FORUM SYSTEMS

THE LEADER IN API SECURITY MANAGEMENT

FORUM SYSTEMS SENTRY™ VERSION 8.7

OAUTH CLIENT CONFIGURATION GUIDE

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Legal Marks

Forum Systems Sentry™ Version 8.7 OAuth Client Configuration Guide, published April 2016.

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Table of Contents

INTRODUCTION TO THE OAUTH CLIENT CONFIGURATION GUIDE

Audience for the OAuth Client Configuration Guide

The *Forum Systems Sentry™ OAuth Client Configuration Guide* is for System Administrators who will manage access control and:

- Use Protocol or message Tokens
- Use SOAP WS-Security headers.
- Use SAML Assertions.
- Integration with IdP (Identity Providers)
- Provide SSO using OAuth
- Generate OAuth Tokens
- Consume OAuth Tokens
- Federate OAuth Tokens

Conventions Used in the OAuth Client Configuration Guide

A red asterisk (*) aligned with a field term means that this field is required. In this and other documentation, the Web Administration Interface is referred to as the WebAdmin and the Forum XML Security Appliance™ is referred to as the 'device', 'product' or 'system'.

In this document, all data or commands that must be entered or selected are displayed in boldface. Example:

User name:	**johnsmith**
Password:	************

UI screens which display a STATUS column represent the following states:

- Green status light = enabled policy.
- Yellow status light = a required functional element of this policy is disabled.
- Red status light = disabled policy.

Throughout this and other documents in the Documentation Set, repetitive actions such as:

- View / edit a policy.
- Enable / disable a policy.
- Delete a policy.
- Rename a policy.
- Limit display of policies with Search or Max Results fields.

are not shown. For more information, refer to the Common Operations section of the *Forum Systems Sentry™ Version 8.7 Web-based Administration Guide.*

Any specifications and constraints referenced in this volume appear in the Appendices of this volume.

1.0 OAuth Overview

The basic model of authentication and authorization over the internet is based on the traditional client-server model. In this model, at a minimum, there are two entities involved: the client and the application running on the server. A client with valid credentials is granted access to a particular resource controlled by the application. The client credentials may be in the form of a username/password that the application validates before granting access to the resource.

This basic model of authentication has evolved overtime as a result of the need for the client to provide its credentials (e.g. username/password) only once in order to be granted access to resources that are controlled by multiple applications in a distributed environment. This model is often referred to as Single Sign-On (SSO). In this model, the client “logs in” only once by providing its credentials to a single application. Upon validation by the application, the client receives a ticket (cookie) that enables it to seamlessly access resources of other applications. An example of SSO is a user logging into Amazon.com only once and accessing resources on multiple third party applications without having to login to each individual application.

The increased popularity of social media apps, mobile apps and cloud services has lead to another authentication and authorization model. The new model is based on the OAuth standard. In this model, at least three entities are involved: the user, the client application/service and the service provider. This is referred to as the three-legged OAuth model. The user is the owner of the resource and it grants client application access to its resources that are controlled by the service provider. OAuth standard enables the user to grant client application access to its resources without ever sharing its username/password with the client application.

2.0 A Simple Example of OAuth

Traditionally, social media applications have been the main drivers behind OAuth deployment. In the past, web applications such as news media sites would maintain their own user profile data by providing the option to each of its users to create custom profile on the site for better user experience. This approach had many shortcomings for both users and media sites:

- Users had to provide email or username and password for each site during the initial creation of a profile.
- Users would often forget their passwords during the login process since they had created multiple profiles at different sites.
- Media sites were now responsible for securing their users' emails and passwords from hackers.
- Users would often create fake profiles that would provide inaccurate tracking data to media sites.

Over time, social media sites such as Facebook, Twitter, LinkedIn, and Google have become the defacto repositories of a user's social identity or profile. The availability of existing social identities with rich profile data provided an opportunity for news media sites to access user data outside their domain of control. OAuth is the standard that enables websites to access user profile data outside their domain of control without requiring users to give their username and password to the site.

Figure 1 illustrates a simple example that leverages OAuth. To create a better user experience for their visitors, websites (client application) provide the ability for users (resource owner) to post comments on articles with their Facebook account. This ability allows Facebook profile attributes such as: name, photo, and location to be displayed when they post a comment.

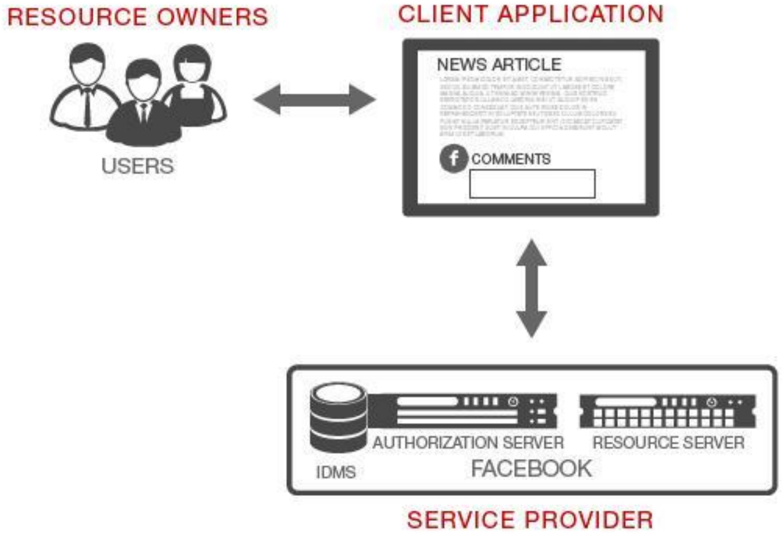


Figure 1.0 shows a common use case where a user (resource owner) is attempting to post a comment on a new media site (client application) with his/her Facebook account. Before the comment can be posted, the news media site fetches the user's Facebook profile attributes (user owned resources) from Facebook (service provider). This is made possible by the OAuth standard.

In order for this function to work, the user must give permission to the news media site to fetch his/her Facebook profile information from Facebook (service provider) without ever revealing his/her Facebook credentials (email and password) to the news media site.

This popular example of OAuth creates a better user experience for website visitors of news and media websites and it reduces risk for the website owner. By using the visitors' Facebook account, the website doesn't have to worry about storing account information of their website visitors/subscribers.

3.0 Forum Sentry as an OAuth client in a OAuth with Single-Sign On use case

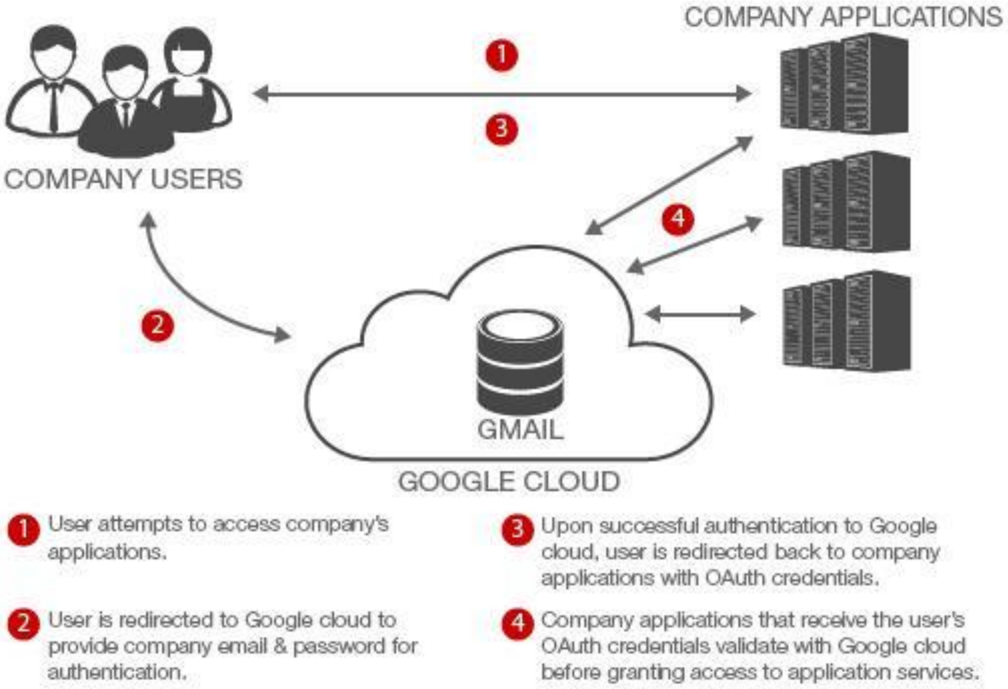
3.1 Use case without a Forum Sentry API Gateway

The power and flexibility of OAuth in the social media sector has given enterprise companies an impetus to start adopting the OAuth standard for their cloud-based enterprise identity management. A prime example of this adoption is based on a use case where a company's email system is hosted in the Google cloud. Google cloud is the identity repository for the company's users. The company does not want to take the responsibility of hosting a user identity repository on its premise.

The company has the following goals for its access control strategy:

- Requiring a user to authenticate with Google cloud with his/her Google email and password.
- Upon successful validation with Google, a user will then grant company's applications the right to retrieve the user's profile from Google cloud. This task will be achieved using the OAuth standard.
- Once the company application retrieves the user's profile, the user can access applications multiple times without ever providing any password credentials to the company. This task will be achieved through the Single-Sign On.

Figure 2 illustrates an architecture deployment of a company leveraging a cloud based identity management system to control access to its company applications.



1 User attempts to access company's applications.

2 User is redirected to Google cloud to provide company email & password for authentication.

3 Upon successful authentication to Google cloud, user is redirected back to company applications with OAuth credentials.

4 Company applications that receive the user's OAuth credentials validate with Google cloud before granting access to application services.

Figure 2: Enterprise applications (OAuth Clients) process flow with OAuth enabled cloud-based Identity Management System.

It should be noted that Figure 2 is a high level architecture. To keep the example simple, some details have been left out and will be discussed later in the document.

Although, a cloud-based access control architecture may appear to be straightforward and simple, it can certainly pose several challenges for an organization:

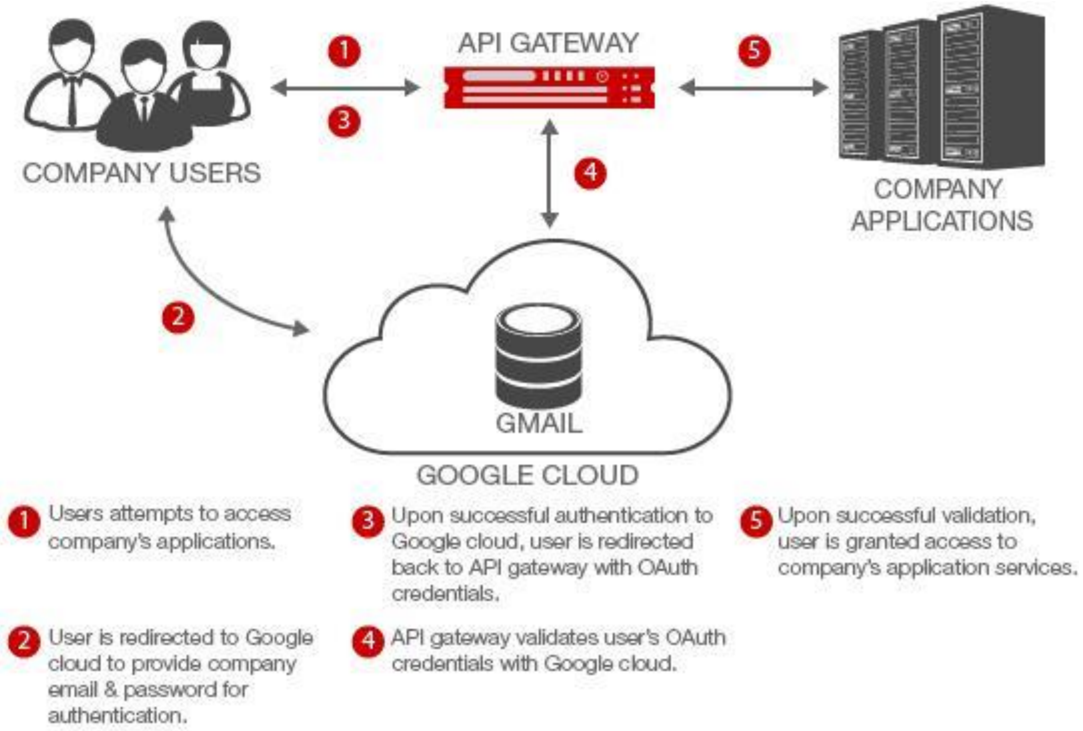
- Company applications require modification to be OAuth enabled.
- Over time, scalability becomes an issue. As new applications are deployed, they must be integrated and tested for OAuth, which requires time and resources.
- This deployment doesn't offer any centralized monitoring and enforcement.
- Performance becomes an issue when SSL is used by applications to exchange OAuth credentials with Google cloud.

3.2 Use case with a Forum Sentry API Gateway

When you add an API gateway to the architecture as an OAuth client with Single Sign On capabilities, it alleviates many of the challenges we discussed in the example where an API gateway is not deployed:

- No modifications are required to company applications. Applications are OAuth agnostic. The gateway takes on the role of an OAuth client.
- Scalability is no longer an issue as new applications are deployed. Integration and testing of OAuth is no longer required with applications.
- Centralized monitoring and enforcement is easier with an API Gateway. API Gateway provides full visibility to who is accessing what resource.
- Performance is no longer an issue since an API gateway accelerates SSL traffic that contains OAuth credentials.

Figure 4 below shows how the deployment of an API gateway (OAuth client with Single-Sign On) changes the process of accessing the cloud-based identity management system.



1 Users attempts to access company's applications.

2 User is redirected to Google cloud to provide company email & password for authentication.

3 Upon successful authentication to Google cloud, user is redirected back to API gateway with OAuth credentials.

4 API gateway validates user's OAuth credentials with Google cloud.

5 Upon successful validation, user is granted access to company's application services.

Figure 3: API Gateway (OAuth Client) process flow with OAuth enabled Cloud-Based Identity Management System.

3.3 Configuring Forum Sentry as an OAuth Client with Grant Type: Auth Code

We will walk you step by step on how to configure Forum Sentry to achieve the scenario described in Figure 3. Forum Sentry supports OAuth Version 2.0 as an OAuth client (for single sign on (SSO)).

We will need the following entities to accomplish our task of configuring the use case described in Figure 3.

- Forum API Gateway (OAuth Client) - Identified by a DNS name forum-oauth.com
- User - A standard web browser
- Accessible back-end website - www.forumsys.com
- Access to https://cloud.google.com. Your valid google credentials are required.

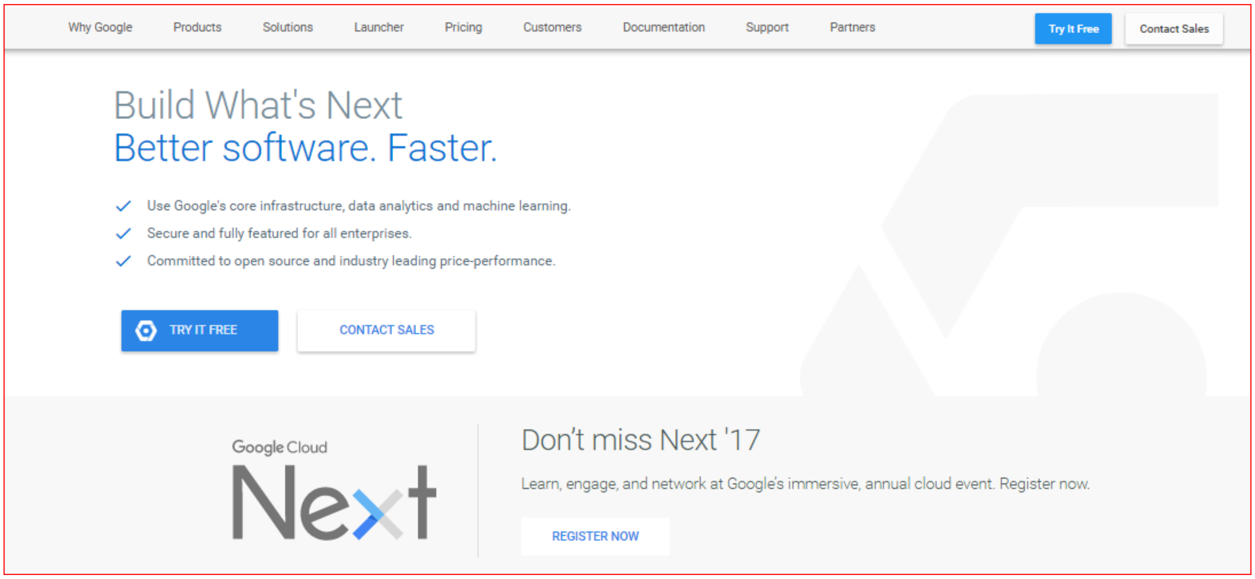
3.3.1 Registering Forum Sentry with an OAuth Service Provider

Before we proceed with configuring Sentry, we need to register Forum Sentry as a client application with OAuth Service Provider such as Google Cloud.

As indicated in Figure 3, Forum Sentry is the API gateway that will take on the role of an OAuth client so company applications do not have to interact with Google Cloud. The registration of Sentry with Google Cloud enables Sentry to establish trust with Google Cloud. The trust confirms to Google Cloud that Sentry is a legit application (app) that is allowed to access user resources (e.g user profile) on behalf of the user if and when the user grants control to Sentry. In Figure 3, run-time flow 4 would not be possible without this design time registration process.

Step 1: You will need to have a valid email and password registered with Google.

Step 2: You will need to access https://cloud.google.com. Please hit on “sign-in” on the web page and login with your Google credentials.



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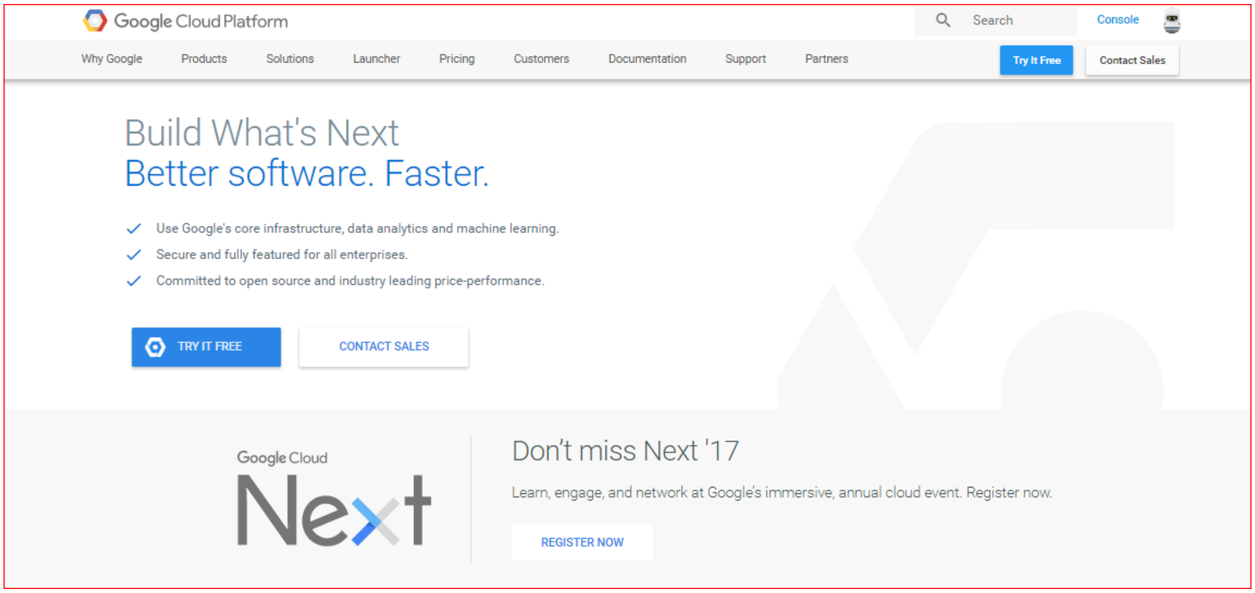
Please make sure that you are not using the old Google Cloud console interface. If you see online Google screens that look different than the screenshots in this document then you are using the old Google Cloud console.

Step 3: After successfully logging in, a page below may appear. Click on the "Console" link in the upper corner.



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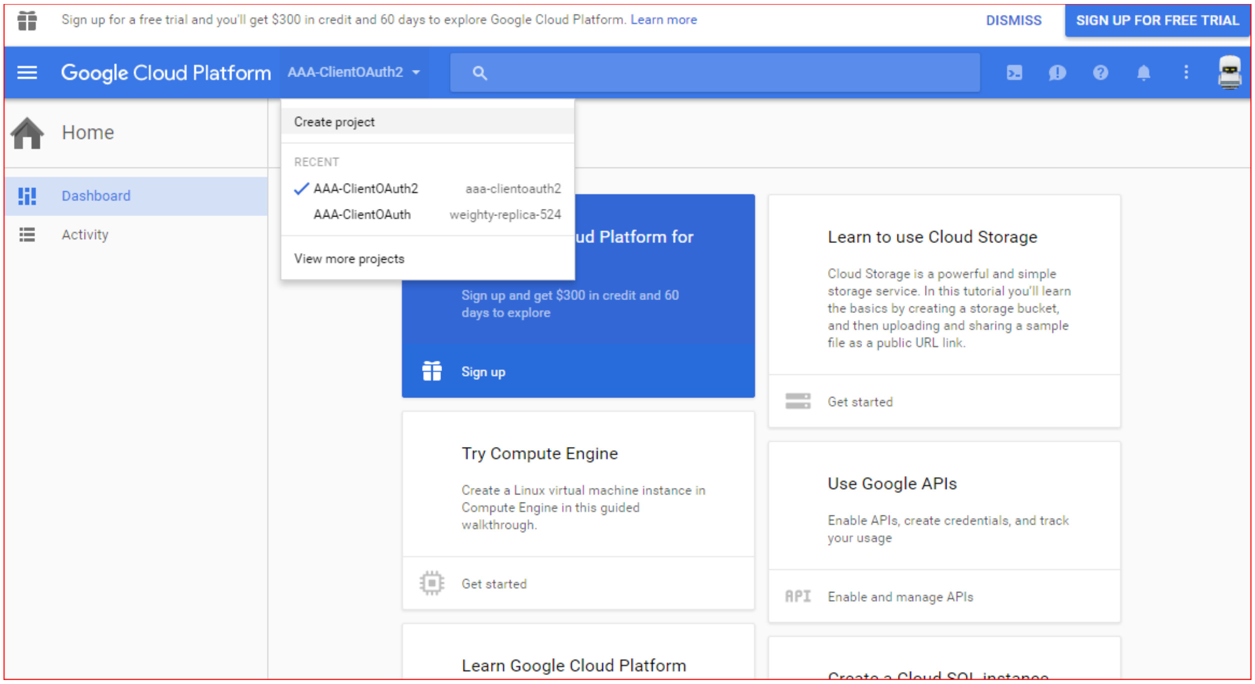
Step 4: Open the Project dropdown menu from the top-left and select “Create Project”



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Learn to use Cloud Storage

Cloud Storage is a powerful and simple storage service. In this tutorial you'll learn the basics by creating a storage bucket, and then uploading and sharing a sample file as a public URL link.

Try Compute Engine

Create a Linux virtual machine instance in Compute Engine in this guided walkthrough.

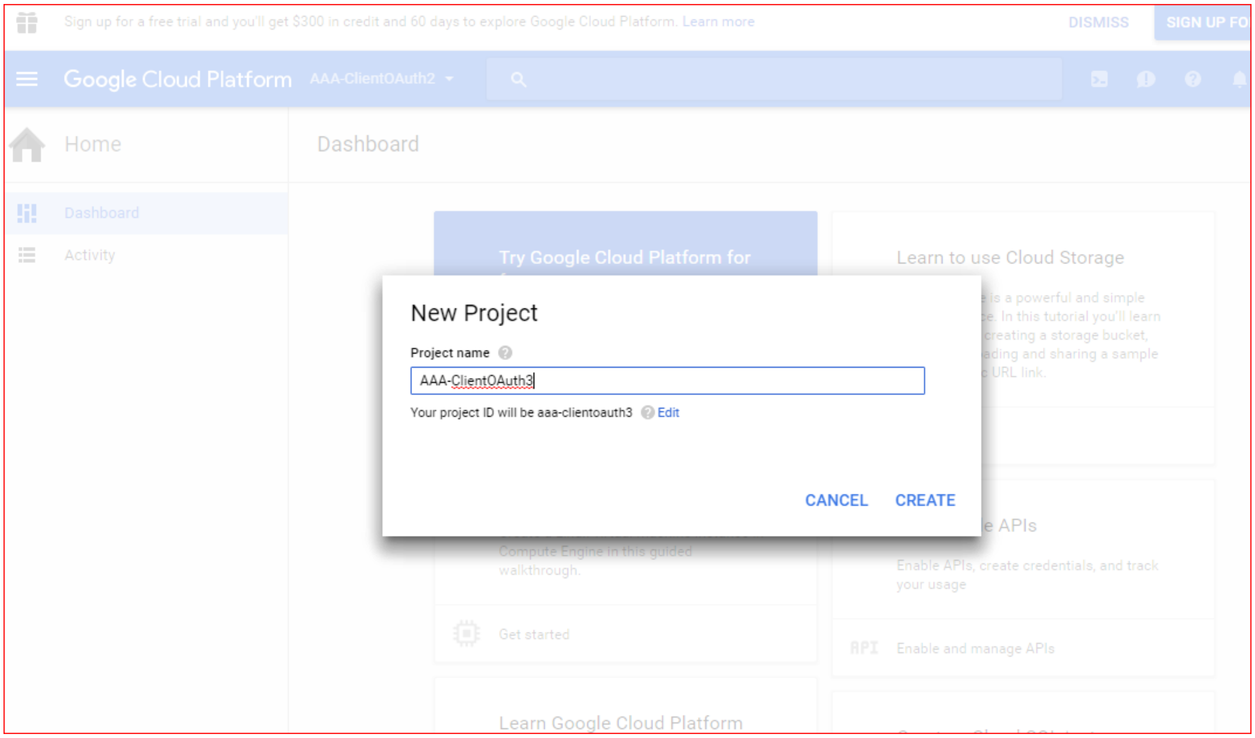
Use Google APIs

Enable APIs, create credentials, and track your usage

Learn Google Cloud Platform

Create a Cloud SQL instance

Step 5: A page leads you to a pop up. You will enter the “Project name”. The “Project ID” is pre-assigned by Google. And hit the “Create” button.


Sign up for a free trial and you'll get $300 in credit and 60 days to explore Google Cloud Platform. Learn more
DISMISS
SIGN UP FO
Google Cloud Platform
AAA-ClientOAuth2
Home
Dashboard
Dashboard
Activity
Try Google Cloud Platform for
Learn to use Cloud Storage
e APIs
Enable APIs, create credentials, and track your usage
Compute Engine in this guided walkthrough.
Get started
Enable and manage APIs
Learn Google Cloud Platform
CANCEL
CREATE

New Project

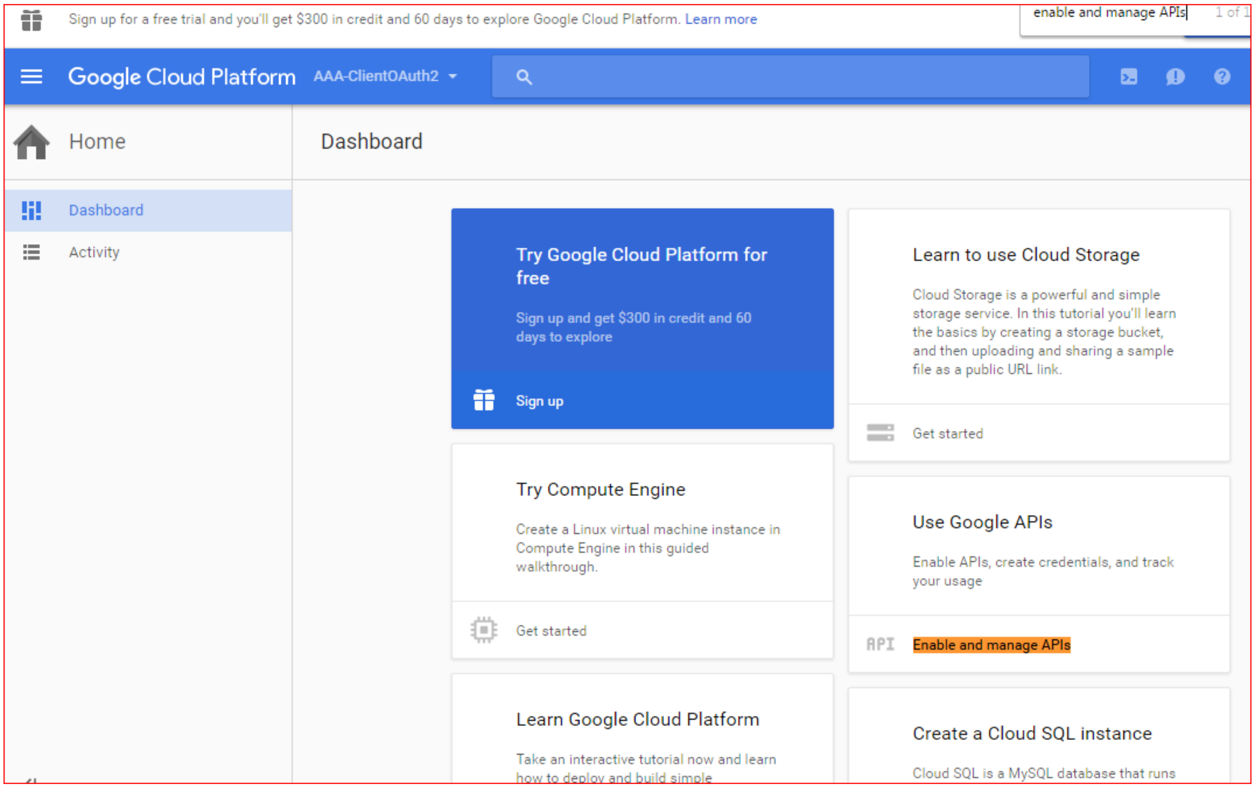
Project name

AAA-ClientOAuth3

Your project ID will be aaa-clientoauth3 Edit

If doing this for the first time you might see a “Terms of Service” agreement check box that you will need to check before clicking Create.

Step 6: From the Dashboard display select the link to “Enable and manage APIs”



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Use Google APIs

Enable APIs, create credentials, and track your usage

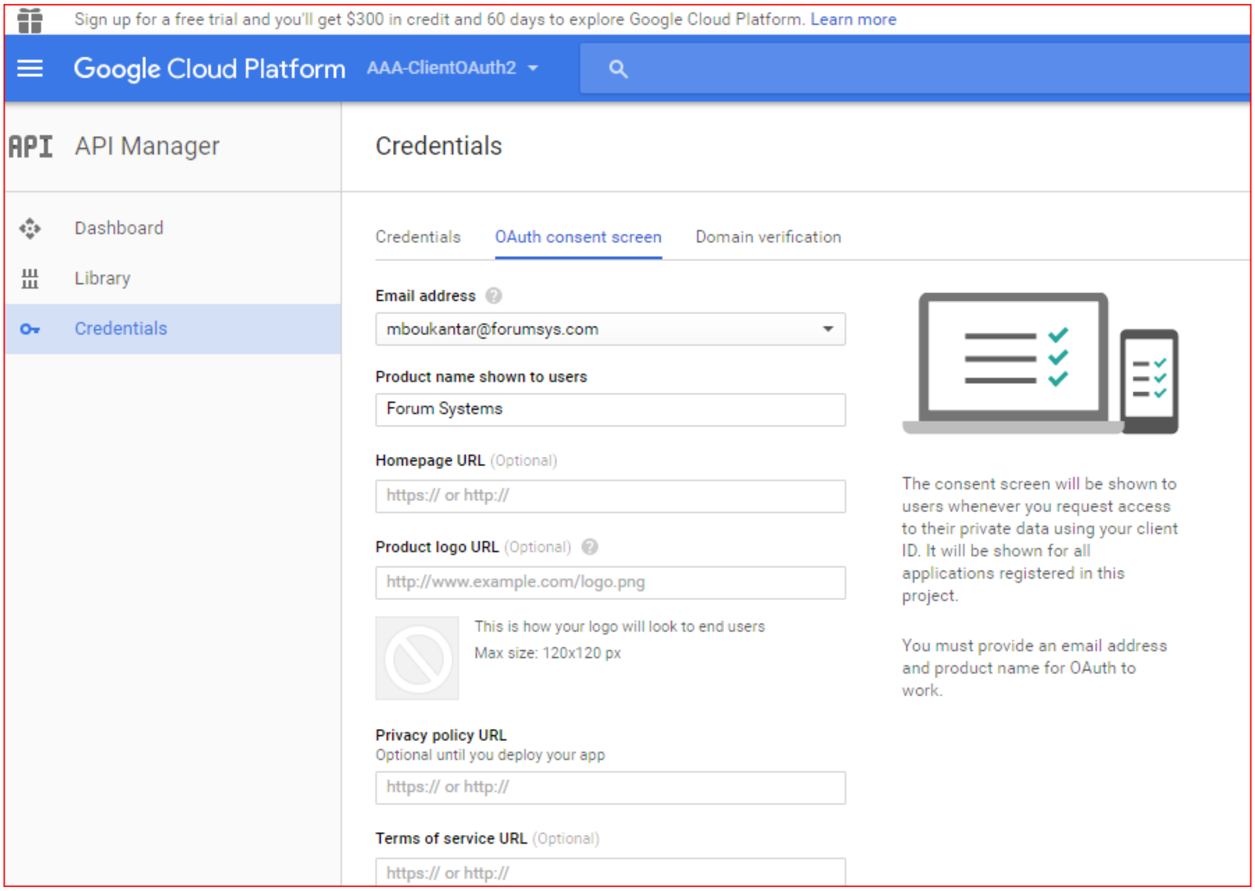
Learn Google Cloud Platform

Take an interactive tutorial now and learn how to deploy and build simple

Create a Cloud SQL instance

Cloud SQL is a MySQL database that runs

Step 7: Under the API Manager heading click on the “Credentials” link and then select the “OAuth consent screen” tab. At a minimum you will need to add a Product Name. Then click the “Save” button.



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Credentials

Email address: mboukantar@forumsys.com

Product name shown to users: Forum Systems

Homepage URL (Optional): https:// or http://

Product logo URL (Optional): http://www.example.com/logo.png

This is how your logo will look to end users
Max size: 120x120 px

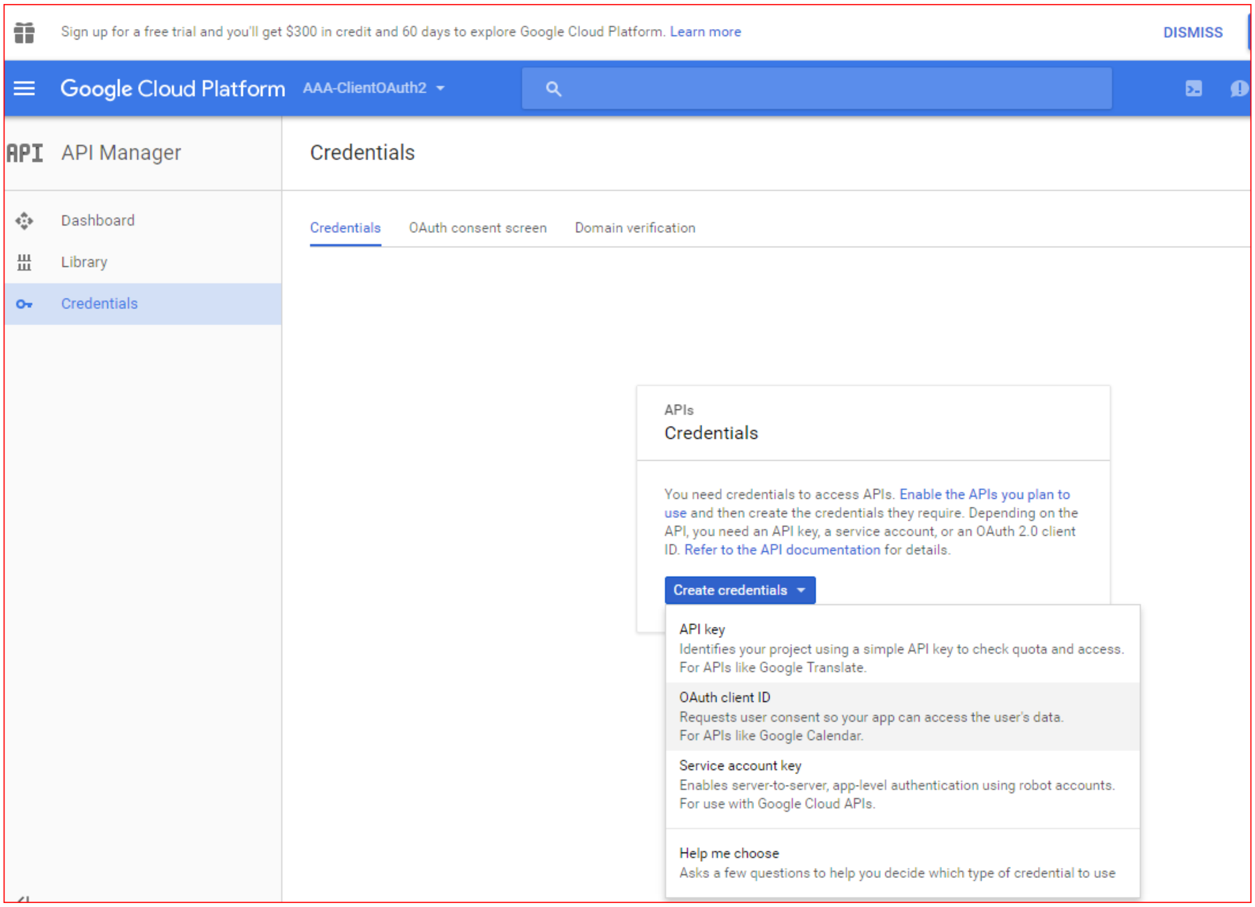
Privacy policy URL
Optional until you deploy your app: https:// or http://

Terms of service URL (Optional): https:// or http://

The consent screen will be shown to users whenever you request access to their private data using your client ID. It will be shown for all applications registered in this project.

You must provide an email address and product name for OAuth to work.

Step 8: Click on the “Credentials” tab under the “Credentials” heading in the right pane as shown below. Click the option to “Create credentials” and select the “OAuth client ID” option.



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APIs

Credentials

You need credentials to access APIs. Enable the APIs you plan to use and then create the credentials they require. Depending on the API, you need an API key, a service account, or an OAuth 2.0 client ID. Refer to the API documentation for details.

API key
Identifies your project using a simple API key to check quota and access.
For APIs like Google Translate.

OAuth client ID
Requests user consent so your app can access the user's data.
For APIs like Google Calendar.

Service account key
Enables server-to-server, app-level authentication using robot accounts.
For use with Google Cloud APIs.

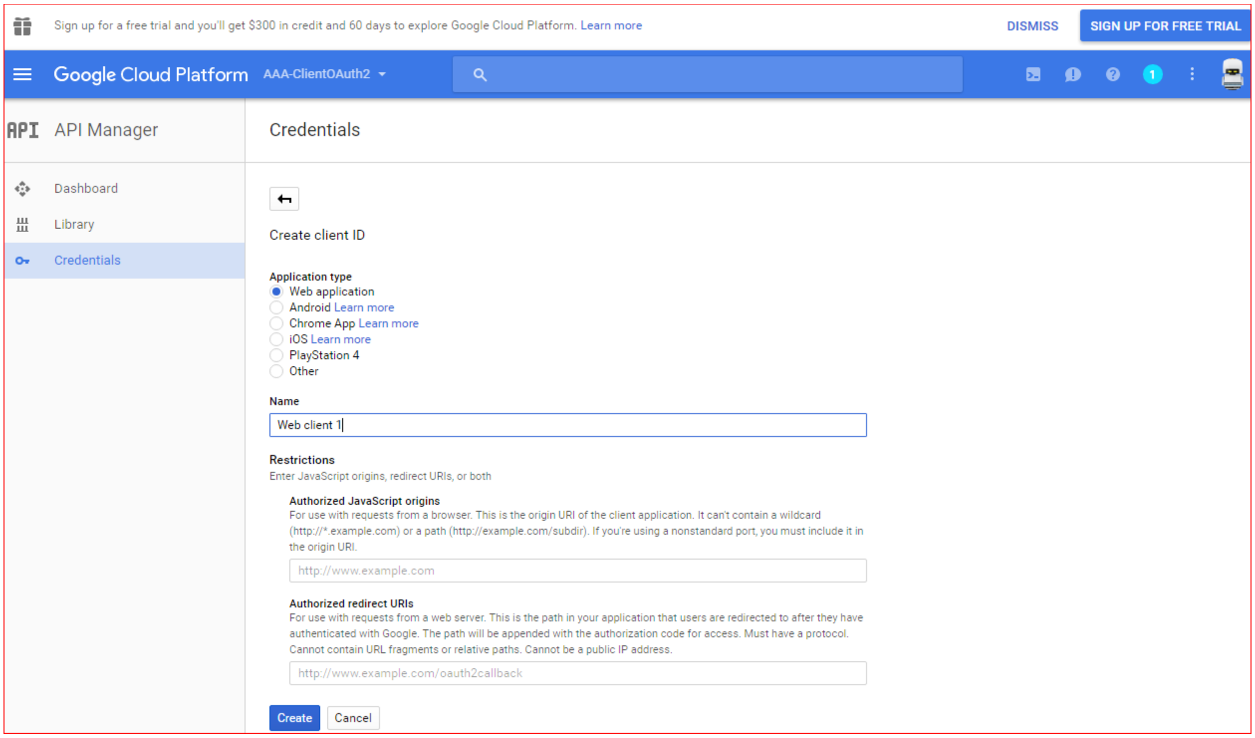
Help me choose
Asks a few questions to help you decide which type of credential to use

Step 9: This is the page where you enter your application attributes. In our use case, Forum Sentry is the web application. You will select the “Web application” radio button.

In the “Authorized redirect URI” section, you will enter a URI that represents Forum Sentry’s location and resource. For example in Figure 3, a user in flow 1 and 3 is connecting to Forum Sentry’s service based on a URI.

When you enter a URI, its value signals to Google OAuth Server that the OAuth code or token is to be returned to Forum Sentry identified by URI’s attributes such as hostname and virtual directory. In our case, we will enter http://forum-oauth.com/login. Again, you can enter any hostname in the URI as long as it has a valid DNS mapping to a listener IP address of your Forum Sentry instance. The usage of the URI will become a lot clearer when we configure Sentry policies later in the document.

Note: In the URI, the hostname cannot be a IP address. Also, the virtual directory should still be named “/login”. In this configuration example, we will stick with “/login”.
Click on “Create”



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Create client ID

Application type
● Web application
○ Android Learn more
○ Chrome App Learn more
○ iOS Learn more
○ PlayStation 4
○ Other

Name
Web client 1

Restrictions
Enter JavaScript origins, redirect URIs, or both

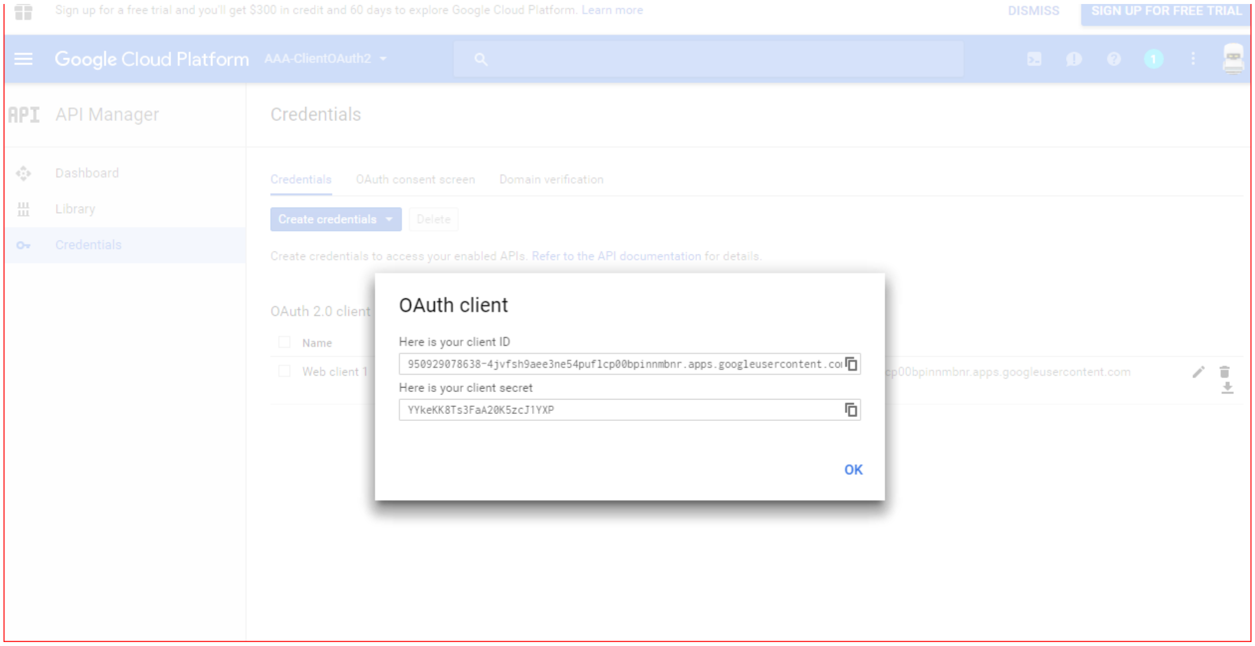
Authorized JavaScript origins
For use with requests from a browser. This is the origin URI of the client application. It can't contain a wildcard (http://*.example.com) or a path (http://example.com/subdir). If you're using a nonstandard port, you must include it in the origin URI.

http://www.example.com

Authorized redirect URIs
For use with requests from a web server. This is the path in your application that users are redirected to after they have authenticated with Google. The path will be appended with the authorization code for access. Must have a protocol. Cannot contain URL fragments or relative paths. Cannot be a public IP address.

http://www.example.com/oauth2callback

Step 10: Finally a pop-up window displays two fields for the new OAuth client. The “Client ID” and “Client secret”. These need to be copied and pasted into your notepad. You will need to enter the “Client ID” and “Client secret” later into Forum Sentry once we start configuring its OAuth policy.


Sign up for a free trial and you'll get $300 in credit and 60 days to explore Google Cloud Platform. Learn more
DISMISS
SIGN UP FOR FREE TRIAL
Google Cloud Platform
AAA-ClientOAuth2
API
API Manager
Dashboard
Library
Credentials
Credentials
Credentials
OAuth consent screen
Domain verification
Create credentials
Delete
Create credentials to access your enabled APIs. Refer to the API documentation for details.
OAuth 2.0 client
Name
Web client 1
cp00bpinnmbnr.apps.googleusercontent.com
OK

OAuth client

Here is your client ID

950929078638-4jvfsh9aee3ne54puf1cp00bpinnmbnr.apps.googleusercontent.co

Here is your client secret

YYkeKK8Ts3FaA20K5zcJ1YXP

3.3.2 Configuring Forum Sentry Policies as an OAuth client

We will be using figure 3 as a frame of reference when configuring Forum Sentry.

Forum Sentry is an API Gateway that will be configured to simulate the behavior of an OAuth client as shown in figure 3. For this configuration exercise, we will pick a website such as www.forumsys.com as the company application that will be sitting behind Sentry. You are free to select any website of your own choosing. The only condition is that the name of the website has a valid DNS mapping in your infrastructure.

In this configuration example, we will be creating the following policies to accomplish our task.

- Listener Policy - This policy defines the IP address and TCP port that Sentry listens on for connections.

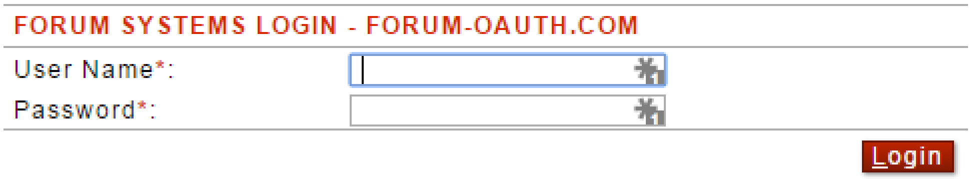
- Remote Policy - This policy defines the remote service defined by an IP address and TCP port that Sentry will be connecting to after it has processed incoming messages.

- HTML Policy - This is the master policy that defines the set of services (tasks) that will be performed on incoming and outgoing messages. The HTML policy's services are triggered based on which set of URIs are being accessed by remote users or applications. These URIs are defined in the HTML policy.

- Redirect Policy - This policy contains specific URIs which helps HTML policy service determine where to redirect a user or application in case certain conditions are not met. For example, a user accesses a site defined by URI www.mybank.com. If the user does not carry any authentication credentials, the HTML policy will decide to redirect the user to URI www.mybank.com/login. www.bank.com/login will be defined in Rediret Policy and consumed by the HTML policy.

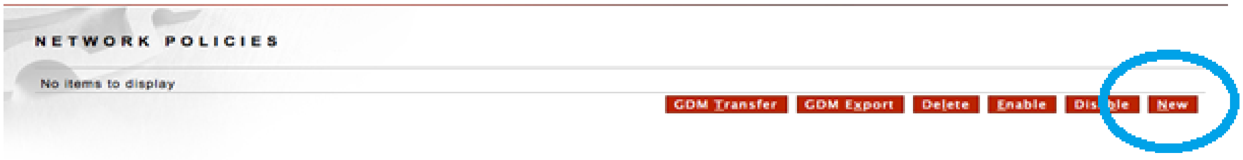
- Task List and Task Group Policy - This is the policy that actually defines a set of tasks to be performed on incoming and outgoing messages. This policy is consumed by the HTML policy. In our use case, we will define only one task which is to obtain an OAuth credentials from Google Auth Server.

Step 1: Enter https://forum-oauth.com:5050 into your browser. The login page will appear. Enter your username and password and click “Login”.

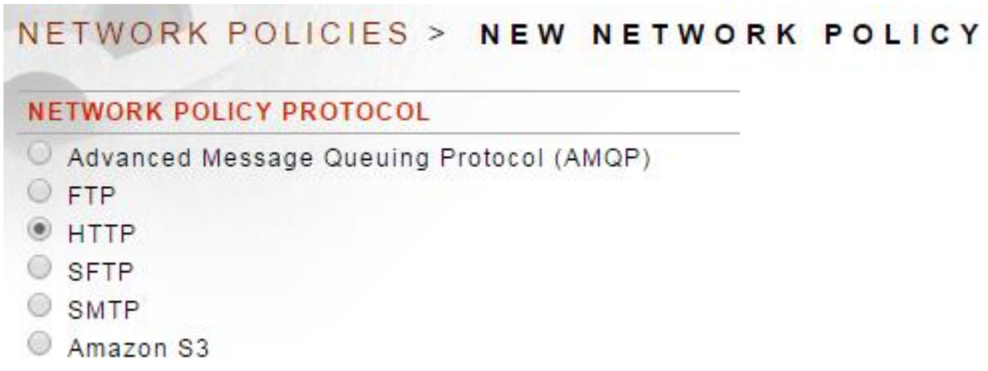


Step 2: After successful login, the general admin page will appear. Click on “Gateway”, then click on Network Policies

Step 3: Follow the steps shown to create a local listener policy. This is the Sentry network service that will accept connections over an application protocol such as http. The Sentry listener will be bound to the IP of the machine that Sentry is running on. Start by clicking on the “New” button.



Step 4: Select HTTP as the application protocol for the incoming connection.

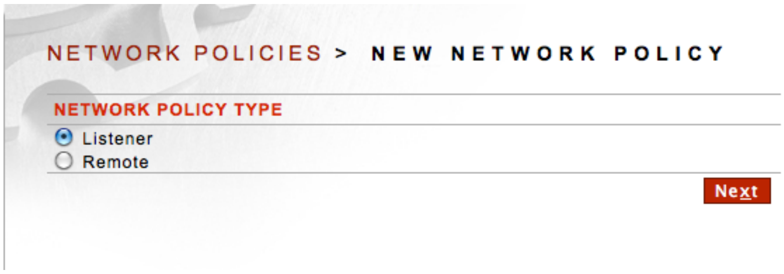


NETWORK POLICIES > NEW NETWORK POLICY

NETWORK POLICY PROTOCOL

- ○ Advanced Message Queuing Protocol (AMQP)
- ○ FTP
- ● HTTP
- ○ SFTP
- ○ SMTP
- ○ Amazon S3

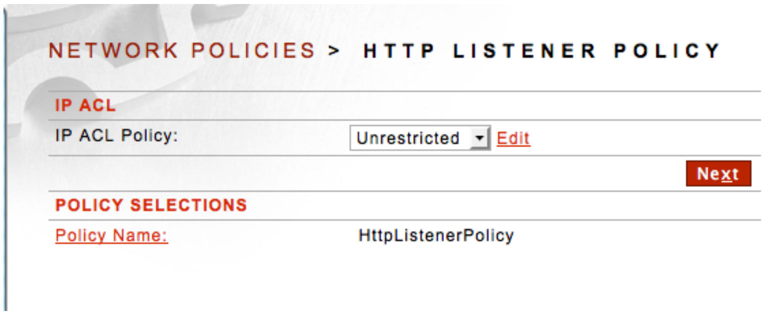
Step 5: Select Listener as the option since Sentry will be receiving connections from users.


NETWORK POLICIES > NEW NETWORK POLICY

NETWORK POLICY TYPE

● Listener
○ Remote

Step 6: Specify a Policy Name, or use the default provided, i.e. “HTTPListenerPolicy”. Click Next. At the IP ACL Policy Screen, click next.


NETWORK POLICIES > HTTP LISTENER POLICY

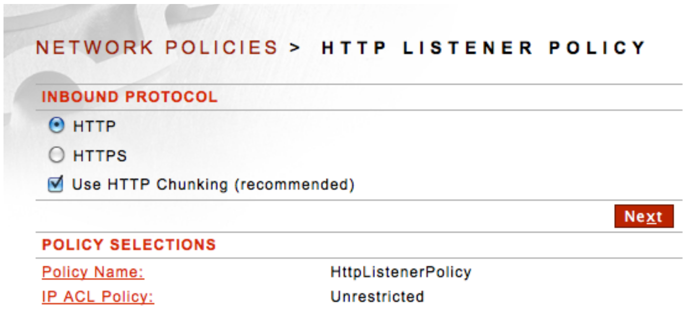
IP ACL

IP ACL Policy: Unrestricted

POLICY SELECTIONS

Policy Name: HttpListenerPolicy

Step 7: Select HTTP and HTTP Chunking as options and click Next.


NETWORK POLICIES > HTTP LISTENER POLICY

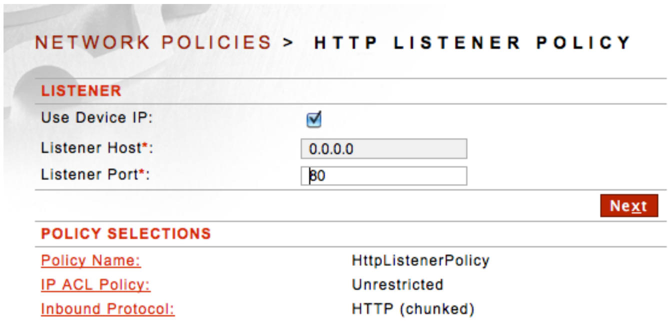
INBOUND PROTOCOL

● HTTP
○ HTTPS
☑ Use HTTP Chunking (recommended)

POLICY SELECTIONS

Policy Name:	HttpListenerPolicy
IP ACL Policy:	Unrestricted

Step 8: Select Device IP and click Next.


NETWORK POLICIES > HTTP LISTENER POLICY

LISTENER

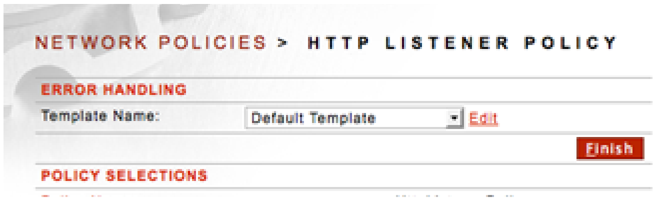
Use Device IP:	☑
Listener Host*:	0.0.0.0
Listener Port*:	80

POLICY SELECTIONS

Policy Name:	HttpListenerPolicy
IP ACL Policy:	Unrestricted
Inbound Protocol:	HTTP (chunked)

Step 9: Do not make any changes to the Password Authentication, click Next.

Step 10: Click on Finish.



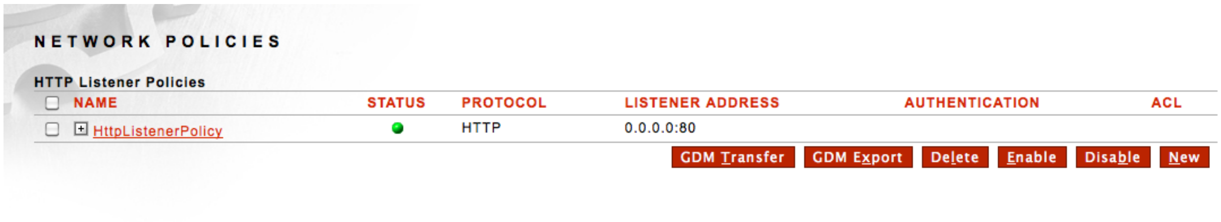
NETWORK POLICIES > HTTP LISTENER POLICY

ERROR HANDLING

Template Name: Default Template

POLICY SELECTIONS

You have successfully created a listener on TCP port 80. The green light indicates that it is actively waiting for connections.



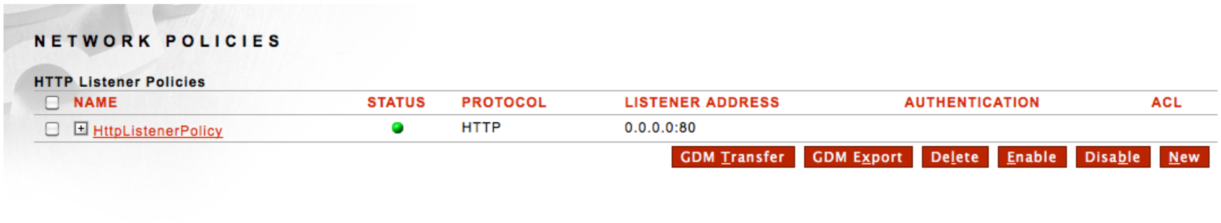
NETWORK POLICIES

HTTP Listener Policies

☐ NAME	STATUS	PROTOCOL	LISTENER ADDRESS	AUTHENTICATION	ACL
☐ ⊞ HttpListenerPolicy	●	HTTP	0.0.0.0:80		

Step 11: Now you are ready to create a remote policy in Sentry. This remote policy contains the location of the application or website that Sentry is protecting. The location is identified by the URI or an IP address of the remote application. For example, in Figure 3, the company application would be configured as part of Sentry's network remote policy. In this configuration, our application is "www.forumsys.com" and we will make it part of our network remote policy.

Step 12: Click on New, Select HTTP and click Next.

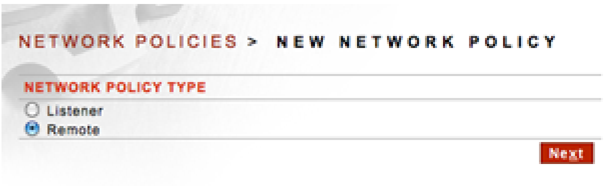


NETWORK POLICIES

HTTP Listener Policies

☐ NAME	STATUS	PROTOCOL	LISTENER ADDRESS	AUTHENTICATION	ACL
☐ ⊞ HttpListenerPolicy	●	HTTP	0.0.0.0:80		

Step 13: Select Remote and click Next. This the application Sentry will be connecting to. Click Next.



NETWORK POLICIES > NEW NETWORK POLICY

NETWORK POLICY TYPE

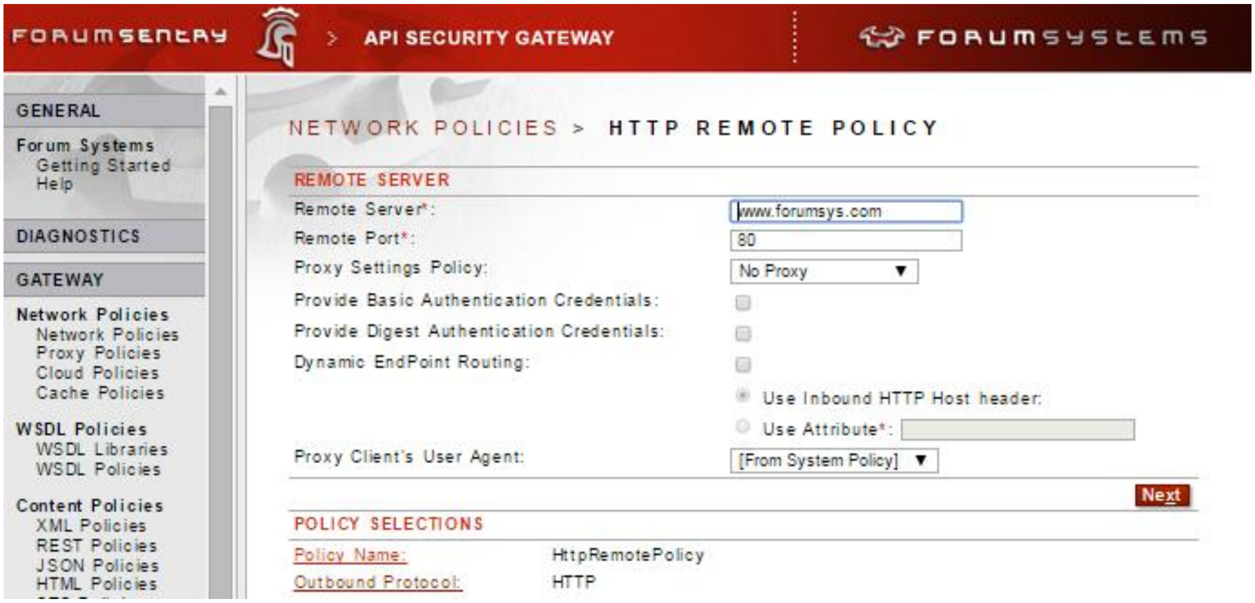
○ Listener

● Remote

Step 14: Enter the Policy Name. You can select the default “HttpRemotePolicy” and click Next.

Step 15: Select HTTP as the application protocol for the back-end application. Click Next.

Step 16: Enter www.forumsys.com (or your favorite website) as Remote Server. Default port is 80. Click Next.



NETWORK POLICIES > HTTP REMOTE POLICY

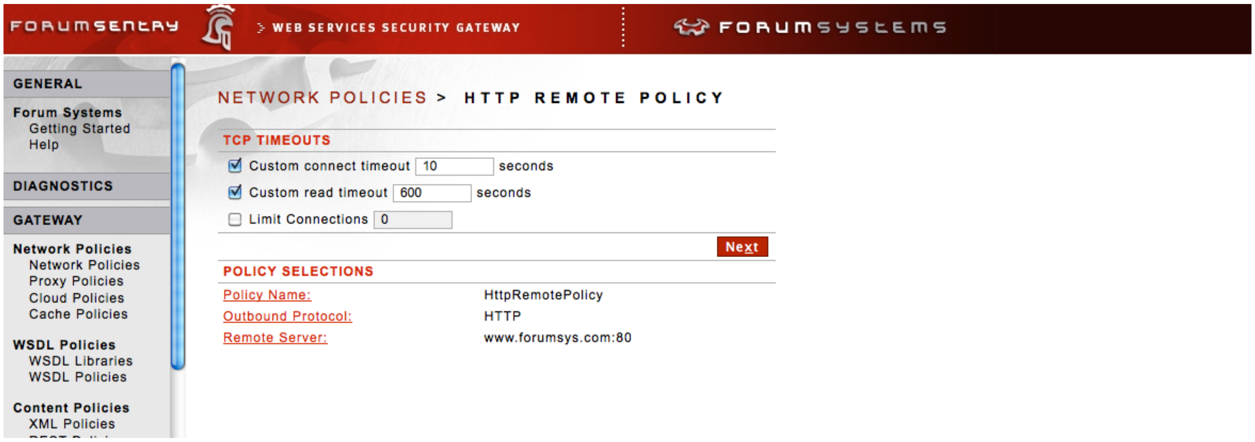
REMOTE SERVER

Remote Server*:	www.forumsys.com
Remote Port*:	80
Proxy Settings Policy:	No Proxy ▼
Provide Basic Authentication Credentials:	□
Provide Digest Authentication Credentials:	□
Dynamic EndPoint Routing:	□
	● Use Inbound HTTP Host header:
	○ Use Attribute*:
Proxy Client's User Agent:	[From System Policy] ▼

POLICY SELECTIONS

Policy Name:	HttpRemotePolicy
Outbound Protocol:	HTTP

Step 17: Keep the default settings for the timeout and click Next.



NETWORK POLICIES > HTTP REMOTE POLICY

TCP TIMEOUTS

☑ Custom connect timeout 10 seconds

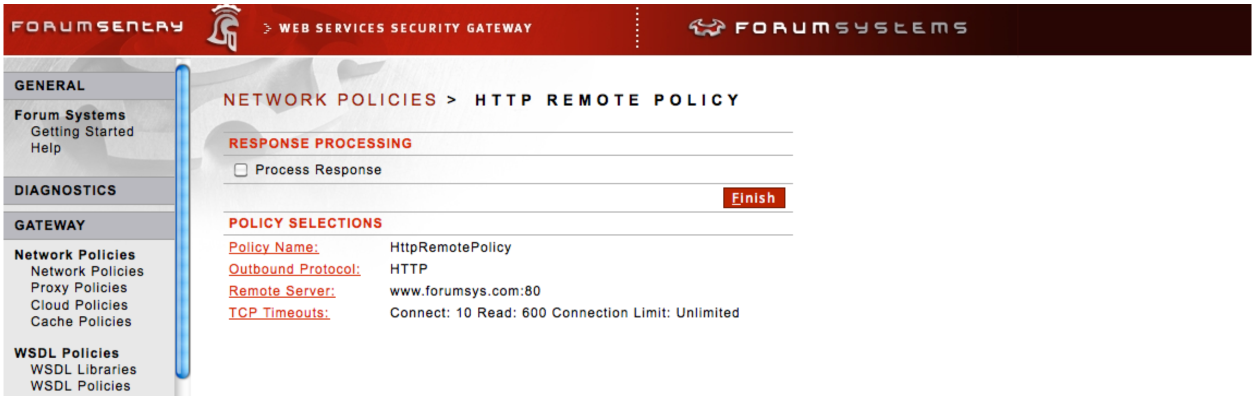
☑ Custom read timeout 600 seconds

□ Limit Connections 0

POLICY SELECTIONS

Policy Name:	HttpRemotePolicy
Outbound Protocol:	HTTP
Remote Server:	www.forumsys.com:80

Step 18: Leave Process Response unchecked. Click Finish.



NETWORK POLICIES > HTTP REMOTE POLICY

RESPONSE PROCESSING

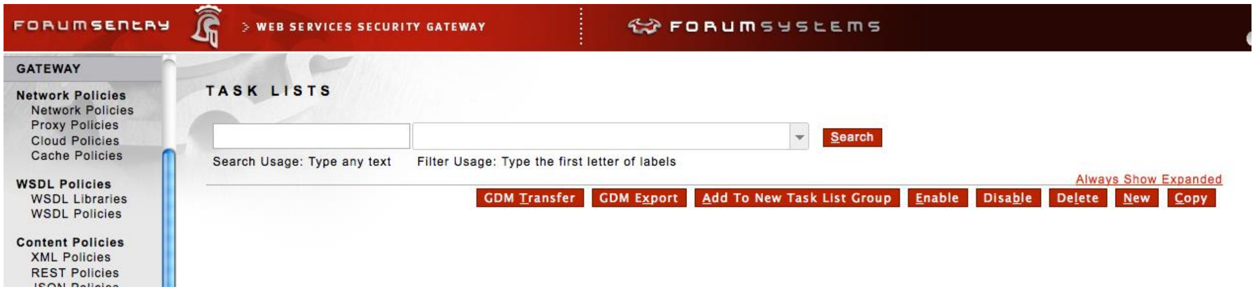
□ Process Response

POLICY SELECTIONS

Policy Name:	HttpRemotePolicy
Outbound Protocol:	HTTP
Remote Server:	www.forumsys.com:80
TCP Timeouts:	Connect: 10 Read: 600 Connection Limit: Unlimited

Now we are ready to create a policy in Forum Sentry which will enable it to be an OAuth client. It is a Task Policy that contains OAuth attributes. The following steps are needed to enable this policy.

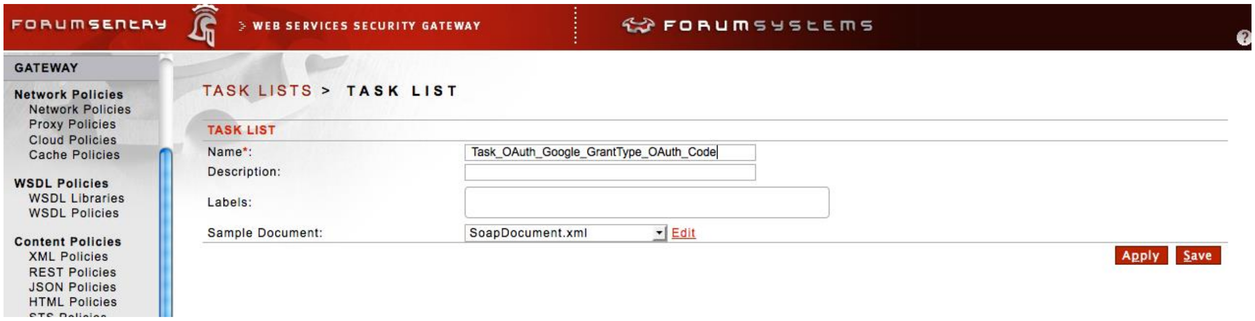
Step 1: Click on Task Lists in the lower left panel and the following screen will appear. Click on New.



TASK LISTS

Search Usage: Type any text   Filter Usage: Type the first letter of labels

Step 2: Enter the name of the Task List as "Task_OAuth_Google_GrantType_OAuth_Code". Click Apply.

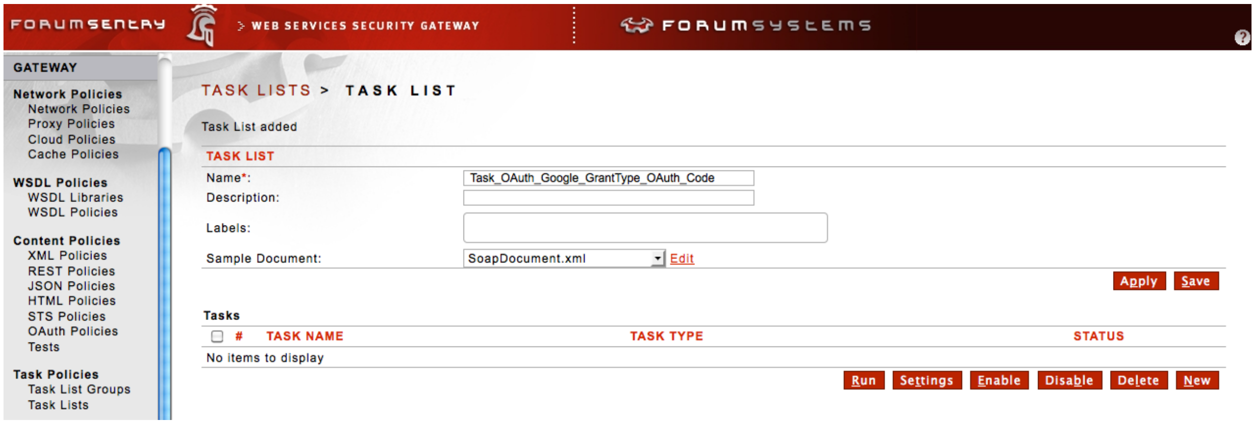


TASK LISTS > TASK LIST

TASK LIST

Name*:	Task_OAuth_Google_GrantType_OAuth_Code
Description:	
Labels:	
Sample Document:	SoapDocument.xml

Step 3: Now you ready to pick a specific task that will be associated with this Task List. Click on New.



TASK LISTS > TASK LIST

Task List added

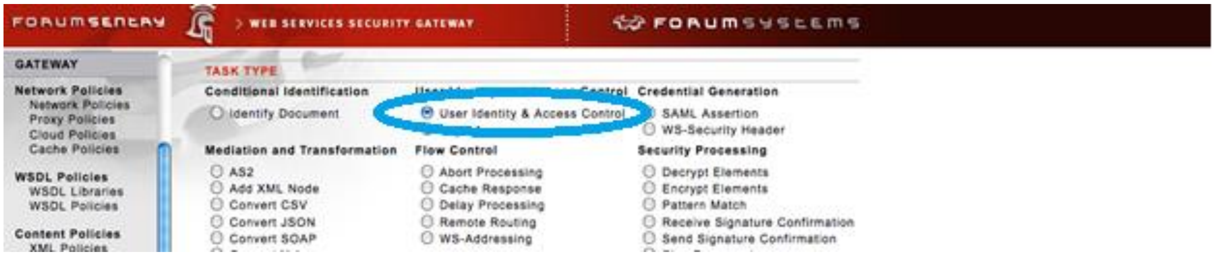
TASK LIST

Name*:	Task_OAuth_Google_GrantType_OAuth_Code
Description:	
Labels:	
Sample Document:	SoapDocument.xml Edit

Tasks

□ #	TASK NAME	TASK TYPE	STATUS
No items to display			

Step 4: Under User Identity and Access Control select the radio button “User identity & Access Control. Click Next.



TASK TYPE

Conditional Identification
○ Identify Document

User Identity & Access Control
● User Identity & Access Control

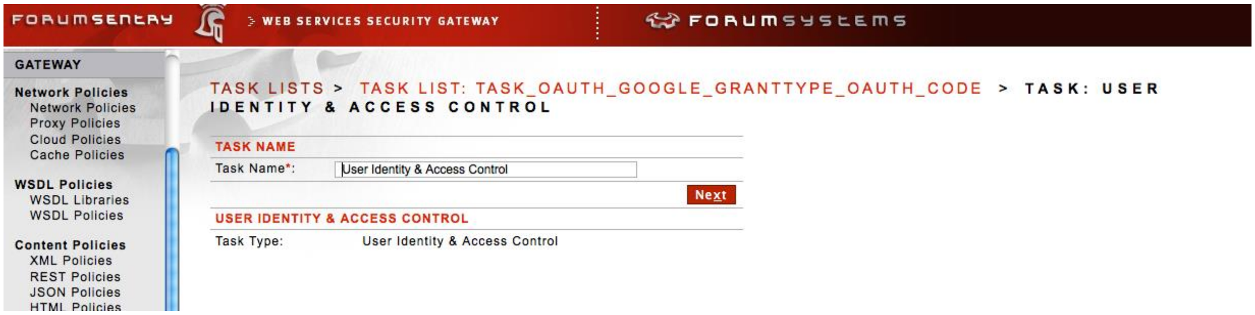
Credential Generation
○ SAML Assertion
○ WS-Security Header

Mediation and Transformation
○ AS2
○ Add XML Node
○ Convert CSV
○ Convert JSON
○ Convert SOAP

Flow Control
○ Abort Processing
○ Cache Response
○ Delay Processing
○ Remote Routing
○ WS-Addressing

Security Processing
○ Decrypt Elements
○ Encrypt Elements
○ Pattern Match
○ Receive Signature Confirmation
○ Send Signature Confirmation

Step 5: The default task name will appear as “User Identity & Access Control”. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_GOOGLE_GRANTTYPE_OAUTH_CODE > TASK: USER IDENTITY & ACCESS CONTROL

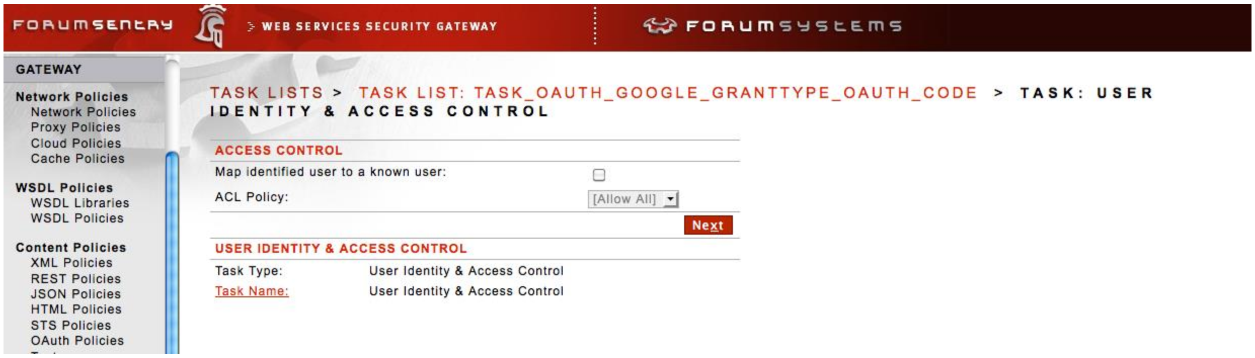
TASK NAME

Task Name*: User Identity & Access Control

USER IDENTITY & ACCESS CONTROL

Task Type: User Identity & Access Control

Step 6: Uncheck the check box on “Map identified user to a known user”. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_GOOGLE_GRANTTYPE_OAUTH_CODE > TASK: USER IDENTITY & ACCESS CONTROL

ACCESS CONTROL

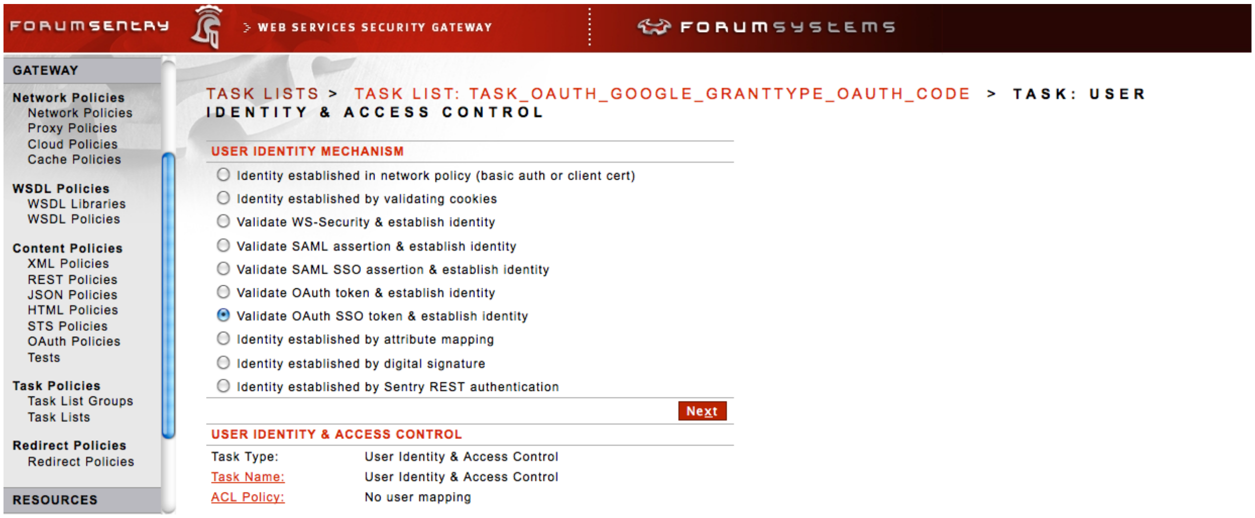
Map identified user to a known user: □

ACL Policy: [Allow All]

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control

Step 7: Select the radio button “Validate OAuth SSO token & establish identity”. Click Next



TASK LISTS > TASK LIST: TASK_OAUTH_GOOGLE_GRANTTYPE_OAUTH_CODE > TASK: USER IDENTITY & ACCESS CONTROL

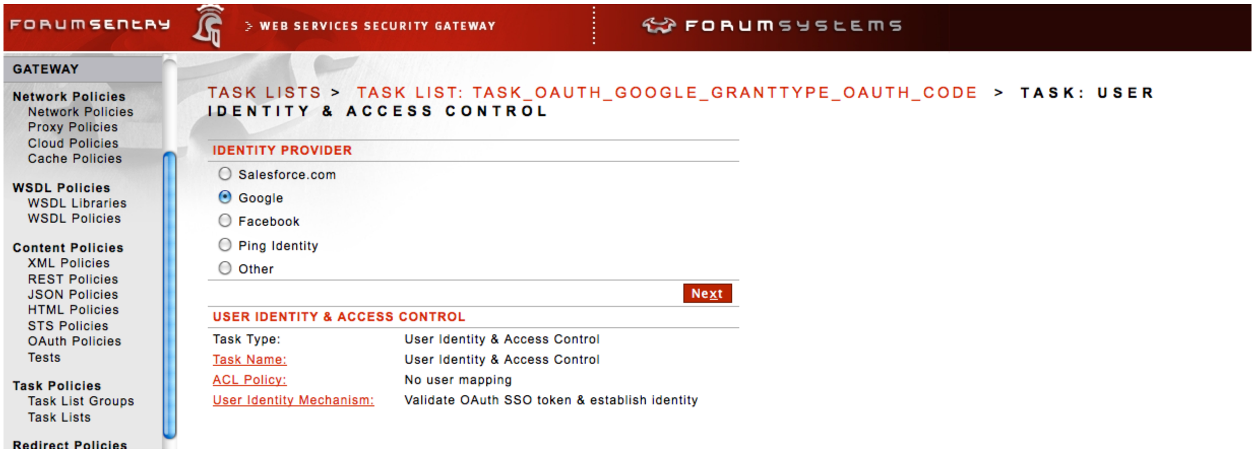
USER IDENTITY MECHANISM

- ○ Identity established in network policy (basic auth or client cert)
- ○ Identity established by validating cookies
- ○ Validate WS-Security & establish identity
- ○ Validate SAML assertion & establish identity
- ○ Validate SAML SSO assertion & establish identity
- ○ Validate OAuth token & establish identity
- ● Validate OAuth SSO token & establish identity
- ○ Identity established by attribute mapping
- ○ Identity established by digital signature
- ○ Identity established by Sentry REST authentication

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping

Step 8: Select Google as your OAuth Service provider. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_GOOGLE_GRANTTYPE_OAUTH_CODE > TASK: USER IDENTITY & ACCESS CONTROL

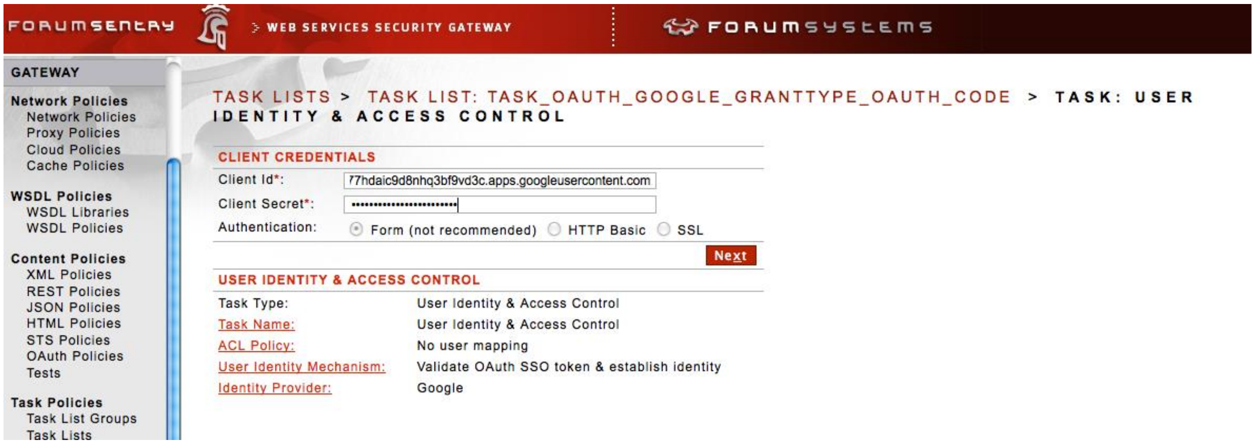
IDENTITY PROVIDER

- ○ Salesforce.com
- ● Google
- ○ Facebook
- ○ Ping Identity
- ○ Other

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity

Remember you had saved Client Id and Client Secret from earlier steps in Section 3.3.1. You copied these from Google Cloud service. You will need to paste these each in its appropriate field on this screen. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_GOOGLE_GRANTTYPE_OAUTH_CODE > TASK: USER IDENTITY & ACCESS CONTROL

CLIENT CREDENTIALS

Client Id*: 77hdaic9d8nhq3bf9vd3c.apps.googleusercontent.com

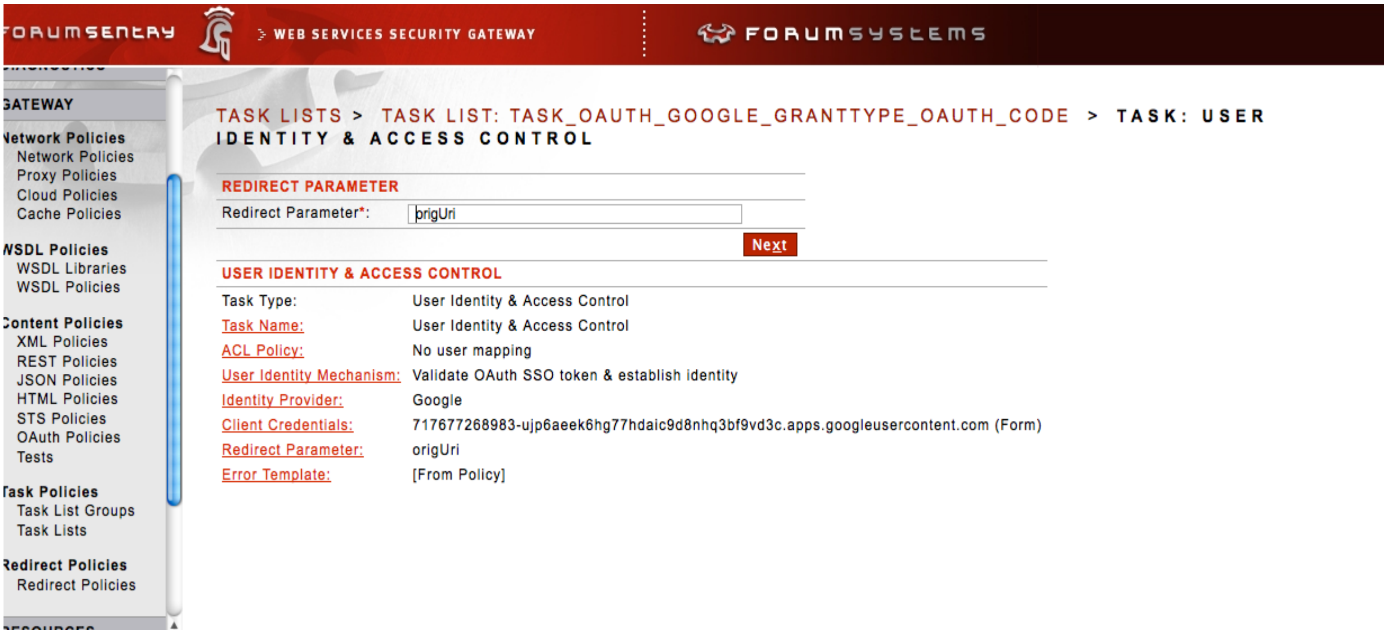
Client Secret*: ••••••••••••••••••••••••

Authentication: ● Form (not recommended) ○ HTTP Basic ○ SSL

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity
Identity Provider:	Google

Step 9: In the Redirect Parameter, enter “origUri”. You can pick any string besides “origURI” in the Redirect Parameter field as long it is consistently used across other policies within Sentry. origUri is a placeholder for the original URI that a user enters to connect to Sentry’s listener. In our example configuration, that URI is “forum-oauth.com”. Once OAuth processing is successfully completed by Sentry’s OAuth engine, it will redirect the user browser to connect to forum-oauth.com with valid credentials (cookie).



TASK LISTS > TASK LIST: TASK_OAUTH_GOOGLE_GRANTTYPE_OAUTH_CODE > TASK: USER IDENTITY & ACCESS CONTROL

REDIRECT PARAMETER

Redirect Parameter*: origUri

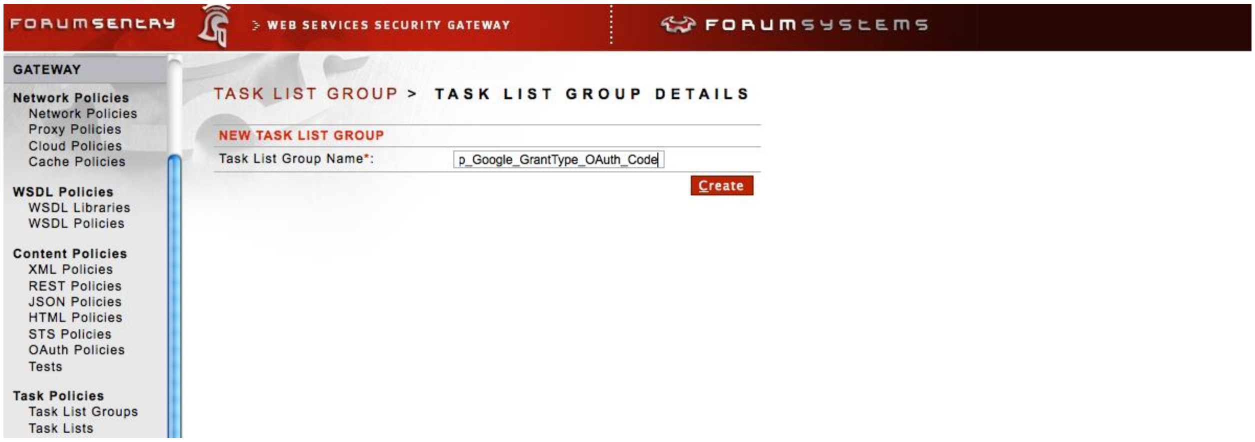
USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity
Identity Provider:	Google
Client Credentials:	717677268983-ujp6aeek6hg77hdaic9d8nhq3bf9vd3c.apps.googleusercontent.com (Form)
Redirect Parameter:	origUri
Error Template:	[From Policy]

Step 10: Click on Finish.

The screen will indicate that Task List “Task_OAuth_Google_GrantType_OAuth_Code” is associated with Task “User_identity_&_Access_Control”. Click Save.

Step 11: The task list that was created in the previous step will be consumed by the Task List Group. Click on "Task List Groups" button to create a Task List Group policy. Click New. Enter the Task List Group Name as "Task_Group_GrantType_OAuth_Code". Click Create.

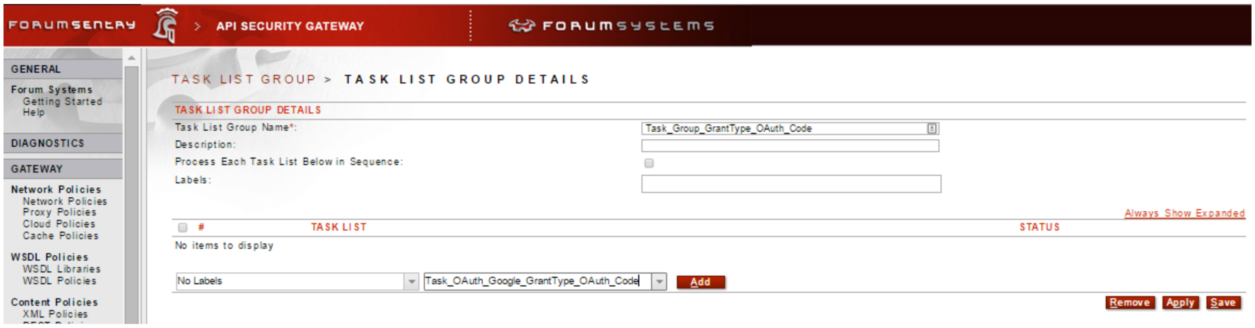


TASK LIST GROUP > TASK LIST GROUP DETAILS

NEW TASK LIST GROUP

Task List Group Name*: p_Google_GrantType_OAuth_Code

Step 12: Now you can add the Task List "Task_OAuth_Google_GrantType_OAuth_Code" to the group and Click Save.



TASK LIST GROUP > TASK LIST GROUP DETAILS

TASK LIST GROUP DETAILS

Task List Group Name*: Task_Group_GrantType_OAuth_Code

Description:

Process Each Task List Below in Sequence: □

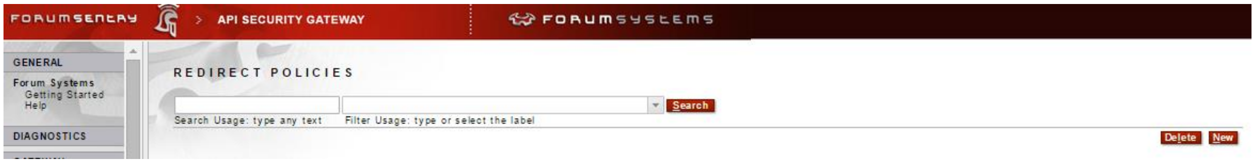
Labels:

□	#	TASK LIST	STATUS

No items to display

No Labels | Task_OAuth_Google_GrantType_OAuth_Code

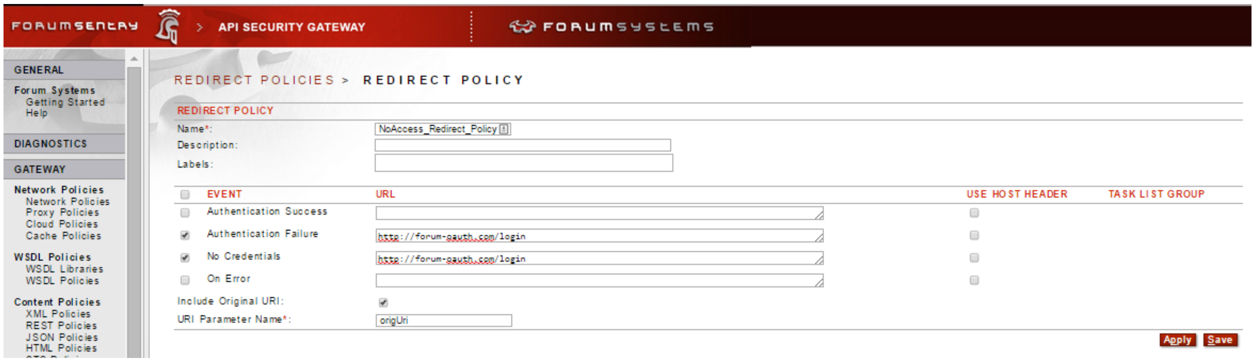
Step 13: We will now create the Redirect Policy. This is the policy that will be consumed by the HTML policy, providing information of where a user's initial connection would be redirected to in case the initial connection to Sentry does not contain any credentials (in the form of a cookie) or the credentials may have expired. Under the Gateway menu click Redirect Policies. Click New.



REDIRECT POLICIES

Search Usage: type any text Filter Usage: type or select the label

Step 14: Enter the name "NoAccess_Redirect_Policy". Check two fields, Authentication Fails and No Credentials. Fill both fields with http://forum-oauth.com/login as shown below. Then check Include Origin URI field with the URI Parameter Name "origUri". What you are configuring is a sub-policy which will be eventually consumed by the HTML policy which you will create later. This sub-policy tells Sentry that when the user first connects to http://forum-oauth.com/ and the user carries no credentials then the user will be redirected to a new location such as http://forum-oauth.com/login. Click Save.



REDIRECT POLICIES > REDIRECT POLICY

REDIRECT POLICY

Name*: NoAccess_Redirect_Policy

Description:

Labels:

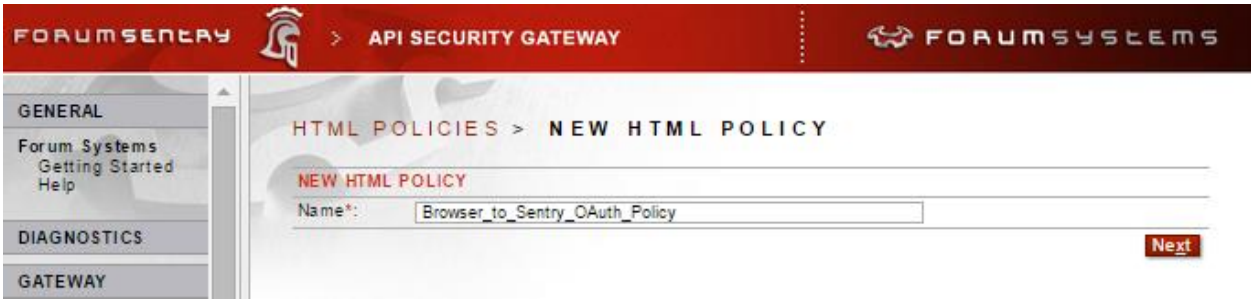
□	EVENT	URL	USE HOST HEADER	TASK LIST GROUP
□	Authentication Success		□	
☑	Authentication Failure	http://forum-oauth.com/login	□	
☑	No Credentials	http://forum-oauth.com/login	□	
□	On Error		□	

Include Original URI: ☑

URI Parameter Name*: origUri

Step 15: Click on HTML Policy in the left panel. You are now ready to create the master HTML policy. This is the policy that contains the URIs such as forum-oauth.com and forum-oauth.com/login and defines the authentication policies and various tasks. Click New.

Step 16: Enter the Name as “Browser_to_Sentry_OAuth_Policy”. Click Next.

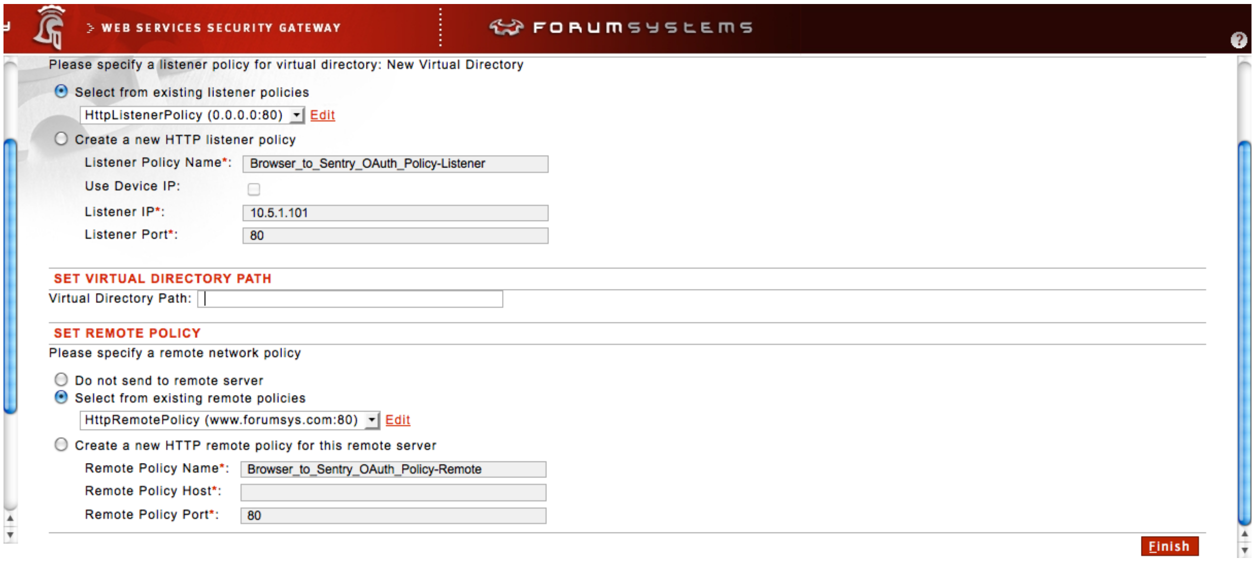


HTML POLICIES > NEW HTML POLICY

NEW HTML POLICY

Name*: Browser_to_Sentry_OAuth_Policy

Step 17: Select the existing listener policy from the default setting. Select the remote existing remote policies. Remember both the listener and remote network policies were created by you earlier. Click Finish.



Please specify a listener policy for virtual directory: New Virtual Directory

● Select from existing listener policies

HttpListenerPolicy (0.0.0.0:80) Edit

○ Create a new HTTP listener policy

Listener Policy Name*: Browser_to_Sentry_OAuth_Policy-Listener

Use Device IP: □

Listener IP*: 10.5.1.101

Listener Port*: 80

SET VIRTUAL DIRECTORY PATH

Virtual Directory Path:

SET REMOTE POLICY

Please specify a remote network policy

○ Do not send to remote server

● Select from existing remote policies

HttpRemotePolicy (www.forumsys.com:80) Edit

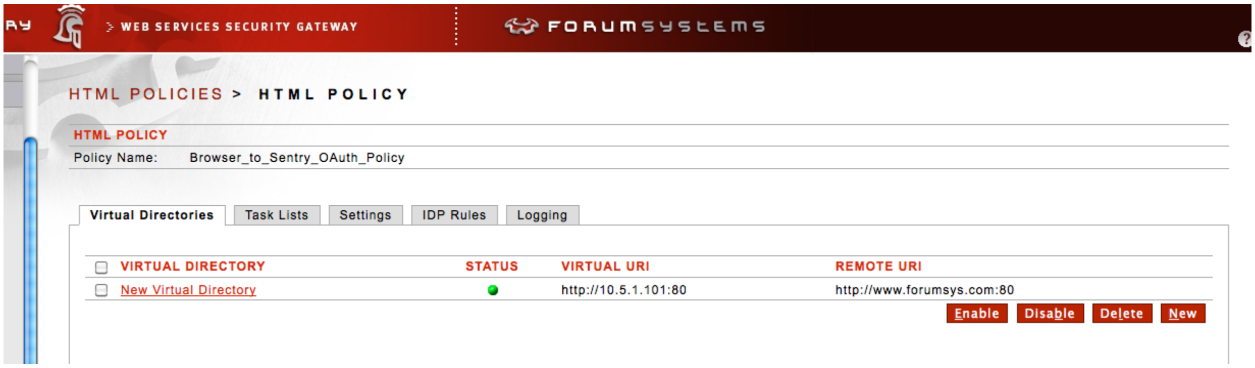
○ Create a new HTTP remote policy for this remote server

Remote Policy Name*: Browser_to_Sentry_OAuth_Policy-Remote

Remote Policy Host*:

Remote Policy Port*: 80

Step 18: Upon success you will see the following the screen. Now you will enter more details. Click on New Virtual Directory shown.



HTML POLICIES > HTML POLICY

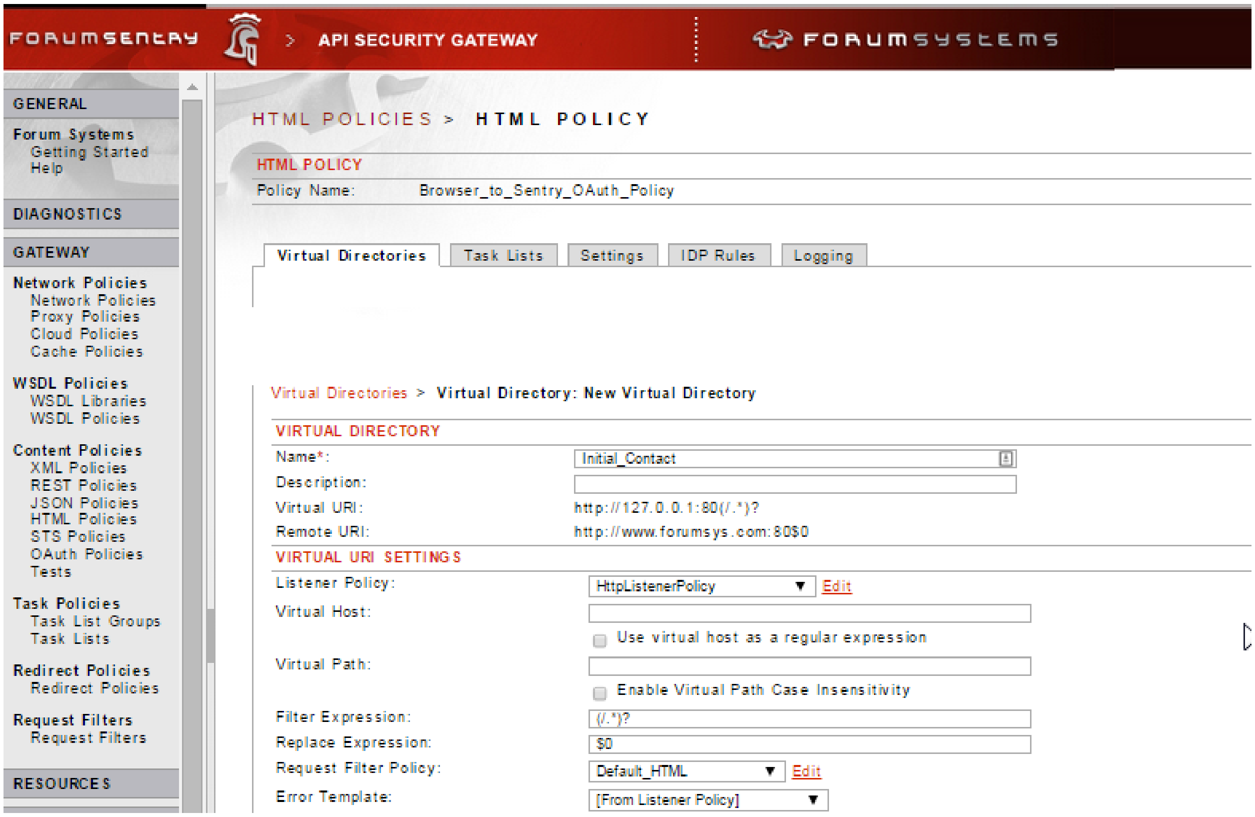
HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

□	VIRTUAL DIRECTORY	STATUS	VIRTUAL URI	REMOTE URI
□	New Virtual Directory	●	http://10.5.1.101:80	http://www.forumsys.com:80

Step 19: You are in the virtual directory screen. This is the screen where you will setup the policy of the first virtual directory that a user accesses from his/her browser. You will need change the following:

- Change the Name to "Initial_Contact".
- Add Virtual Path /. So the user will be coming on URI http://forum-oauth.com/
- Filter Expression (.*)



HTML POLICIES > HTML POLICY

HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

Virtual Directories > Virtual Directory: New Virtual Directory

VIRTUAL DIRECTORY

Name*: Initial_Contact

Description:

Virtual URI: http://127.0.0.1:80(/.*)?

Remote URI: http://www.forumsys.com:80$0

VIRTUAL URI SETTINGS

Listener Policy: HttpListenerPolicy ▼ Edit

Virtual Host:

□ Use virtual host as a regular expression

Virtual Path:

□ Enable Virtual Path Case Insensitivity

Filter Expression: (/.*)?

Replace Expression: $0

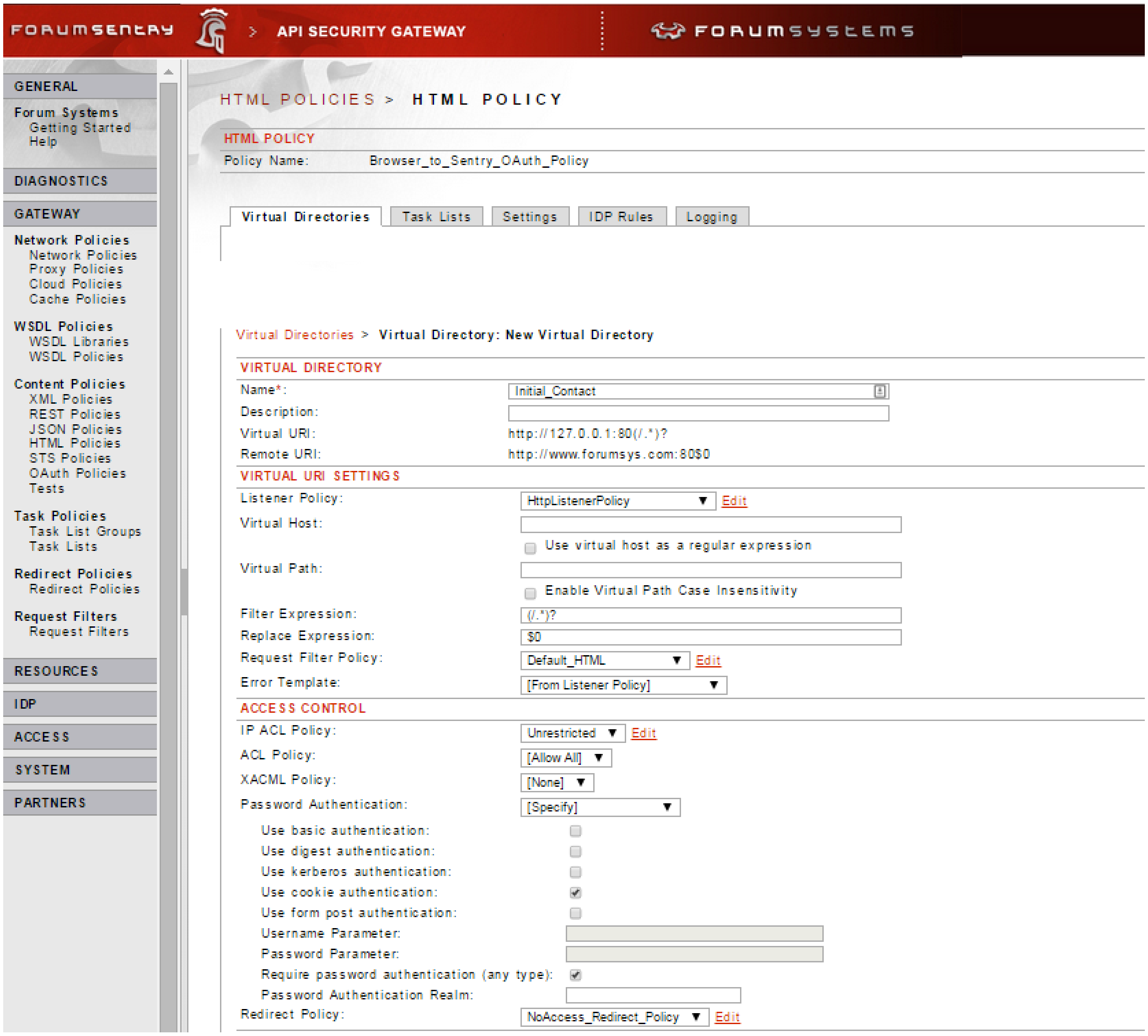
Request Filter Policy: Default_HTML ▼ Edit

Error Template: [From Listener Policy] ▼

Step 20: Scroll down further. You will need to select the following:

- Password Authentication: Specify
- Use Cookie Authentication must be checked.
- Require password authentication (any type) must be checked.
- Redirect Policy is associated with "NoAccess_Redirect_Policy".

What this configuration is telling Sentry is that any user who comes in virtual / must come in with a cookie. If the user does not come with a cookie then he/she will be redirected to another URI that is described in "NoAccess_Redirect_Policy". Remember, we had defined http://forum-oauth.com/login as the location in "NoAccess_Redirect_Policy". It is the location where the user will be redirected to if he/she does not carry a cookie. Click Save.



HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

Virtual Directories > Virtual Directory: New Virtual Directory

VIRTUAL DIRECTORY

Name*:	Initial_Contact
Description:	
Virtual URI:	http://127.0.0.1:80(/.*)?
Remote URI:	http://www.forumsys.com:80$0

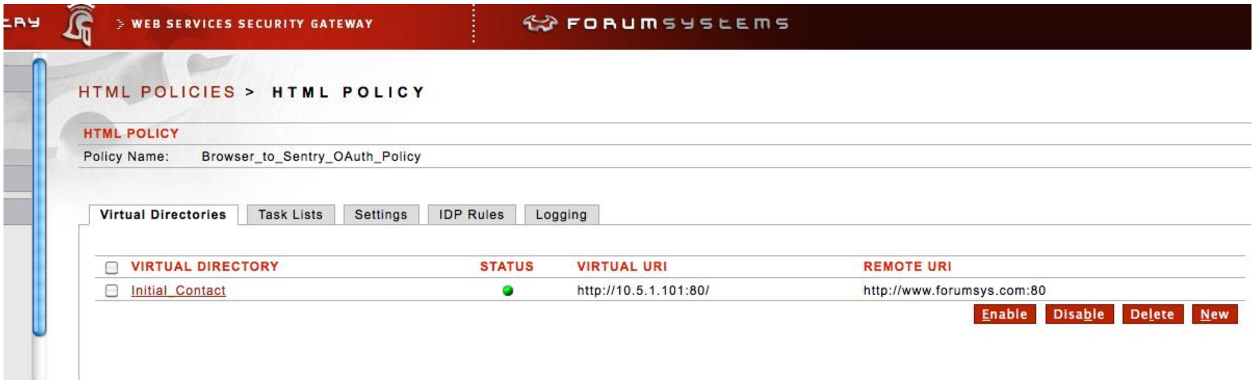
VIRTUAL URI SETTINGS

Listener Policy:	HttpListenerPolicy ▼ Edit
Virtual Host:	
	□ Use virtual host as a regular expression
Virtual Path:	
	□ Enable Virtual Path Case Insensitivity
Filter Expression:	(/.*)?
Replace Expression:	$0
Request Filter Policy:	Default_HTML ▼ Edit
Error Template:	[From Listener Policy] ▼

ACCESS CONTROL

IP ACL Policy:	Unrestricted ▼ Edit
ACL Policy:	[Allow All] ▼
XACML Policy:	[None] ▼
Password Authentication:	[Specify] ▼
Use basic authentication:	□
Use digest authentication:	□
Use kerberos authentication:	□
Use cookie authentication:	☑
Use form post authentication:	□
Username Parameter:	
Password Parameter:	
Require password authentication (any type):	☑
Password Authentication Realm:	
Redirect Policy:	NoAccess_Redirect_Policy ▼ Edit

Step 21: Upon success you will see the following screen. You are now ready to create a virtual directory policy for “/login”. Click New.



HTML POLICIES > HTML POLICY

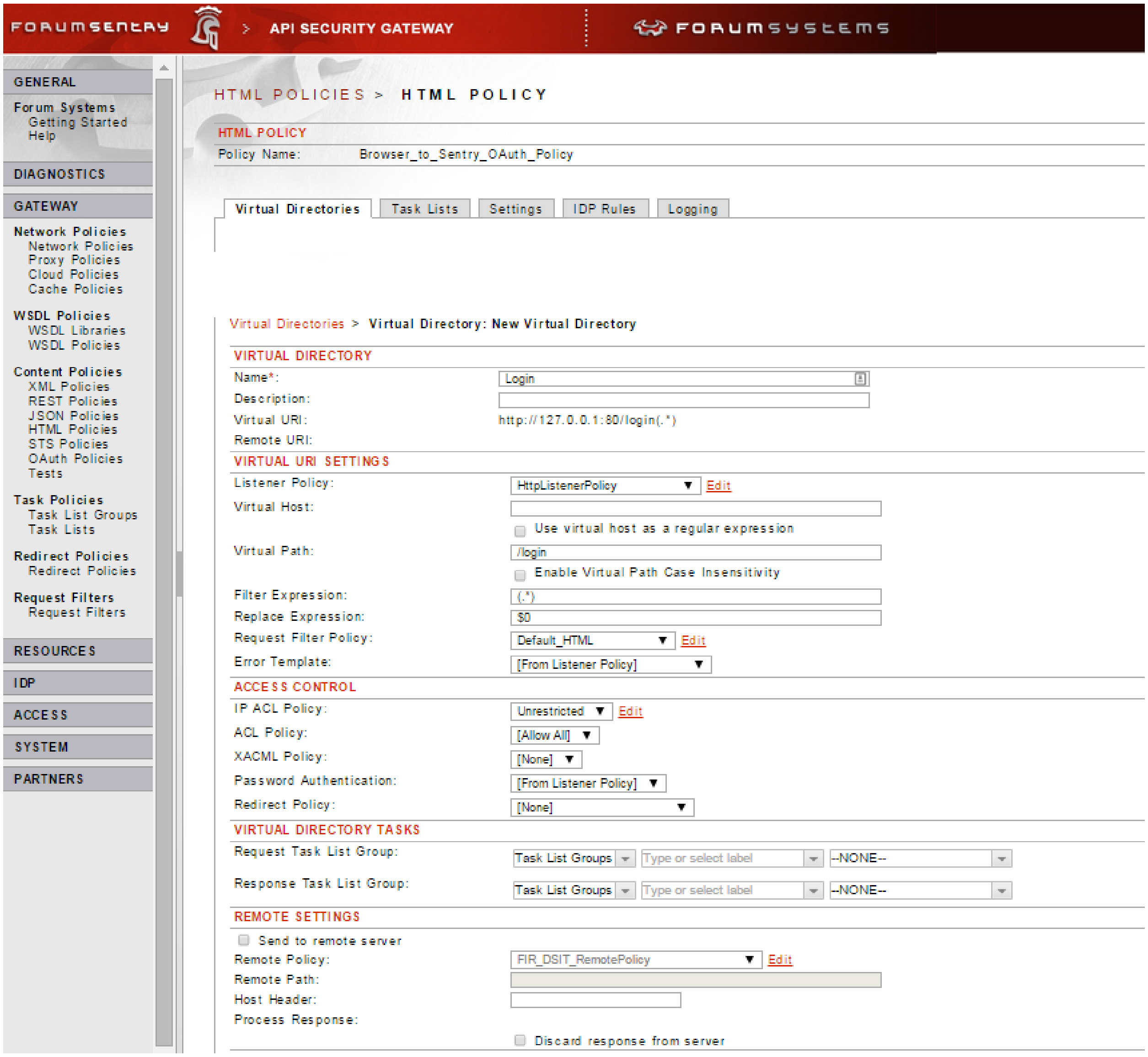
HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

	VIRTUAL DIRECTORY	STATUS	VIRTUAL URI	REMOTE URI
□	Initial_Contact	●	http://10.5.1.101:80/	http://www.forumsys.com:80

Enter the attributes as shown in the following screen:

- Name: Login
- Virtual Path: /login
- Filter Expression: (.*)
- Make sure that Send to remote server option is unchecked.



HTML POLICIES > HTML POLICY

HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

Virtual Directories > Virtual Directory: New Virtual Directory

VIRTUAL DIRECTORY

Name*: Login

Description:

Virtual URI: http://127.0.0.1:80/login(.*)

Remote URI:

VIRTUAL URI SETTINGS

Listener Policy: HttpListenerPolicy ▼ Edit

Virtual Host:

□ Use virtual host as a regular expression

Virtual Path: /login

□ Enable Virtual Path Case Insensitivity

Filter Expression: (.*)

Replace Expression: $0

Request Filter Policy: Default_HTML ▼ Edit

Error Template: [From Listener Policy] ▼

ACCESS CONTROL

IP ACL Policy: Unrestricted ▼ Edit

ACL Policy: [Allow All] ▼

XACML Policy: [None] ▼

Password Authentication: [From Listener Policy] ▼

Redirect Policy: [None] ▼

VIRTUAL DIRECTORY TASKS

Request Task List Group: Task List Groups | Type or select label | --NONE--

Response Task List Group: Task List Groups | Type or select label | --NONE--

REMOTE SETTINGS

□ Send to remote server

Remote Policy: FIR_DSIT_RemotePolicy ▼ Edit

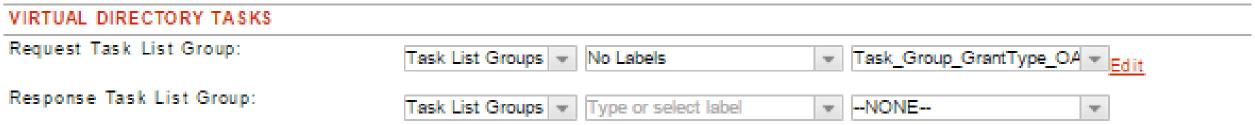
Remote Path:

Host Header:

Process Response:

□ Discard response from server

Step 22: Under the Virtual Directory Tasks associate Request Task List Group to "Task_Group_Google_GrantType_OAuth_Code". This is telling Sentry that when the user is redirected to /login virtual directory, Sentry will be processing the task in Task_Group_Google_GrantType_OAuth_Code. Click Save.

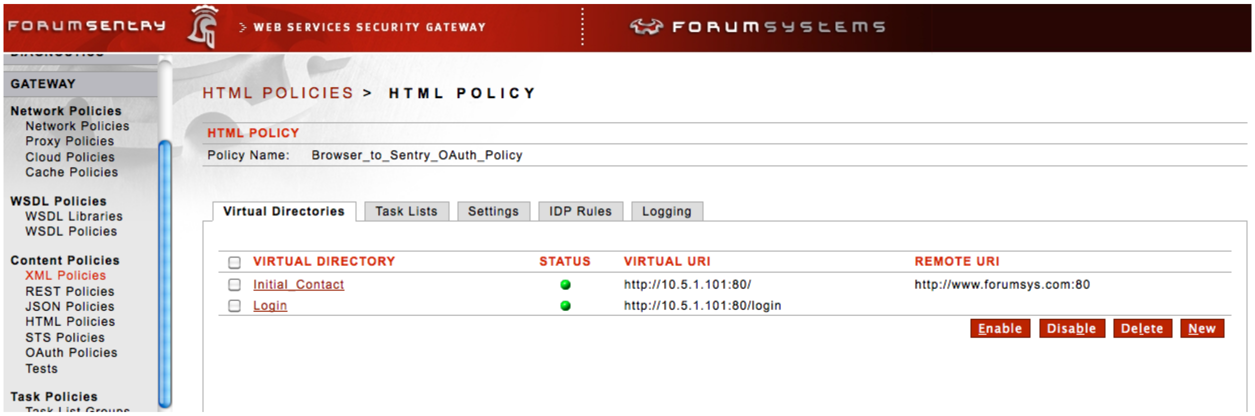


VIRTUAL DIRECTORY TASKS

Request Task List Group: Task List Groups | No Labels | Task_Group_GrantType_OA Edit

Response Task List Group: Task List Groups | Type or select label | --NONE--

Step 23: Upon success, you will see the following screen. Click Settings.



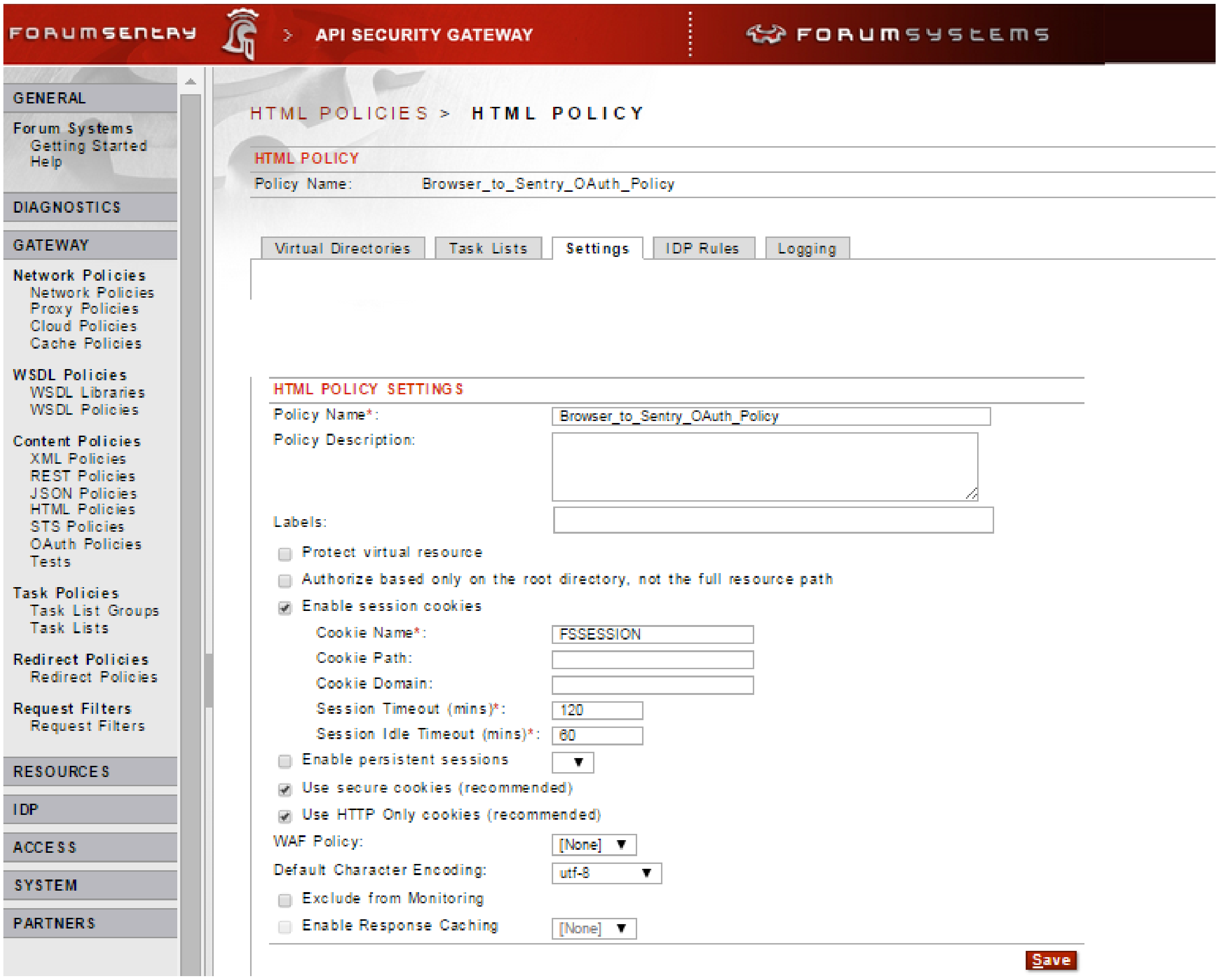
HTML POLICIES > HTML POLICY

HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

	VIRTUAL DIRECTORY	STATUS	VIRTUAL URI	REMOTE URI
□	Initial_Contact	●	http://10.5.1.101:80/	http://www.forumsys.com:80
□	Login	●	http://10.5.1.101:80/login	

Step 24: In the Settings screen, you want to check "Enable session cookies" and "Use secure cookies" options. This is the configuration which is telling Sentry to generate cookies for the user. This enables Single-Sign On for the user. Click Save.



HTML POLICIES > HTML POLICY

HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

HTML POLICY SETTINGS

Policy Name*: Browser_to_Sentry_OAuth_Policy

Policy Description:

Labels:

□ Protect virtual resource

□ Authorize based only on the root directory, not the full resource path

☑ Enable session cookies

Cookie Name*: FSSESSION

Cookie Path:

Cookie Domain:

Session Timeout (mins)*: 120

Session Idle Timeout (mins)*: 60

□ Enable persistent sessions

☑ Use secure cookies (recommended)

☑ Use HTTP Only cookies (recommended)

WAF Policy: [None]

Default Character Encoding: utf-8

□ Exclude from Monitoring

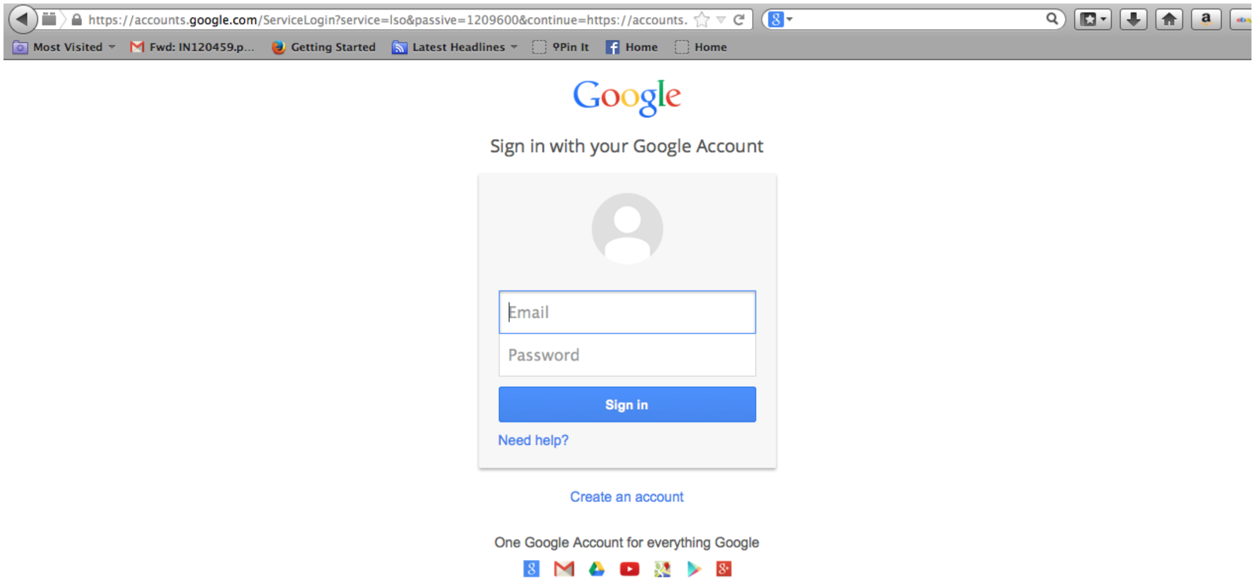
□ Enable Response Caching [None]

3.3.3 Testing Forum Sentry OAuth client

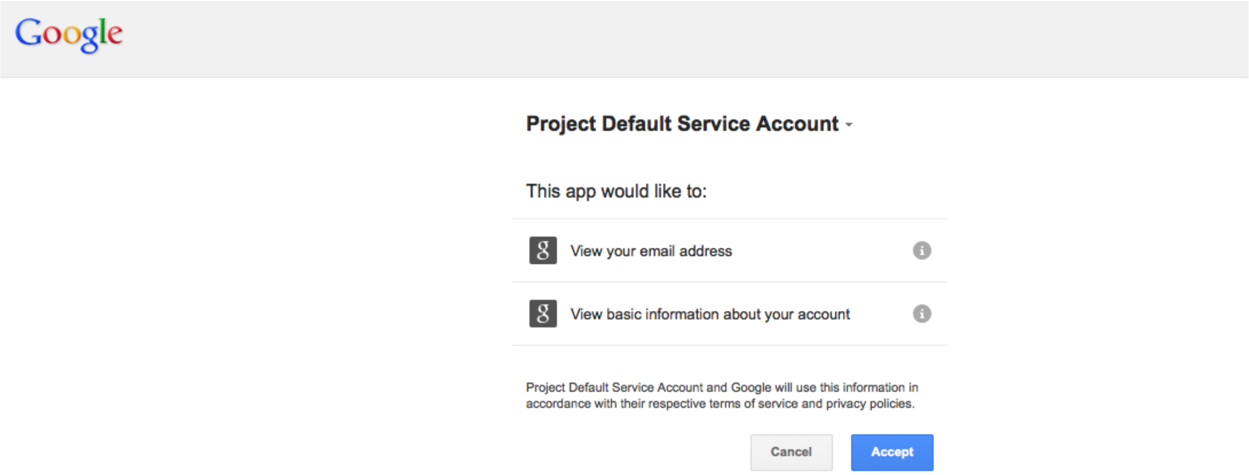
Step 1: Pick your favorite browser and enter http://forum-oauth.com/

Please make sure that your system that is running the browser can resolve the DNS name forum-oauth.com or any name that you are using to access Sentry.

Since you do not carry any credentials, your browser will be redirected to Google Authentication Server and page below will appear. Enter your Google credentials and sign in.


https://accounts.google.com/ServiceLogin?service=lso&passive=1209600&continue=https://accounts.
Most Visited
Fwd: IN120459.p...
Getting Started
Latest Headlines
Pin It
Home
Home
Google
Sign in with your Google Account
Email
Password
Sign in
Need help?
Create an account
One Google Account for everything Google

After successful login, the following screen will appear. It will be asking you to allow the app to fetch your profile information. Basically, at this step Google auth server is asking you that will it be okay with you if the app (Sentry in our case) will be allowed to access your email address and other profile data associated with your Google account. If you accept then you are allowing Sentry to make subsequent calls to fetch your email and profile data. Click Accept.



Project Default Service Account

This app would like to:

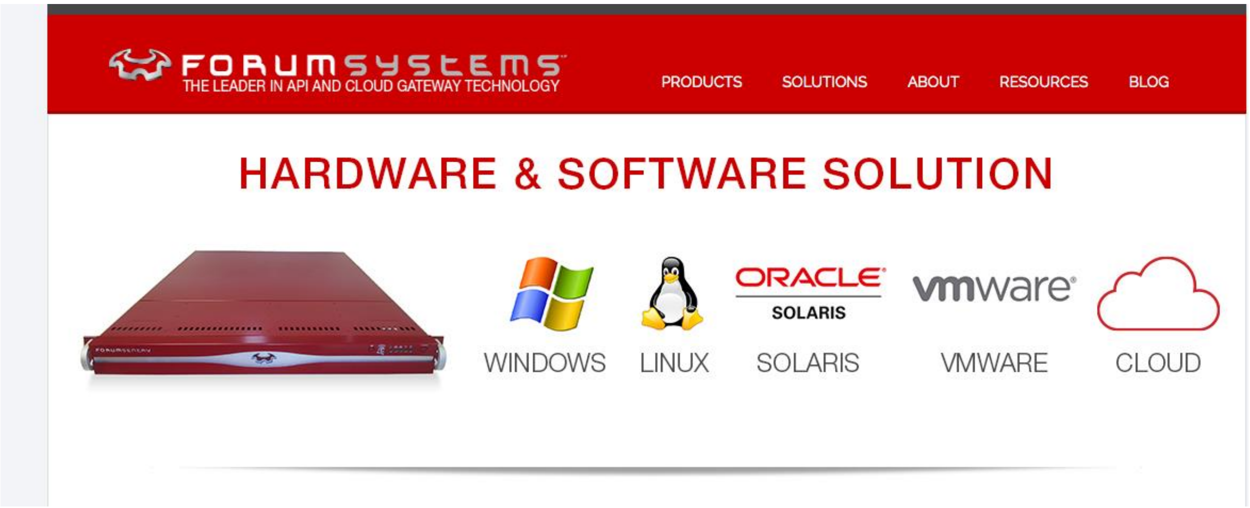
View your email address

View basic information about your account

Project Default Service Account and Google will use this information in accordance with their respective terms of service and privacy policies.

Once you click Accept, Google Auth server will perform the following steps:

- Return your browser to Sentry.
- Sentry will fetch your Google profile data.
- Generate cookies.
- Send the cookies back to your browser with the instruction that your browser needs to access http://forum-oauth.com
- Your browser will connect to http://forum-oauth.com again with the cookies. This time it will be allowed to access www.forumsys.com. If it all goes well, you will see the Forum Systems page.



4.0 Forum Sentry as an OAuth Server with LDAP use case

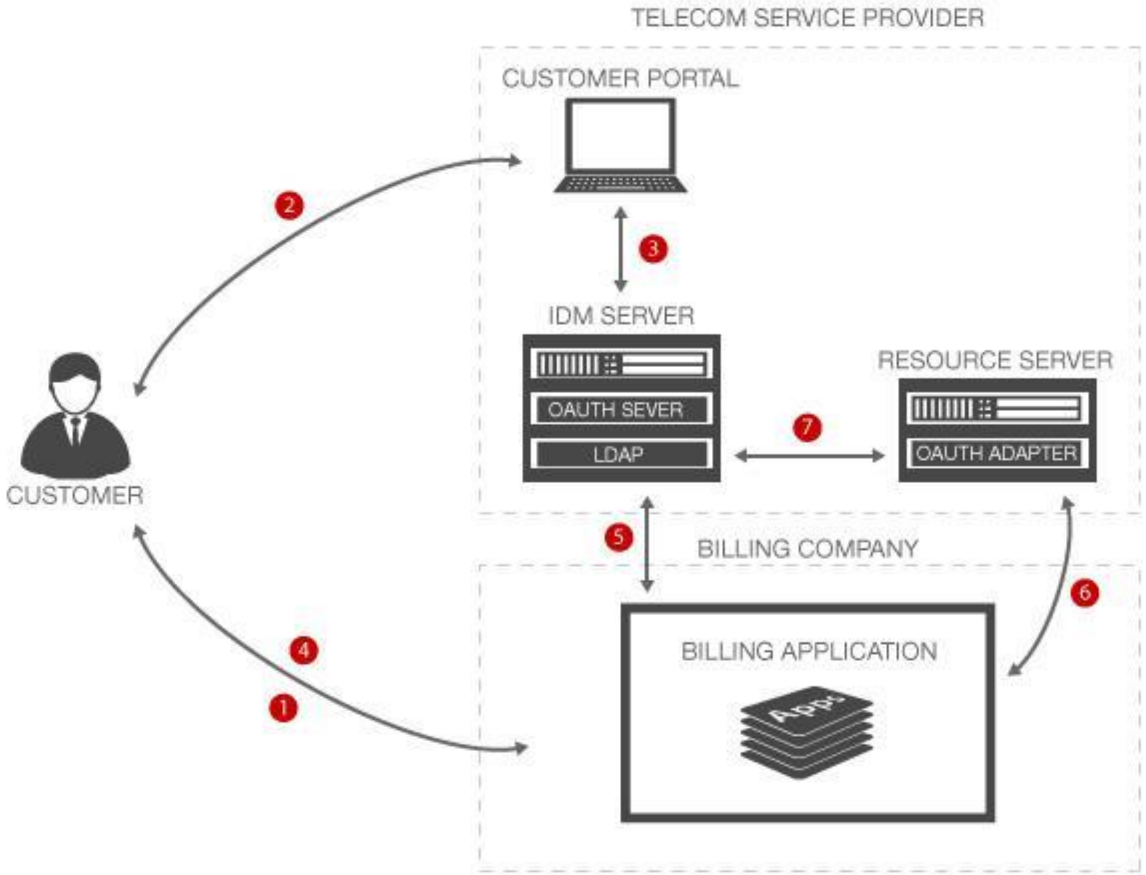
4.1 Use case without a Forum Sentry OAuth Server

An enterprise's identity management system is a critical component of its IT infrastructure. It is the primary service that is responsible for authenticating and authorizing an enterprise's users and applications as it contains a rich repository of users' identities and their profile data. For example, identity management for user-to-application interaction is a well-known domain that has been successfully addressed in the industry through standards such as LDAP. An LDAP enabled identity management system (IdM) is tightly-coupled with its enterprise applications. As enterprises continue to evolve, there is a constant demand to integrate with not only applications within its domain but applications outside its domain. The applications outside its domain are often referred to as partner applications or third party applications.

An enterprise company may outsource some of its business services that are not core to its corporate strategy. For example, a telecom service provider may outsource customer billing to a third party. When a telecom customer needs to obtain his/her telecom bill, the request will be serviced by the third party billing company's application (billing application). In order to fulfill this request, the partner application (billing application) is granted access to customer's call records, that is stored in a resource server controlled by the telecom service provider.

Access control mechanisms must be put in place to enable the telecom service provider to grant the billing application access to its call record in order to complete the billing process. The OAuth standard provides such mechanism for the customer to delegate access to the billing application and for the telecom service provider to leverage its existing IdM to validate the partner application's access request before giving access to customer's call record data. The IdM is OAuth enabled, and is often referred to as the OAuth server.

Figure 4 illustrates the deployment architecture for this type of scenario.



1. Customer attempts to connect to the billing application without username/password credentials.
2. Customer is redirected to the Telecom Service Provider's portal and asked to enter his/her username/password credentials.
3. Customer portal validates customer's credentials with the IdM. Upon successful validation, IdM generates OAuth credentials for the customer.
4. Customer is now redirected back to the billing application with OAuth credentials.
5. Billing application obtains an OAuth token on behalf of the customer.
6. Billing application uses OAuth token to retrieve customer records from the resource server.
7. The resource server validates the OAuth token with IdM server and then sends the customer records back to the billing application.

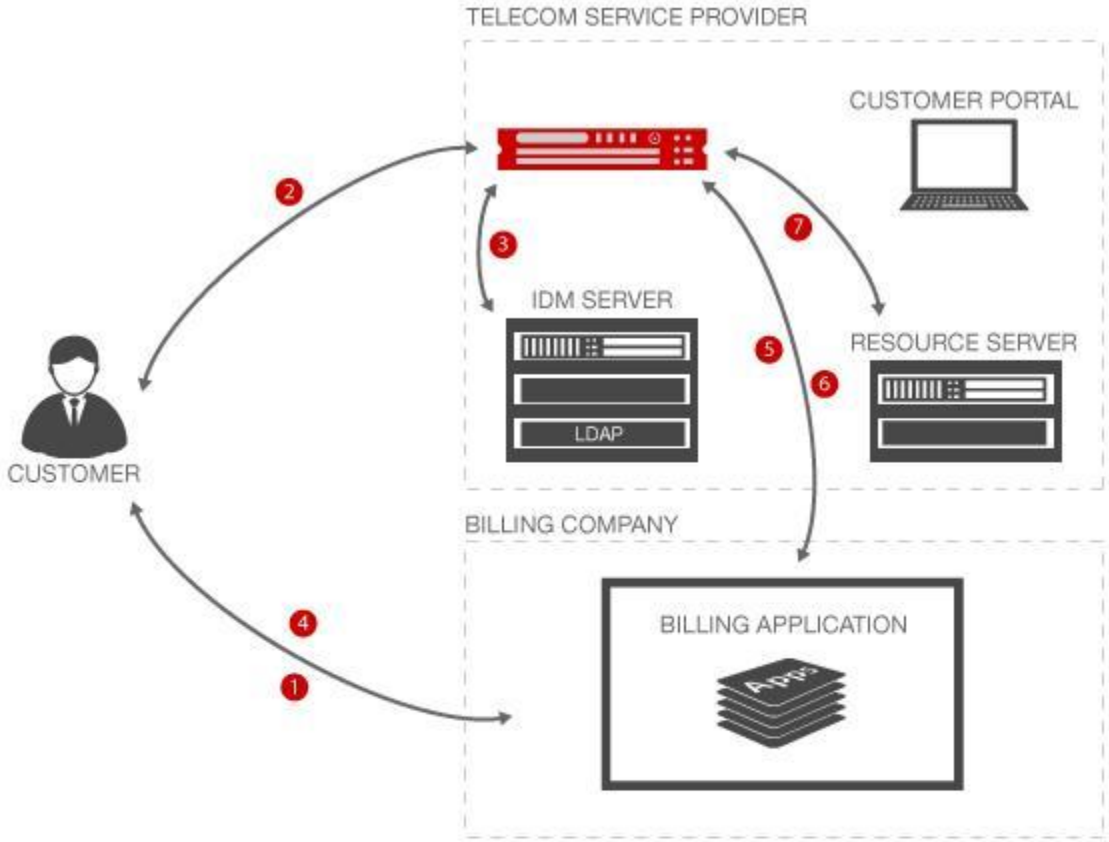
Figure 4: Enterprise OAuth enabled IdM Server generating, validating and consuming OAuth tokens

Although, an OAuth server enhances an enterprise's access control capabilities by authenticating and authorizing third party applications access to its resources, there are several challenges that arise:

- Existing enterprise IdM needs to be modified to be OAuth enabled or it needs to be replaced by a new OAuth enabled IdM.
- The resource server needs to be modified to be OAuth enabled. It needs to OAuth integration with the enterprise IdM.
- Managing and troubleshooting enterprise LDAP policies is a complex task. Adding OAuth management policies that need to be tightly-coupled with LDAP policies within an IdM further complicates the task.
- Over time, scalability becomes an issue as new resource servers are deployed. They must be integrated and tested for OAuth, which requires time and resources.
- Performance becomes an issue when SSL traffic is sent to an IdM containing OAuth requests.

4.2 Use case with a Forum Sentry OAuth Server

Figure 5 illustrates an architecture deployment with a dedicated API Gateway that performs the tasks of an OAuth server.



1. Customer attempts to connect to the billing application without username/password credentials.
2. Customer is redirected to the Telecom Service Provider's API Gateway (OAuth Server) and asked to enter his/her username/password credentials.
3. API Gateway validates customer's credentials with the IdM. Upon successful validation, IdM generates OAuth credentials for the customer.
4. Customer is now redirected back to the billing application with OAuth credentials.
5. Billing application obtains an OAuth token on behalf of the customer.
6. Billing application sends a request via the API Gateway, with customer's OAuth token, to retrieve customer records from the resource server.
7. After successful gateway validation of OAuth token, API Gateway passes customer record retrieval to the resource server.

Figure 5: Forum API Gateway as an OAuth Server generating, validating and consuming OAuth tokens

When an API gateway is added to the architecture deployment as an OAuth server, it addresses many of the challenges we discussed in the previous scenario:

- No modifications are required to the enterprise IdM.
- No modifications are required to the resource server.
- Diagnosing an access control issue becomes easier since OAuth policies are now loosely coupled with IdM LDAP policies.
- A dedicated API Gateway deployed as an OAuth server is a single point of enforcement that provides enterprise applications and users access control to their profile data.
- Scalability is no longer an issue as new resource servers can be deployed without any integration to an enterprise IdM.
- Centralized monitoring and enforcement is easier with an API Gateway. It provides full visibility to which application is accessing what service.
- Performance is no longer an issue since the API gateway accelerates SSL traffic that communicates with cloud providers.

Using an API gateway as part of your OAuth architecture becomes a minimally invasive IT operation. If your company is enabling more and more third party applications, an API gateway should be a key fabric of your enterprise's identity management strategy.

4.3 Configuring Forum Sentry as an OAuth Server with Grant Type: Auth Code

We will walk you step by step on how to configure Forum Sentry to achieve the scenario described in Figure 5. Forum Sentry supports OAuth Version 2.0 as an OAuth server.

Note: we recommend that you configure OAuth server policies on a brand new instance of Forum Sentry. Avoid configuring policies on the same Forum Sentry instance that was configured in Section 3.3.2.

4.3.1 Configuring Forum Sentry Policies as an OAuth Server

We will be using Figure 6 as a frame of reference when configuring Forum Sentry.

We will need the following entities to accomplish our task of configuring the use case described in Figure 6.

- Forum API Gateway (OAuth Server) - Identified by a DNS name forumoauthserver.com
- User - A standard web browser
- Accessible back-end website - www.forumsys.com
- Accessible LDAP server: ldap.forumsys.com
- A second Forum API Gateway (OAuth Client) - Identified by a DNS name forum-oauth.com

Forum Sentry is an OAuth Server that will be configured to be an authentication and authorization service. For this configuration exercise, we will name the Forum Sentry OAuth server as forumoauthserver.com. You are free to select any name you like for the service. The only requirement is that the name of the OAuth server has a valid DNS mapping in your infrastructure. This Forum Sentry OAuth Server will treat the IdM (LDAP) and the resource server as one component. If you note in Figure 5, they are treated as two different components of the infrastructure. In our configuration example, they are treated as one. This is done for simplicity.

Figure 6 shows the various paths of access to forumoauthserver.com that need to be configured in order for the Forum OAuth server to provide an LDAP enabled OAuth service.

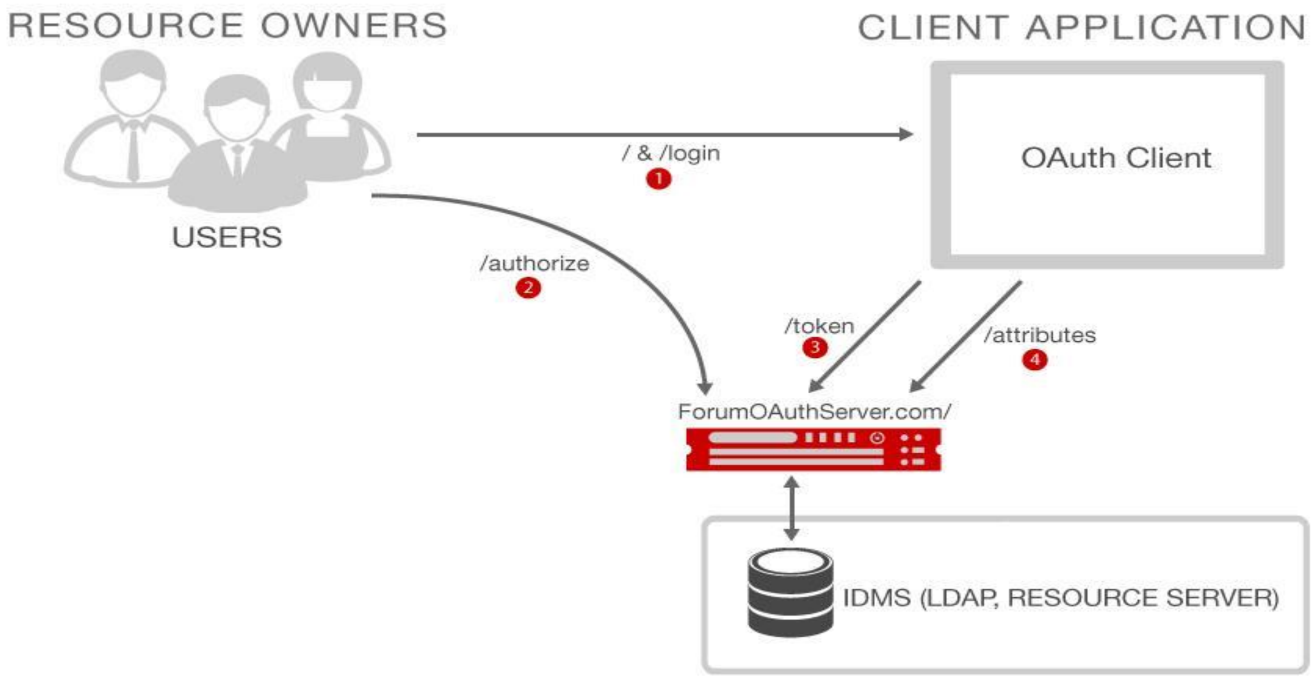


Figure 6: An OAuth Server through its OAuth policy can expose three main services via access paths defined by label 2 , label 3 and label 4. Path http://forumoauthserver.com/authorize, identified by label 2, gives a requestor access to an OAuth code. Path http://forumoauthserver.com/token, identified by label 3, gives a requestor access to an OAuth token. Path http://forumoauthserver.com/attributes, identified by label 4, gives a requestor access to user attributes or user profile data.

Based on Figure 6, we will be creating the following policies to accomplish our task.

- Listener Policy - This policy defines the IP address and TCP port that the Forum OAuth Server listens on for connections. For example in figure 6, this listener could be listening on ip address identified with forumoauthserver.com.

- OAuth Policy - This is the master policy that defines authentication, authorization and resource services offered to users (resource owners) and client applications. For example, based on figure 6, the OAuth policy will enable three paths for access. http://forumoauthserver.com/authorize, http://forumoauthserver.com/token, and http://forumoauthserver.com/attributes. The configuration and usage of each of these paths is further explained in section 4.3.2 Step 7.

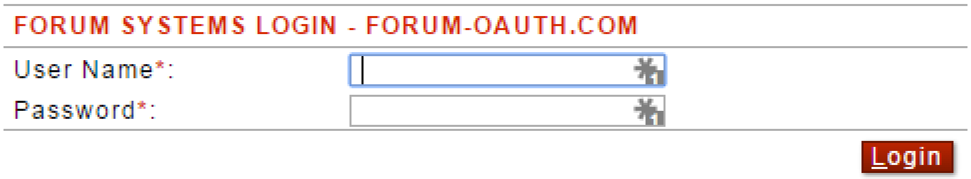
- ACL Policy - This policy consumes the LDAP policy

- LDAP Policy - This is the policy that ties Forum OAuth Server to an LDAP Server.

We will be using ldap.forumsys.com which is an LDAP test server hosted in the Amazon cloud by Forum Systems. It is publicly available so users can easily test their authentication use cases against an LDAP server without going through the arduous task of installing and configuring an LDAP server. More information on this LDAP server can be found via this link:
http://www.forumsys.com/tutorials/integration-how-to/ldap/api-identity-management-ldap-server/

The identities configured on this server can be found via this link:
http://www.forumsys.com/tutorials/integration-how-to/ldap/online-ldap-test-server/

Step 1: Enter https://forumoauthserver.com:5050 into your browser. The login page will appear. Enter your username and password and click “Login”.



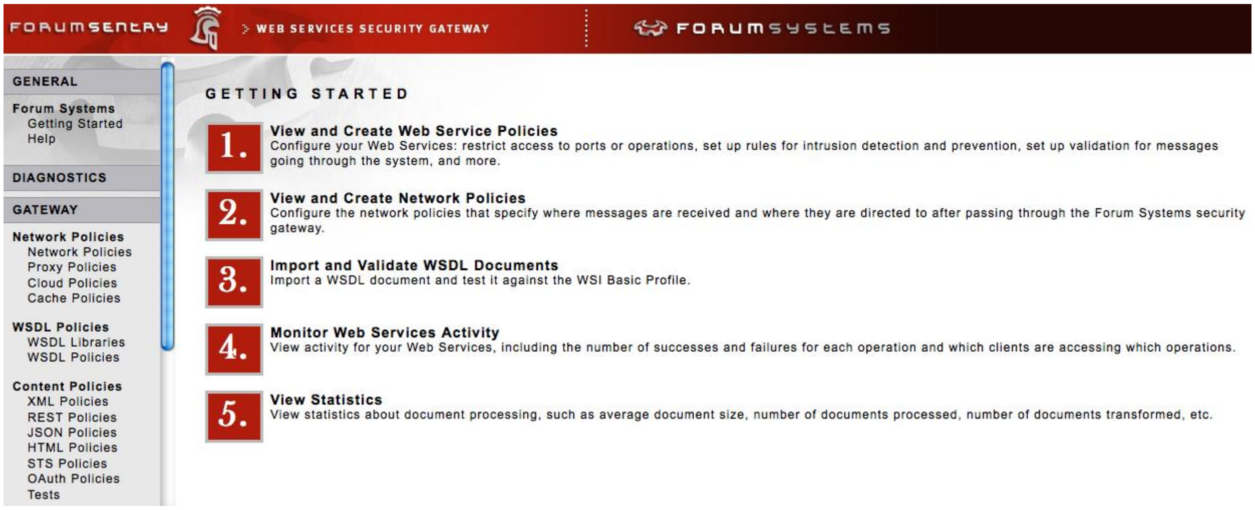
FORUM SYSTEMS LOGIN - FORUM-OAUTH.COM

User Name*:

Password*:

Step 2: After successful login, the general admin page will appear. Click on “Gateway”

Step 3: The Gateway menu expands. Click on “Network Policies”



GETTING STARTED

1. View and Create Web Service Policies
Configure your Web Services: restrict access to ports or operations, set up rules for intrusion detection and prevention, set up validation for messages going through the system, and more.

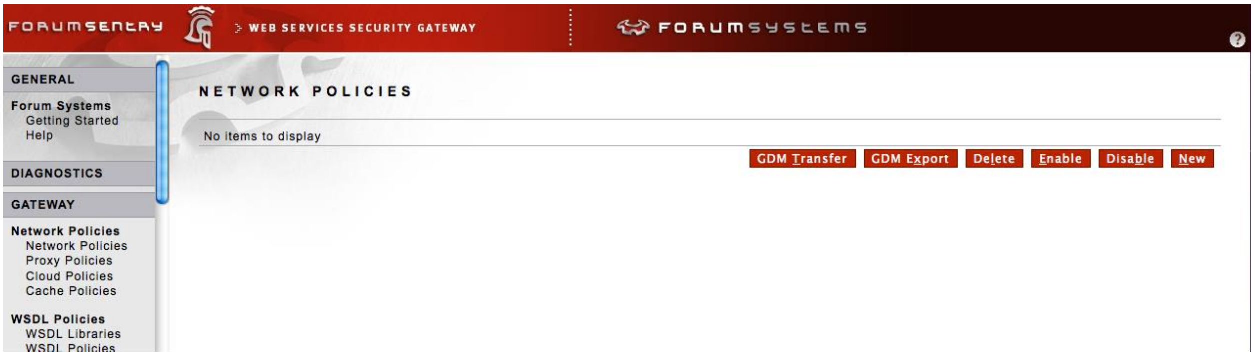
2. View and Create Network Policies
Configure the network policies that specify where messages are received and where they are directed to after passing through the Forum Systems security gateway.

3. Import and Validate WSDL Documents
Import a WSDL document and test it against the WSI Basic Profile.

4. Monitor Web Services Activity
View activity for your Web Services, including the number of successes and failures for each operation and which clients are accessing which operations.

5. View Statistics
View statistics about document processing, such as average document size, number of documents processed, number of documents transformed, etc.

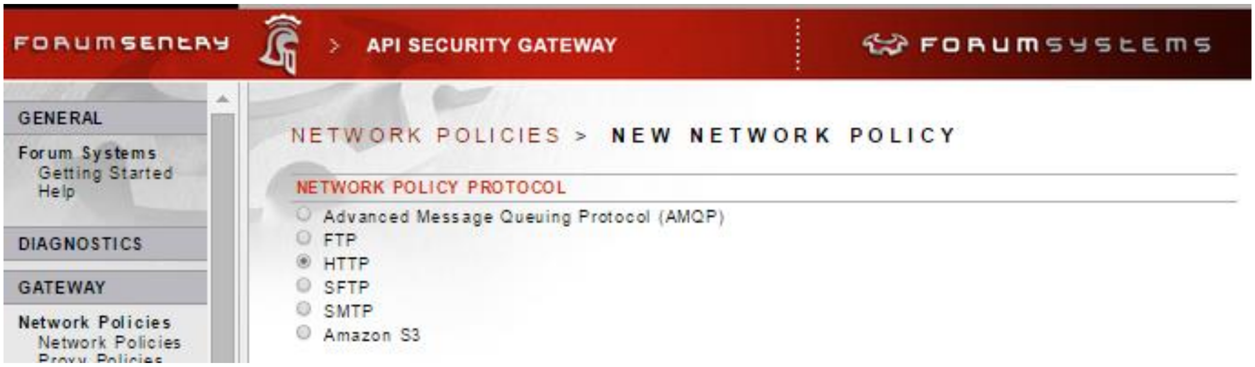
Step 4: Follow the steps shown in the following screen shots to create a local listener policy. This is the Sentry network service that will accept connections over an application protocol such as http. The Sentry listener will be bound to the IP of the machine that Sentry is running on. Start by clicking on the “New” button.



NETWORK POLICIES

No items to display

Select HTTP as the application protocol for the incoming connection. Click Next.

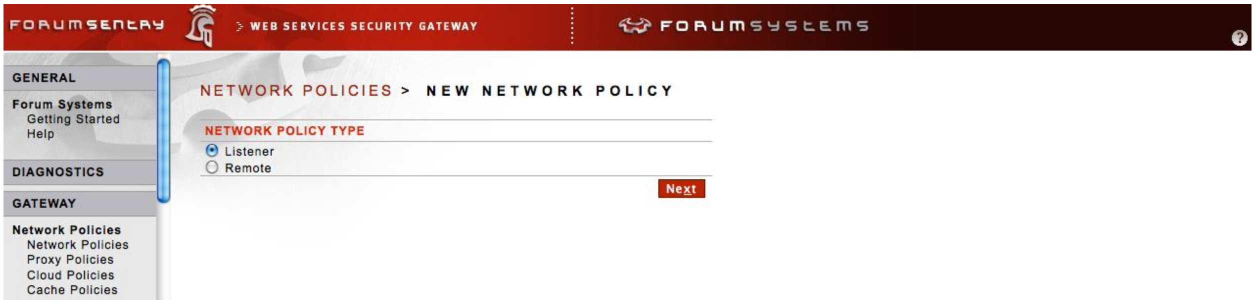


NETWORK POLICIES > NEW NETWORK POLICY

NETWORK POLICY PROTOCOL

○ Advanced Message Queuing Protocol (AMQP)
○ FTP
● HTTP
○ SFTP
○ SMTP
○ Amazon S3

Select Listener as the option since Sentry will be receiving connections from users. Click Next.

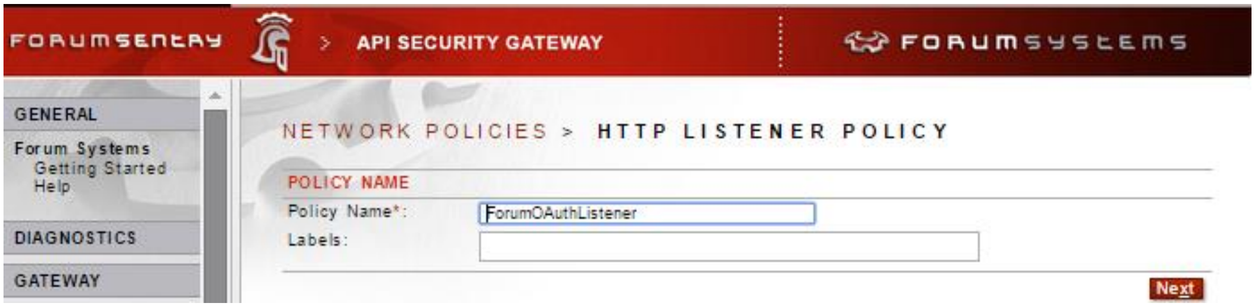


NETWORK POLICIES > NEW NETWORK POLICY

NETWORK POLICY TYPE

● Listener
○ Remote

Enter ForumOAuthListener then click Next



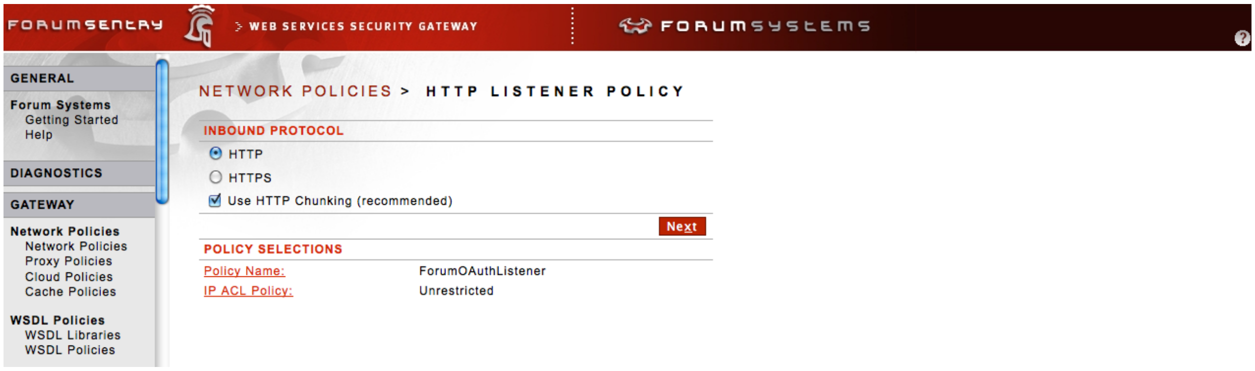
NETWORK POLICIES > HTTP LISTENER POLICY

POLICY NAME

Policy Name*: ForumOAuthListener

Labels:

Select HTTP and HTTP Chunking as options and click Next.



NETWORK POLICIES > HTTP LISTENER POLICY

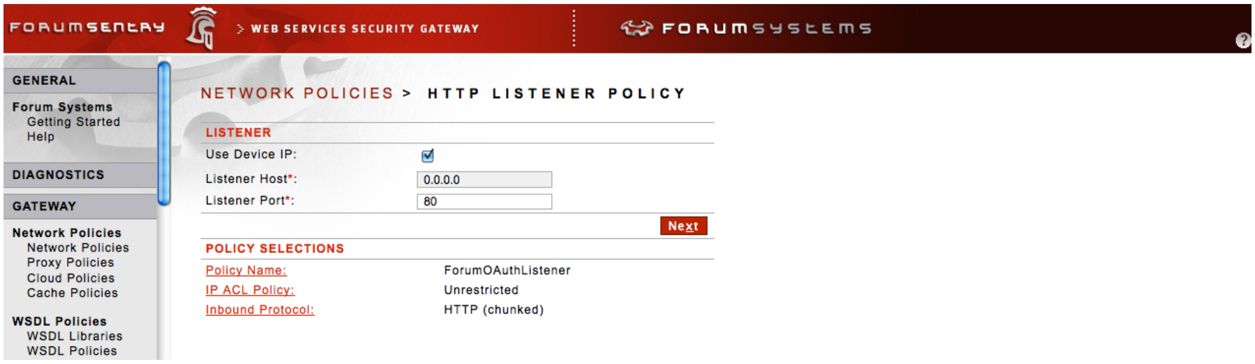
INBOUND PROTOCOL

● HTTP
○ HTTPS
☑ Use HTTP Chunking (recommended)

POLICY SELECTIONS

Policy Name:	ForumOAuthListener
IP ACL Policy:	Unrestricted

Select Device IP and click Next.



NETWORK POLICIES > HTTP LISTENER POLICY

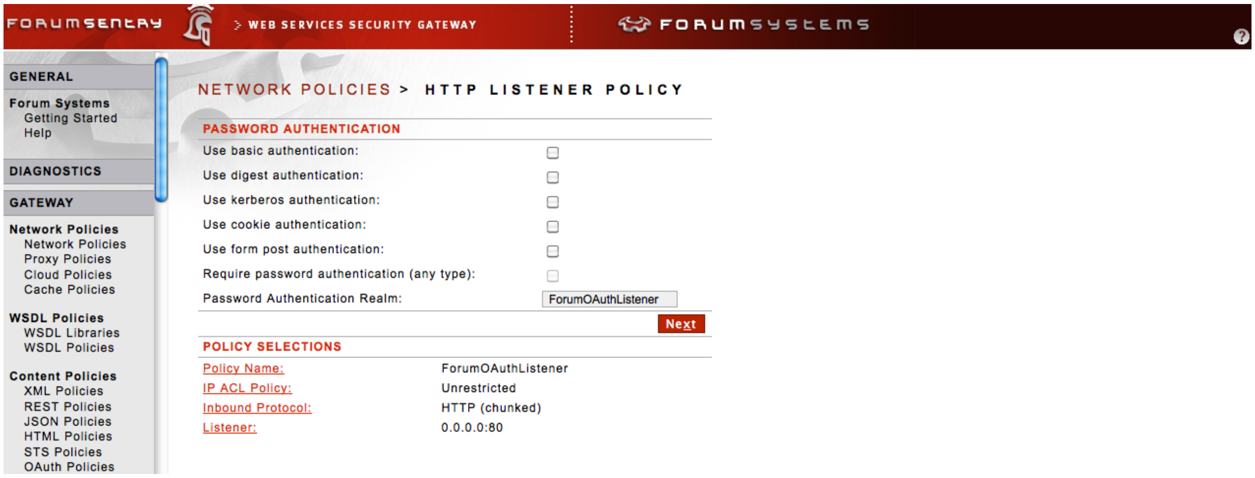
LISTENER

Use Device IP:	☑
Listener Host*:	0.0.0.0
Listener Port*:	80

POLICY SELECTIONS

Policy Name:	ForumOAuthListener
IP ACL Policy:	Unrestricted
Inbound Protocol:	HTTP (chunked)

No selection here. Click Next.



NETWORK POLICIES > HTTP LISTENER POLICY

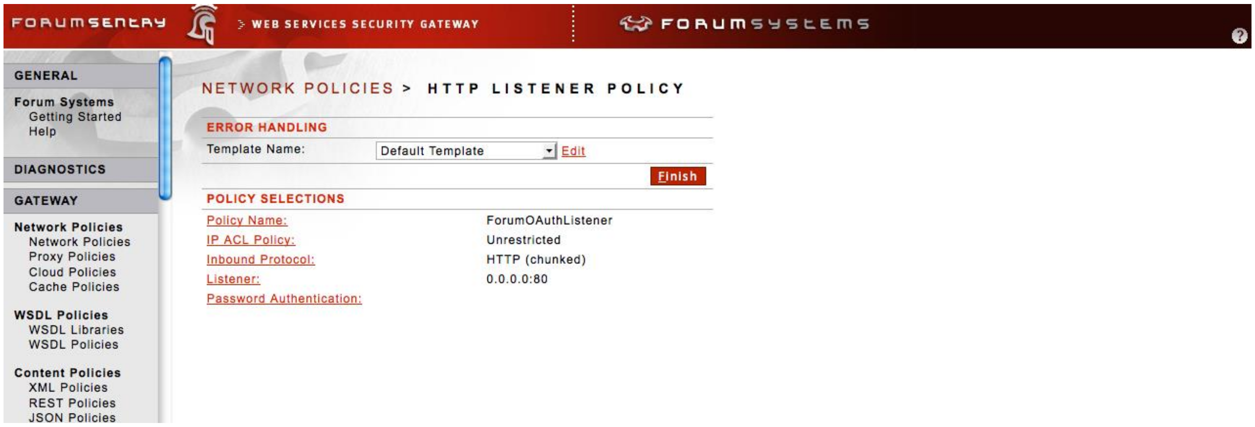
PASSWORD AUTHENTICATION

Use basic authentication:	□
Use digest authentication:	□
Use kerberos authentication:	□
Use cookie authentication:	□
Use form post authentication:	□
Require password authentication (any type):	□
Password Authentication Realm:	ForumOAuthListener

POLICY SELECTIONS

Policy Name:	ForumOAuthListener
IP ACL Policy:	Unrestricted
Inbound Protocol:	HTTP (chunked)
Listener:	0.0.0.0:80

Click on Finish.



NETWORK POLICIES > HTTP LISTENER POLICY

ERROR HANDLING

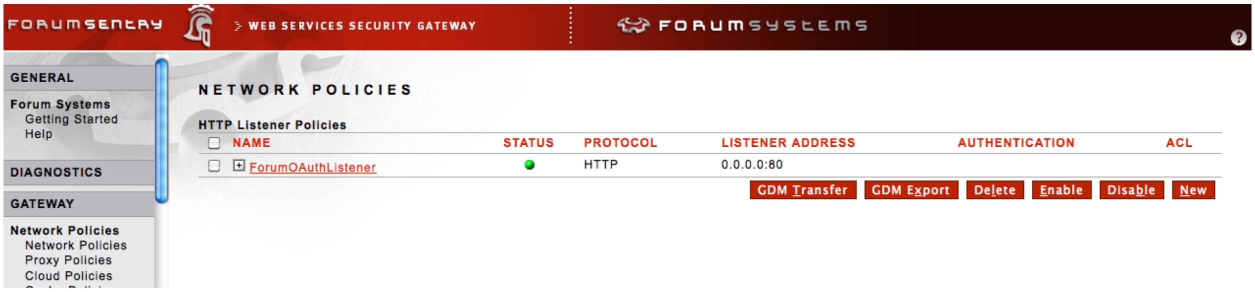
Template Name: Default Template Edit

Finish

POLICY SELECTIONS

Policy Name:	ForumOAuthListener
IP ACL Policy:	Unrestricted
Inbound Protocol:	HTTP (chunked)
Listener:	0.0.0.0:80
Password Authentication:	

You have successfully created a listener on TCP port 80. The green light indicates that it is actively waiting for connections.

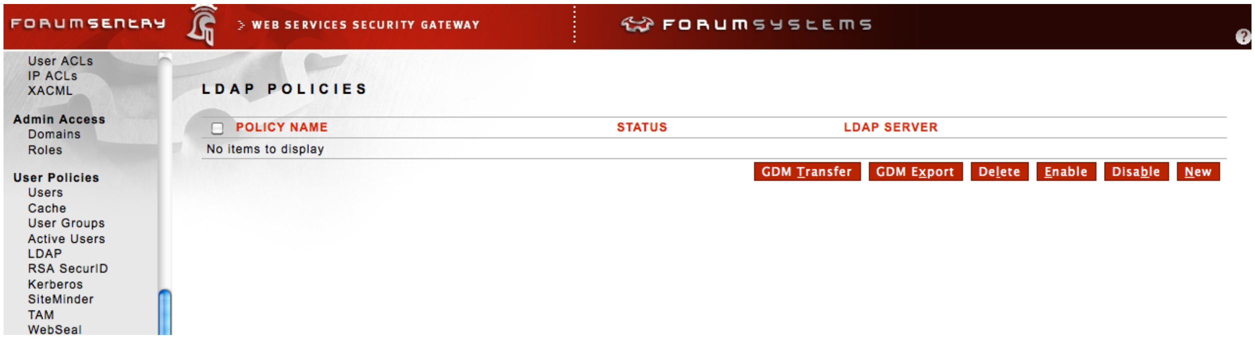


NETWORK POLICIES

HTTP Listener Policies

□ NAME	STATUS	PROTOCOL	LISTENER ADDRESS	AUTHENTICATION	ACL
□ ⊞ ForumOAuthListener	●	HTTP	0.0.0.0:80		

Step 5: Now you are ready to create an LDAP policy. In the left panel under “Access” menu click on LDAP. You will screen below. Click on New.



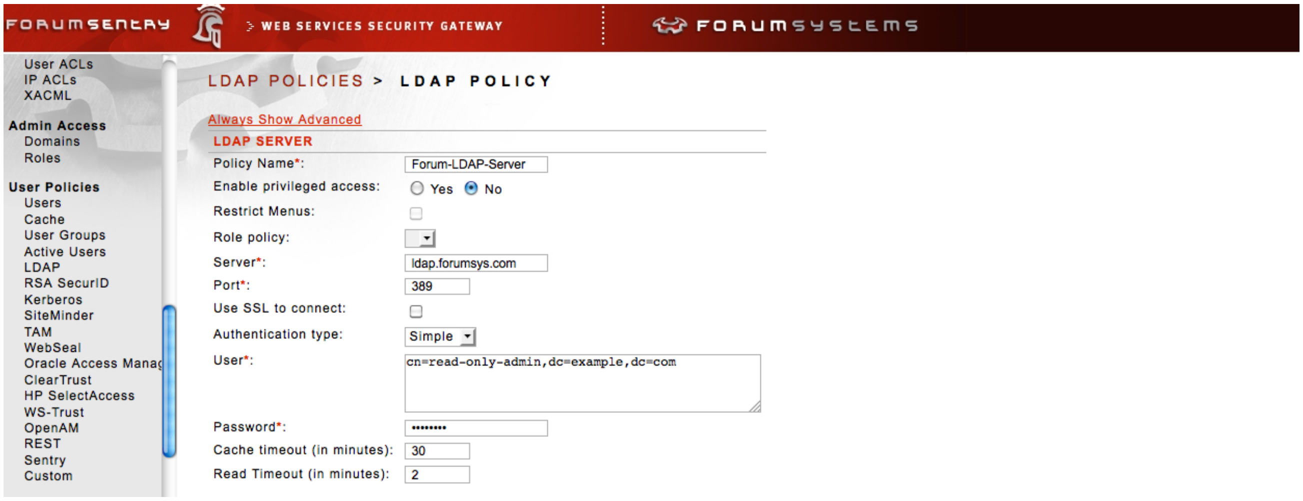
LDAP POLICIES

□ POLICY NAME	STATUS	LDAP SERVER
No items to display		

This is the main LDAP policy screen. Enter the following:

- Policy Name is Forum-LDAP-Server

- Enable Privilege Access is No
- Server is ldap.forumsys.com
- User is cn=read-only-admin, dc=example,dc=com
- Password is password



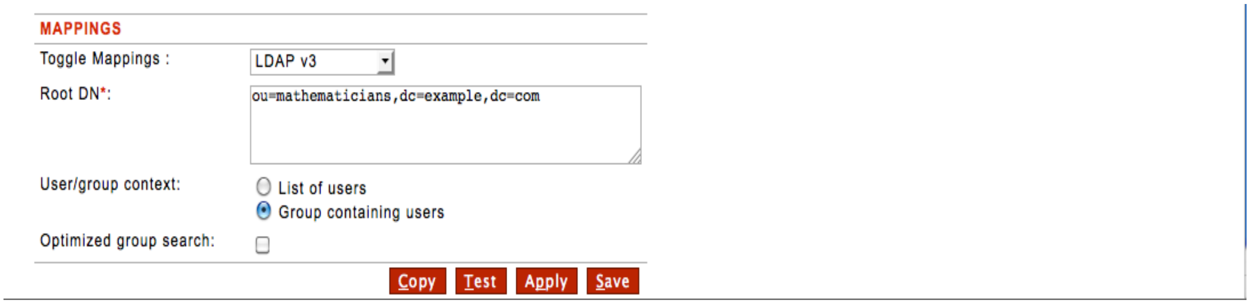
LDAP POLICIES > LDAP POLICY

LDAP SERVER

Policy Name*:	Forum-LDAP-Server
Enable privileged access:	○ Yes ● No
Restrict Menus:	□
Role policy:	
Server*:	ldap.forumsys.com
Port*:	389
Use SSL to connect:	□
Authentication type:	Simple
User*:	cn=read-only-admin,dc=example,dc=com
Password*:	••••••••
Cache timeout (in minutes):	30
Read Timeout (in minutes):	2

Scroll down further on the same screen. And enter the following:

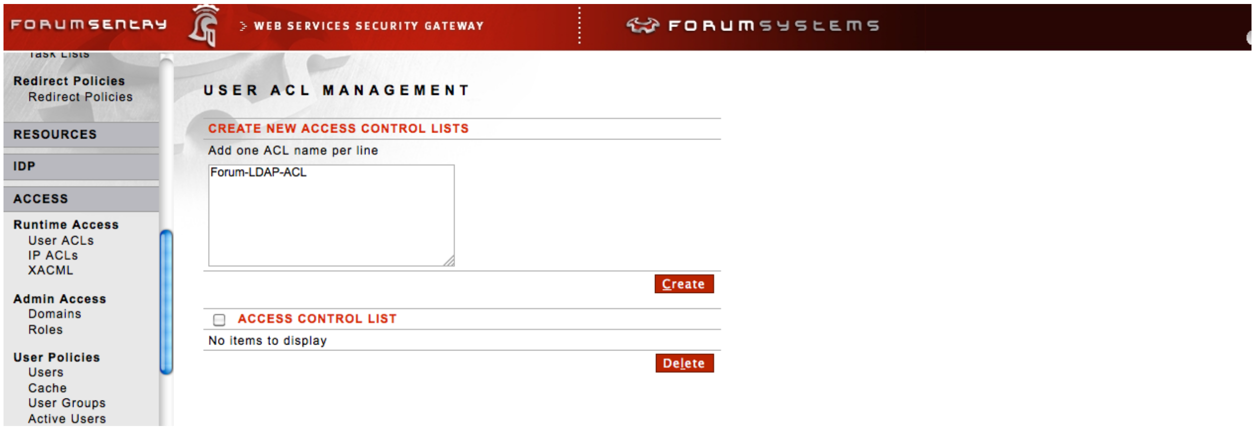
- Root DN as ou=mathematicians,dc=example,dc=com
- User/group context is Group containing users
- Click Apply
- Click Test to see if we can connect to the LDAP successfully. You will see the result at the top of the screen.
- If it is a success then click Save.



MAPPINGS

Toggle Mappings :	LDAP v3
Root DN*:	ou=mathematicians,dc=example,dc=com
User/group context:	○ List of users ● Group containing users
Optimized group search:	□

Step 6: You will create an Access Control List by first clicking on User ACLs under ACCESS menu in the left panel. In the screen below you will enter Forum-LDAP-ACL and click Create.



USER ACL MANAGEMENT

CREATE NEW ACCESS CONTROL LISTS

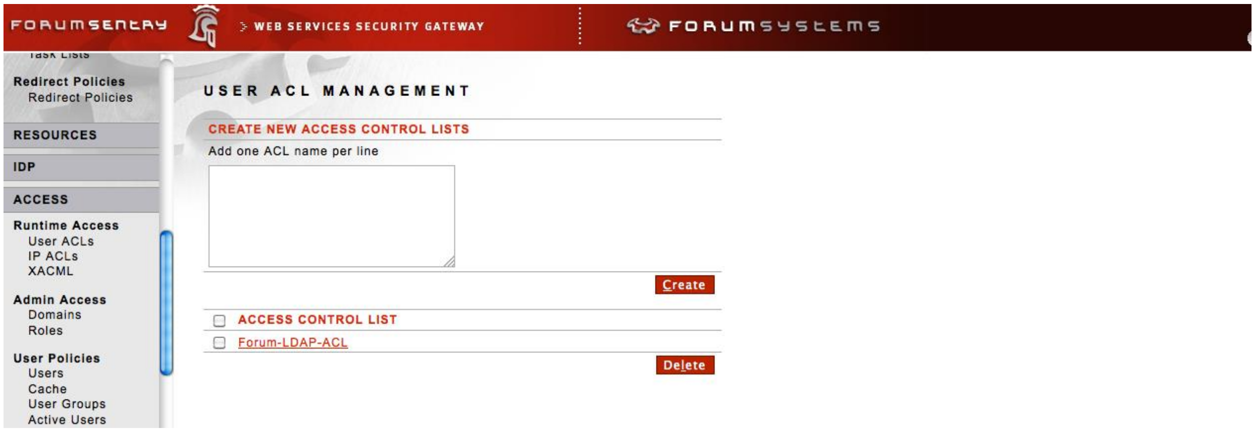
Add one ACL name per line

Forum-LDAP-ACL

□ ACCESS CONTROL LIST

No items to display

The following screen will appear. Now click on Forum-LDAP-ACL.



USER ACL MANAGEMENT

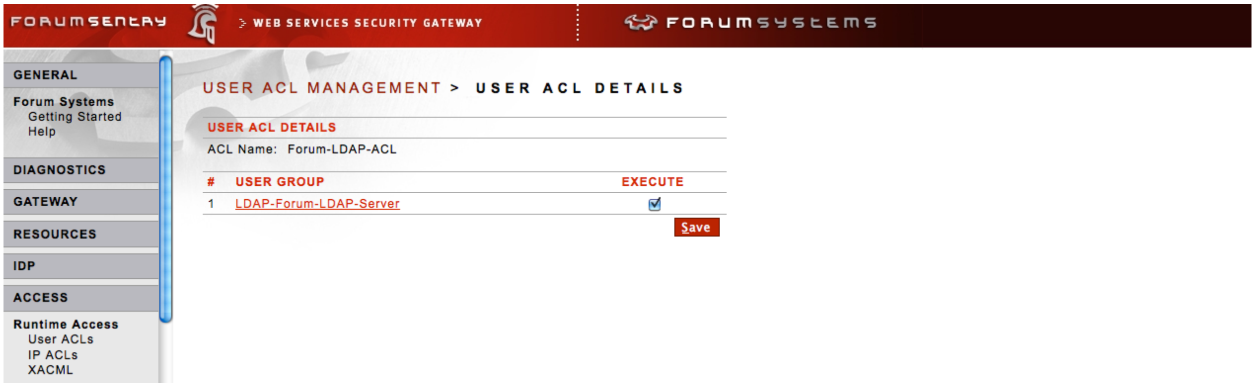
CREATE NEW ACCESS CONTROL LISTS

Add one ACL name per line

□ ACCESS CONTROL LIST

□ Forum-LDAP-ACL

In the following screen, click on EXECUTE checkbox and click SAVE.



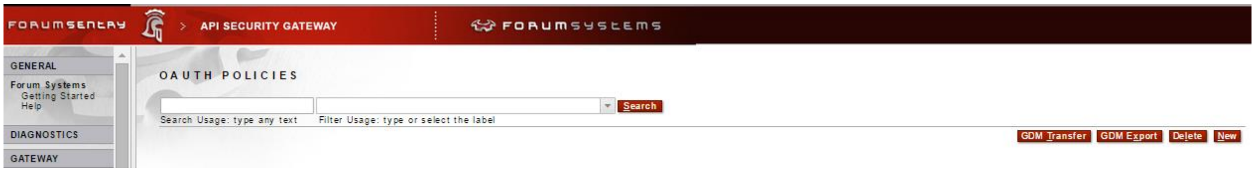
USER ACL MANAGEMENT > USER ACL DETAILS

USER ACL DETAILS

ACL Name: Forum-LDAP-ACL

#	USER GROUP	EXECUTE
1	LDAP-Forum-LDAP-Server	☑

Step 7: In the left panel, under Content Policies click on OAuth Policies. The screen below will appear. Click on New.



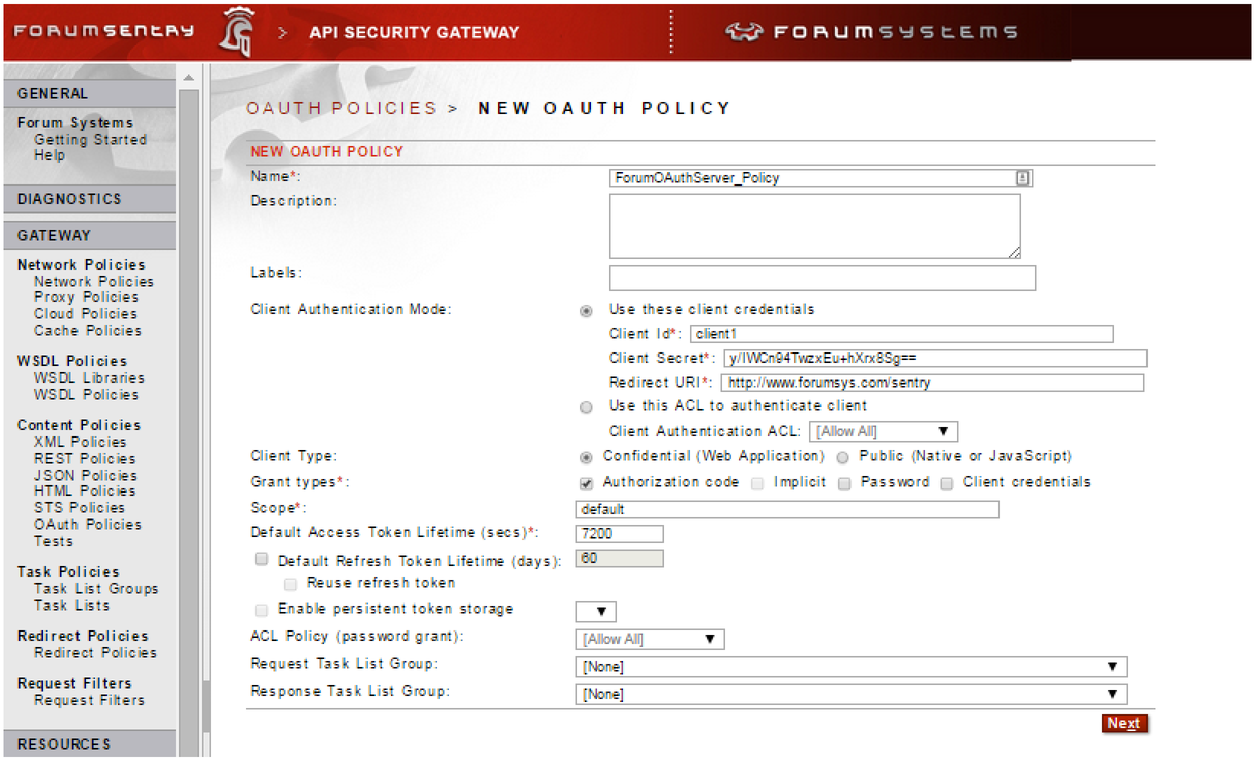
The following screen is where you start entering data for parameters in the OAuth server policy. Before we provide the example data, we want to highlight some key points about the OAuth policy.

- Up to three access paths can be defined in a single OAuth server policy. These paths define various ways an OAuth server can be accessed for different tasks.
  - Listener policy with a default /authorize virtual directory is accessed by remote users or applications to provide credentials to an OAuth server and retrieve an OAuth code. This is the code which is then used by an application to retrieve an Oauth token. Figure 6 best illustrates the usage of this path.
  - Listener policy with a default /token virtual directory is accessed by remote applications to request an OAuth token. Figure 6 best illustrates the usage of this path.
  - Listener policy with a default /attributes virtual directory is accessed by remote applications to request user attributes or profile data. For example, this could be your Facebook profile or Google profile or LinkedIn profile or an enterprise profile. Figure 6 best illustrates the usage of this path.
  - Each access path can either share the same listener policy or each one can have a unique listener policy.

Now we are ready to populate the fields in the following screen.

- Name is ForumOAuthServer_Policy
- Client Type is Confidential (Web Application).
- Client id is client1
- Client Secret is automatically generated.
- Grant Type is Authorization code.
- Redirect URI is forum-oauth.com/login. Once OAuth server authenticates the user, it redirects the user to the original target application location. In our case, it happens to be the OAuth enabled Sentry client as described in Figure 3.

Please note down the client id and client secret. You will need these to enter in the client application or another Forum Sentry that will be communicating as the client OAuth. Click Next.

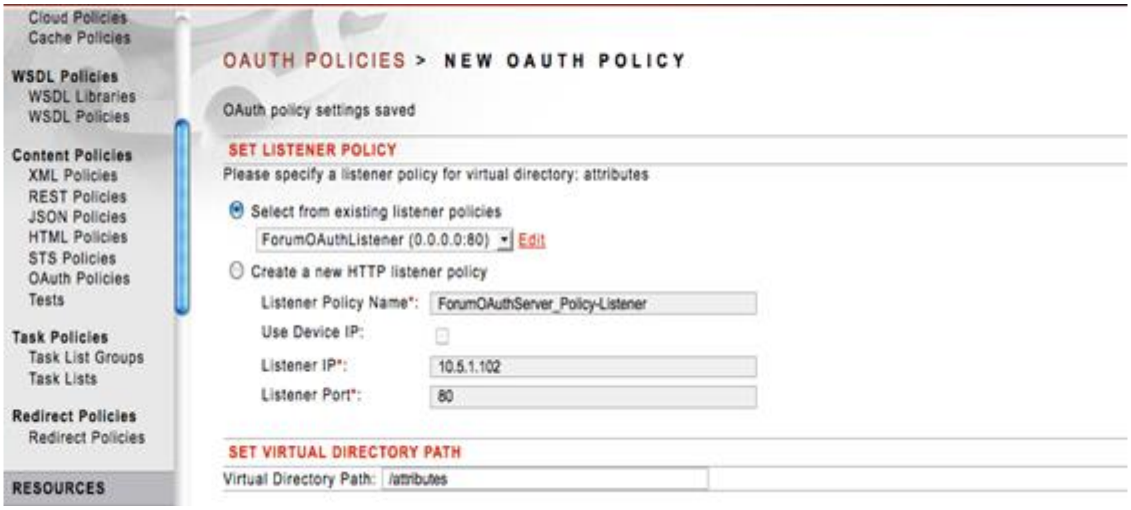


OAUTH POLICIES > NEW OAUTH POLICY

NEW OAUTH POLICY

Name*:	ForumOAuthServer_Policy
Description:	
Labels:	
Client Authentication Mode:	● Use these client credentials
	Client Id*: client1
	Client Secret*: y/IWCn94TwzxEu+hXrx8Sg==
	Redirect URI*: http://www.forumsys.com/sentry
	○ Use this ACL to authenticate client
	Client Authentication ACL: [Allow All] ▼
Client Type:	● Confidential (Web Application) ○ Public (Native or JavaScript)
Grant types*:	☑ Authorization code □ Implicit □ Password □ Client credentials
Scope*:	default
Default Access Token Lifetime (secs)*:	7200
□ Default Refresh Token Lifetime (days):	60
□ Reuse refresh token	
□ Enable persistent token storage	▼
ACL Policy (password grant):	[Allow All] ▼
Request Task List Group:	[None] ▼
Response Task List Group:	[None] ▼

Scroll down further. You bind OAuth server to a listener with virtual directory /attributes. This creates an entry point for remote applications that want to access resources protected by the OAuth server. Click Next.



OAUTH POLICIES > NEW OAUTH POLICY

OAuth policy settings saved

SET LISTENER POLICY

Please specify a listener policy for virtual directory: attributes

● Select from existing listener policies

ForumOAuthListener (0.0.0.0:80) Edit

○ Create a new HTTP listener policy

Listener Policy Name*: ForumOAuthServer_Policy-Listener

Use Device IP: □

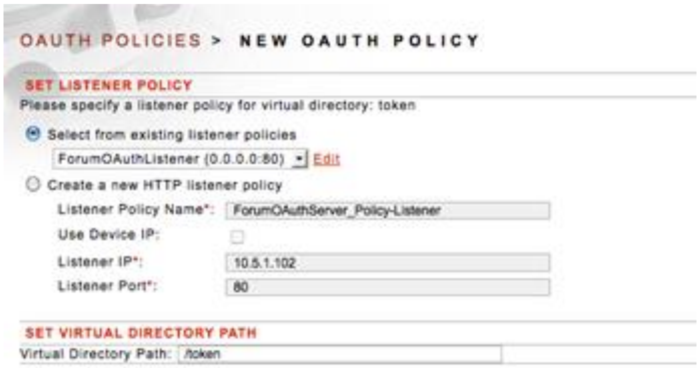
Listener IP*: 10.5.1.102

Listener Port*: 80

SET VIRTUAL DIRECTORY PATH

Virtual Directory Path: /attributes

Scroll down further. You bind OAuth server to a listener with virtual directory /token This creates an entry point for remote applications that want to access OAuth token which is generated by the OAuth server. Click Next.



OAUTH POLICIES > NEW OAUTH POLICY

SET LISTENER POLICY

Please specify a listener policy for virtual directory: token

● Select from existing listener policies

ForumOAuthListener (0.0.0.0:80) Edit

○ Create a new HTTP listener policy

Listener Policy Name*: ForumOAuthServer_Policy-Listener

Use Device IP: □

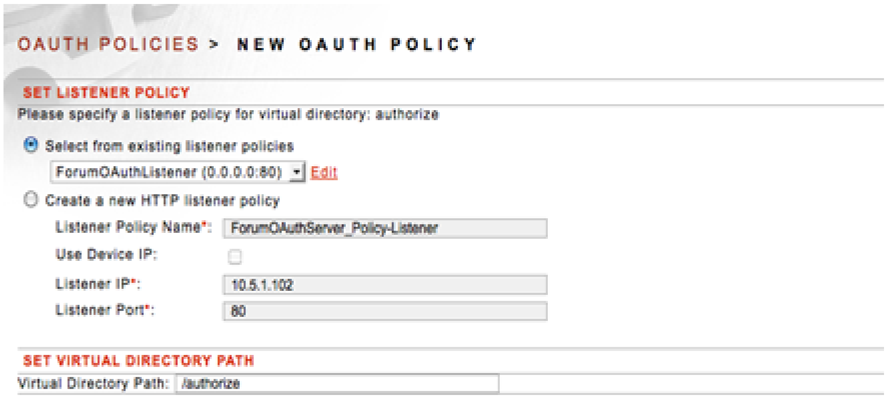
Listener IP*: 10.5.1.102

Listener Port*: 80

SET VIRTUAL DIRECTORY PATH

Virtual Directory Path: /token

Scroll down further. You bind OAuth server to a listener with virtual directory /authorize. This creates an entry point for remote applications or users that request an OAuth code that is generated by the OAuth server. Before OAuth server issues an OAuth code, valid credentials need to be provided. Click Next.


OAUTH POLICIES > NEW OAUTH POLICY

SET LISTENER POLICY

Please specify a listener policy for virtual directory: authorize

● Select from existing listener policies

ForumOAuthListener (0.0.0.0:80) Edit

○ Create a new HTTP listener policy

Listener Policy Name*: ForumOAuthServer_Policy-Listener

Use Device IP: □

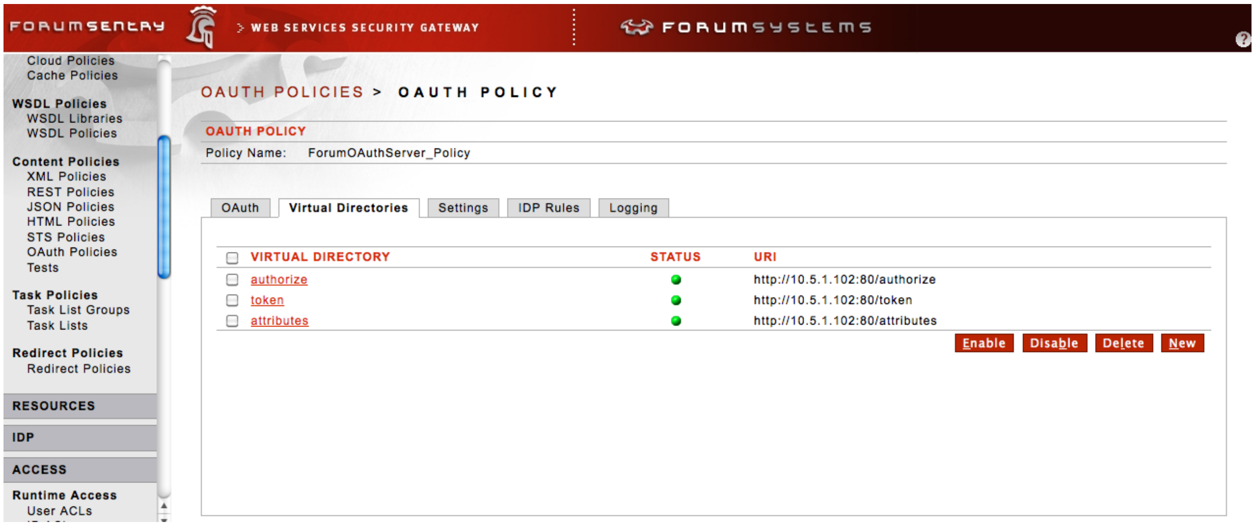
Listener IP*: 10.5.1.102

Listener Port*: 80

SET VIRTUAL DIRECTORY PATH

Virtual Directory Path: /authorize

The following screen appears with the three access paths to OAuth Server activated. The activation indicated by the green lights under status column. Click on “authorize” virtual directory.



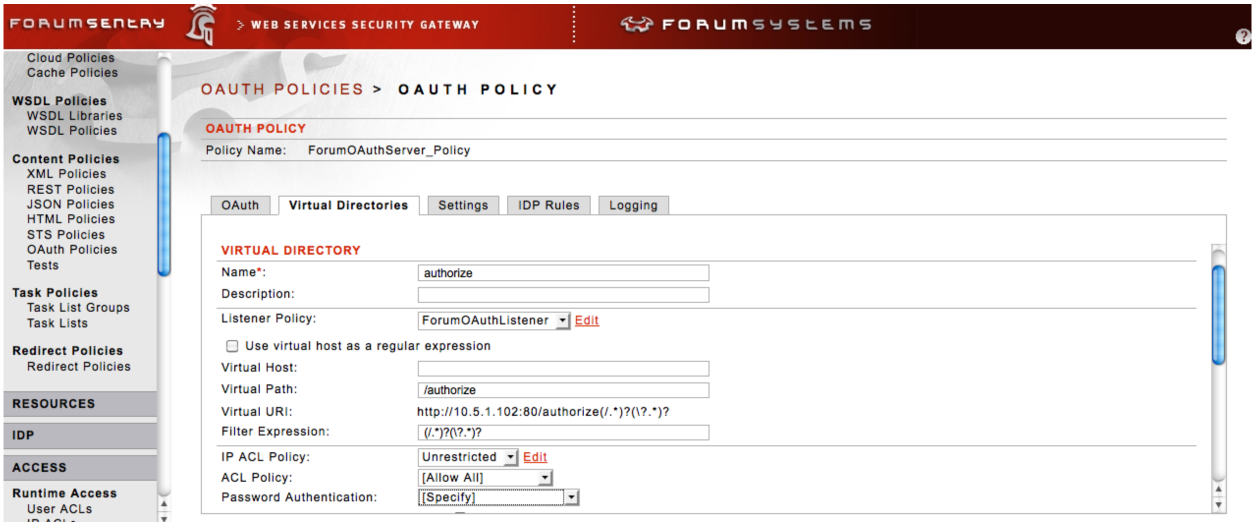
OAUTH POLICIES > OAUTH POLICY

OAUTH POLICY

Policy Name: ForumOAuthServer_Policy

□	VIRTUAL DIRECTORY	STATUS	URI
□	authorize	●	http://10.5.1.102:80/authorize
□	token	●	http://10.5.1.102:80/token
□	attributes	●	http://10.5.1.102:80/attributes

This screen below details the access path which remote parties will call into to request an OAuth server to issue an OAuth authorization code. The OAuth server will have to validate the credentials of the requesting party before issuing the OAuth authorization code. The validation is achieved by tying this access path with an LDAP policy.



OAUTH POLICIES > OAUTH POLICY

OAUTH POLICY

Policy Name: ForumOAuthServer_Policy

VIRTUAL DIRECTORY

Name*: authorize

Description:

Listener Policy: ForumOAuthListener

□ Use virtual host as a regular expression

Virtual Host:

Virtual Path: /authorize

Virtual URI: http://10.5.1.102:80/authorize(/.*)?(\?.*)?

Filter Expression: (/.*)?(\?.*)?

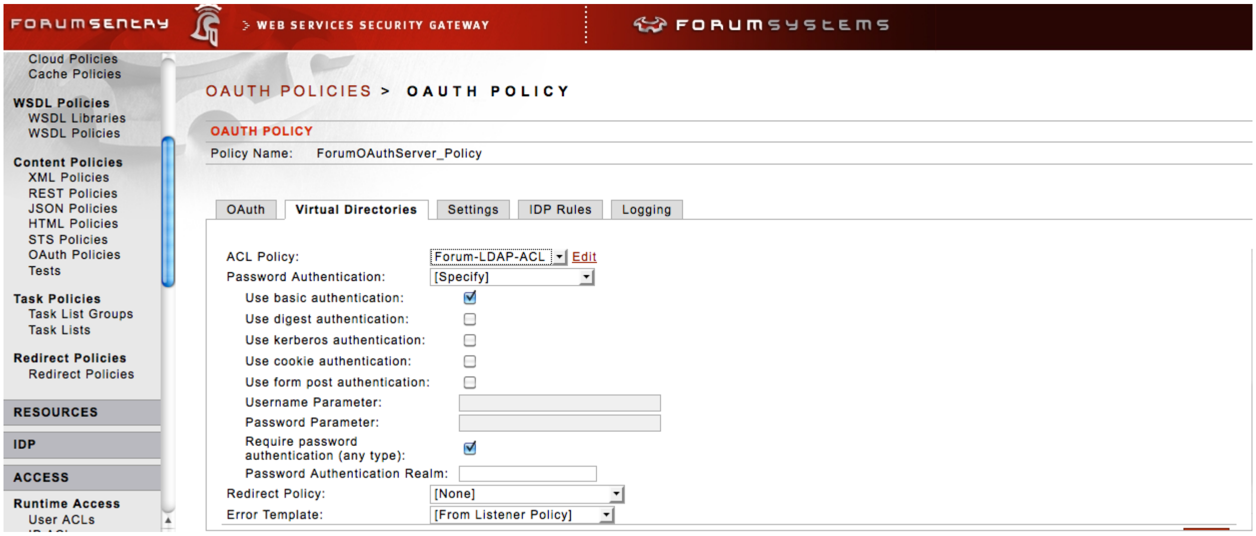
IP ACL Policy: Unrestricted

ACL Policy: [Allow All]

Password Authentication: [Specify]

Scroll down the screen.

- In Password Authentication field select Specify.
- Check Basic Authentication
- Check Request password authentication
- Click Save.



OAUTH POLICIES > OAUTH POLICY

OAUTH POLICY

Policy Name: ForumOAuthServer_Policy

ACL Policy: Forum-LDAP-ACL

Password Authentication: [Specify]

Use basic authentication: ☑

Use digest authentication: □

Use kerberos authentication: □

Use cookie authentication: □

Use form post authentication: □

Username Parameter:

Password Parameter:

Require password authentication (any type): ☑

Password Authentication Realm:

Redirect Policy: [None]

Error Template: [From Listener Policy]

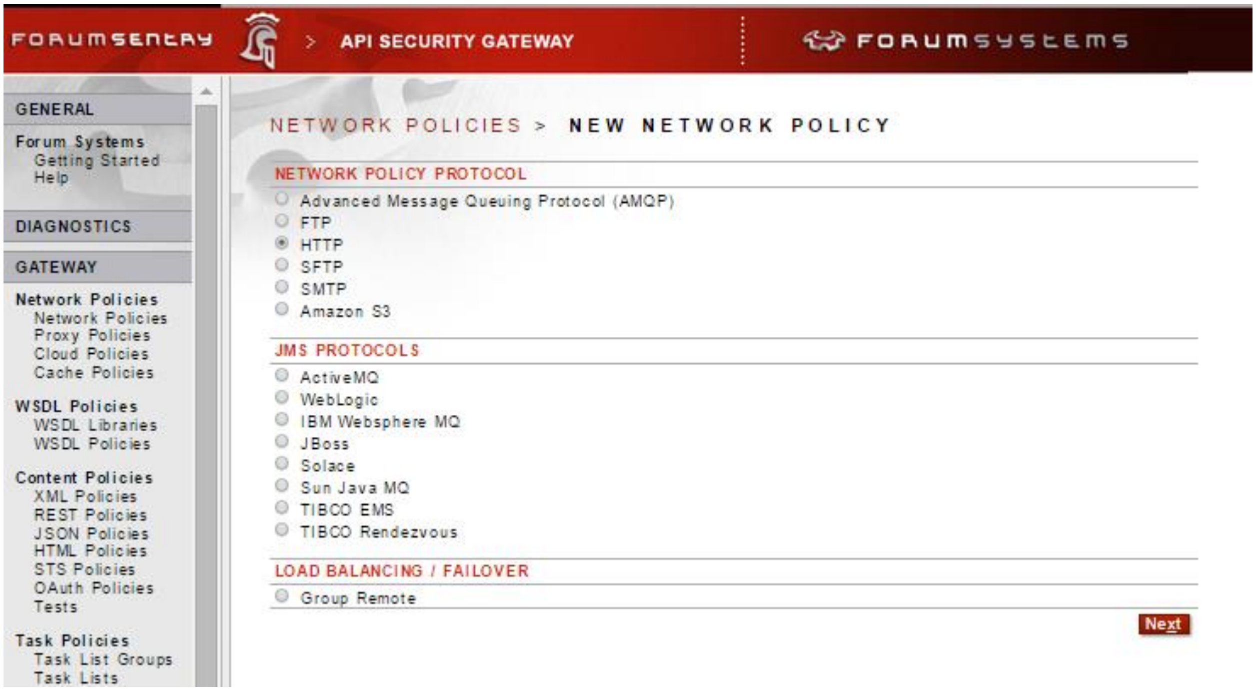
4.3.2 Configuring Forum Sentry Policies as an OAuth client

To test the configuration in Section 4.3.1, you will need to configure an OAuth client. Please skip this whole section if you have your own custom OAuth client and are not using Forum Sentry API gateway as an OAuth client described in figure 3. If you want to use a Forum Sentry API Gateway as an OAuth client then you need to follow the configuration steps described in Section 3.3.2 first and then follow the steps in this section. The steps described in this section are an add-on to the policies configured in section 3.3.2.

We strongly recommend that you should avoid configuring any of the OAuth client policies on Forum Sentry instance that acts as an OAuth server. The two Forum Sentry instances should be separated.

Step 1: The first step is to create a remote HTTP service policy. This remote HTTP service represents the Forum OAuth server. The Forum OAuth client through this service will know how to reach the Forum OAuth server.

- Click on Network Policies in the left panel.
- Select HTTP.
- Click Next.



NETWORK POLICIES > NEW NETWORK POLICY

NETWORK POLICY PROTOCOL

○ Advanced Message Queuing Protocol (AMQP)
○ FTP
● HTTP
○ SFTP
○ SMTP
○ Amazon S3

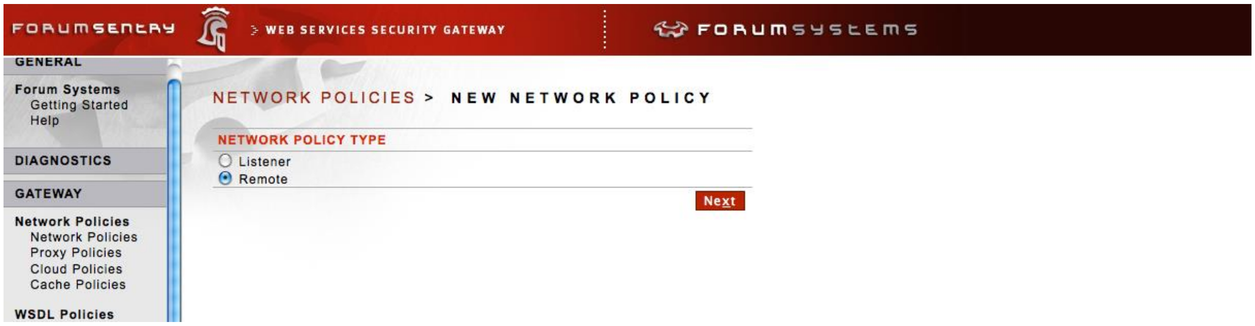
JMS PROTOCOLS

○ ActiveMQ
○ WebLogic
○ IBM Websphere MQ
○ JBoss
○ Solace
○ Sun Java MQ
○ TIBCO EMS
○ TIBCO Rendezvous

LOAD BALANCING / FAILOVER

○ Group Remote

Select Remote. Click Next.



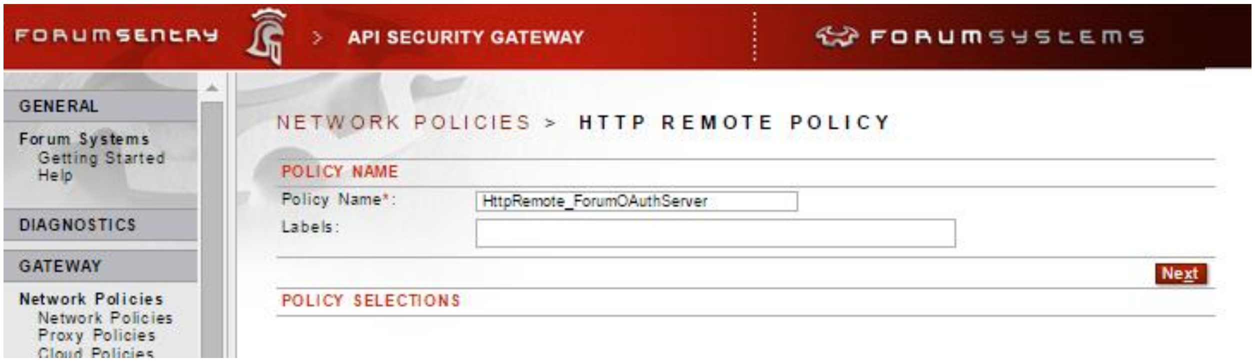
NETWORK POLICIES > NEW NETWORK POLICY

NETWORK POLICY TYPE

○ Listener

● Remote

Enter the name of the Policy. We chose HttpRemote_ForumOAuthServer. Click Next.



NETWORK POLICIES > HTTP REMOTE POLICY

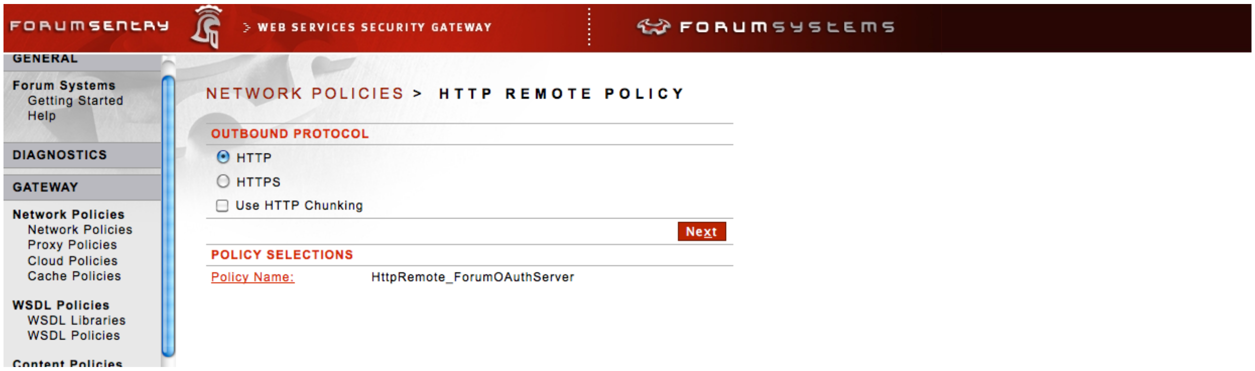
POLICY NAME

Policy Name*: HttpRemote_ForumOAuthServer

Labels:

POLICY SELECTIONS

Select HTTP. Click Next.



NETWORK POLICIES > HTTP REMOTE POLICY

OUTBOUND PROTOCOL

● HTTP

○ HTTPS

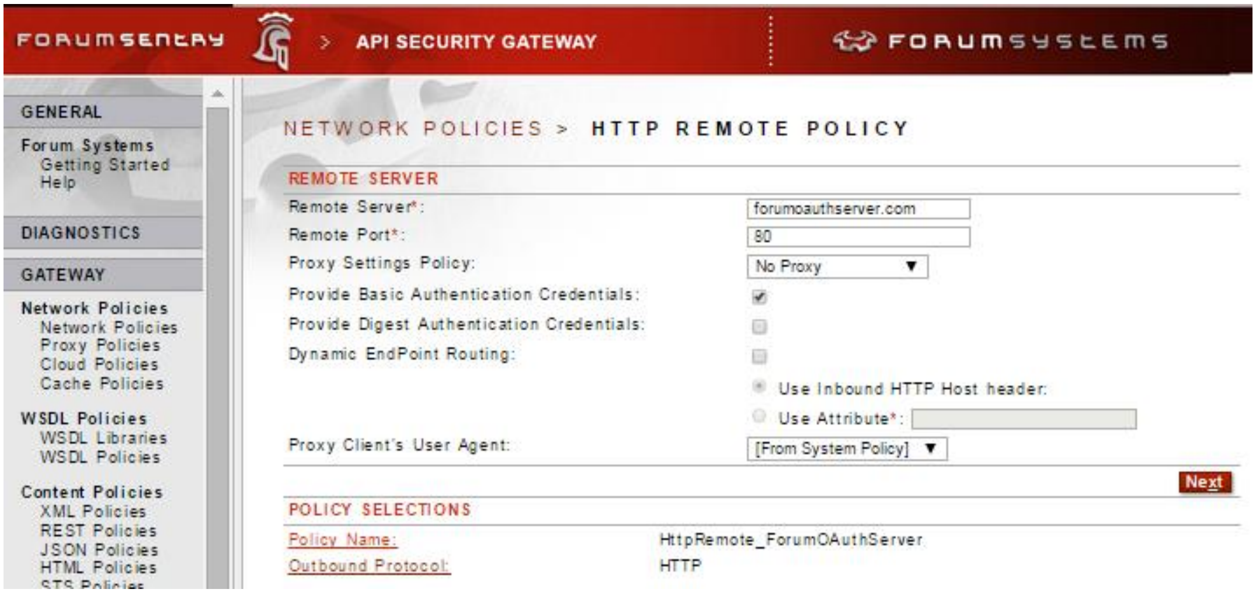
□ Use HTTP Chunking

POLICY SELECTIONS

Policy Name: HttpRemote_ForumOAuthServer

The location of the remote server

- Remote Server is forumoauthserver.com. This is the DNS name of the service.
- TCP port 80. It is the default selection.
- Basic Authentication Credentials should be checked. It should be note that the Forum OAuth Server does require authentication credentials before allowing access.
- Click Next.



NETWORK POLICIES > HTTP REMOTE POLICY

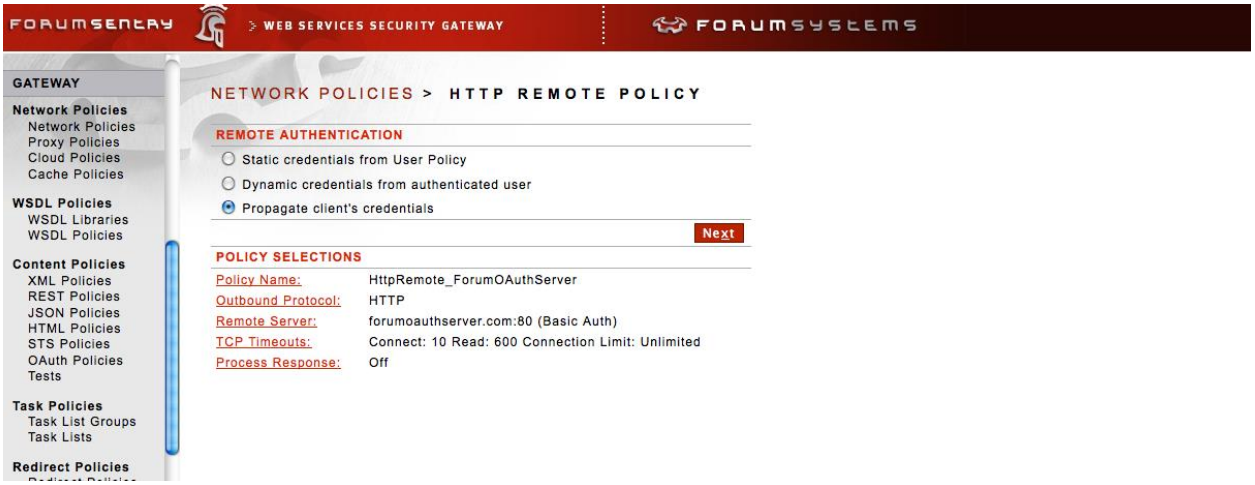
REMOTE SERVER

Remote Server*:	forumoauthserver.com
Remote Port*:	80
Proxy Settings Policy:	No Proxy ▼
Provide Basic Authentication Credentials:	☑
Provide Digest Authentication Credentials:	□
Dynamic EndPoint Routing:	□
	● Use Inbound HTTP Host header:
	○ Use Attribute*:
Proxy Client's User Agent:	[From System Policy] ▼

POLICY SELECTIONS

Policy Name:	HttpRemote_ForumOAuthServer
Outbound Protocol:	HTTP

Select Propagate client's credentials. It means that the registered client or the app id and the secret password will be sent to Forum OAuth server.



NETWORK POLICIES > HTTP REMOTE POLICY

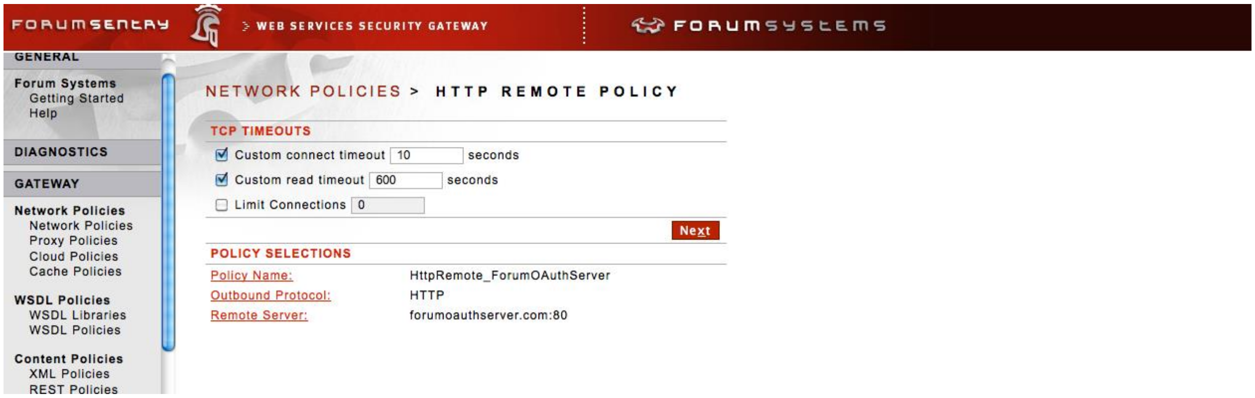
REMOTE AUTHENTICATION

○ Static credentials from User Policy
○ Dynamic credentials from authenticated user
● Propagate client's credentials

POLICY SELECTIONS

Policy Name:	HttpRemote_ForumOAuthServer
Outbound Protocol:	HTTP
Remote Server:	forumoauthserver.com:80 (Basic Auth)
TCP Timeouts:	Connect: 10 Read: 600 Connection Limit: Unlimited
Process Response:	Off

Select the defaults. Click Next.



NETWORK POLICIES > HTTP REMOTE POLICY

TCP TIMEOUTS

☑ Custom connect timeout 10 seconds

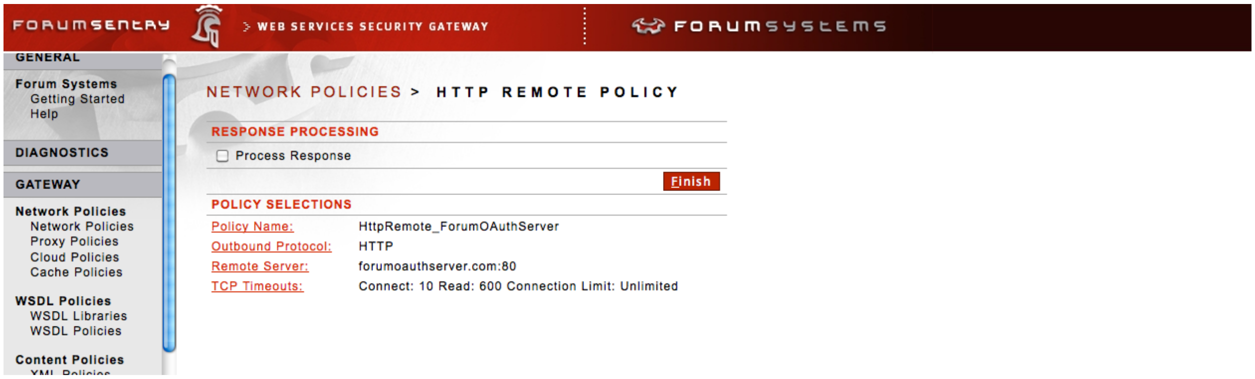
☑ Custom read timeout 600 seconds

☐ Limit Connections 0

POLICY SELECTIONS

Policy Name:	HttpRemote_ForumOAuthServer
Outbound Protocol:	HTTP
Remote Server:	forumoauthserver.com:80

Click Finish.



NETWORK POLICIES > HTTP REMOTE POLICY

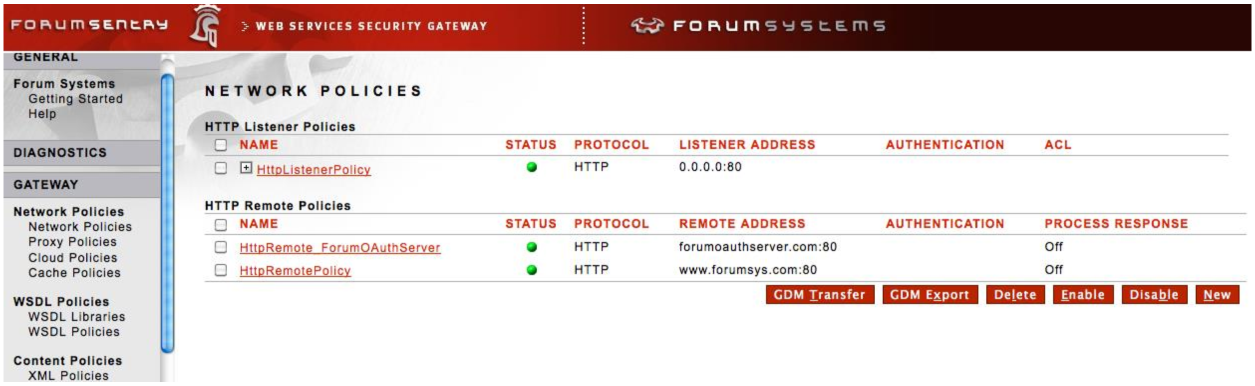
RESPONSE PROCESSING

☐ Process Response

POLICY SELECTIONS

Policy Name:	HttpRemote_ForumOAuthServer
Outbound Protocol:	HTTP
Remote Server:	forumoauthserver.com:80
TCP Timeouts:	Connect: 10 Read: 600 Connection Limit: Unlimited

You should land on this page. The green light indicates that the remote policy is activated.



NETWORK POLICIES

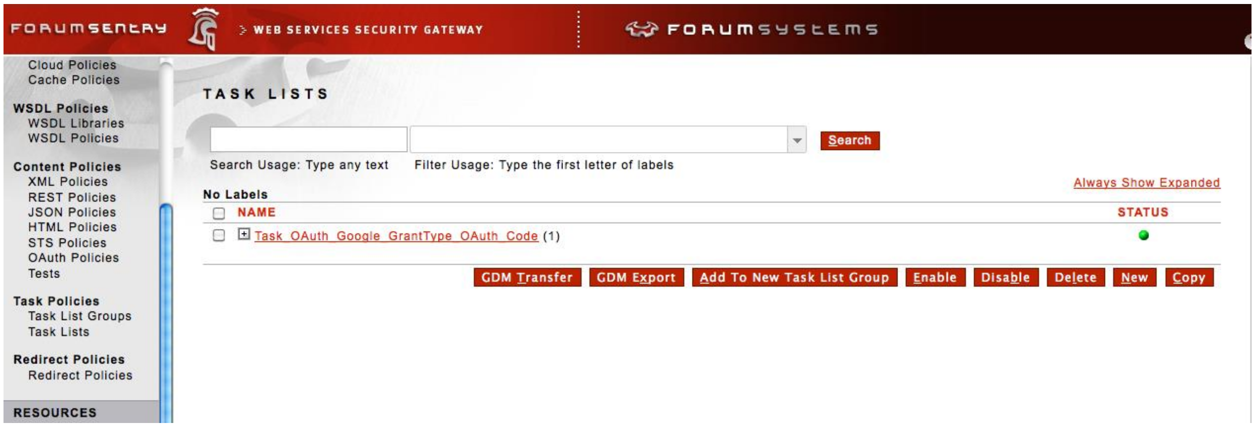
HTTP Listener Policies

☐ NAME	STATUS	PROTOCOL	LISTENER ADDRESS	AUTHENTICATION	ACL
☐ ⊞ HttpListenerPolicy	●	HTTP	0.0.0.0:80		

HTTP Remote Policies

☐ NAME	STATUS	PROTOCOL	REMOTE ADDRESS	AUTHENTICATION	PROCESS RESPONSE
☐ HttpRemote_ForumOAuthServer	●	HTTP	forumoauthserver.com:80		Off
☐ HttpRemotePolicy	●	HTTP	www.forumsys.com:80		Off

Step 2: Click on Task Lists in the left panel under Task Policies. Then click on New.



TASK LISTS

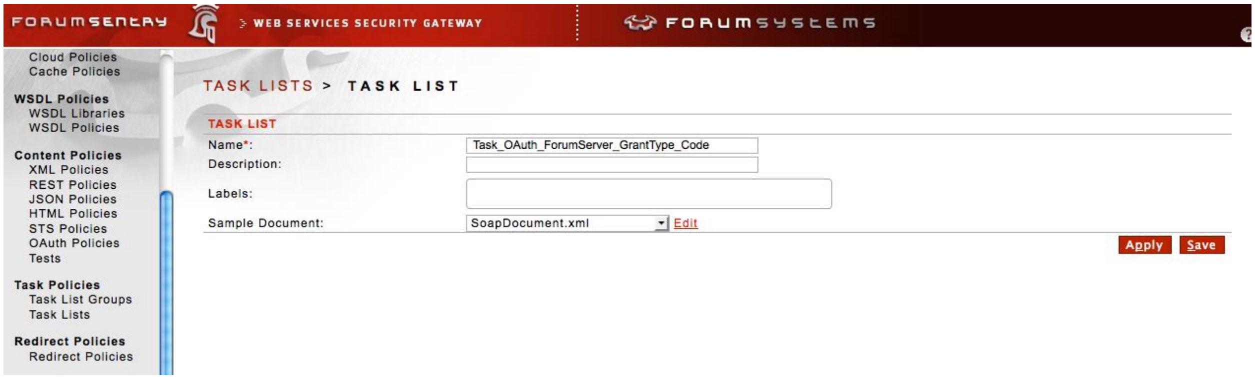
Search Usage: Type any text   Filter Usage: Type the first letter of labels

Always Show Expanded

No Labels

	NAME	STATUS
□	⊞ Task_OAuth_Google_GrantType_OAuth_Code (1)	●

The Name we enter is Task_OAuth_ForumServer_GrantType_OAuth. Then click Apply.



TASK LISTS > TASK LIST

TASK LIST

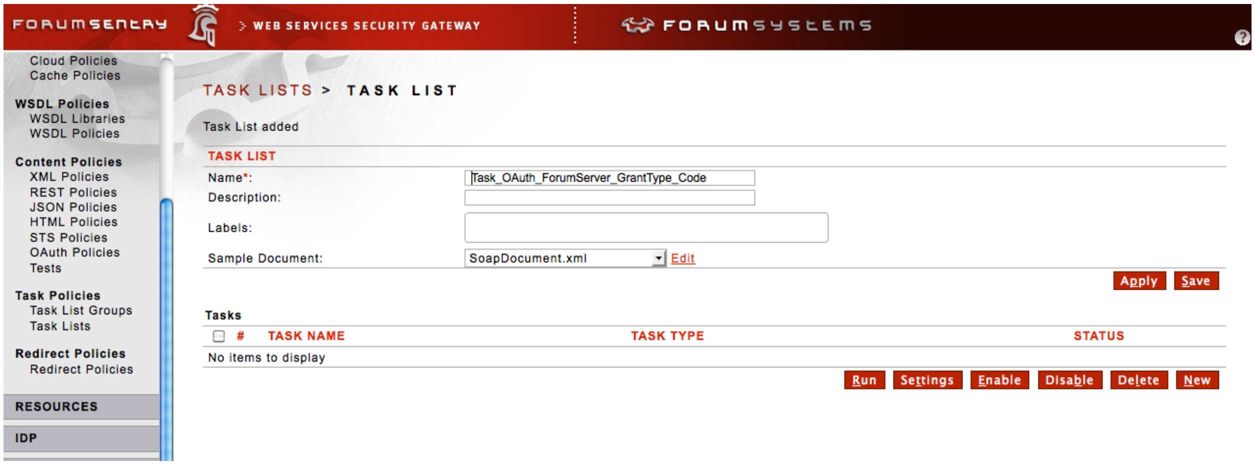
Name*: Task_OAuth_ForumServer_GrantType_Code

Description:

Labels:

Sample Document: SoapDocument.xml

We are ready to add a specific task to the Task List. Select New.



TASK LISTS > TASK LIST

Task List added

TASK LIST

Name*: Task_OAuth_ForumServer_GrantType_Code

Description:

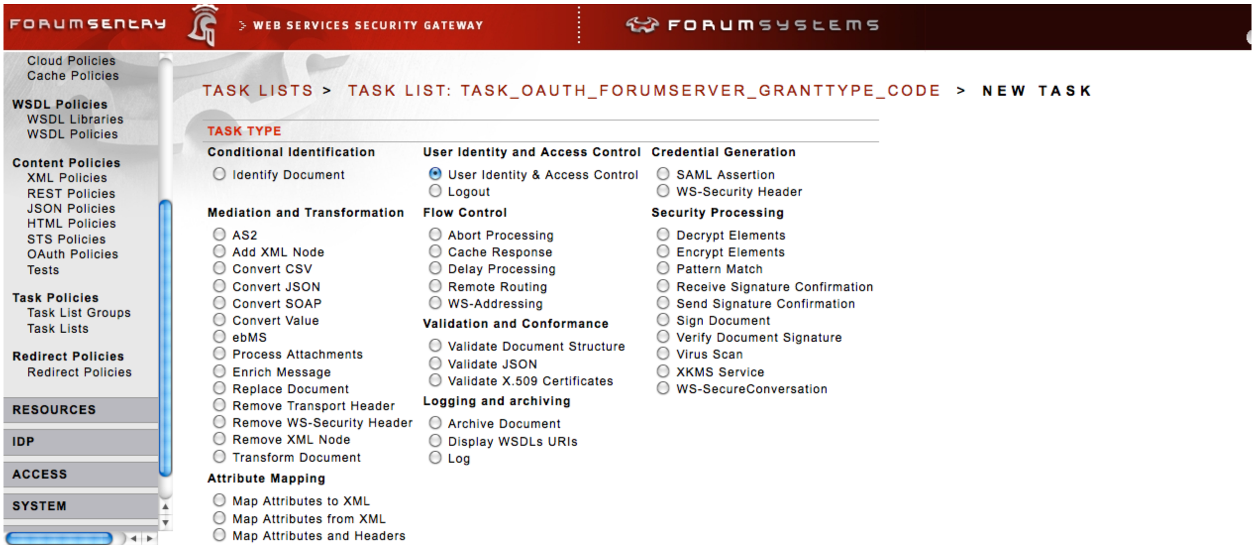
Labels:

Sample Document: SoapDocument.xml

Tasks

□	#	TASK NAME	TASK TYPE	STATUS
No items to display				

Select User Identity & Access Control. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > NEW TASK

TASK TYPE

Conditional Identification
○ Identify Document

Mediation and Transformation
○ AS2
○ Add XML Node
○ Convert CSV
○ Convert JSON
○ Convert SOAP
○ Convert Value
○ ebMS
○ Process Attachments
○ Enrich Message
○ Replace Document
○ Remove Transport Header
○ Remove WS-Security Header
○ Remove XML Node
○ Transform Document

Attribute Mapping
○ Map Attributes to XML
○ Map Attributes from XML
○ Map Attributes and Headers

User Identity and Access Control
● User Identity & Access Control
○ Logout

Flow Control
○ Abort Processing
○ Cache Response
○ Delay Processing
○ Remote Routing
○ WS-Addressing

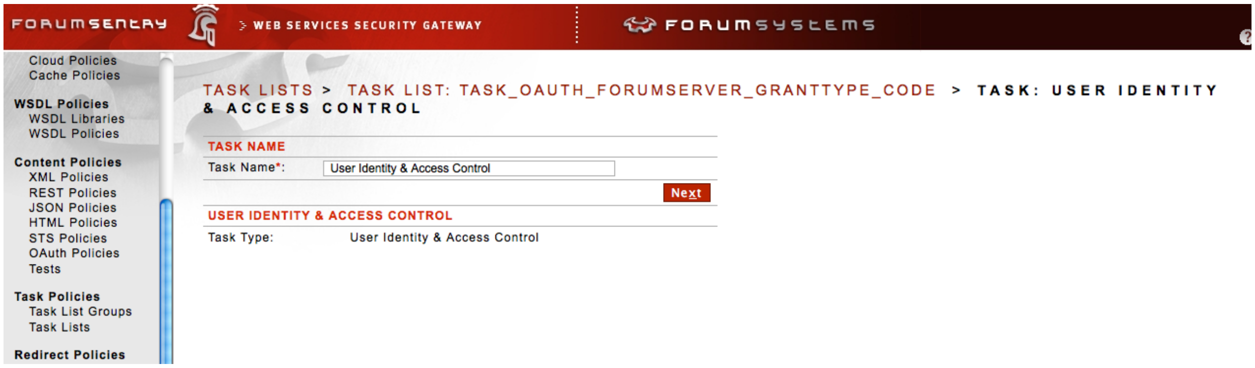
Validation and Conformance
○ Validate Document Structure
○ Validate JSON
○ Validate X.509 Certificates

Logging and archiving
○ Archive Document
○ Display WSDLs URIs
○ Log

Credential Generation
○ SAML Assertion
○ WS-Security Header

Security Processing
○ Decrypt Elements
○ Encrypt Elements
○ Pattern Match
○ Receive Signature Confirmation
○ Send Signature Confirmation
○ Sign Document
○ Verify Document Signature
○ Virus Scan
○ XKMS Service
○ WS-SecureConversation

Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

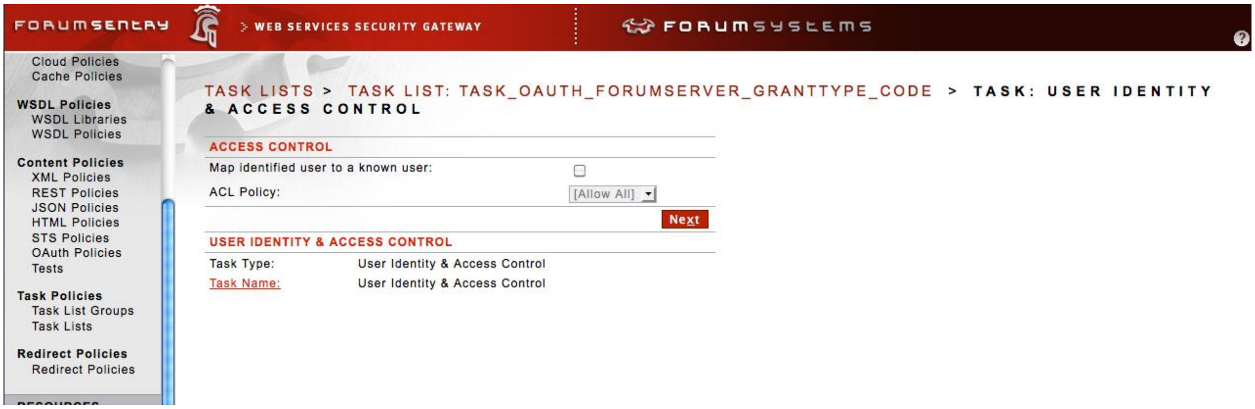
TASK NAME

Task Name*: User Identity & Access Control

USER IDENTITY & ACCESS CONTROL

Task Type: User Identity & Access Control

Uncheck “Map identified user to a known user”. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

ACCESS CONTROL

Map identified user to a known user: □

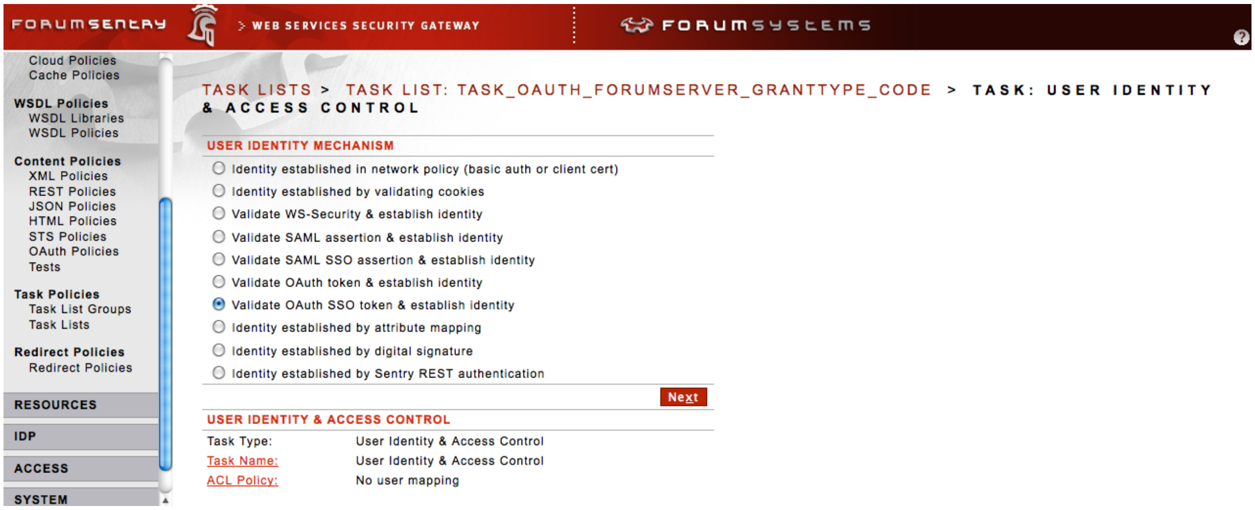
ACL Policy: [Allow All]

USER IDENTITY & ACCESS CONTROL

Task Type: User Identity & Access Control

Task Name: User Identity & Access Control

Select Validate OAuth SSO token & establish identity.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

USER IDENTITY MECHANISM

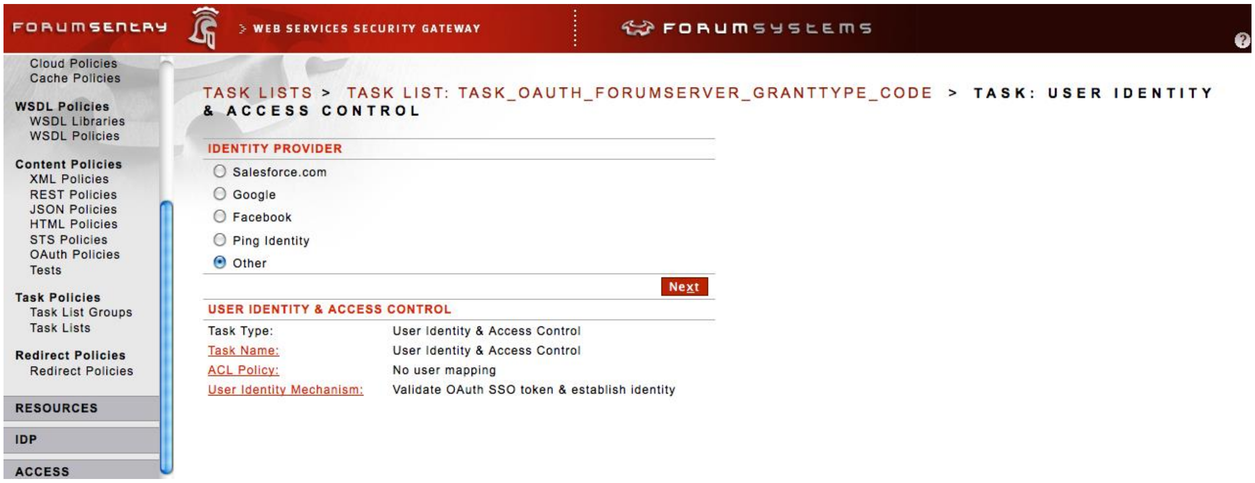
○ Identity established in network policy (basic auth or client cert)
○ Identity established by validating cookies
○ Validate WS-Security & establish identity
○ Validate SAML assertion & establish identity
○ Validate SAML SSO assertion & establish identity
○ Validate OAuth token & establish identity
● Validate OAuth SSO token & establish identity
○ Identity established by attribute mapping
○ Identity established by digital signature
○ Identity established by Sentry REST authentication

Next

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping

Select Other.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

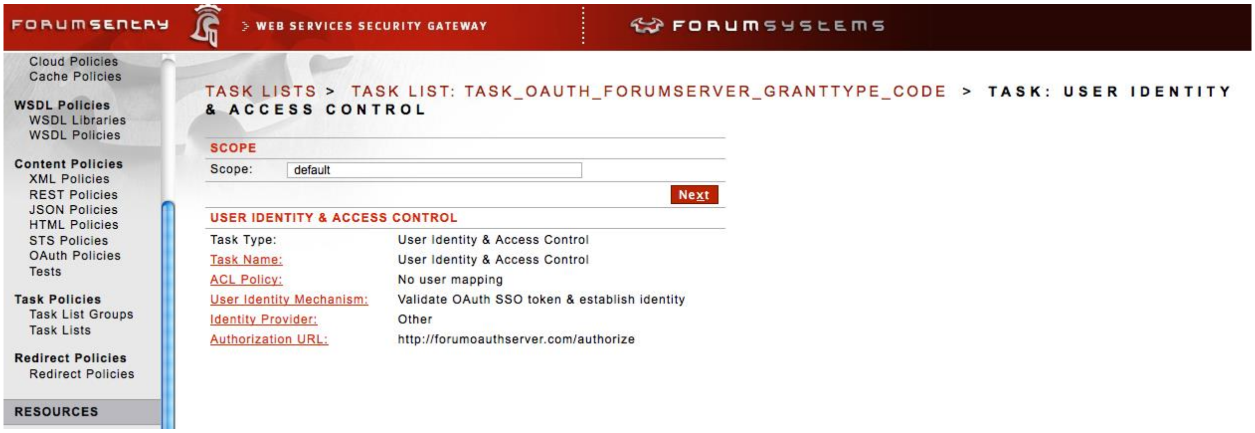
IDENTITY PROVIDER

○ Salesforce.com
○ Google
○ Facebook
○ Ping Identity
● Other

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity

This is the URL that contains the access location information of where one could obtain an OAuth code from. In our case it is the http://forumoauthserver.com/authorize. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

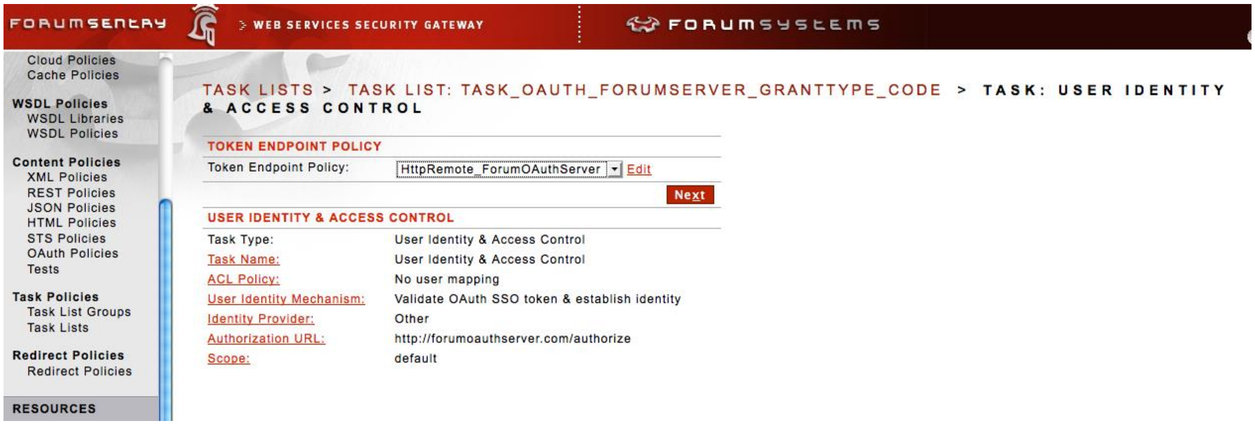
SCOPE

Scope: default

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity
Identity Provider:	Other
Authorization URL:	http://forumoauthserver.com/authorize

This is where you select the remote policy. In our case it is the ForumOAuthServer that will issue the OAuth token. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

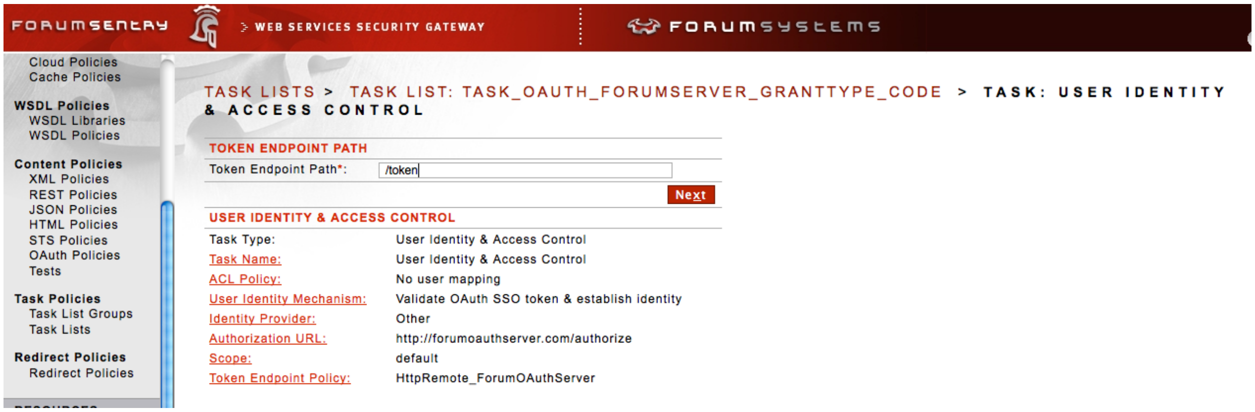
TOKEN ENDPOINT POLICY

Token Endpoint Policy: HttpRemote_ForumOAuthServer

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity
Identity Provider:	Other
Authorization URL:	http://forumoauthserver.com/authorize
Scope:	default

The default end-point is /token. If this is what was configured in your Forum OAuth Server then you should leave it as is. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

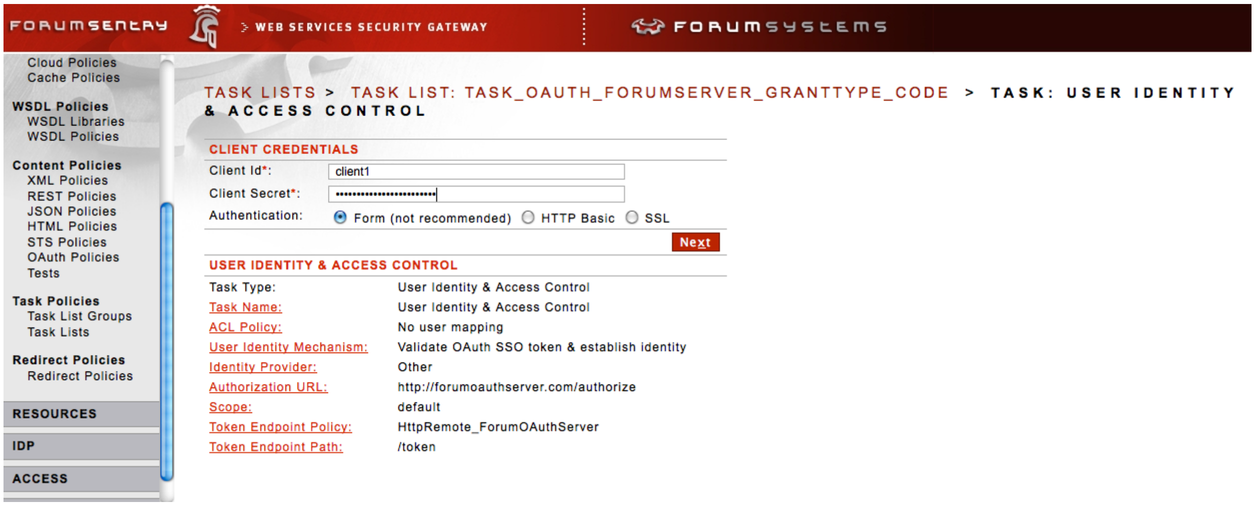
TOKEN ENDPOINT PATH

Token Endpoint Path*: /token

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity
Identity Provider:	Other
Authorization URL:	http://forumoauthserver.com/authorize
Scope:	default
Token Endpoint Policy:	HttpRemote_ForumOAuthServer

Enter the Client Id and Client Secret. These two security attributes can be obtained from your Forum OAuth server under OAuth policy. These credentials are used to authenticate to the server. Click Next.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

CLIENT CREDENTIALS

Client Id*: client1

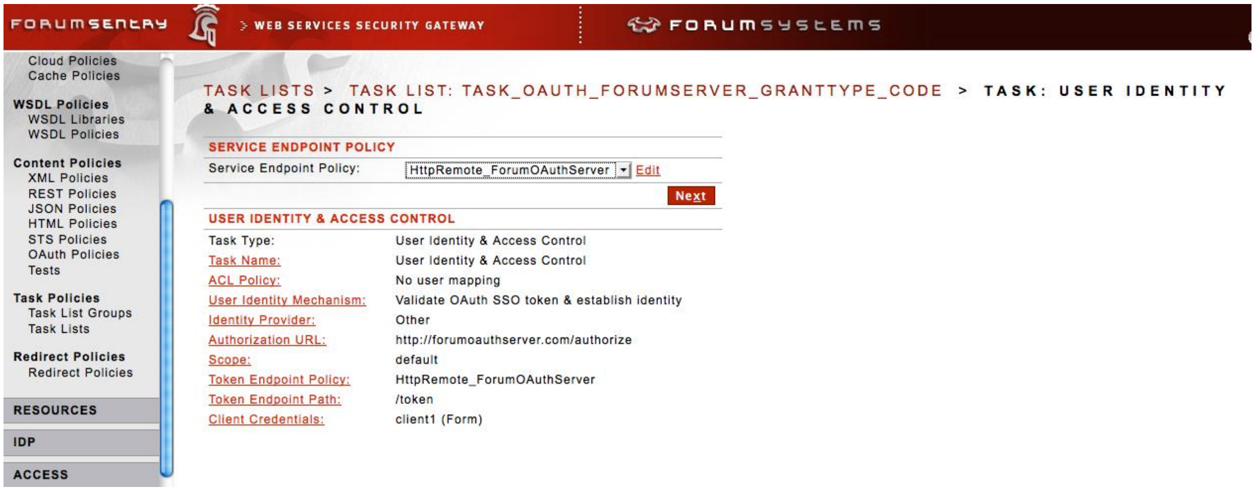
Client Secret*: ••••••••••••••••••••••••

Authentication: ● Form (not recommended) ○ HTTP Basic ○ SSL

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity
Identity Provider:	Other
Authorization URL:	http://forumoauthserver.com/authorize
Scope:	default
Token Endpoint Policy:	HttpRemote_ForumOAuthServer
Token Endpoint Path:	/token

Select the Remote policy. This Remote policy identifies the network location of the service that provides attributes of a user. Attributes such as your Facebook user profile data.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

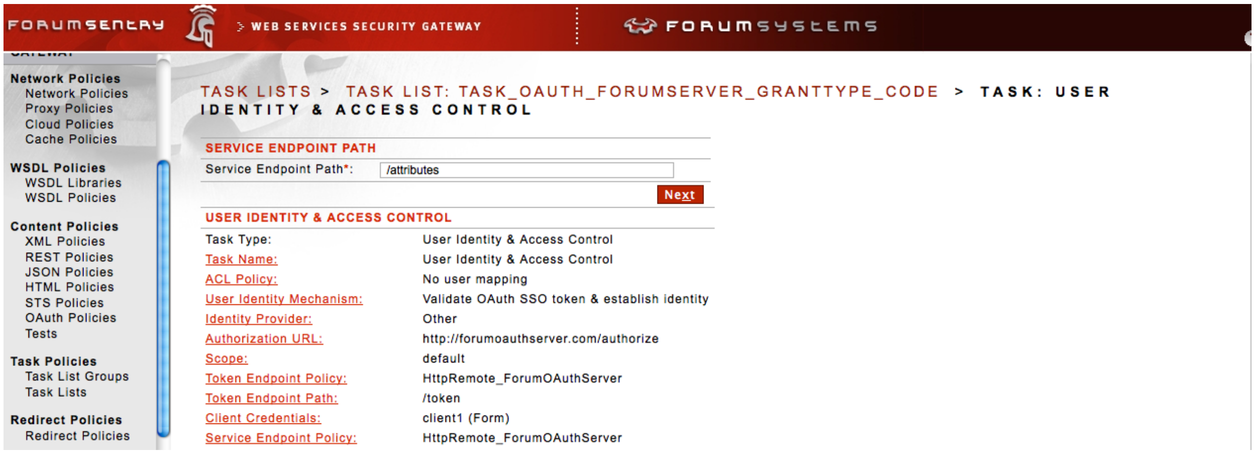
SERVICE ENDPOINT POLICY

Service Endpoint Policy: HttpRemote_ForumOAuthServer

USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity
Identity Provider:	Other
Authorization URL:	http://forumoauthserver.com/authorize
Scope:	default
Token Endpoint Policy:	HttpRemote_ForumOAuthServer
Token Endpoint Path:	/token
Client Credentials:	client1 (Form)

The default virtual directory where the attributes of a user can be obtained. Again, this virtual directory path depends on what was configured in your OAuth server.



TASK LISTS > TASK LIST: TASK_OAUTH_FORUMSERVER_GRANTTYPE_CODE > TASK: USER IDENTITY & ACCESS CONTROL

SERVICE ENDPOINT PATH

Service Endpoint Path*: /attributes

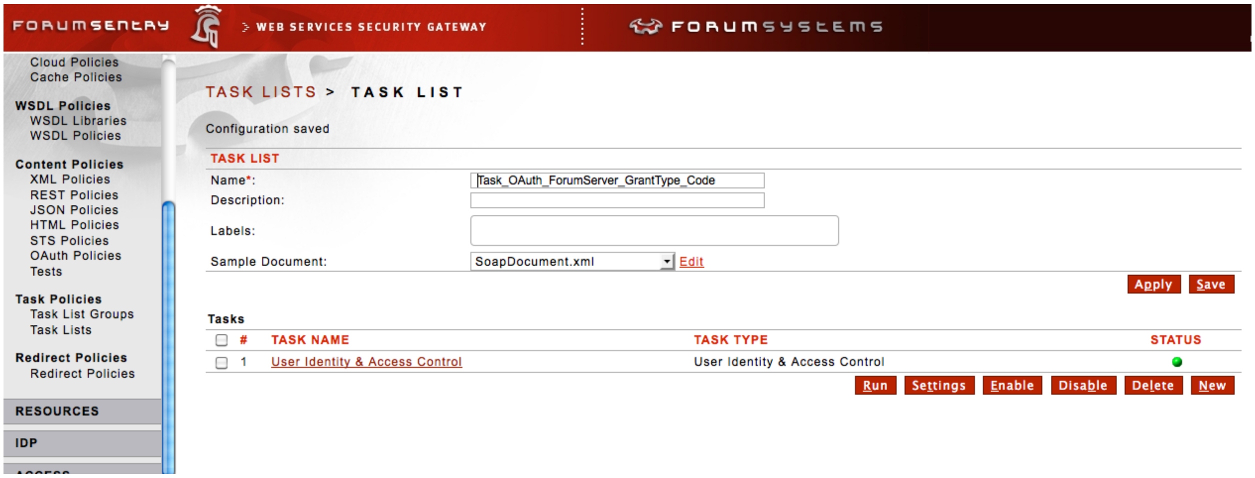
USER IDENTITY & ACCESS CONTROL

Task Type:	User Identity & Access Control
Task Name:	User Identity & Access Control
ACL Policy:	No user mapping
User Identity Mechanism:	Validate OAuth SSO token & establish identity
Identity Provider:	Other
Authorization URL:	http://forumoauthserver.com/authorize
Scope:	default
Token Endpoint Policy:	HttpRemote_ForumOAuthServer
Token Endpoint Path:	/token
Client Credentials:	client1 (Form)
Service Endpoint Policy:	HttpRemote_ForumOAuthServer

Click Next and then Next again

The variable “orgiUri” keeps the value of the original URI that a remote user accessed. This variable is declared in the Redirect Policy also. The OAuth engine wants to store this value so it knows which URI to redirect the user to once the OAuth token and attributes are obtained. In our example, this origUri points to http://forum-oauth.com/

Click Finish.



TASK LISTS > TASK LIST

Configuration saved

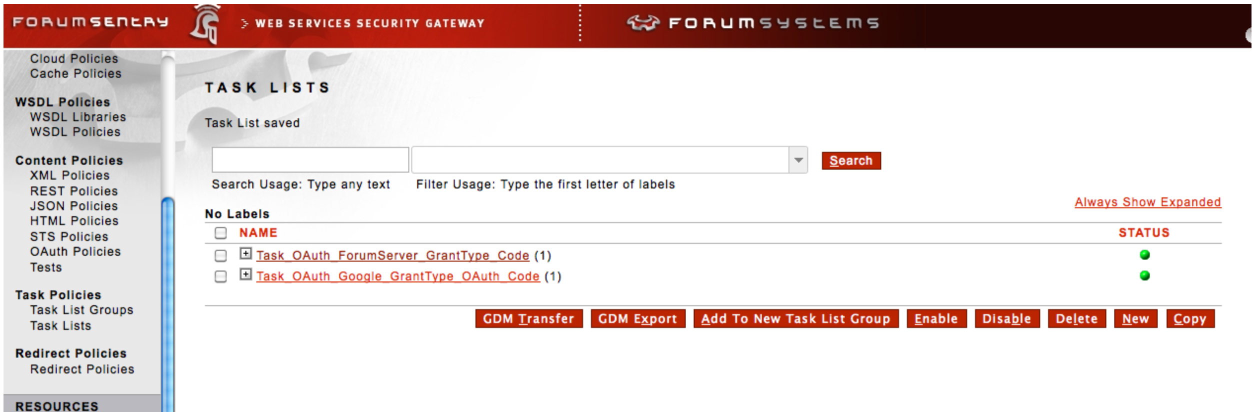
TASK LIST

Name*:	Task_OAuth_ForumServer_GrantType_Code
Description:	
Labels:	
Sample Document:	SoapDocument.xml Edit

Tasks

□	#	TASK NAME	TASK TYPE	STATUS
□	1	User Identity & Access Control	User Identity & Access Control	●

Click on Task Lists to see the activated task lists configured.



TASK LISTS

Task List saved

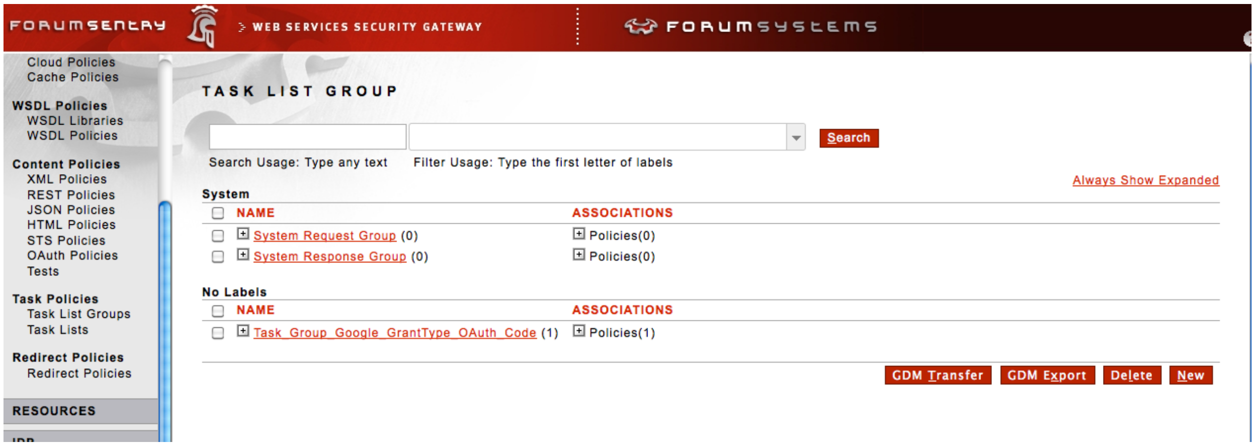
Search Usage: Type any text   Filter Usage: Type the first letter of labels

Always Show Expanded

No Labels

□	NAME	STATUS
□	⊞ Task_OAuth_ForumServer_GrantType_Code (1)	●
□	⊞ Task_OAuth_Google_GrantType_OAuth_Code (1)	●

Step 3: We now need to create a Task List Group. Click on Task List Groups under Task Policies. The screen below appears. Click New.



TASK LIST GROUP

Search Usage: Type any text   Filter Usage: Type the first letter of labels

Always Show Expanded

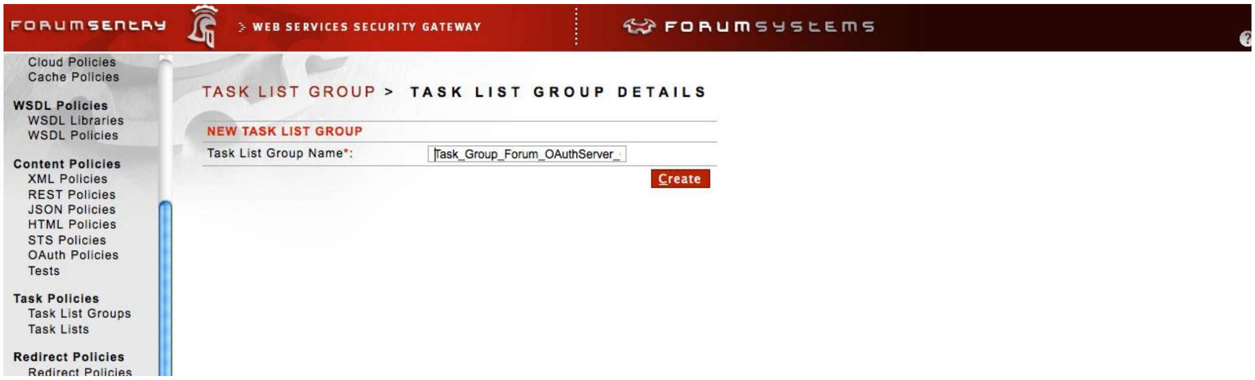
System

□	NAME	ASSOCIATIONS
□	⊞ System Request Group (0)	⊞ Policies(0)
□	⊞ System Response Group (0)	⊞ Policies(0)

No Labels

□	NAME	ASSOCIATIONS
□	⊞ Task_Group_Google_GrantType_OAuth_Code (1)	⊞ Policies(1)

Enter the Task List Group name.

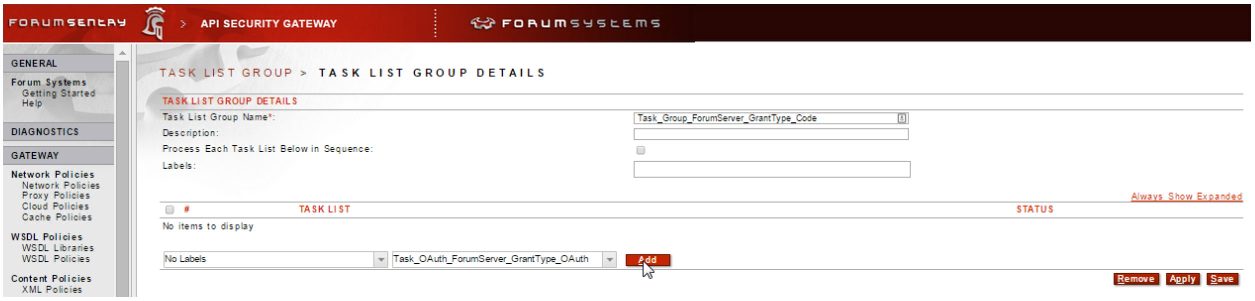


TASK LIST GROUP > TASK LIST GROUP DETAILS

NEW TASK LIST GROUP

Task List Group Name*: Task_Group_Forum_OAuthServer_

Add the Task List Task_OAuth_ForumServer_GrantType_Code. Click Add.



TASK LIST GROUP > TASK LIST GROUP DETAILS

TASK LIST GROUP DETAILS

Task List Group Name*: Task_Group_ForumServer_GrantType_Code

Description:

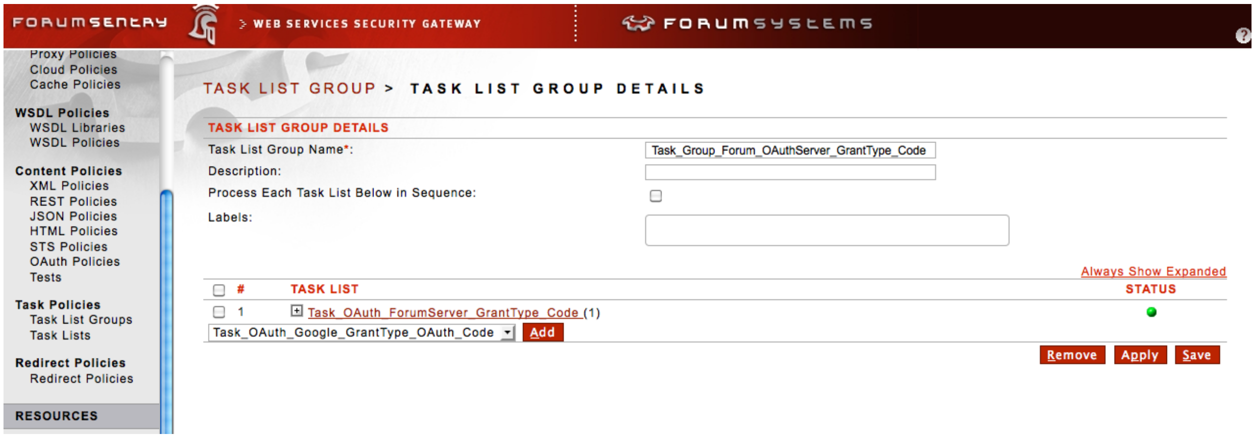
Process Each Task List Below in Sequence: □

Labels:

□ #	TASK LIST	STATUS
No items to display		

No Labels | Task_OAuth_ForumServer_GrantType_OAuth

After the Add the screen is updated. Click Save.



TASK LIST GROUP > TASK LIST GROUP DETAILS

TASK LIST GROUP DETAILS

Task List Group Name*:	Task_Group_Forum_OAuthServer_GrantType_Code
Description:	
Process Each Task List Below in Sequence:	□
Labels:	

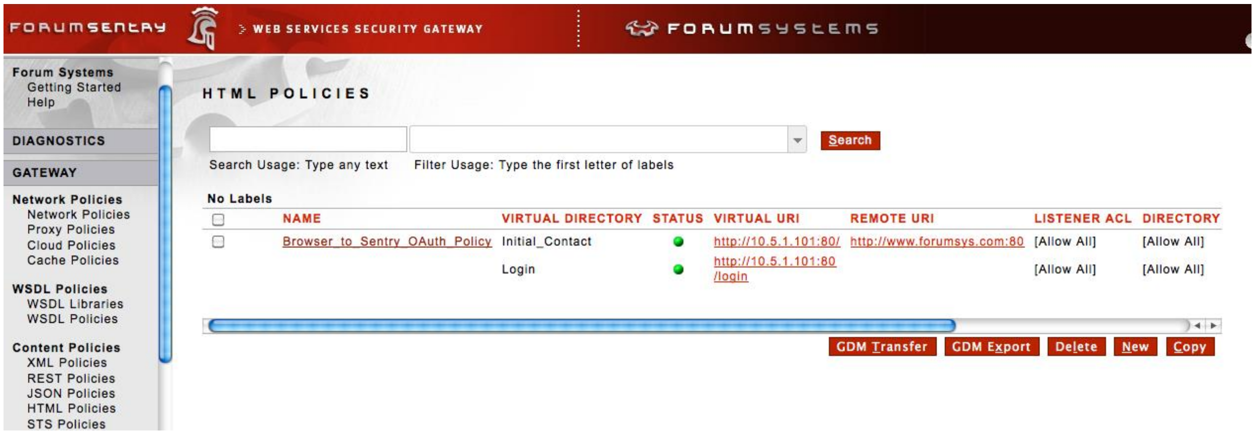
Always Show Expanded

□	#	TASK LIST	STATUS
□	1	⊞ Task_OAuth_ForumServer_GrantType_Code (1)	●

Task_OAuth_Google_GrantType_OAuth_Code Add

Remove Apply Save

Step 4: This is the final step. Click on HTML policies under the GATEWAY menu in the left panel. The screen below shows the existing HTML policy. Click on Browser_to_Sentry_OAuth_Policy link in red.



HTML POLICIES

Search

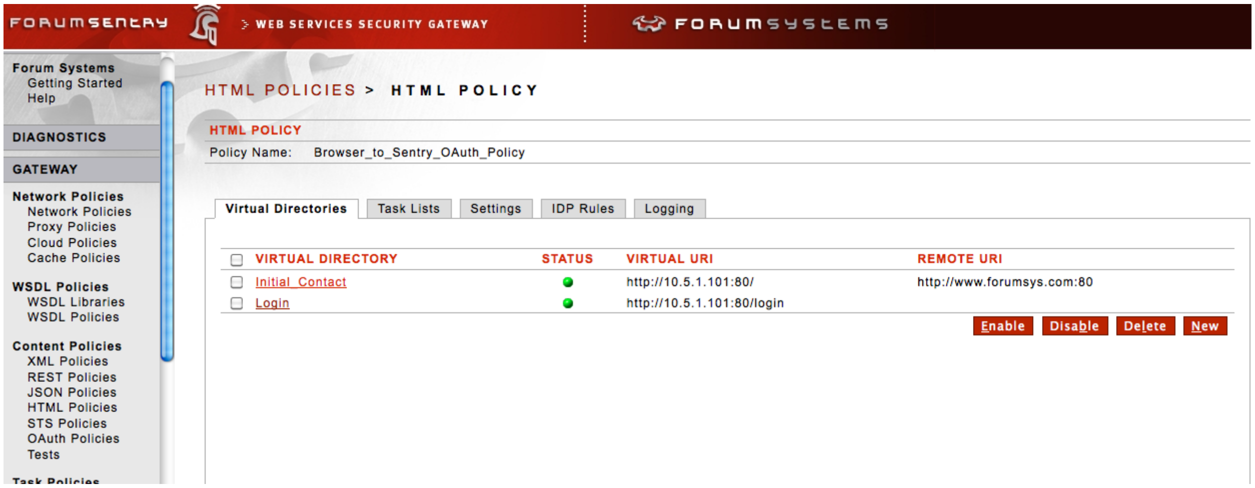
Search Usage: Type any text   Filter Usage: Type the first letter of labels

No Labels

□	NAME	VIRTUAL DIRECTORY	STATUS	VIRTUAL URI	REMOTE URI	LISTENER ACL	DIRECTORY
□	Browser_to_Sentry_OAuth_Policy	Initial_Contact	●	http://10.5.1.101:80/	http://www.forumsys.com:80	[Allow All]	[Allow All]
		Login	●	http://10.5.1.101:80/login		[Allow All]	[Allow All]

GDM Transfer GDM Export Delete New Copy

The screen with the list of two virtual directories appears below. We are interested in the Login virtual directory since that is the one that triggers the OAuth processing if access this virtual directory. Click on Login.

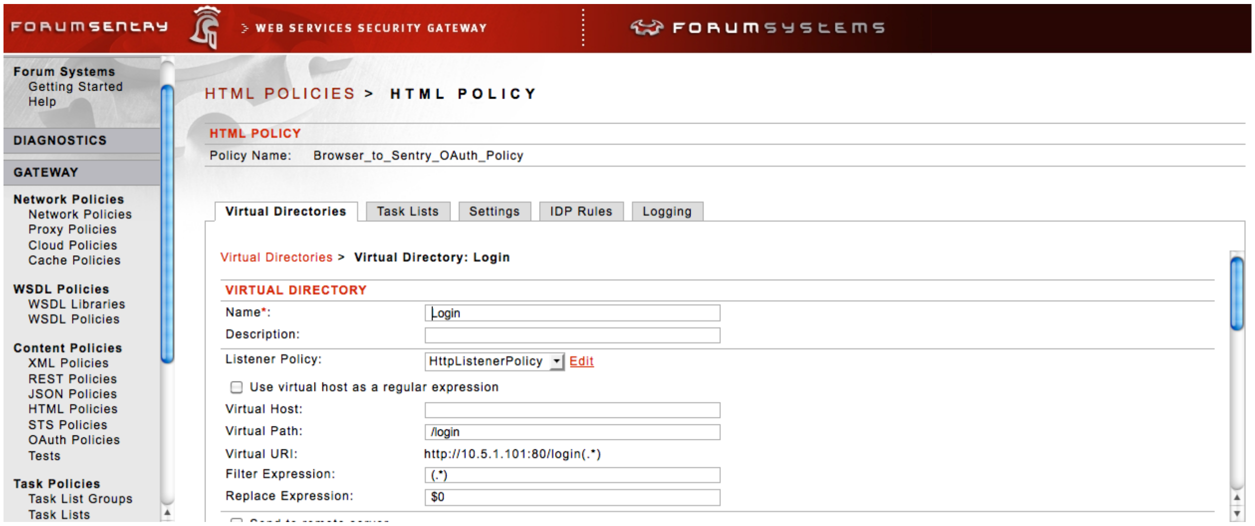


HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

	VIRTUAL DIRECTORY	STATUS	VIRTUAL URI	REMOTE URI
☐	Initial_Contact	●	http://10.5.1.101:80/	http://www.forumsys.com:80
☐	Login	●	http://10.5.1.101:80/login	

You will see the details of the Login virtual directory



HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

VIRTUAL DIRECTORY

Name*: Login

Description:

Listener Policy: HttpListenerPolicy

☐ Use virtual host as a regular expression

Virtual Host:

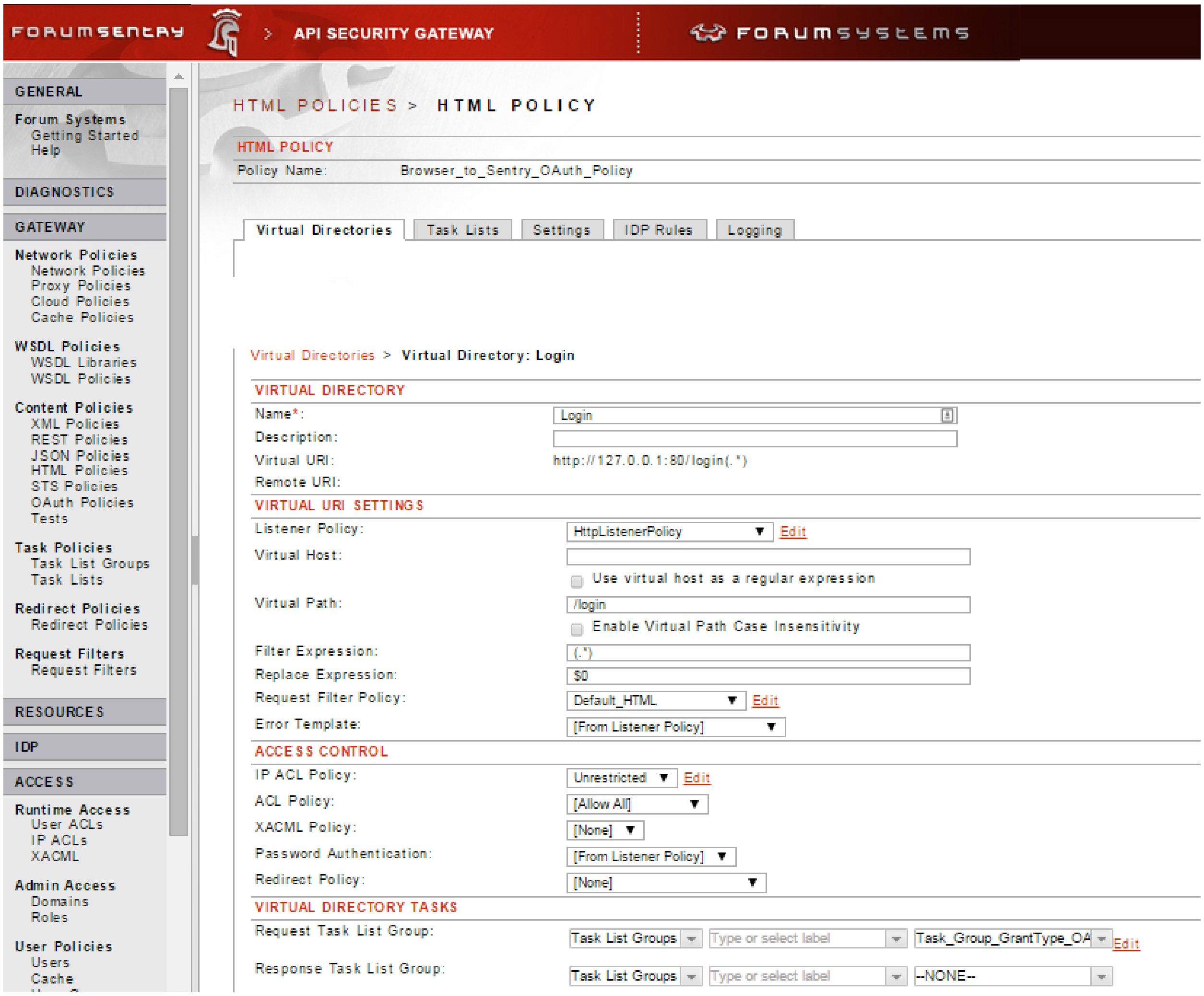
Virtual Path: /login

Virtual URI: http://10.5.1.101:80/login(.*)

Filter Expression: (.*)

Replace Expression: $0

Scroll down the screen and in the Request Task List Group down you will select the task list Task_Group_Forum_OAuthServer_GrantType_Code. This is where you hook the virtual directory with OAuth processing. Click Save.



HTML POLICIES > HTML POLICY

HTML POLICY

Policy Name: Browser_to_Sentry_OAuth_Policy

Virtual Directories > Virtual Directory: Login

VIRTUAL DIRECTORY

Name*: Login

Description:

Virtual URI: http://127.0.0.1:80/login(.*)

Remote URI:

VIRTUAL URI SETTINGS

Listener Policy: HttpListenerPolicy ▼ Edit

Virtual Host:

□ Use virtual host as a regular expression

Virtual Path: /login

□ Enable Virtual Path Case Insensitivity

Filter Expression: (.*)

Replace Expression: $0

Request Filter Policy: Default_HTML ▼ Edit

Error Template: [From Listener Policy] ▼

ACCESS CONTROL

IP ACL Policy: Unrestricted ▼ Edit

ACL Policy: [Allow All] ▼

XACML Policy: [None] ▼

Password Authentication: [From Listener Policy] ▼

Redirect Policy: [None] ▼

VIRTUAL DIRECTORY TASKS

Request Task List Group: Task List Groups | Type or select label | Task_Group_GrantType_OA Edit

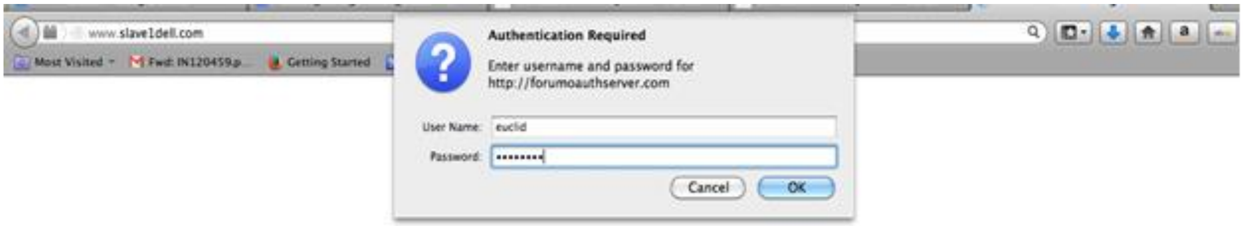
Response Task List Group: Task List Groups | Type or select label | --NONE--

4.3.3 Testing Forum Sentry OAuth server

Please make sure that your system that is running the browser can resolve the DNS name forum-oauth.com or any name that you are using to access Sentry OAuth client.

You will be prompted for credentials. Enter the following if you are using Forum LDAP server.

Enter User Name: euclid
Password: password



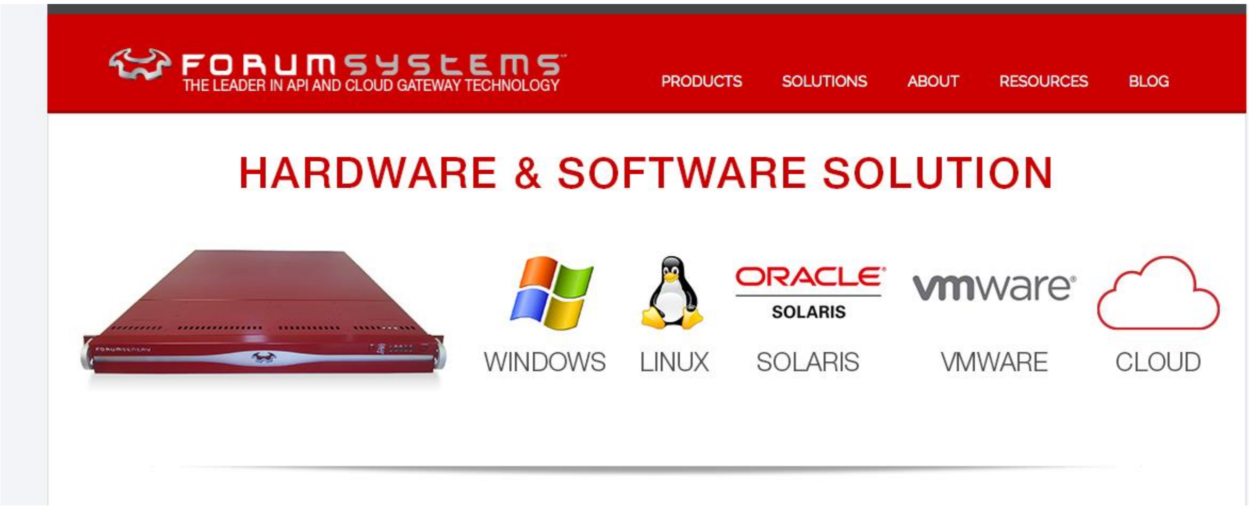
Authentication Required

Enter username and password for http://forumoauthserver.com

User Name: euclid
Password: ••••••••

Once you click Accept, Forum Systems OAuth server will perform the following steps:

- Return your browser to OAuth client (your application or Forum Sentry OAuth client).
- Application will fetch your LDAP profile data via Forum Sentry OAuth server.
- Generate cookies.
- Send the cookies back to your browser with the instruction that your browser needs to access http://forum-oauth.com
- Your browser will connect to http://forum-oauth.com again with the cookies. This time it will be allowed to access www.forumsys.com. If it all goes well, you will see the Forum Systems page.


FORUMSYSTEMS
THE LEADER IN API AND CLOUD GATEWAY TECHNOLOGY
PRODUCTS
SOLUTIONS
ABOUT
RESOURCES
BLOG
HARDWARE & SOFTWARE SOLUTION
WINDOWS
LINUX
ORACLE SOLARIS
SOLARIS
vmware
VMWARE
CLOUD