by default and provides a security mechanism for preventing accidental outgoing commands from MQTT Engine.
- Block Device Commands
 - Whether or not to block outgoing commands from MQTT Engine to Devices. This is true by default and provides a security mechanism for preventing accidental outgoing commands from MQTT Engine.
- Include Security Context
 - Whether or not to include the Security Context in write command to be validated at the Edge Node. This is deselected by default.
 Reference the Ignition MQTT Security Context HowTo for additional details on how to use this configuration.
- Security Context Hashing Algorithm
- Hashing algorithm to use when encrypting the Security Context. Options include SHA_1, SHA_224, SHA_256, SHA_384 and SHA_512
 Change Password?
- Checkbox to allow existing password to be changed
- Password
 - ° Password to be used when encrypting the Security Context

General - Alarm Settings

MQTT Engine 4.0.23 and newer support the acknowledgements of alarm events propagated from the Edge to MQTT Engine on the Central Gateway and inserted in the Ignition Alarm Journal

Review the Alarm Event Propagation document for system configuration details including the changes needed to the data/ignition.conf file and MQTT Transmission

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~ ·	> C O	8 192	.168.1.227:8088/web	/config/mqttengine.settings?5	☆	${\times}$	பி	=
A Home	ALARMING General	Config	s > Mqttengine > MQT ode 1:54:33 We're gla	T Engine Settings d you're test driving our software. Have fun.		Activ	ate Ign	nition
 Status	Journal Notification		Alarm Settings					
Config	On-Call Rosters Schedules		Alarm Event Enable	V Whether or not to support alarm events via MQTT (default: true)				
	TAGS History		Alarm Display Path Type	IDS_AND_EDGE				
	OPC CLIENT OPC COnnections		H2 Database Directory	D:\Inductive Automation\gnition8.1.4 Directory to store the H2 Database in (default: D:\Inductive Automation\gnition8.1.47\user-lib)				
-	OPC Quick Client		H2 Database Port	9098 TCP Port to connect to H2 Database (default: 9,098)				
r	•						_	

- Alarm Event Enable
 - When enabled and alarms are enabled on tags, MQTT Engine will receive the contents of the triggered alarms at the Edge and creates an alarm event where MQTT Engine is installed.
- Alarm Display Path Type added in 4.0.30
 - The format to use for the Alarm Display Path if the Display Path property is not configured at the Edge. If the Display Path is configured, it will be used by Engine.
 - EDGE Sets the display path as the Edge tag path
 - Edge Nodes/Tag1/MyAlarm
 - ENGINE Sets the display path as the Engine tag path which include the Sparkplug descriptors Edge Nodes/GroupID/EdgeNodeID/DeviceID/Tag1/MyAlarm
 - IDS_AND_EDGE Sets the display path to include the Sparkplug descriptors and the Edge tag path
 GroupID/EdgeNodeID/DeviceID/Edge Nodes/Tag1/MyAlarm
- H2 Database Directory added in 4.0.25
 - Directory to store the H2 Database in.
 - The AlarmStore is required to maintain the alarm events across MQTT Engine module disable/enable, module restart, or power loss.
 - The default base path for Linux is ~yourlgnitionInstance\data\modules and the database will be included in the Ignition GWBK
 - 0 The default location for Windows Linux is ~yourlgnitionInstance\user-lib\modules and the database will not be included in the Ignition GWBK
- The database file will be created in this directory under the base path com.cirrus-link\com.cirruslink.mqtt.engine.gateway\h2 H2 Database Port
 - TCP Port to connect to internal H2 Database

General - Miscellaneous

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	\rightarrow C	O 洛 19	2.168.1.117:8088/web	/config/mqttengine.settings?3	☆	© □ =
		🌣 Conf	fig > Mqttengine > MQ	IT Engine Settings		
Home TAGS Trial Mode 0:24:51 We're glad you're text driving our software. Have fun. History		Aode 0:24:51 We're gl	ad you're test driving our software. Have fun.		Activate Ignitio	
.lıı Status	Realtime		Miscellaneous Se	ttings		
Config	OPC CLIENT		Block Property Changes	□ Block incoming Tag property changes		
	OPC Quick Client		Store Historical Events	Z Enable the writing of historical change events directly to the History provider instead of updating the Tag value		
	OPC UA Device Connections		Reordering Timeout	0 Sets the Sparkplug Reordering Timeout in milliseconds. If enabled (greater than zero), MQTT Engine will wait up to the spe	cified number of millisecond	is after
₹	Q Search			receiving an out of order message for the expected message to arrive before considering it a failure		

- Block Property Changes
 - Whether or not to block incoming properties from modifying MQTT Engine tag properties. This is false by default so property changes will be applied if not included in the Filtered Property list under 'Advanced'.
- Store Historical Events
 - Whether or not to write historical change events directly to the Historian (if history is enabled on a Tag) instead of updating the live Tag value

- Note: Store and Forward does not guarantee all data is stored and forwarded. There are some edge cases that are not currently handled with regard to data loss in the event of connection failures related to MQTT keep alive timeouts. This window of potential missed data can be reduced by decreasing MQTT Transmission and MQTT Engine configurable keep alive timeouts.
- Reordering Timeout
 - Sets the Sparkplug Reordering Timeout in milliseconds.
 - When enabled (greater than zero), MQTT Engine will wait up to the specified number of milliseconds after receiving an out of order message for the expected message to arrive before considering it a failure.

If upgrading from a pre 4.0.14 module with a "reorderingTimeout" custom property configured, the upgrade will migrate the value for the custom property to the Reordering Timeout property.

General - Advanced

These are advanced settings/features and they should be left with default values in almost all cases. Please be careful when changing these settings from their default values.

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MQTT ENGINE	🌣 Cor	nfig > Mqttengine > MQ	TT Engine Settings			
Home Settings	Trial	Mode 1:39:03		Ad	tivate	Ignition
III MQTT TRANSMI	SSION	Advanced Setting	gs			
Status History Settings		Enable Tag Latching	Enable latching on tags to synchronize MQTT Engine tag u Ignition projects. This will impact overall system performance	pdates with events e when enabled.	in	
PERSPECTIVE	istomization	Latch Timeout	2000 The amount of time to wait for the latch to be released by the component in milliseconds before timing out (default: 2,000)	e Ignition project		
		Latch Tags	A semicolon separated list of comma separated trigger tag/la 'trigger1,latch1;trigger2,latch2;')	tch tag pairs (e.g.		
		Filtered Properties	accessRights;clampMode;deadband;deadbandMode;forma A semicolon delimited list of Tag properties to filter/ignore or	tString;historicalDe n received Tags	ac	
		Enable BD Sequence Validation	Enables/disables BIRTH/DEATH sequence number validati Sparkplug specification. Only disable if you have non-conforr Nodes	on as required by th ming Sparkplug Edg	ie je	
		Enable Metric Timestamp Validation	Enables/disables validation of metric timestamps against timestamp before writing. If enabled, tag writes will only occu metric timestamp is newer than the current tag timestamp.	the current tag valu ur if the new incomi	e ng	
		Custom Properties	Custom properties to provide to MQTT Engine. Typically this	is not used.		
		Primary Host Control Tags	A semicolon separated list of comma separated Primary Host (e.g. 'fullTagPath1,tagType1,tagValue1;fullTagPath2,tagType2 control tags will need to exist, have a Good quality, have the and specified tag value before the Primary Host will connect message. Supported tag DataTypes are: Byte, Short, Integer, Boolean and String.	: control tag triples 2,tagValue2;'). The specified tag DataTy and publish its STA' Long, Float, Double	ype FE	
		Rebirth Debounce Delay	5000 The amount of time to delay in milliseconds before another S request can be sent to an Edge Node (default: 5,000)	parkplug Rebirth		
▲ Search.		Use Cirrus Link Encoder	Whether or not to use the Cirrus Link encoder for Sparkplu Sparkplug compliant but will properly encode Ignition prope Document, and Array types.	g payloads. This is ı rties such as DataSe	not et,	

- Enable Tag Latching Whether or not to enable Tag latching to synchronize MQTT Tag updates with events in Ignition.
- Latch Timeout
 - $^{\circ}\;$ The amount of time to wait for a Tag latch to be released before timing out.
- Latch Tags
 - $^{\circ}\;$ A semicolon separated list comma separated list of Trigger Tag and Latch Tag pairs.
- Filtered Properties

 A semicolon delimited list of Tag properties to filter/ignore on received Tags.

- ^o By default the filtered properties list contains: accessRights;clampMode;deadband;deadbandMode;formatString;historicalDeadband; historicalDeadbandMode;historicalDeadbandStyle;historyEnabled;historyMaxAge;historyMaxAgeUnits;historyProvider; historySampleRate;historySampleRateUnits;historyTagGroup;historyTimeDeadband;historyTimeDeadbandUnits;opcItemPath;opcServer; permissionModel;rawHigh;rawLow;sampleMode;scaleFactor;scaleMode;scaledHigh;scaledLow;tagGroup;valueSource;expression; expressionType;ConfiguredTagPath;eventScripts;readPermissions;writePermissions;eventScripts;parentEnabled;sourceTagPath
- Tag properties are only published from Transmission if different from the default Ignition tag property settings and are only published in BIRTH messages.
- Enable BD Sequence Validation
 - Whether or not to enable BIRTH/DEATH sequence number validation (required by Sparkplug specification).
- Enable Metric Timestamp Validation
 - Enables/disables validation of metric timestamps against the current tag value timestamp before writing. If enabled, tag writes will only
 occur if the new incoming metric timestamp is newer than the current tag timestamp.
- Custom Properties
- Do not use unless instructed to by Cirrus Link personnel.
- Primary Host Control Tags
 - A semicolon separated list of comma separated Primary Host Control tags triples (e.g., tagPath1,tagDataType1,tagValue1;tagPath2, tagDataType2,tagValue2). Review MQTT Engine Primary Host Control for additional information.
 - Supported tag DataTypes are: Byte, Short, Integer, Long, Float, Double, Boolean and String
- Rebirth Debounce Delay added in release 4.0.23
 - The amount of time in milliseconds before another Sparkplug Rebirth request can be sent to an Edge Node
 - Releases prior to 4.0.23 have a hardcoded 5 second Rebirth Debounce Delay.
- Use Cirrus Link Encoder added in release 4.0.30
 - Whether or not to use the Cirrus Link encoder for Sparkplug payloads. This property is enabled by default.
 - This is not Sparkplug compliant but will properly encode Ignition properties such as Dataset, Document and Array types.

Servers

The Servers tab has two parts - Settings and Certificates

Servers - Settings

This tab provides a list of the MQTT Servers that MQTT Engine should connect to. By default, MQTT Engine is configured to connect to the local MQTT Distributor based MQTT Server and is set up to connect to localhost, port 1883, using the default username/password.

Additional or alternative MQTT Servers can be configured in MQTT Engine - often times more than one will be configured to handle fail-over in redundant or geographically distributed systems. Clicking on the 'Create new MQTT Server' link will bring up a form for adding a new MQTT Server setting.

The connection status of each server can be seen in the 'Status' column with options:

- Connected
- Disconnected
- Not Licensed

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🛯 Ignition	n Gateway						Log Out →
Ignit	tion						Help 🕖 Get Designer
•	SYSTEM	Config > Mqttengine > MQTT E	ngine Settings				
Home	Overview	Trial Mode 1:12:06 We're glad yo	u're test driving our software. Have fun.				Activate Ignition
da	Backup/Restore						
Status	Ignition Exchange	General Servers	Sats Namesnaces				
*	Licensing	General	Sets Wattespaces				
Config	Projects						
	Redundancy	Settings Cert	ificates				
	Gateway Settings						
	NETWORKING	Name	URL	Server Set	Username	Status	
	Web Server	Chariot SCADA	tcp://localhost:1883	Default	admin	Connected	delete
	- 16.0						
	Q Search	→ Create new MQTT	Server Setting				

The configuration sections available are Main, TLS, Advanced and Advanced Legacy State

Server Settings - Main

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Redundancy	🌣 Config	g > Mqttengine > MQ	QTT Engine Settings				
Gateway Sett	ngs Trial M	ode 1:11:29 We're g	glad you're test driving our software. Have fun.			Activa	ite Ignitio
IS NETWORKING		Main					
Web Server ig Email Setting Gateway Netw	; rork	Name	Chariot SCADA The friendly name of this MQTT Server Setting				
SECURITY		Enabled	☑ Enable this MQTT Server Setting				
General Auditing Users, Roles		URL	tcp://localhost:1883 The URL of the MQTT Server to connect to. Should be of the form tcp://mydomain.com:1883 or ssl://mydomain.com:8883				
Service Secur Identity Provi OAuth2 Client	ty ders s	Server Set	Default The Server Set this MQTT Server is associated with				
Security Leve Security Zone	5	Username	admin The username for connections if required by the MQTT Server (optional)				
DATABASES Connections		Change Password?	Check this box to change the existing password.				
Drivers Store and For	ward	Password	The password for connections if required by the MQTT Server (optional)				
ALARMING		Password	Re-tune nassword for verification				

- Name This is the friendly name of the MQTT Server used to easily identify it.
- Enabled
 - ° Whether or not connections to this MQTT Server are enabled.
- URL
 - This is the URL of the MQTT server. Its format is as follows: [protocol]://[location]:[port]. Each of these are shown below.
 - protocol Either tcp or ssl
 - location The server location. e.g. localhost, myserver.chariot.io, mydomain.com, etc
 port The port the MQTT Server is listening on. Generally this is 1883 if using TCP or 8883 if using SSL
- Server Set
 The Server Set this MQTT Server is associated with
- Username
- ^o Optional MQTT username to use in the MQTT connect packet. This is required if the MQTT Server to connect to requires it. Password
 - · Optional MQTT password to use in the MQTT connect packet. This is required if the MQTT Server to connect to requires it.

Server Settings - TLS

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	Store and Forward	🌣 Config	> Mqttengine > MQTT B	Engine Settings	
me	ALARMING	Trial Mo	de 1:13:22 We're glad y	iou're test driving our software. Have fun.	Activate Ignition
II tus	General Journal		TLS		
) nfig	Notification On-Call Rosters		CA Certificate File	- none - v CA Certificate file currently in use	
	TAGS		Client Certificate File	- none - Client certificate file currently in use	
	Realtime		Client Private Key File	- none - Client private key file currently in use	
	OPC Connections OPC Quick Client		Change Password?	□ Check this box to change the existing password.	
	OPC UA Device Connections		Password	The password associated with the certificate's private key (optional)	
	Security Server Settings		Password	Re-type password for verification.	
	BACNET Local Devices		Hostname Verification	C Enable TLS Hostname Verification	
	ENTERPRISE ADMINISTRATIO	N	TLS ALPN Extensions		

See this document for TLS configuration: Secure MQTT Communications using SSL or TLS

- CA Certification File
 - CA Certification file currently in use.
- Client Certification File
- Client Certification file currently in use.
 Client Private Key File
 - Client Private Key file currently in use
- Password

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- Optional password associated with the certificate's private key.
- Hostname Verification • Enable TLS Hostname Verification. This is true by default.
- TLS ALPN Extensions

• Optional TLS ALPN Extensions, such as http/1.1, to use with this connection if supported by the MQTT Server.

Server Settings - Advanced

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♠	Settings	🌣 Config	> Mqttengine > MQTT	Engine Settings			
Home	FEM EMERSON ROC		✓ Show advanced	properties			
.iii Status	Settings		Advanced				
Config	GOOGLE CLOUD INJECTOR		Client ID	The MQTT Client ID for connections to the MQTT Server. If left blank one will be auto-generated (c	optional)		
	IBM CLOUD INJECTOR Settings		Keep Alive	30 The MQTT Client keep alive time (in seconds) (default: 30)			
	MQTT DISTRIBUTOR Settings		Filtered Namespaces	Comma separated list of namespaces (e.g. Elecsys, Xirgo) to be disabled for this MQTT Server con	nection (optional)		
Ŧ	MQTT ENGINE		Include Sparkplug DataTypes	Whether or not to include Sparkplug DataTypes for Metrics in Sparkplug CMD payloads			

Client ID

 Optional MQTT client ID to use. If specified this will be used in the MQTT Engine connect packet when connecting to the server. If left blank, a random client ID will be created of the form 'ME-xxxxxx-xxxx'.

Caution: MQTT Clients IDs must be unique and if two clients attempt to connect with the same client ID, one will be forcefully disconnected from the server to allow the other client to connect.

• Keep Alive

- The maximum interval in seconds (5-65,535) between any two MQTT protocol control packets sent by the client to the server.
- Minimum Keep Alive for MQTT Engine is 5.
- If the client is idle and has no control packets to send, it will send PINGREQ protocol packet and the server is required to respond with a PINGRESP packet. If no response is received from the server within 1.5 times the Keep Alive, the client will close the connection.
- If the server does not receive, at minimum, a PINGREQ message from a client within 1.5 times the Keep Alive, it will terminate the connection and send the client's LWT message if defined.
- For MQTT Engine with Primary Host enabled, this is a message of format spBv1.0/STATE/primary_host_id with a payload {"online" : false, "timestamp" : 1668114759262}
- For MQTT Engine with Legacy Primary Host enabled, this is a message of format STATE/primary_host_id with a payload of OFFLINE
 Filtered Namespaces
 - ° A comma separated list of namespaces that will be filtered/disabled for connections to this MQTT Server.
 - ° The default namespaces are Elecsys, Xirgo, Sparkplug A and Sparkplug B.
- Include Sparkplug DataTypes
 - Whether or not to include Sparkplug DataTypes for Metrics in Sparkplug CMD payloads
 - Enabled by default

Server Settings - Advanced Legacy State

From release 4.0.14 MQTT Engine will support the new STATE message format and be in compliance with MQTT Sparkplug™ B specification v3.0.0.

However as there will still be many existing clients which are only compatible with the MQTT Sparkplug[™] B specification v2.2, we have made changes to MQTT Engine to establish a MQTT client whose only function is to publish the STATE message in its legacy format.

If you are updating from a previous version of MQTT Engine to v4.0.14, the configuration of the Legacy State template will be completed as part of the upgrade process and the Legacy Client enabled.



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e Setting	LOUD INJECTOR CO	onfig > Mqttengine > MQTT E Mode 1:25:23 We're glad yo	ngine Settings u/re test driving our software. Have fun.		Activat	e Ignitic
MQTT DIST	TRIBUTOR	Legacy State				
	(S	Enable Legacy STATE messages	✔ Whether or not to enable legacy STATE messages (e.g. STATE/[host_id])			
Setting	gs order	Enable Primary Host Subscriptions	Enables/disables subscriptions on 'STATE/#' and 'State/#' topics for DEBUGGING purposes (ignored if 'Primary H	ost ID' is set)		
Setting	S NSMISSION	Username	admin The username for connections if required by the MQTT Server (optional)			
History Setting	/ ;s	Change Password?	□ Check this box to change the existing password.			
PERSPECT Brandir	ng Customization	Password	The password for connections if required by the MQTT Server (optional)			
		Password	Re-type password for verification.			
		Client ID	The MQTT Client ID for connections to the MQTT Server, If left blank one will be auto-generated (optional)			
		CA Certificate File	- none - v CA Certificate file currently in use			
		Client Certificate File	- none - v Client certificate file currently in use			
		Client Private Key File	- none - v Client private key file currently in use			
		Change Password?	□ Check this box to change the existing password.			
		Password	The password associated with the certificate's private key (optional)			
		Password	Re-type password for verification.			
		Hostname Verification	Enable TLS Hostname Verification			
q Sea	arch	TLS ALPN Extensions	The TLS ALPN Extensions to use with this connection (optional)			

• Enable Legacy STATE messages

Whether or not connections to enable legacy STATE messages (e.g. STATE/[host_id]). This is false by default unless upgrading from a
previous module version.

Enable Primary Host Subscriptions

- $^\circ~$ Whether or not to enable MQTT Engine subscriptions on legacy STATE/# and State/# topics.
- Requires that Enable Legacy STATE messages is TRUE and Primary Host Enabled is FALSE and/or Primary Host ID is null.
- This setting is for debugging purposes only.
- Username
- Optional MQTT username to use in the MQTT connect packet. This is required if the MQTT Server to connect to requires it.
- Password
- Optional MQTT password to use in the MQTT connect packet. This is required if the MQTT Server to connect to requires it.
- Client ID
- The MQTT Client ID for connections to the MQTT Server. If left blank one will be auto-generated of the form ME-LS-xxxxxxx-xxxx
 CA Certification File
 - CA Certification file currently in use.
- Client Certification File
 - Client Certification file currently in use.
- Client Private Key File
 - Client Private Key file currently in use
- Password
- Optional password associated with the certificate's private key.
- Hostname Verification

 Enable TLS Hostname Verification. This is true by default.
- TLS ALPN Extensions

 $^{\circ}~$ Optional TLS ALPN Extensions to use with this connection

Servers - Certificates

This tab provides a list of the certificate or private key files if loaded and available for TLS configuration.

All certificate or private keys must be in PEM format. If using modules pre 4.0.9, any private key file must also be in RSA PKCS1 format. If using modules 4.0.9 or greater, any private key must also be in either RSA PKCS1 or PKCS8 format.

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🛙 Ignitior	n-Gateway		🚨 admin	Log Out
Ignit	tion		Help 🛛 Get D	esigner
♠	SYSTEM	Config > Mqttengine > MQTT Engine Settings		
Home	Overview	Trial Mode 1:08:40 We're glad you're test driving our software. Have fun.	Activ	ate Ignitio
.ht	Backup/Restore			
Status	Ignition Exchange	Course Newson		
\$	Licensing	General Servers Namespaces		
Config	Modules			
	Proiects	Settings Certificates		
	o Search			

The Certificates tab contains a single Main section.

Servers Certificates - Main

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Ignition Gateway		≛admin Log
gnition		Help 🕜 🦳 Get Design
SYSTEM	Config > Mqttengine > MQTT Engine Settings	
Overview	Trial Mode 1:22:54 We're glad you're test driving our software. Have fun.	Activate Ign
Backup/Restore		
tus Ignition Exchange		
Licensing	General Servers Namespaces	
nfig Modules		
Redundancy	Settings Certificates	
Gateway Settings		
NETWORKING	Main	
Web Server	Certificate File Rrowse No file selected	
Gateway Network	Upload The certificate file or private key to upload	
Email Settings		
SECURITY	Friendly Name	
General	The mendly name of this certificate file of private key	
Auditing		
· · · · · ·	The description of this certificate file or private key	

- Certificate File Upload
 - Browse to the certificate file or private key to upload.
- Friendly Name
- The friendly name of the certificate file or private key.
 File Description
 - The description of the certificate file or private key.

The Sets tab contains a list of server sets. Each set represents a logical grouping of MQTT servers. When a set is referenced by an Engine configuration, a single connection to one of the servers in the set will be maintained. The other servers will act as failover in the case that a connection with the first is lost. Server sets cannot have common elements meaning that a single MQTT server cannot be in more than one set.

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← -	> C	O 🔒 19	2.168.1.81:8088/web/	config/mqttengine.settings?21 🏠 🗢 🖞 😫
A	Licensing	🌣 Conf	fig > Mqttengine > MQ	TT Engine Settings
Home	Modules	Trial N	Mode 1:10:29 We'reg	lad you're test driving our software. Have fun. Activate Ignition
 Status	Redundancy		Main	
Config	Gateway Settings		Name	Default The friendly name of this MQTT Server Set
	Web Server Email Settings Gateway Network		Description	Default server set Description of this MQTT Server Set
	SECURITY		Primary Host Enabled	Whether or not primary host STATE message will be published. If true, the Primary Host ID field should also be set
	Auditing		Primary Host ID	MyPrimaryHost The Primary Host ID to allow connecting clients to ensure they remain connected to this application (optional)
Ŧ	Q Search			

- Name
 - The friendly name of this MQTT Server Set
- Description
 - Description of this MQTT Server Set
- Primary Host Enabled
 - Whether or not primary host STATE message will be published. If true, the Primary Host ID must also be set.
 - When enabled, the MQTT Engine will publish it's connection state on a topic that contains the Primary Host ID. In the event that MQTT
 Engine becomes disconnected from the server, a death certificate will be published on the same topic, setting the state to 'offline'. Any
 connecting client that subscribes on the state topic will then be notified of the MQTT Engine state.
- Primary Host ID
 - The primary host ID to allow connecting clients to ensure they remain connected.
 - ° This must contain only letters, numbers, or any of the following special characters: . \$ % @ ! _ ^ *

Namespaces

The third tab is used for configuring namespaces. Each namespace configuration represents a family of devices and/or data that MQTT Engine will support. A namespace defines the topics that each MQTT Engine client will subscribe on as well as indicates how the payload will be handled.

	> C	○ D localhost:8088/web/config/mqttengine.settings?33	🗢 🛃 🚍 ≡
🛙 Ignitic	on Gateway		Ladmin Log Out ∹
lgni	tion	Help	Get Designer
≜	SYSTEM	Config > Mqttengine > MQTT Engine Settings	
Home	Overview	Trial Mode 1:21:04 We're glad you're test driving our software. Have fun.	Activate Ignition
հո	Backup/Restore		
Status	Ignition Exchange		
\$	Licensing	General Servers Namespaces	
onfig	Modules		
	Projects	Default Custom	
	Q Search		

The Namespace tab has two parts - Default and Custom.

Namespaces Default

Default namespaces are provided out of the box and when MQTT Engine is first installed, all non Sparkplug B default namespaces are disabled.

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Ignition Gatev	way					💄 admin Log Out
gnition	<u>.</u>				Hel	p 🛛 Get Designer
SYST	EM	Config > Mqttengine > MQTT Engine	Settings			
ome Ov	verview	Trial Mode 1:37:12 We're glad you're te	st driving our software. Have fun.			Activate Ignitio
hi Ba	ackup/Restore					
atus Igr	nition Exchange					
Lic	censing	General Servers	Namespaces			
nfig Mo	odules					
Re	ojects odundancy	Default Custom				
Ga	ateway Settings					
		Name	Namespace Type	Enabled		
NETW	ORKING	Elecsvs	Flecsvs	true		edit
We	eb Server			61 65 G		
Ga En	nail Settings	Sparkplug A	SparkplugA	true		edit
	nun octinigo					
SECU	RITY	Sparkplug B	SparkplugB	true		edit
Ge	eneral	Xirgo	Xirgo	true		edit
Au			0			

Selecting Edit for Elecsys will bring up three tabs - General, Sets and Filters

Selecting Edit for Sparkplug A will bring up three tabs - General, Sets and Filters

Selecting Edit for Sparkplug B will bring up five tabs - General, Sets, Filters, Files and String Conversions

Selecting Edit for Xirgo will bring up two tabs - General and Sets

Namespaces Default Non Sparkplug B - General

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← -	o c	8 192.168.1	I.81:8088/web/confi	g/mqttengine.settings?56	☆	ල 🖲 🛱 Ξ
Home	NETWORKING Web Server Email Settings	Config > M	Iqttengine > MQTT Er 1:34:05 We're glad yor Main	ig ine Settings Vre test driving our software. Have fun.		Activate Ignition
Config	Gateway Network SECURITY General		Name	Elecsys The name of this namespace		
Ŧ	Q Search		Enabled	Enable MQTT Engine from listening on this topic namespace		

Name

A friendly name of the namespace to easily identify it.

Enabled

- Whether or not the namespace is enabled.
- If enabled, MQTT Engine will subscribe to the topics necessary to provide support for devices and data associated with that namespace. If disabled, MQTT Engine will unsubscribe from those topics and no longer support the devices and data associated with that namespace.

Namespaces Default Sparkplug B - General

	C C	192.168 👌	.1.81:8088/web/config	/mqttengine.settings?27 ☆	\bigtriangledown	ම ї ව	j =
A ome	NETWORKING Web Server	Config >	Mqttengine > MQTT Eng 1:54:39 We're glad you'	gine Settings re test driving our software. Have fun.		Activate I	Ignitic
itus	Gateway Network		Main				
onfig :	SECURITY		Name	Sparkplug B The name of this namespace			
	Auditing		Enabled	Enable MQTT Engine from listening on this topic namespace			
	Service Security Identity Providers		Default Tags Enabled	C Enable MQTT Engine tags in the 'Edge Nodes' folder prefixed by the Sparkplug IDs			
	OAuth2 Clients Security Levels		UNS Tags Enabled	$\hfill\square$ Enable MQTT Engine tags in a specified folder using the metric path as the tag path			
	Security Zones		UNS Folder Prefix	UNS The MOTT Engine folder prefix to use for LINS tags			

- Name A friendly name of the namespace to easily identify it.
- Enabled
 - ° Whether or not the namespace is enabled.
 - If enabled, MQTT Engine will subscribe to the topics necessary to provide support for devices and data associated with that namespace. If disabled, MQTT Engine will unsubscribe from those topics and no longer support the devices and data associated with that namespace.
- Default Tags Enabled
 - Included in release 4.0.23 and newer
 - ° Enable MQTT Engine tags in the 'Edge Nodes' folder prefixed by the Sparkplug IDs
- UNS Tags Enabled
 - Included in release 4.0.23 and newer
 - ° Enable MQTT Engine tags in a specified folder using the metric path as the tag path
- UNS Folder Prefix

 - Included in release 4.0.23 and newer
 The MQTT Engine folder prefix to use for UNS tags

Namespaces Default - Sets

From release 4.0.26, a specific Server Set(s) can be associated with the Namespace

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>	C	🔿 👌 192.168.0.5	1:8088/web/co	nfig/mqttengine.s	ettings?5		5	⊘ ປິ
Ignition	Gateway							🕹 admin Log Ou
gnit	ion						Help 🔮	Get Designer
	SYSTEM	🌣 Config 🗲 Mqt	tengine > MQTT	Engine Settings				
me	Overview	Trial Mode 1:	56:03 We're glad	you're test driving our	software. Have fun.			Activate Ignit
d I	Backup/Restore							
tus	Ignition Exchange					_		
8	Licensing	Gene	eral Serv	ers Sets	Namespaces			
ifig	Modules							
	Projects	D	efault Cu	istom				
	Gateway Settings							
	outendy bettings		Concert	Cata Cilian	riles.	String Commission		
	NETWORKING		General	Sets Fitter	s rites	String Conversion		
	Web Server							
	Email Settings		Main Settings					
	Gateway Network		0					
			Server Set	- none -		Ŧ		
	• Search			The Server Se	t this namespace is	associated with		

° A dropdown list of the existing sets configured under MQTT Engine Settings > Sets

Namespaces Default - Filters

Namespace filters allows you to specify Group or Group/EdgeNode combinations which will be included in the MQTT Engine subscriptions for this specific namespace.

From MQTT Engine 4.0.16 and newer, it also allows for the filters to be applied to specific MQTT Servers.

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🛙 Ignitio	n Gateway			💄 admin Log Out ·
lgni	tion		Help 🕑	Get Designer
≜	SYSTEM	Config > Mqttengine > MQTT Engine Settings		
lome	Overview	Trial Mode 1:41:37 We're glad you're test driving our software. Have fun.		Activate Ignition
հո	Backup/Restore			
atus	Ignition Exchange	General Servers Sets Namesnares		
)	Licensing			
nng	Projects			
	Redundancy	Default Custom		
	Gateway Settings			
	NETWORKING	General Sets Filters Files String Conversion		
	Web Server			
	Email Settings	Taken Filters		
	Gateway Network			
	SECURITY	Group ID		
	General	A Group to to include in the subscription list		
	Auditing	Edga Node ID		
	Users, Roles	An Edge Node ID to include in the subscription list		
	Identity Providers			
		MQTT Server List A comma separated list of MOTT Server names to apply to the the filter to. If left blank, it will apply to al	MOTT Servers	
	Q Search			

• Group ID

• The Group ID to be included in the MQTT Engine subscriptions for this specific namespace.

- Edge Node ID
- Edge Node ID to be included in the MQTT Engine subscriptions for this specific namespace.
 MQTT Server List

° A comma separated list of MQTT Server names to apply the filter to. If left blank, it will apply to all MQTT Servers

Additional detail on the default namespaces is available here.

Namespaces Default - Files

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\leftarrow $-$	> C	○ ≧ 192.168.0.51:8088/web/co	fig/mqttengine.settings?23	ල දු ≡
🛙 Ignitior	n Gateway			≛admin Log Out →
Ignit	tion			Help 🛛 Get Designer
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Home	Overview	Trial Mode 1:40:04 We're glad	ou're test driving our software. Have fun.	Activate Ignition
da	Backup/Restore			
Status	Ignition Exchange	General Serv	s Sets Namespaces	
Config	Modules			
	Projects	Default		
	Redundancy	Delaut		
	Gateway Settings			
	NETWORKING	General	Sets Filters Files String Conversion	
	Web Server			
	Email Settings	Main		
	Gateway Network	Ignore Files	✓ If checked, all published files will be ignored.	
	SECURITY			
	General	File Host Type	ACTIVE V	
	Q Search		Defines if the nost sends message ACKs (i.e. acts as an Active Host) back to MQTT Transmission. (default: ACTIVE)	

• Main

- Ignore Files
 - Default: Unchecked.
 - If checked, all published files will be ignored
- File Host Type
 Default: ACTIVE. Host will send message ACKs back to MQTT Transmission acting as an Active Host
 - Options are ACTIVE and PASSIVE

← -	\rightarrow G	🔿 👌 192.168.	.0.51:8088/web/config	/mqttengine.settings?23	\bigtriangledown	ර	Ξ
≜ lome	Users, Roles	Config >	Mqttengine > MQTT Eng 1:39:39 We're glad you'	ine Settings re test driving our software, Have fun.	Acti	vate Ig	gnitio
.l.ı tatus	Identity Providers OAuth2 Clients		Location				
onfig	Security Levels Security Zones		Base File Directory	The directory to store files in when using the "Store" file policy.			
	DATABASES Connections		Add Topic Tokens	☐ If checked, adds Group, EdgeNode, and Device IDs to the base file directory specified above. (default: true)			
	Drivers Store and Forward ALARMING		File Storing Policy	REPLACE_EXISTING_FILE The policy for storing incoming files (i.e. keep existing file or replace it with the new one). (default: REPLACE_EXISTING_FILE)			
_	General Journal	-	File Attributes Policy	IGNORE The policy for handling basic attributes (i.e. CreationTime, LastModifiedTime, and LastAccessTime) of incoming files. (default: IGNORE)			

Location

- Base File Directory
 - The directory to store files when 'Ignore Files' is unchecked
- Add Topic Tokens
 Default: Checked. If selected, appends the Group ID, Edge Node Id and device ID to the Base File Directory when storing files File Storing Policy
 The file policy for storing incoming files. Options are REPLACE_EXISTING_FILE and KEEP_EXISTING_FILE
 Default: REPLACE_EXISTING_FILE
 File Attributes Policy

- The policy for handling basic file attributes such as CreationTime, LastModifiedTime and LastAccessTime of incoming files. Options are IGNORE, APPEND_TO_FILENAME, UPDATE_FILE_ATTRIBUTES and APPEND_AND_UPDATE Default is IGNORE

Namespaces Default - String Conversion

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Ignition-MAIN-SERVER				Log Out -
gnition			Help 🕜	Get Designer
SYSTEM	Config > Mqttengine > MQT	T Engine Settings		
me Overview	Trial Mode 1:02:51 We're gla	d you're test driving our software. Have fun.		Activate Ignition
Backup/Restore				
Ignition Exchange				
Licensing	General Ser	Namespaces		
nfig Modules				
Projects	Default	lustom		
Redundancy				
Gateway Settings				
NETWORKING	String Convers	ion		
Web Server				
Gateway Network	Order Index	U The order index which specifies the order in which to execute the replacement		
Email Settings				
CECUDITY.	Source Steine	String to Replace or Regex		
SECORITY	Source String	The source string or regular expression (regex) in the MQTT topic or payload to be replaced		
General				
Users, Roles	Replacement	Replacement String		
Service Security	String	The replacement string that will be used to replace the source string in Ignition tags		
	Reger	Set to true if the Source String is a 'regular expression' Set to false if the Source String is an evact character string to m	atch and replace (def.	ault)
O Search	in the period	La contra de la co	and replace (dele	

- Order Index
 - ° The order index which specifies the order in which to execute the replacement
- Source String
 - Free form field for the source string or regular expression (regex) in the MQTT Topic or payload to be replaced
- Replacement String
 - ° Free form field for the replacement string that will be used to replace the source string in Ignition tags
- Regex
 - $^{\circ}~$ If checked, the source string will be treated as a 'regular expression'
 - ° If unchecked, the source string is an exact character string to match and replace
 - Default: unchecked

Reference the MQTT Engine String Replacement HowTo tutorial for additional details

Namespaces Custom

Custom Namespaces are used to provide support for generic, non Sparkplug compliant MQTT messages with string based payloads. If a custom namespace is configured MQTT Engine will convert all messages received to tags where the topic of each message will translate directly to the tag's path and the payload will be the tag's value.

We recommend disabling the Sparkplug B default namespace if defining a custom namespace. ⁄!∖

MQTT Engine supports MQTT Engine String Replacement for both MQTT Topics and Payloads for character sequences that will become part of an Ignition tag path.

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Ignition Gateway							🕹 admin Log Out
gnition						Help	0 Get Designer
SYSTEM	🌣 Confi	g > Mqttengine >	MQTT Engine Settings				
me Overview	Trial M	l <mark>ode</mark> 1:33:16 W	/e're glad you're test driving our softwa	are. Have fun.			Activate Ignitio
Backup/Restore							
tus Ignition Exchange		General	Server Nameroaces	_			
Licensing		General	Namespaces				
Projects							
Redundancy		Default	Custom				
Gateway Settings							
NETWORKING		Name	Subscriptions	Root Tag Folder	Tag Name	JSON Payload	
Web Server		No Custon	n Namespaces				
Gateway Network		→ Create n	ew Custom Namespace				
Email Settings							
SECURITY							
General							
Q Search							

Each custom namespace configuration has three parts - General, Sets and String Conversion.

Namespaces Custom General

The configuration sections available are Main, Optional and Advanced.

Namespaces Custom - General Main

		Δ.	
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nition		Help 🕑	Get Designe
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e Overview	Trial Mode 1:50:26 We're glad you're test driving our software. Have fun.		Activate Igni
Backup/Restore			
s Ignition Exchang		-	
Licensing	General Servers Sets Namespaces		
g Modules			
Projects	Default Custom		
Gateway Setting			
,,8-	General Sate String Conversion		
NETWORKING	General Sets String conversion		
Web Server			
Email Settings	Main		
Gateway Network			
SECURITY	Name New Custom Namespace		
General	The name of this custom namespa	âce	
Auditing			
	Subscriptions Comma separated list of topics the	e the MQTT server will subscribe on	

- Name A friendly name of the namespace to easily identify it.
- Subscriptions • A comma separated list of subscriptions and supports both the multi-level (#) and single level (+) wild card characters.

- (+) is a a single level wildcard that matches any name for a specific topic level. This can be used instead of specifying a name for any topic level in the topic filter.
- (#) is a multi level wildcard that can only be used at the end of the topic filter as the last level and matches any topic whose first levels are the same as the topic levels specified at the left-hand side of the # symbol.

Check your MQTT Topic subscriptions to verify if they contain valid Ignition tag path or tag name characters. View the Ignition Understand Tag Naming document for details on the tag name rules.

While MQTT and Sparkplug both support characters such as . & % =, Ignition does not support these as valid characters in a tag path or tag name and as a result, it may be necessary to tell MQTT Engine to replace certain characters or strings of characters with something else so the tag path and tag names can be properly created in Ignition. Reference the MQTT Engine String Replacement HowTo for additional details on how to use this configuration.

Namespaces Custom - General Optional

••	Ignition Gateway -	Ignition Gate ×			
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h Home	SECURITY General	Config	> Mqttengine > MQTT E de 1:30:35 We're glad y	Engine Settings ou'r etst driving our software. Have fun.	Activate Ignition
 Status	Auditing Users, Roles		Optional		
Config	Identity Providers Security Levels		Root Tag Folder	The root folder where all tags will be located (optional)	
	DATABASES		Tag Name	The name of the tag. If left blank the last token in the topic will represent the tag (optional)	
	Drivers		JSON Payload	□ Parse the payload as a JSON string (optional)	
Ŧ	Store and Forward		Encoding Charset	UTF_8 The encoding format to use for Strings when not parsing as JSON	

- Root Tag Folder
- A name of a folder where all tags will be stored. If configured, this folder will be the base folder where all tag paths will start.
 Tag Name
- A tag name to be used for all tags. If not configured, the last token in the topic will represent the tag.
- JSON Payload
- Optional flag to indicate that the content of the string based payload is a JSON object.
 Encoding Charset
 - The encoding format to use when not parsing as JSON.

Namespaces Custom - General Advanced

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♠ Home	Notification On-Call Rosters	Config > Mqttengine > MQTT Engine Settings Trial Mode 1 29:11 Water and divide a unter di unter									
.lil Status	Schedules		Advanced								
¢ Config	History		Writable Tags	☐ Makes created tags Writable. Changing this setting will not change existing tags until MQTT Engine is simply make tags writable and will not generate outgoing MQTT messages.	s restarted. Also, this will						
	Reatenne		Numbers as Floats	Treat all numbers as decimal numbers when creating tags							
Ť	Q Search										

- Writable Tags
 - Enables writes on tags created by the Custom Namespace.
 - This will only make the tags writable and does not result in outgoing MQTT messages. Review this tutorial for writing back to an Edge device from a custom namespace tag.

- Numbers as Floats (added 4.0.28)
 - $\circ\;$ Treat all numbers as decimal numbers when creating tags.

Namespaces Custom - Sets

From release 4.0.26 a specific Server Set(s) can be associated with the Namespace

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' Ignition	Gateway									💄 admin 🛛	Log Out
gniti	ion								Help 🕜	Get De	signer
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ome	Overview	Trial M	Mode 1:48:53	We're glad you're t	est driving ou	r software. Have fun.				Activ	ate Ignitio
hi 👘	Backup/Restore										
atus	Ignition Exchange		General	Servers	Sets	Namespaces					
X	Licensing	ſ	ocherat	oct tello	000	Harrespaces					
mg	Projects										
	Redundancy		Default	Custom							
	Gateway Settings				_						
	NETWORKING		Gener	al Sets	Strin	g Conversion					
	Web Server										
	Email Settings		Main S	Settings							
	Gateway Network										
			Server	Set	- none -		w				
	Q Search				ne Server Se	et unis namespace is as	ssociated with				

- Server Set
 - ° A dropdown list of the existing sets configured under MQTT Engine Settings > Sets

Namespaces Custom - String Conversion

There is one configuration section available Main Settings

Reference the MQTT Engine String Replacement HowTo for additional details on how to use this configuration.

Namespaces Custom - String Conversion Main Settings

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🛙 Edgel					Ladmin Log Out→
Ignition				Help 🕑	Get Designer
SYSTEM	۵ (Config > Mqttengine > MQTT	Engine Settings		
Home Overvie	ew Tria	al Mode 1:24:39 We're glad y	ou're test driving our software. Have fun.		Activate Ignition
.lii Backup	o/Restore				
Status Ignition	n Exchange	General Serve	rs Namespaces		
Config Module	ng				
Project	ts				
Redun	dancy	Default Cus	tom		
Gatewa	ay Settings				
NETWORK	ING	Main Settings			
Web Se	erver		0		
Gatewa	ay Network	Order Index	The order index which specifies the order in which to execute the replacement		
Emails	settings				
SECURITY		Source String	String to Replace or Regex		
Genera	ıt		The source string of regular expression (regex) in the MQTT topic of payload to be replaced		
Auditin	lg	Replacement	Replacement String		
Users, I Service	Security	String	The replacement string that will be used to replace the source string in Ignition tags		
Identity	y Providers	Regex	Set to true if the Source String is a 'regular expression'. Set to false if the Source String is an exact character st (default).	ring to match and rep	blace
q Se	arch		lacione)		

- Order Index The order index which specifies the order in which to execute the replacement
- Source String
- The source string or regular expression (regex) in the MQTT topic or payload to be replaced
 Replacement String
- - ° The replacement string that will be used to replace the source string in the Ignition tags
- Regex
 Checkbox to determine the source string format. If selected, source string is a 'regular expression'. If deselected, source string is an exact character string to match and replace.