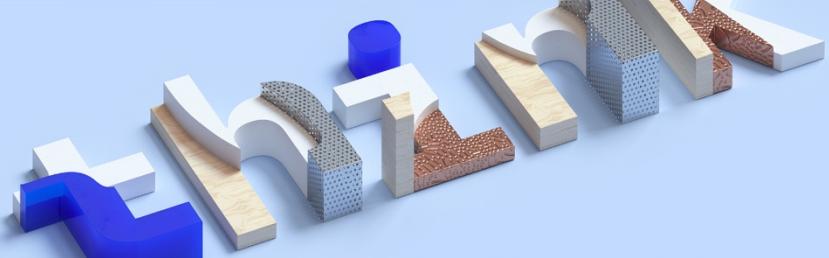


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## Lab Center – Hands-on Lab

**Session 9102**

**Session Title Cloud Service Management and  
ChatOps - a new way to solve problems**

Robert Barron, IBM, brobert@il.ibm.com

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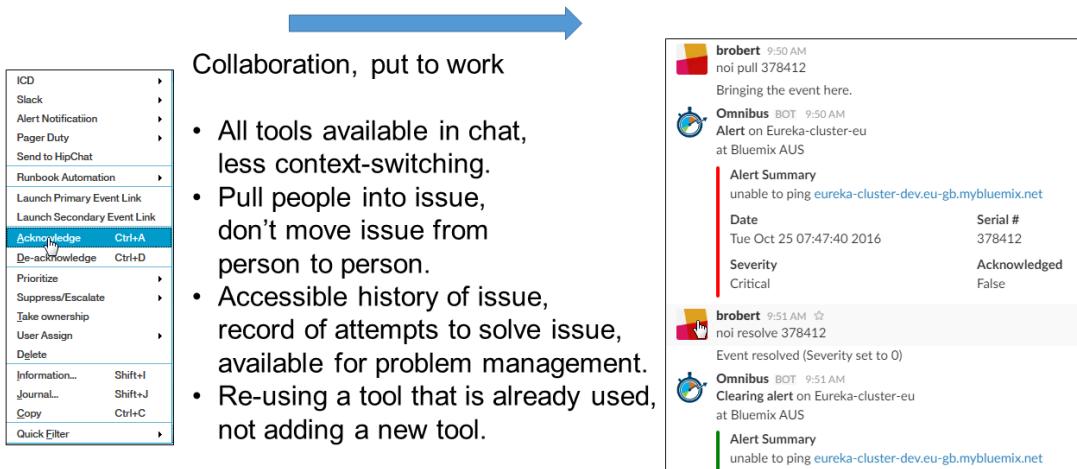
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# Objectives

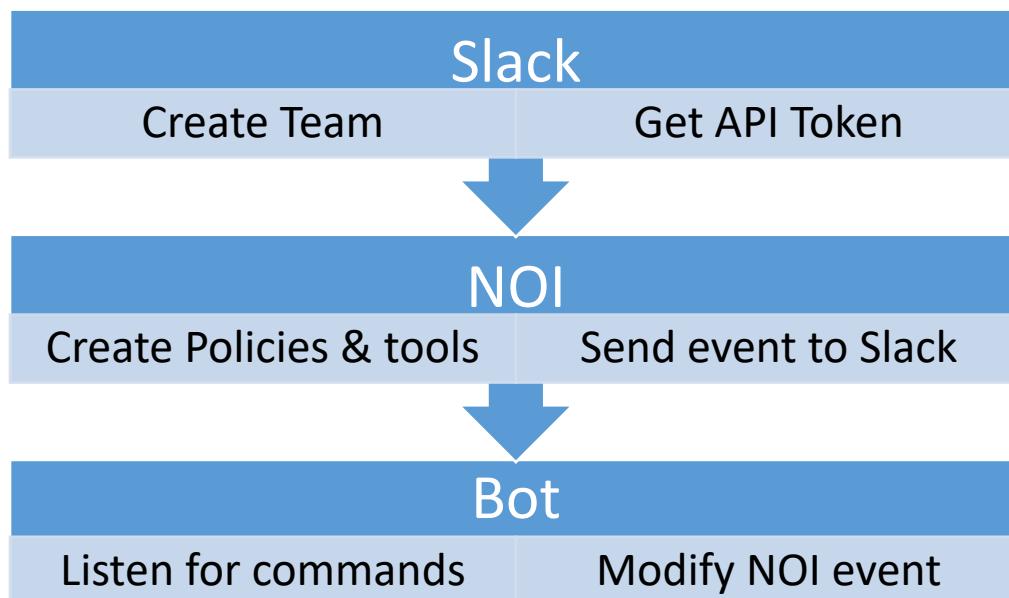
ChatOps is a recent development in the field of Operations, wherein people use a single tool both to communicate amongst themselves and send & receive automated commands.

## ChatOps



The aim of this lab is to demonstrate some initial capabilities of NOI and Slack integration by creating a Minimal Viable Solution which will showcase capabilities.

For further information and to share knowledge, please reach out to the author of this lab using the email brobert@il.ibm.com

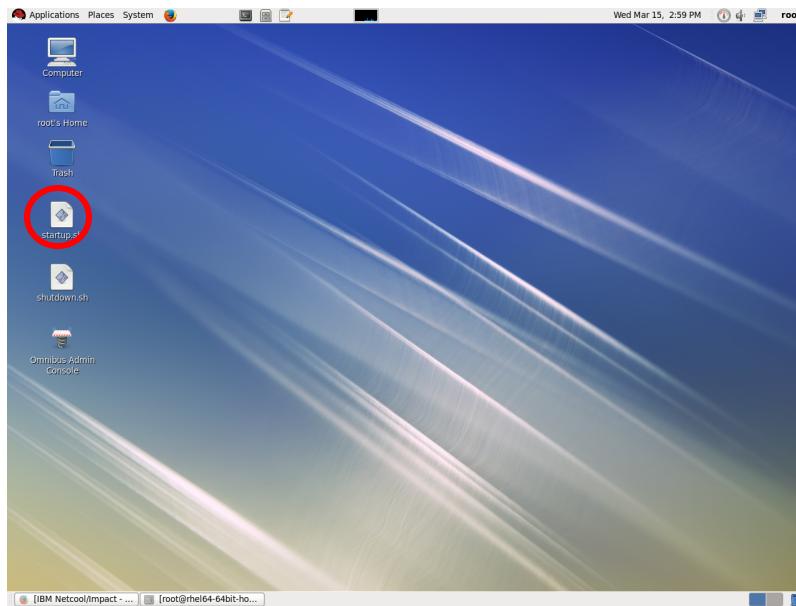


## Initial setup

Note that the scripts and pieces of code detailed in the following instructions are available in the github repository at <https://github.com/ibm-cloud-architecture/2018-Think-9102> .

You may clone or copy/paste from there instead of this document.

Start the application stack by running the script startup.sh which is on the desktop.

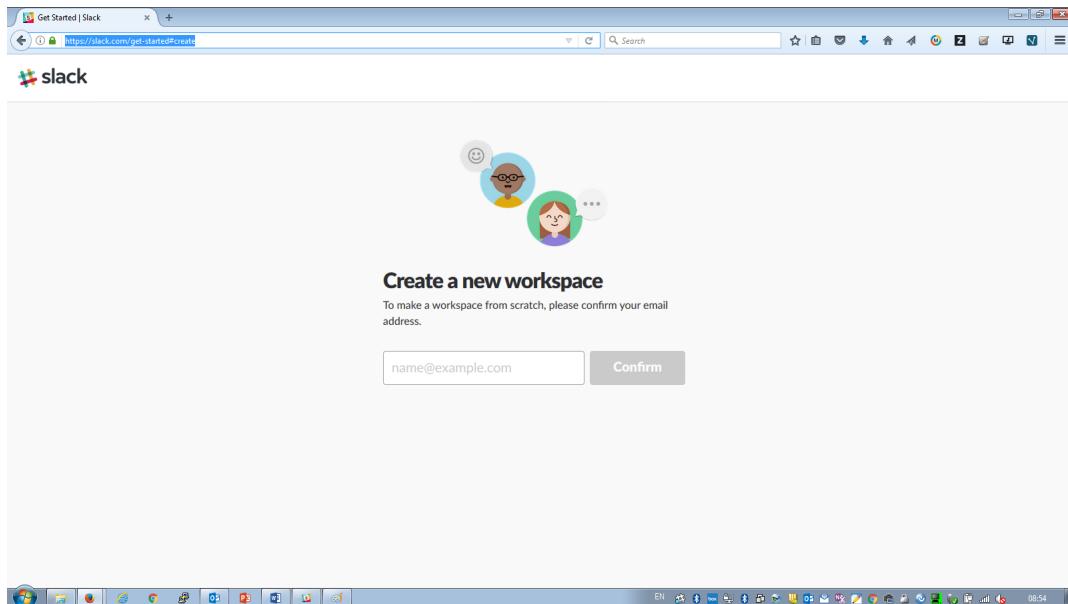


# Create the Slack Workspace

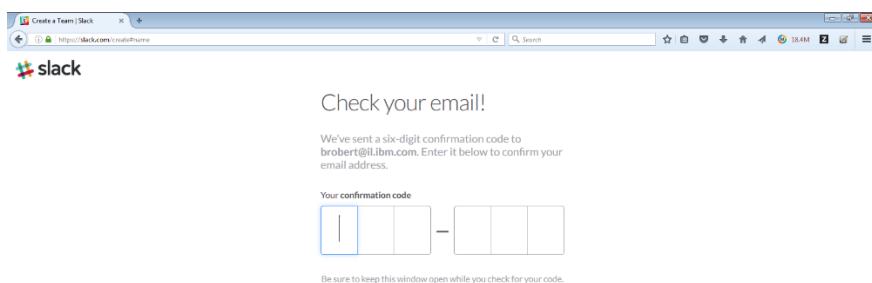
In this section, we will create the Slack workspace and create a token for API access that will be used throughout the lab.

If you have administrative access to an existing Slack workspace, you may skip to step 11 by logging into your Slack.

1. Go to the Slack main page <https://slack.com/get-started#create> and create a new workspace



2. Check your email and confirm with Slack



### 3. Enter your name

The screenshot shows a web browser window with the URL <https://slack.com/create#name>. The page title is "Create a Workspace | Slack". The main heading is "What's your name?". Below it, a sub-instruction reads: "This is how your teammates in Slack will see and refer to you." There are two input fields: "Full name" and "Display name (optional)". A note below the fields says: "By default, Slack will use your full name – but you can choose something shorter if you'd like." A checkbox labeled "It's ok to send me email about the Slack service." is checked. At the bottom is a grey button labeled "Continue to Password →".

### 4. Set your password

The screenshot shows a web browser window with the URL <https://slack.com/create#password>. The page title is "Create a Workspace | Slack". The main heading is "Set your password". Below it, a sub-instruction reads: "Choose a password for signing in to Slack." There is a single input field labeled "Password" containing a series of dots. A note below the field says: "Passwords must be at least 6 characters long, and can't be things like password, 123456 or abcdef." At the bottom is a green button labeled "Continue to Workspace Info →".

## 5. Fill in basic details about the workspace

The screenshot shows a web browser window titled "Create a Workspace | Slack". The URL is https://slack.com/create#teaminfo. The page has a header "Tell us about your team". It contains several dropdown menus and a text input field:

- "What will your team use Slack for?" dropdown: "Work"
- "Great! What kind of company is it?" dropdown: "Other"
- "How big is your company?" dropdown: "1-10 people"
- "What is your role there?" dropdown: "Other"
- "Could you elaborate? (More info will help us improve Slack!)" text input: "We'll use Slack for..."
- "Are you a manager? (Do people report to you?)" buttons: "Yes" (white) and "No" (green)

The browser's address bar shows the URL https://slack.com/create#teaminfo. The taskbar at the bottom of the screen displays various application icons.

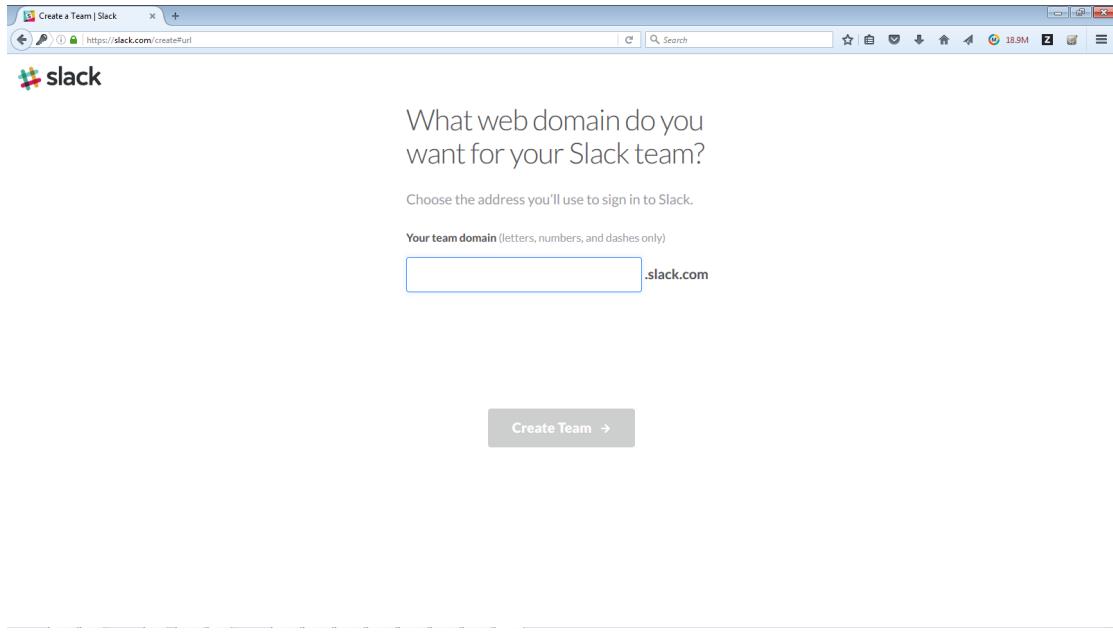
## 6. Fill in company name

The screenshot shows a web browser window titled "Create a Team | Slack". The URL is https://slack.com/createTeamname. The page has a header "What's your company called?". It contains a text input field and a note:

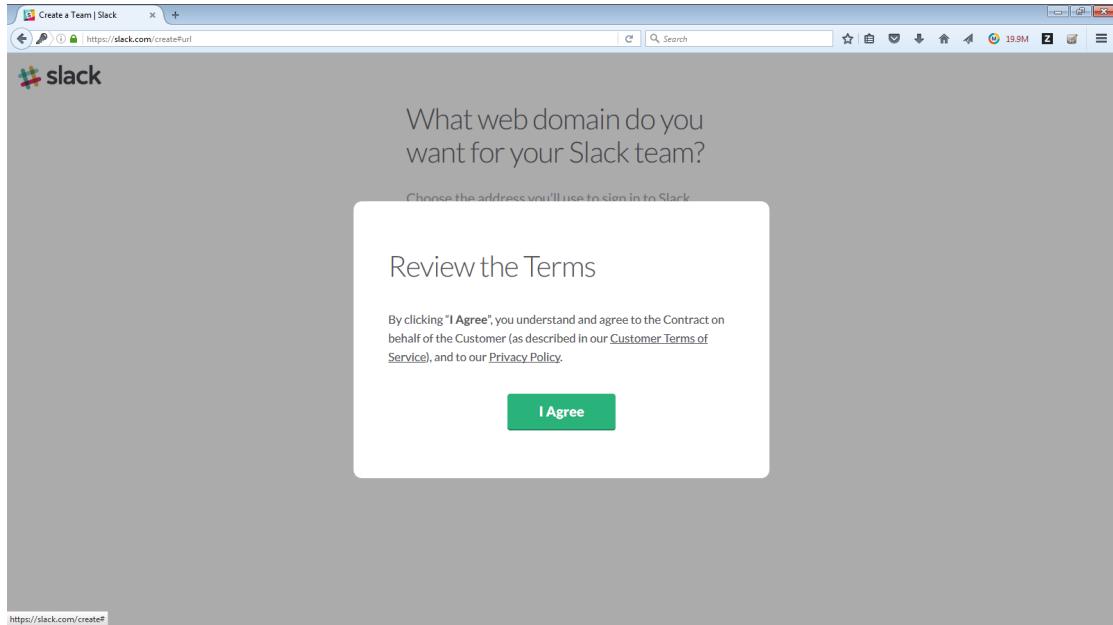
- "Company name" text input: "Ex. Acme or Acme Marketing"
- Note below the input: "We'll use this to name your Slack team, which you can always change later."
- "Continue to Team Domain →" button

The browser's address bar shows the URL https://slack.com/createTeamname. The taskbar at the bottom of the screen displays various application icons.

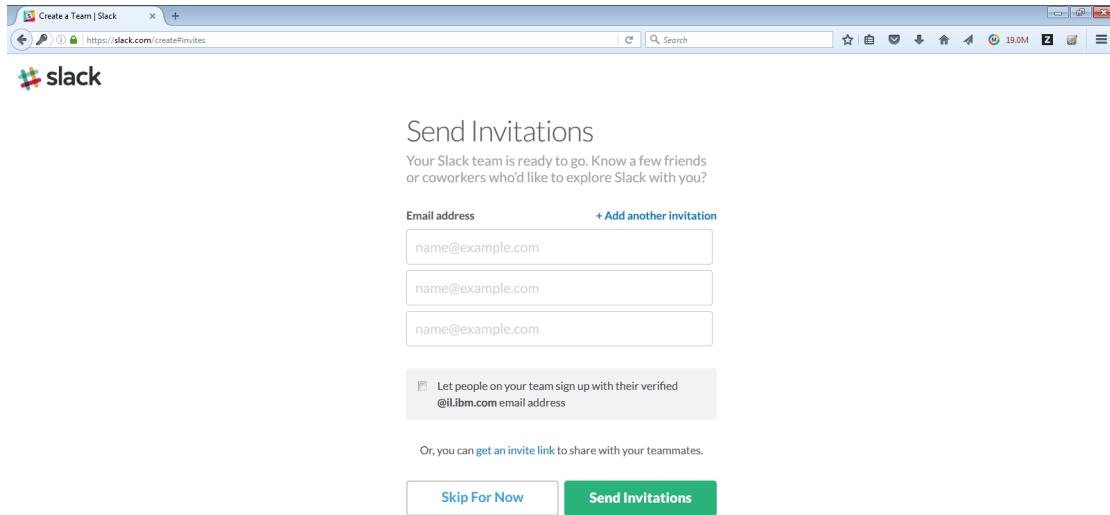
## 7. Choose your Slack's web domain



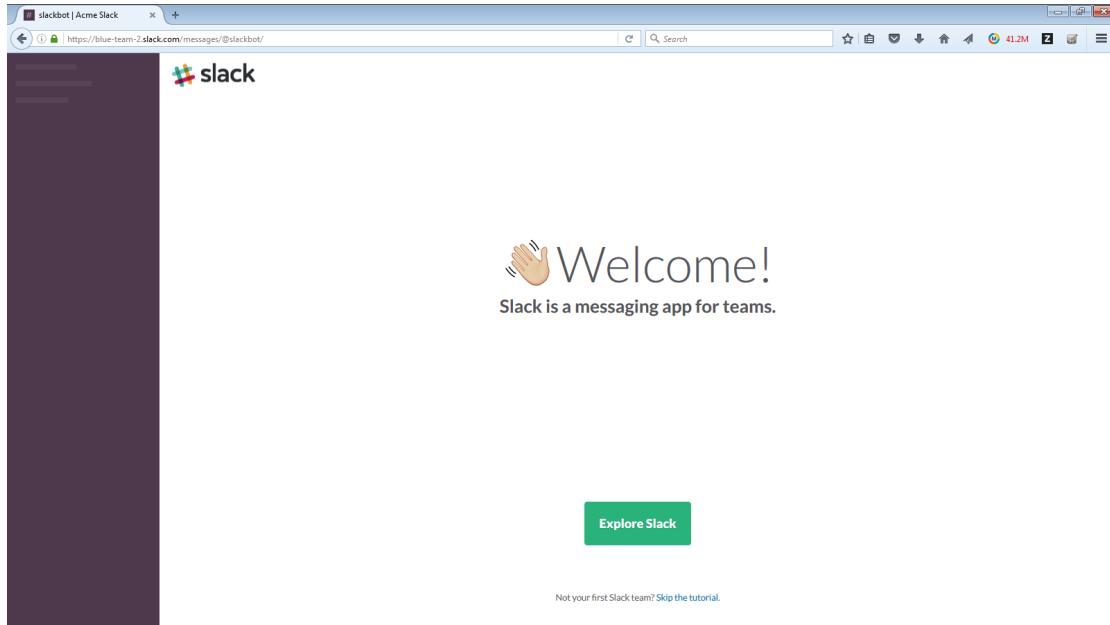
## 8. Agree to the terms (you have no choice, really!)



## 9. You may skip this step

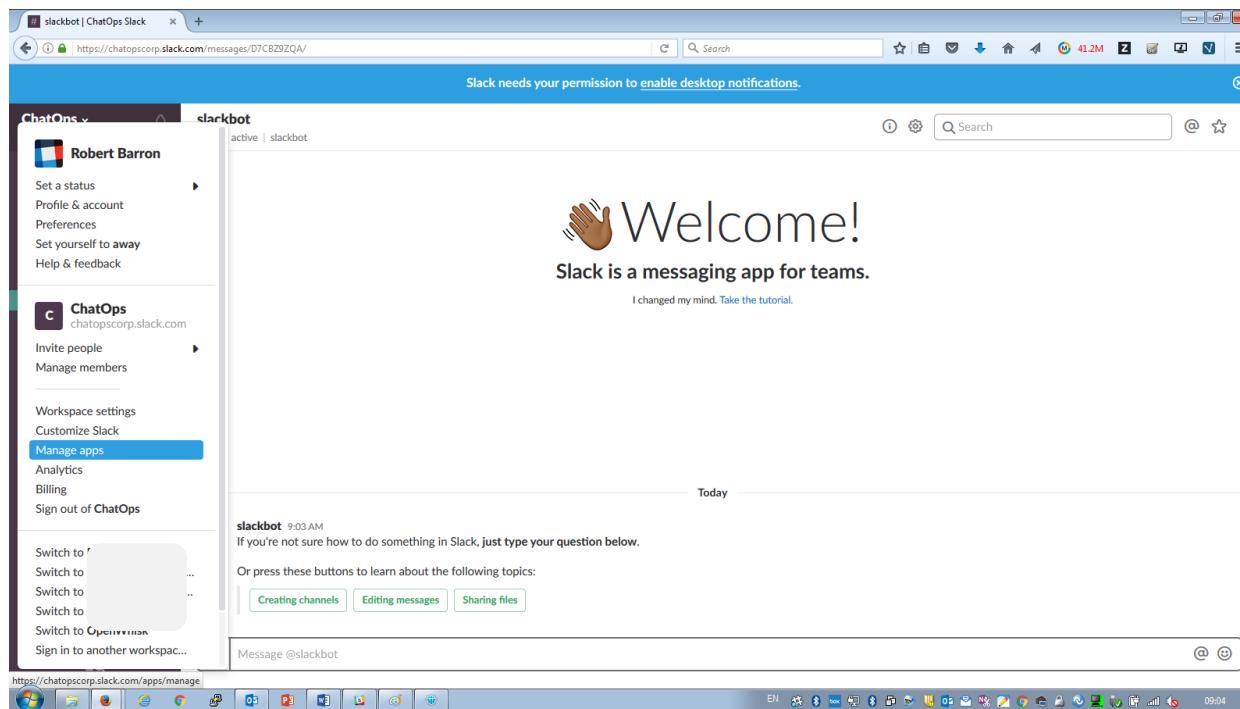


## 10. You have logged into your new Slack

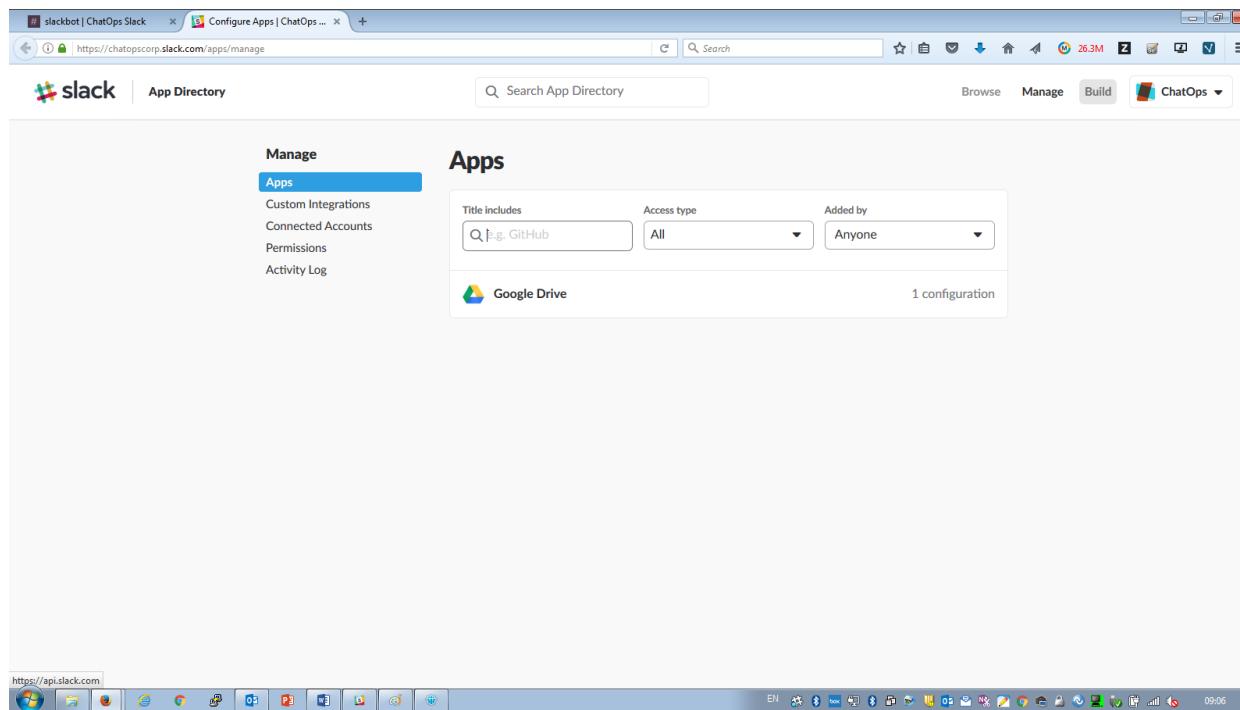


Depending on your familiarity with Slack, you may take or skip the tutorial

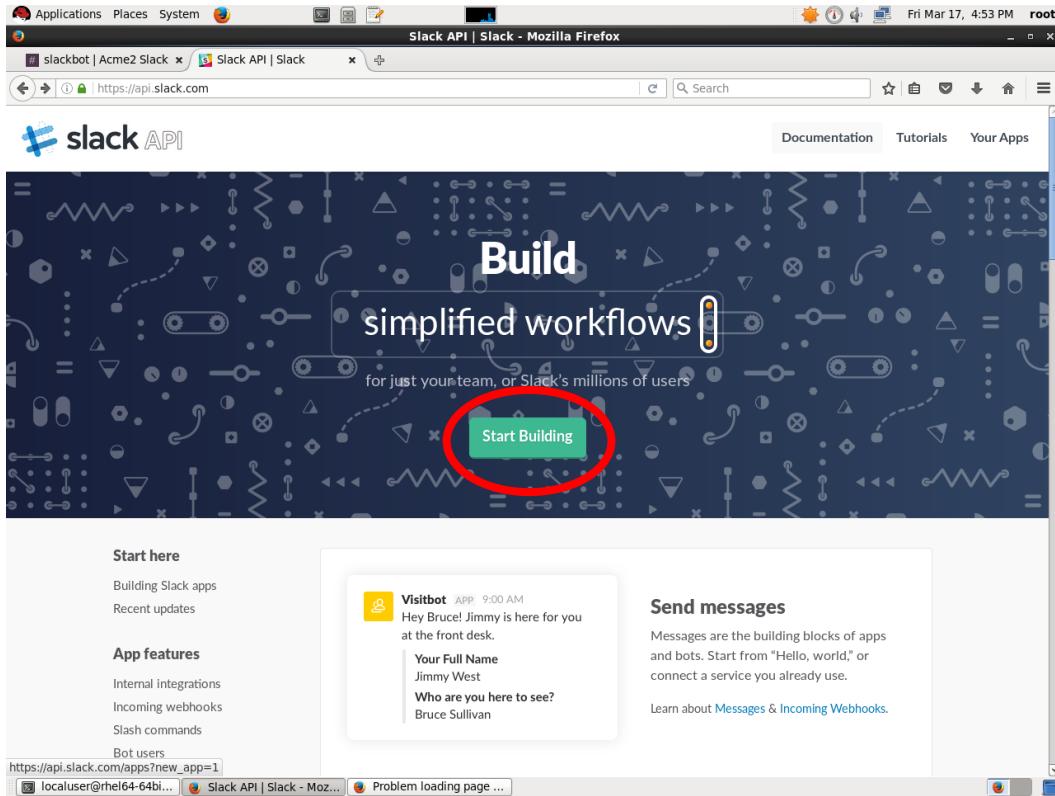
11. Open the menu to "Manage apps"



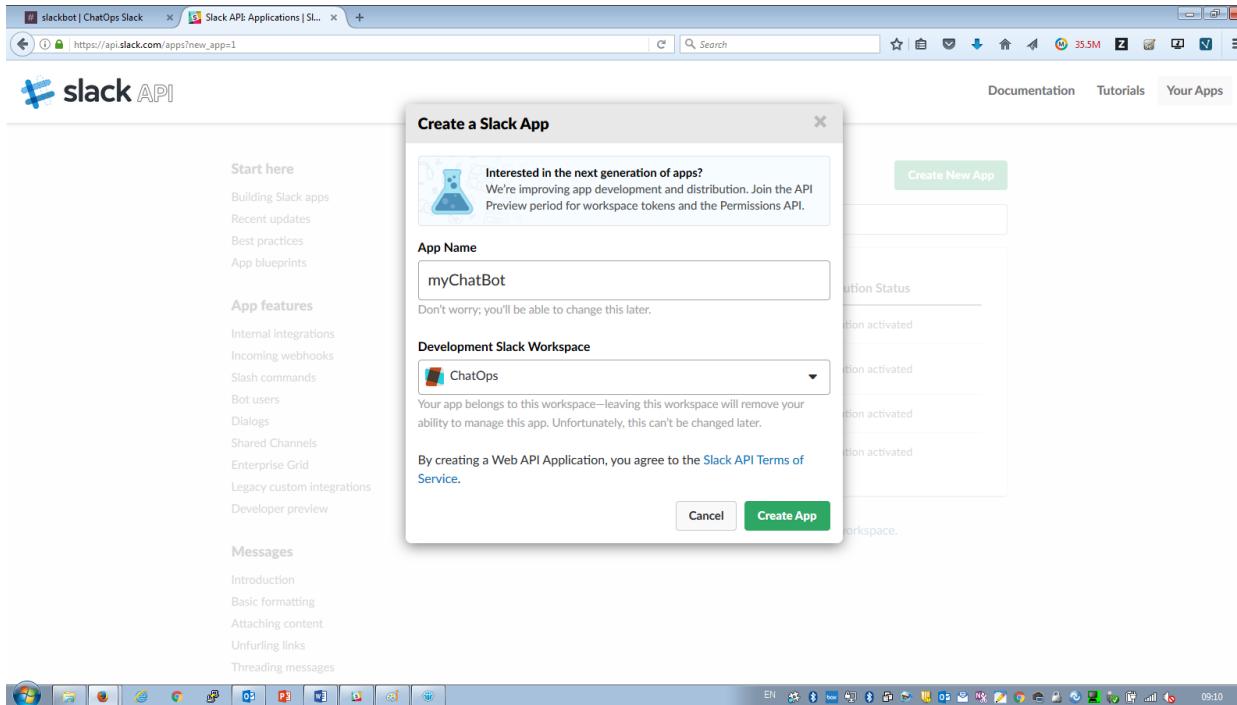
12. In the opened screen, choose the menu option Build



13. Click "Start Building"



14. Choose a name for your app (myChatBot, for example)



## 15. Congratulations – you have an app!

Scroll down and record the Client ID and Client Secret (copy/paste to a file)

The screenshot shows the 'App Credentials' section of the Slack API. It displays two fields: 'Client ID' (156892249351.156897160519) and 'Client Secret' (redacted). A red circle highlights the 'Client ID' field. Below these fields is a note: 'You'll need to include your Client ID along with your client ID when making your oauth.access request.' At the bottom are 'Discard Changes' and 'Save Changes' buttons.

## 16. Choose OAuth & Permissions from the menu

The screenshot shows the 'Basic Information' section of the Slack API. On the left, a sidebar menu has 'OAuth & Permissions' highlighted with a red circle. Other menu items include 'Basic Information', 'Collaborators', 'Install App', 'Manage Distribution', 'Incoming Webhooks', 'Interactive Messages', 'Slash Commands', 'Bot Users', 'Slack ❤️', 'Help', 'Contact', 'Policies', and 'Our Blog'. The main content area contains sections for 'Building Apps for Slack', 'Add features and functionality' (with 'Incoming Webhooks', 'Interactive Messages', 'Slash Commands', 'Event Subscriptions', 'Bots', and 'Permissions' options), and a note: 'Create an app that's just for your team (or build one that can be used by any team) by following the steps below.' At the bottom are 'Discard Changes' and 'Save Changes' buttons.

17. Add a new Redirect URL with the target <https://slack.com/oauth/authorize>

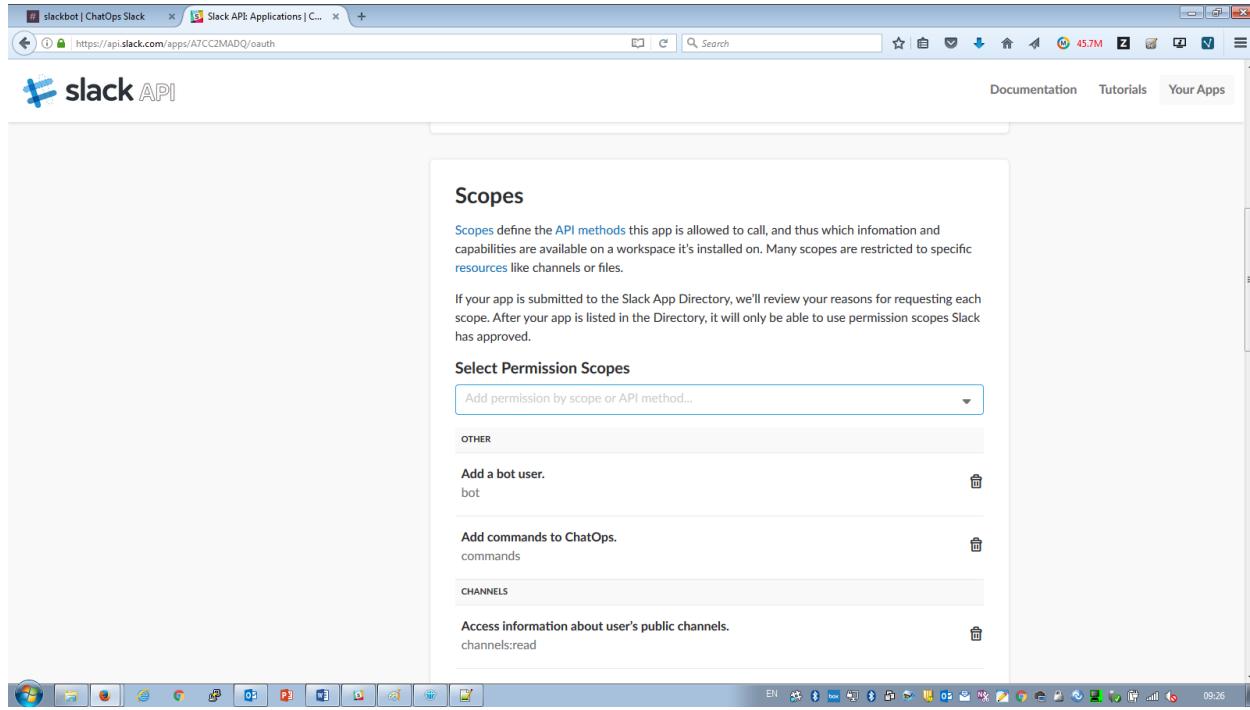
The screenshot shows the Slack API OAuth & Permissions page. On the left, there's a sidebar with options like Settings, Features, and OAuth & Permissions (which is selected). The main area is titled "OAuth Tokens & Redirect URLs". It contains a section for "Redirect URLs" where a URL "https://slack.com/oauth/authorize" has been entered into a text input field. Below this is a green "Add" button. At the bottom of the page, there's a "Save URLs" button.

18. Click "Save URLs" to save your change

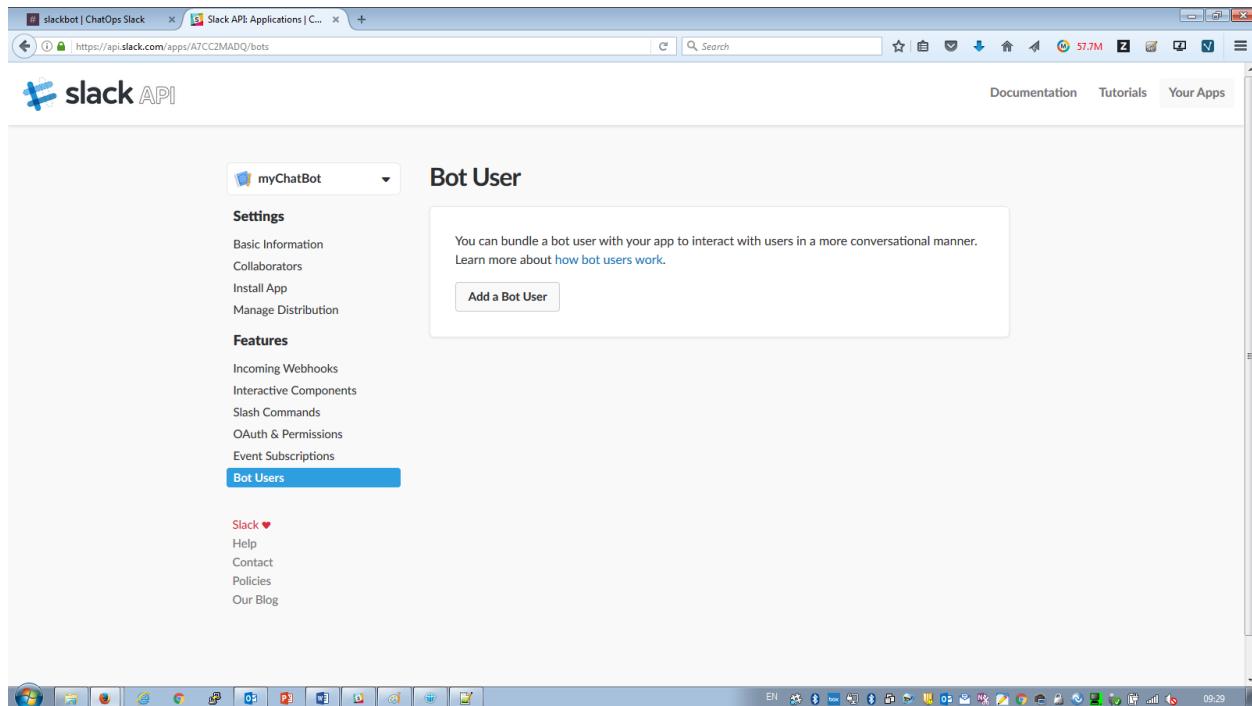
The screenshot shows the same Slack API OAuth & Permissions page as before, but now it features a prominent green "Success!" message at the top. The "Redirect URLs" section still displays the URL "https://slack.com/oauth/authorize". The "Save URLs" button is visible at the bottom.

19. Scroll down and add the following Permission Scopes:

commands, bot, chat:write:user, channels:read, channels:write, groups:read, groups:write, files:write:user, users:read



20. Go to the "Bot Users" menu and click "Add a Bot User"

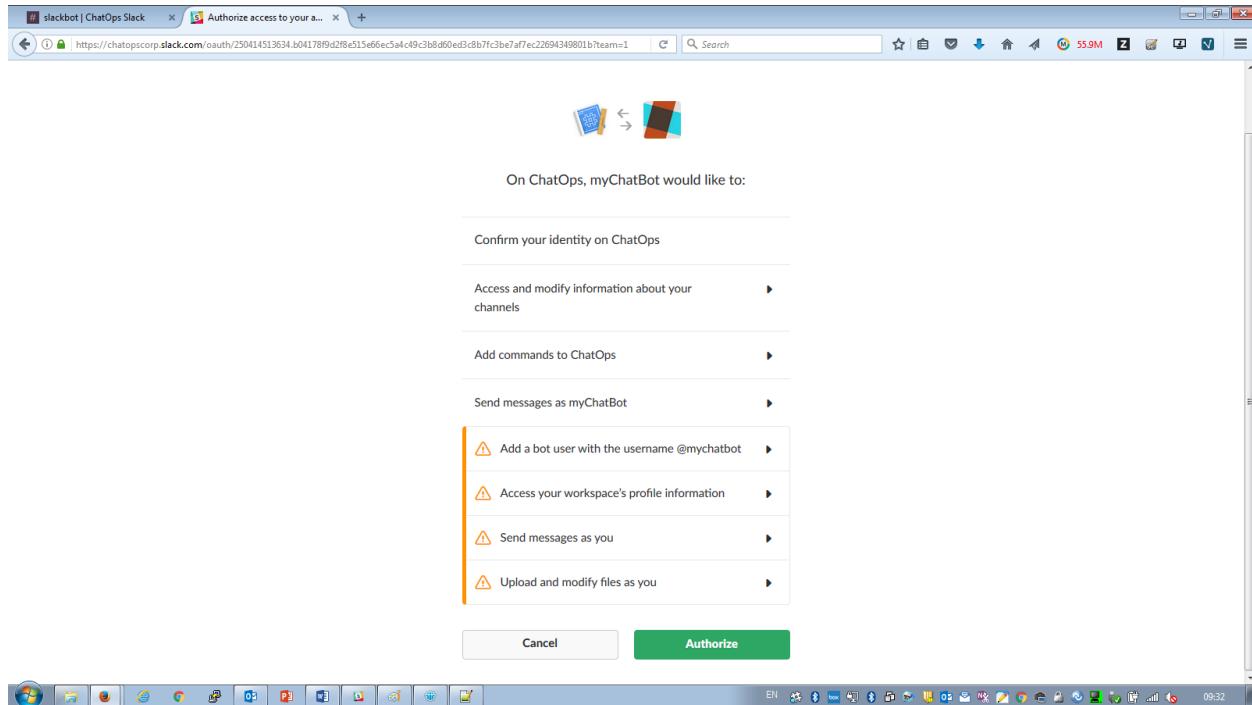


The screenshot shows a web browser window with the URL <https://api.slack.com/apps/A7CC2MADQ/bots?saved=1>. The title bar says "slackbot | ChatOps Slack" and "Slack API: Applications | C...". The main content area has a green header bar with "Success!" and a "Bot User" section. On the left, there's a sidebar with "myChatBot" and sections for "Settings" (Basic Information, Collaborators, Install App, Manage Distribution), "Features" (Incoming Webhooks, Interactive Components, Slash Commands, OAuth & Permissions, Event Subscriptions, Bot Users), and "Slack" (Help, Contact, Policies, Our Blog). The "Bot Users" section is currently selected. The main content area contains fields for "Display name" (mychatbot) and "Default username" (mychatbot). A note says "You can bundle a bot user with your app to interact with users in a more conversational manner. Learn more about [how bot users work](#)." Below these are options for "Always Show My Bot as Online" (Off) and "Save Changes" and "Remove Bot" buttons. The status bar at the bottom shows various icons and the time 09:30.

## 21. Go to the "Install App" menu and click "Add App to Workspace"

The screenshot shows a web browser window with the URL <https://api.slack.com/apps/A7CC2MADQ/install-on-team>. The title bar says "slackbot | ChatOps Slack" and "Slack API: Applications | C...". The main content area has a green header bar with "Install App to Your Team". On the left, there's a sidebar with "myChatBot" and sections for "Settings" (Basic Information, Collaborators, Install App, Manage Distribution), "Features" (Incoming Webhooks, Interactive Components, Slash Commands, OAuth & Permissions, Event Subscriptions, Bot Users), and "Slack" (Help, Contact, Policies, Our Blog). The "Install App" section is currently selected. The main content area contains a note: "Install your app to your Slack workspace to test your app and generate the tokens you need to interact with the Slack API. You will be asked to authorize this app after clicking Install App to Workspace." Below this is a "Install App to Workspace" button. The status bar at the bottom shows the URL [https://slack.com/oauth/authorize?&client\\_id=250331486483.250410724466&team=T7C9REAE7&install\\_redirect=install-on-team&scope=bot,channels:read,commands,chat:write:bot,chat:write:user,channels:write,groups:read,groups:write,files:write:user,users:read](https://slack.com/oauth/authorize?&client_id=250331486483.250410724466&team=T7C9REAE7&install_redirect=install-on-team&scope=bot,channels:read,commands,chat:write:bot,chat:write:user,channels:write,groups:read,groups:write,files:write:user,users:read) and the time 09:31.

## 22. Authorize the permissions



## 23. Record the OAuth tokens

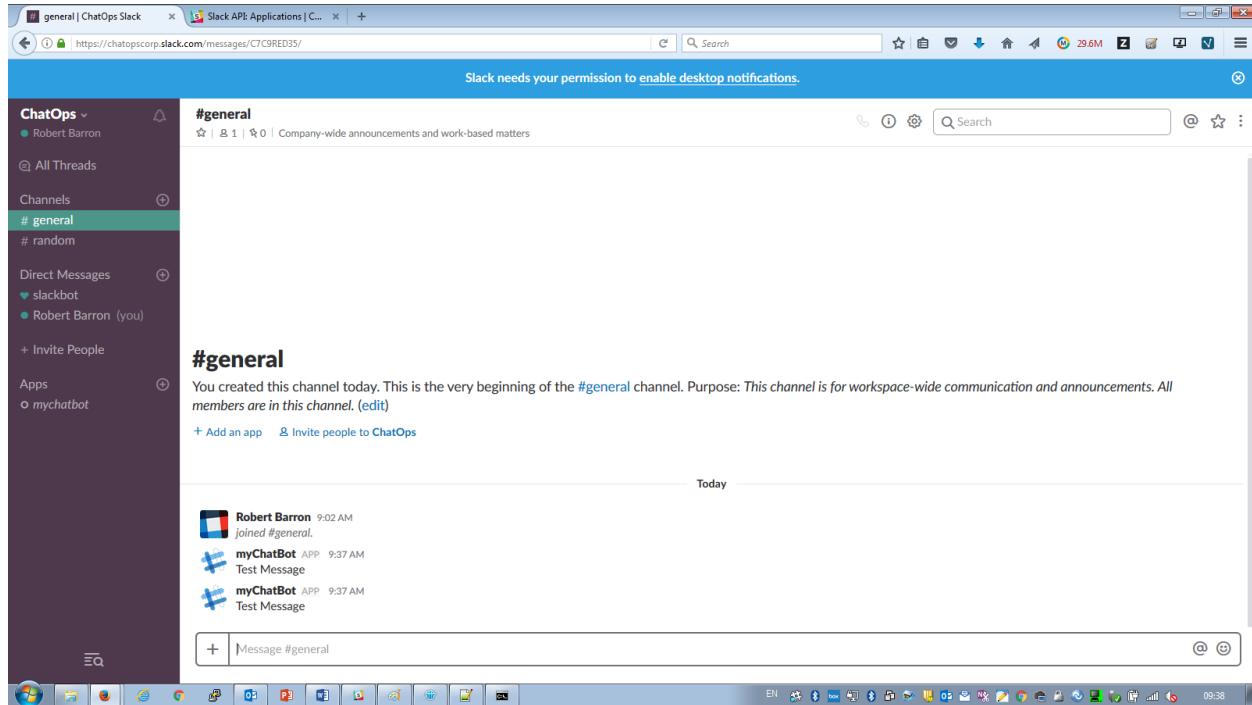
A screenshot of a web browser window titled "slackbot | ChatOps Slack" showing the "Slack API: Applications" page. The URL is https://api.slack.com/apps/A7CC2MADQ/install-on-team?success=1. The page displays the "Installed App Settings" for the "myChatBot" app. The "OAuth Tokens for Your Team" section shows two tokens:

- OAuth Access Token:** xoxp-250331486483-250407337410-250414981202-22e90b62c0f9ef6f4ec779947 (with a "Copy" button)
- Bot User OAuth Access Token:** xoxb-250553447605-25UULAhewtw2xrsSKUpmnh3 (with a "Copy" button)

At the bottom of the page is a "Reinstall App" button.

24. Test your tokens by opening a terminal window and running the following command

```
curl -X POST -d "channel=%23general&text=Test%20Message" -d  
"token=__YourTokenHere__" https://slack.com/api/chat.postMessage
```



## Sending a test sample message from Impact

We will use Impact to send the initial event to Slack. Open a terminal window to run the following commands.

1. Export the Slack server certificate using the following command:

```
echo -n | openssl s_client -connect slack.com:443 | sed -ne '/-BEGIN CERTIFICATE-/,/-END CERTIFICATE-/p' > /tmp/slack.cert
```

2. Once you have the exported the certificate, you must load it into Impact by running the following command:

```
/opt/IBM/tivoli/impact/sdk/bin/keytool -importcert -alias Slack-NOI-ChatOps -file /tmp/slack.cert -keystore /opt/IBM/tivoli/impact/wlp/usr/servers/NCI/resources/security/trust.jks -storepass passw0rd
```

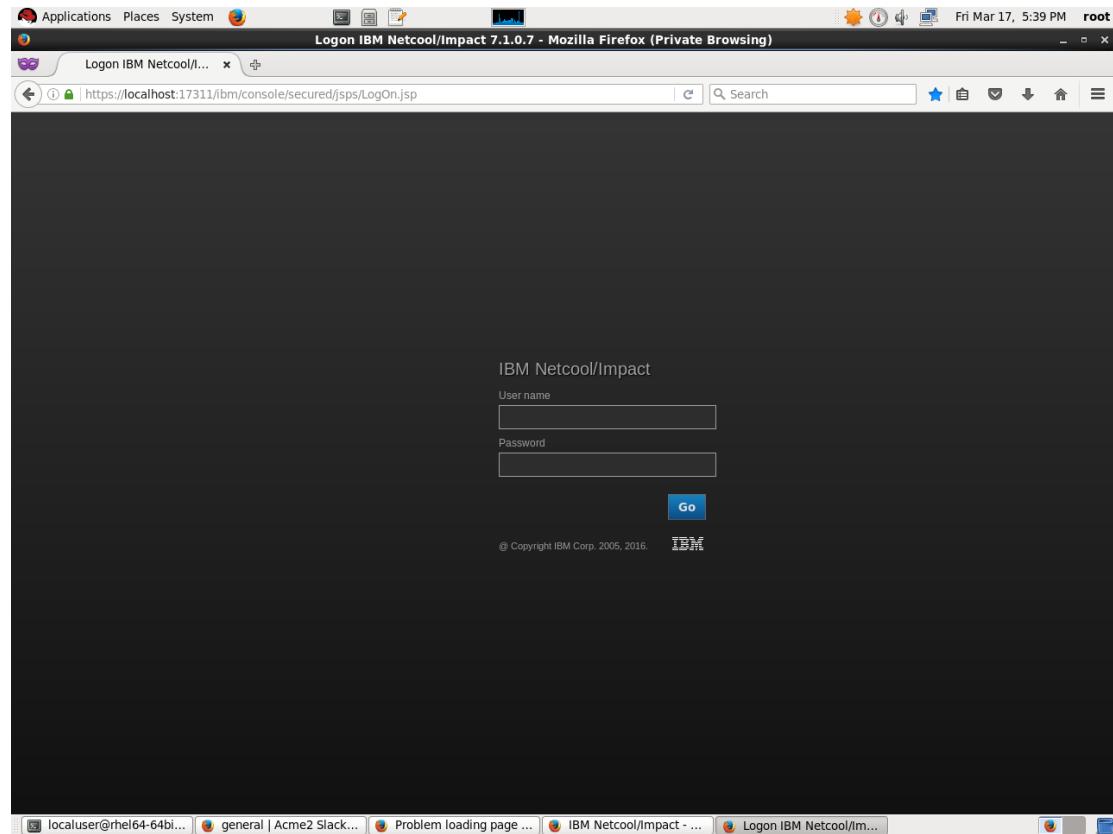
Respond "yes" when asked whether to trust the certificate.

3. Restart Impact using the commands

```
/opt/IBM/tivoli/impact/bin/stopImpactServer.sh  
/opt/IBM/tivoli/impact/bin/startImpactServer.sh
```

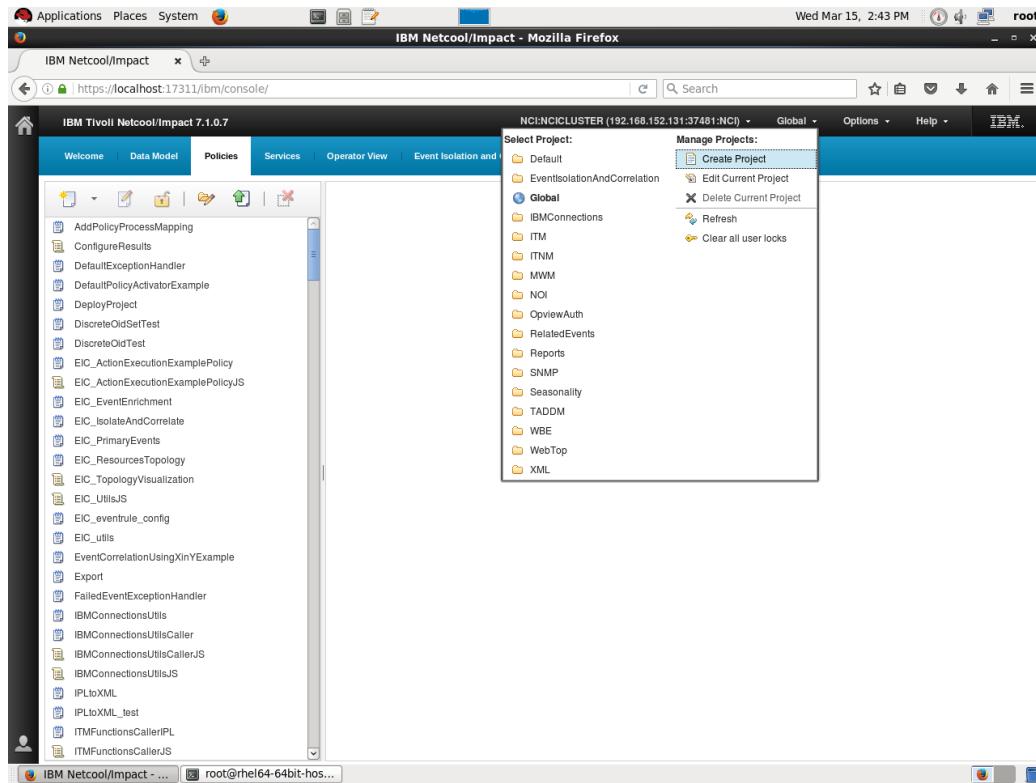
4. Open a new Firefox tab and login to Impact.

<http://localhost:17310/ibm/console> (or the bookmark Logon IBM Netcool/Impact)

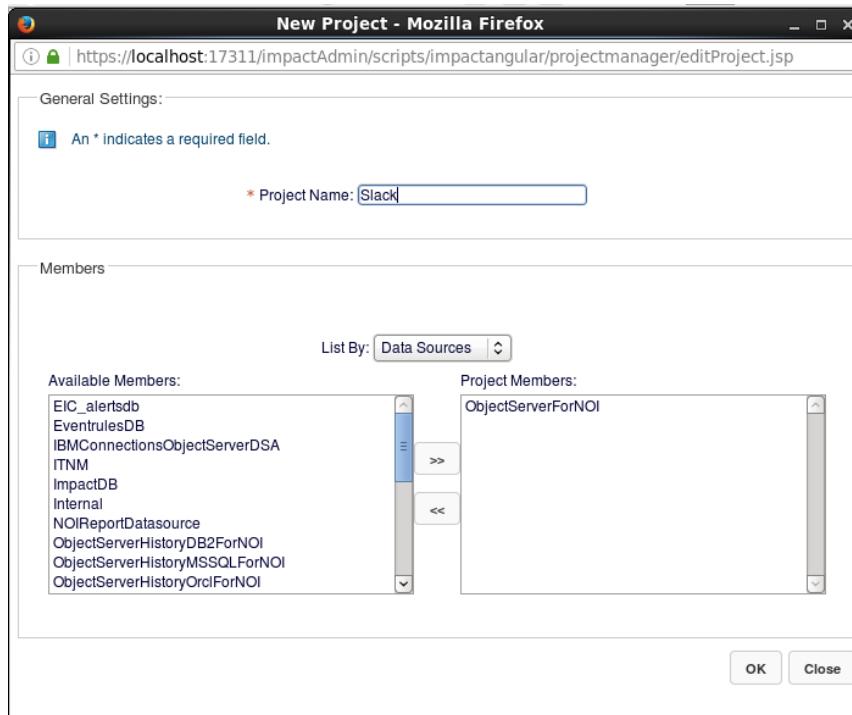


User/password is impactadmin/passw0rd

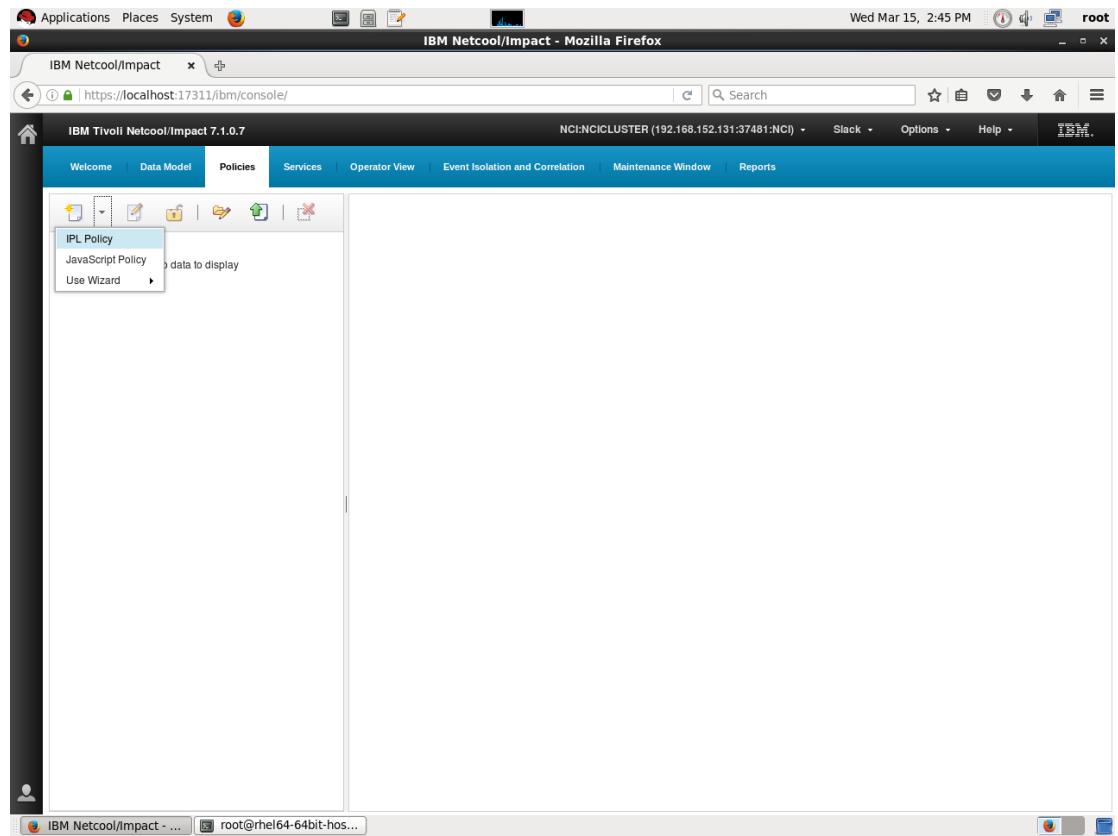
5. Click "Global" and then "Create Project"



6. Create a new project called "Slack" and add the datasource "ObjectServerForNOI"



7. Create a new IPL policy



Enter the following code into the Policy and update the value of the Slack token to your own token:

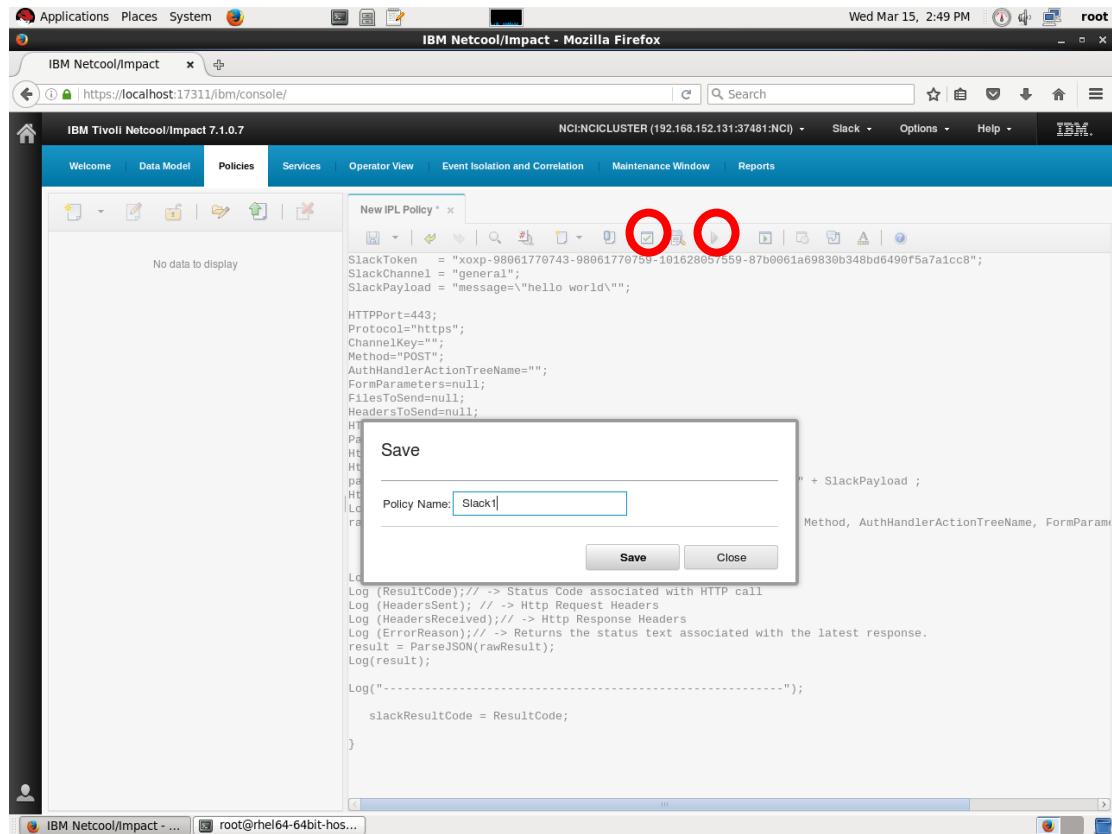
```
SlackToken    = "__YOUR_TOKEN_HERE__";
SlackChannel  = "general";
SlackPayload  = "text=hello world";

HTTPPort=443;
Protocol="https";
ChannelKey="";
Method="POST";
AuthHandlerActionTreeName="";
FormParameters=null;
FilesToSend=null;
HeadersToSend=null;
HTTPHost="slack.com";
Path="/api/chat.postMessage";
HttpProperties=NewObject();
HttpProperties.ContentType="application/x-www-form-urlencoded";
payload = "token=" + SlackToken + "&channel=" + SlackChannel + "&" + SlackPayload ;
HttpProperties.Content=( payload );
Log( HttpProperties);
rawResult=GetHTTP(HTTPHost, HTTPPort, Protocol, Path, ChannelKey, Method, AuthHandlerActionTreeName, FormParameters, FilesToSend, HeadersToSend, HttpProperties);

Log (ThePage); // "ThePage" is useful for diagnosing http errors
Log (resultCode); // -> Status Code associated with HTTP call
Log (headersSent); // -> Http Request Headers
Log (headersReceived); // -> Http Response Headers
Log (errorReason); // -> Returns the status text associated with the latest response.
result = ParseJSON(rawResult);
Log(result);

Log ("-----");
```

8. Save the policy, validate the syntax of the code, and run the policy.



9. Check the contents of the policy log file at :

/opt/IBM/tivoli/impact/logs/NCI\_policylogger\_<PolicyName>.log

## Sending a real Omnibus event from Impact

1. Create a file called updateOmnibusSchema.sql and insert the following SQL commands

```
alter table alerts.status add Slack integer;  
go  
  
insert into alerts.conversions values ('Slack0', 'Slack', 0, 'Not Sent');  
go  
  
insert into alerts.conversions values ('Slack1', 'Slack', 1, 'Queued');  
go  
  
insert into alerts.conversions values ('Slack2', 'Slack', 2, 'Sent');  
go  
  
alter table alerts.status add SlackChannel varchar (32);  
go
```

2. Run the following command to execute the sql on the ObjectServer:

```
/opt/IBM/tivoli/netcool/omnibus/bin/nco_sql -server AGG_P -password passw0rd -user root -input  
updateOmnibusSchema.sql
```

```
(0 rows affected)
```

```
(1 row affected)
```

```
(1 row affected)
```

```
(1 row affected)
```

```
(0 rows affected)
```

3. Create a new Policy with the following code:

```
SlackToken    = "__INSERT_TOKEN_HERE__";
DASH_Server   = "https://localhost:16311/ibm/console";

HTTPPPort=443;
Protocol="https";
ChannelKey="";
Method="POST";
AuthHandlerActionTreeName="";
FormParameters=null;
FilesToSend=null;
HeadersToSend=null;
HTTPPHost="slack.com";
Path="/api/chat.postMessage";
HttpProperties=NewObject();
HttpProperties.ContentType="application/x-www-form-urlencoded";

SlackChannel = "general";
SlackNode     = @Node;
SlackTime     = LocalTime(@LastOccurrence, "EEE MMM dd HH:mm:ss yyyy");
SlackMessage  = replace(@Summary,'','','');

if (@Severity == 0 ) { PreText = "*Clearing alert*"; } elseif
(@Severity == 1 ) { PreText = "*Information*"; } elseif
(@Severity == 2 ) { PreText = "*Alert*"; } elseif
(@Severity == 3 ) { PreText = "*Alert*"; } elseif
(@Severity == 4 ) { PreText = "*Alert*"; } elseif
(@Severity == 5 ) { PreText = "*Alert*"; } else
{ PreText = "*Information*"; }

SlackPayload =
"mrkdwn=true&username=Omnibus&icon_emoji=:itsm:&text=" + PreText + "
on " + SlackNode + " : " + SlackMessage;

payload = "token=" + SlackToken + "&channel=" + SlackChannel + "&" +
SlackPayload ;
HttpProperties.Content=( payload );
Log( HttpProperties);
rawResult=GetHTTP(HTTPHost, HTTPPPort, Protocol, Path, ChannelKey,
Method, AuthHandlerActionTreeName, FormParameters, FilesToSend,
HeadersToSend, HttpProperties);

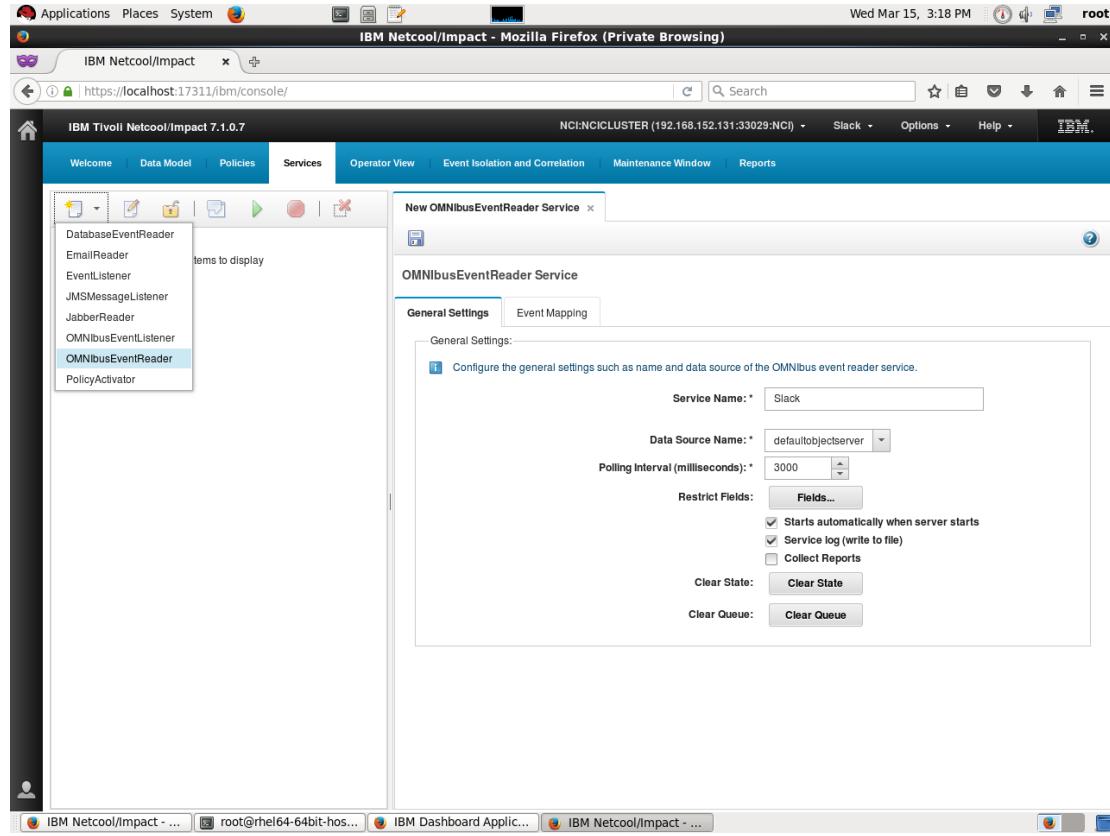
Log (ThePage); // "ThePage" is useful for diagnosing http errors
Log (resultCode); // -> Status Code associated with HTTP call
Log (HeadersSent); // -> Http Request Headers
Log (HeadersReceived); // -> Http Response Headers
Log (ErrorReason); // -> Returns the status text associated with the
latest response.
result = ParseJSON(rawResult);
Log(result);

Log ("-----");

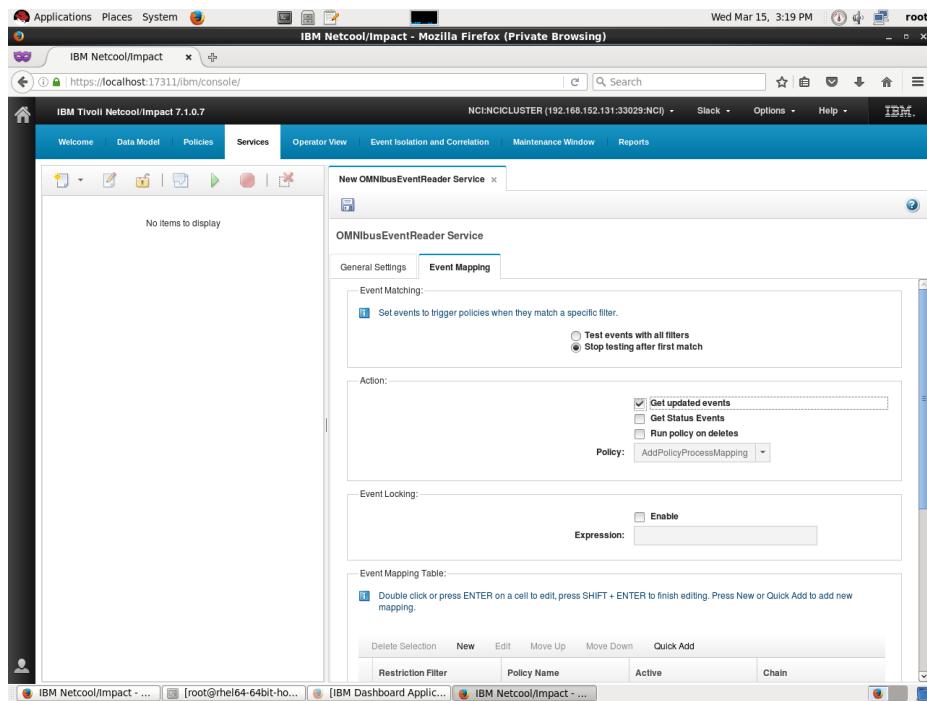
slackresultCode = ResultCode;
```

```
@Slack = 2;  
ReturnEvent(EventContainer);
```

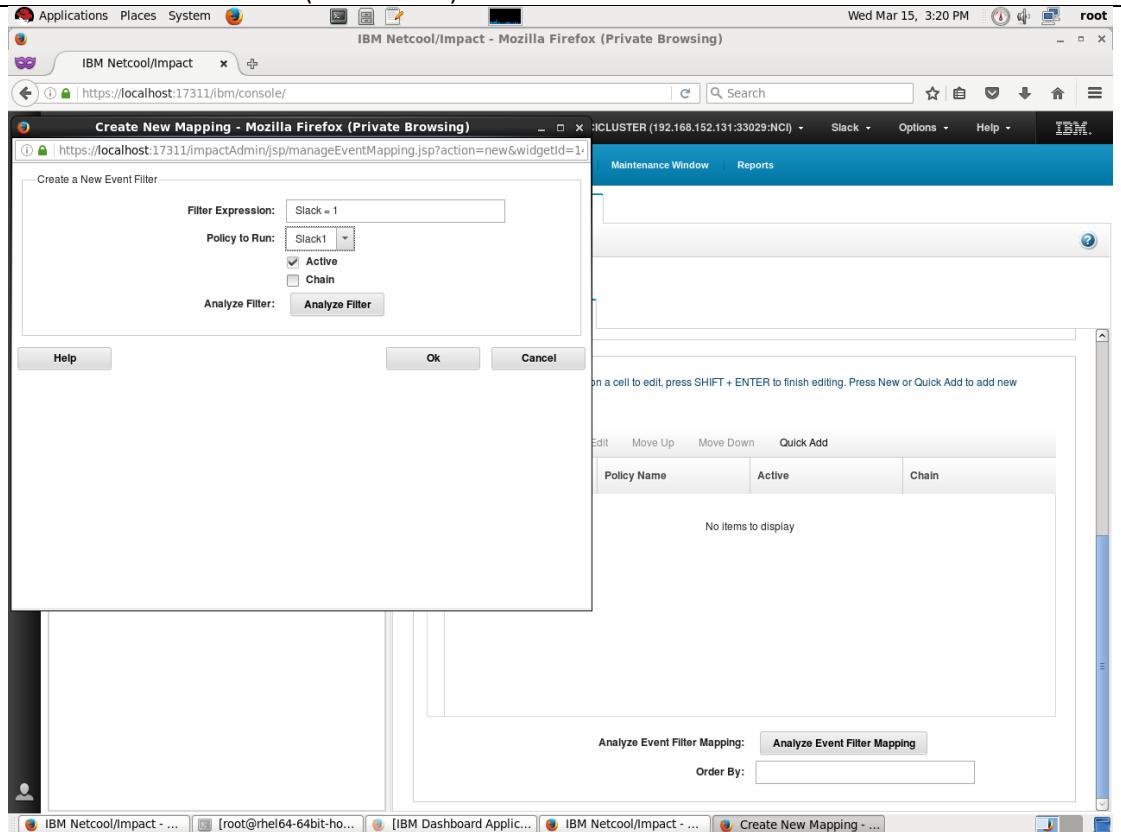
4. open the "Services" tab and create a new service of type OmnibusEventReader called "Slack"



5. Move to the tab "Event Mapping" and check the option "Get Updated Events"



6. Add a new entry to the "Event Mapping Table" which will run the policy you have just created when the event "Slack = 1" occurs (mark it active)



## 7. Save the service

The screenshot shows the IBM Netcool/Impact web interface. The URL is <https://localhost:17311/bm/console/>. The page title is "IBM Tivoli Netcool/Impact 7.1.0.7". The top navigation bar includes "Welcome", "Data Model", "Policies", "Services", "Operator View", "Event Isolation and Correlation", "Maintenance Window", and "Reports". The "Services" tab is selected. A sidebar on the left lists "Slack" and other services. The main content area is titled "OMNIBusEventReader Service" and shows the "Event Mapping" tab selected. It contains an "Event Mapping Table" with the following data:

Restriction Filter	Policy Name	Active	Chain
Slack = 1	Slack1	Yes	No

Buttons at the bottom include "Delete Selection", "New", "Edit", "Move Up", "Move Down", and "Quick Add". There is also an "Analyze Event Filter Mapping" button.

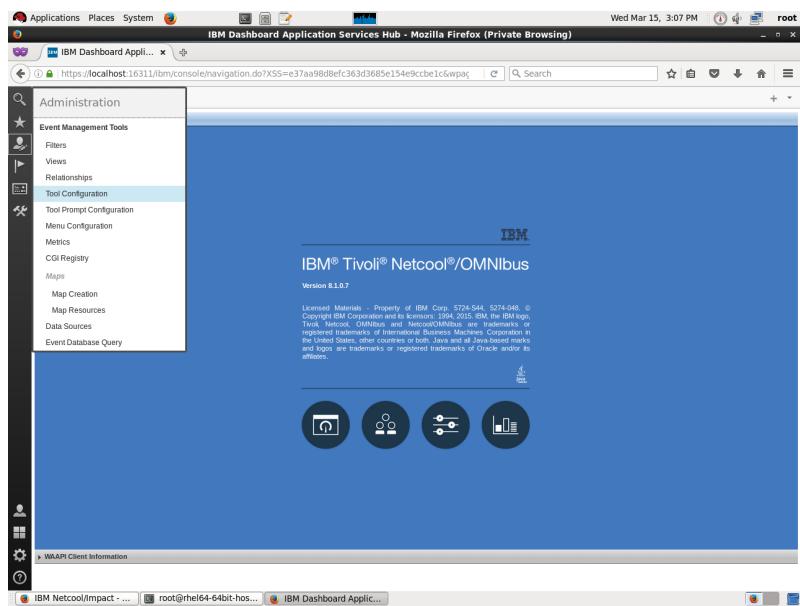
## 8. Start the Service

This screenshot is identical to the one above, showing the "Event Mapping" configuration for the OMNIBusEventReader Service. The data in the table remains the same:

Restriction Filter	Policy Name	Active	Chain
Slack = 1	Slack1	Yes	No

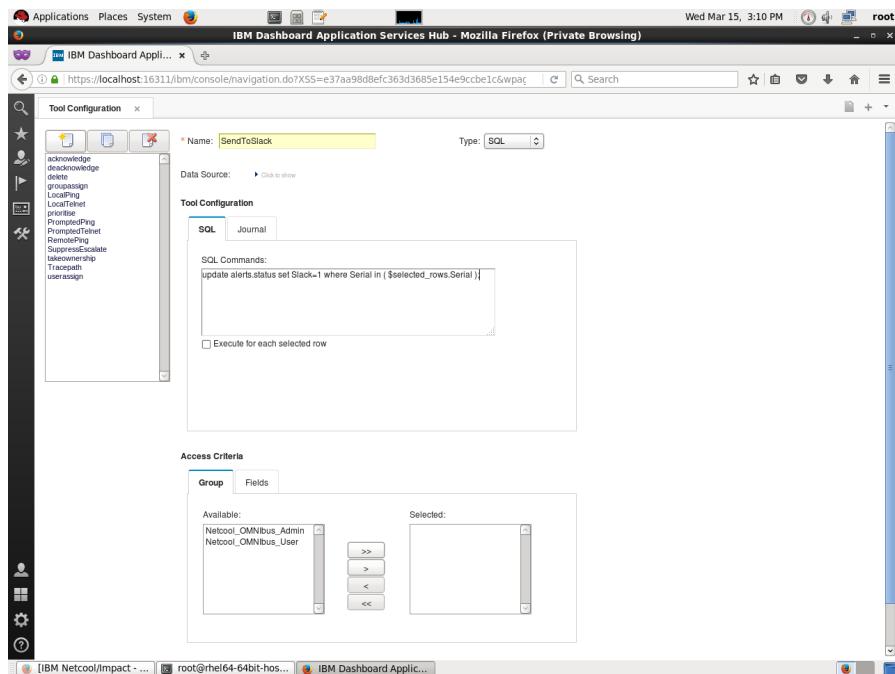
9. Login to DASH at <http://localhost:16311/ibm/console> with the user/password of ncoadmin/nocadmin (note that you cannot be logged into to DASH and Impact using the same browser session – you will either need to logout of Impact or open a private tab for the DASH session)

10. Open the "Tool config" menu

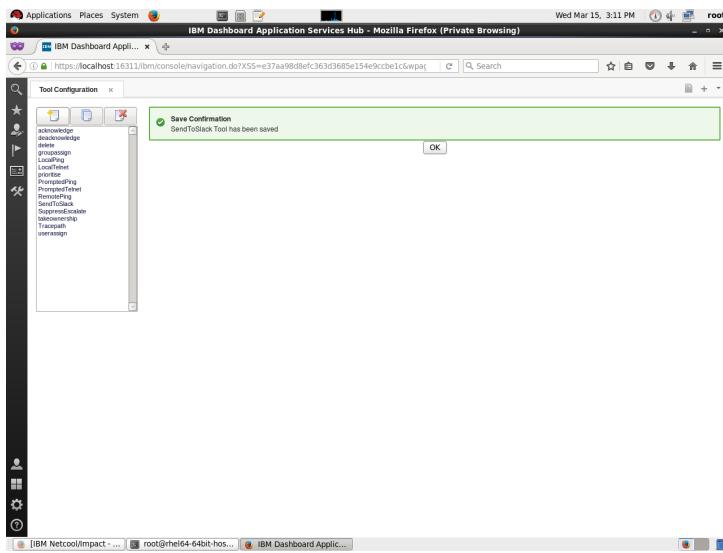


11. Create a new SQL tool called "SendToSlack" and enter the following command :

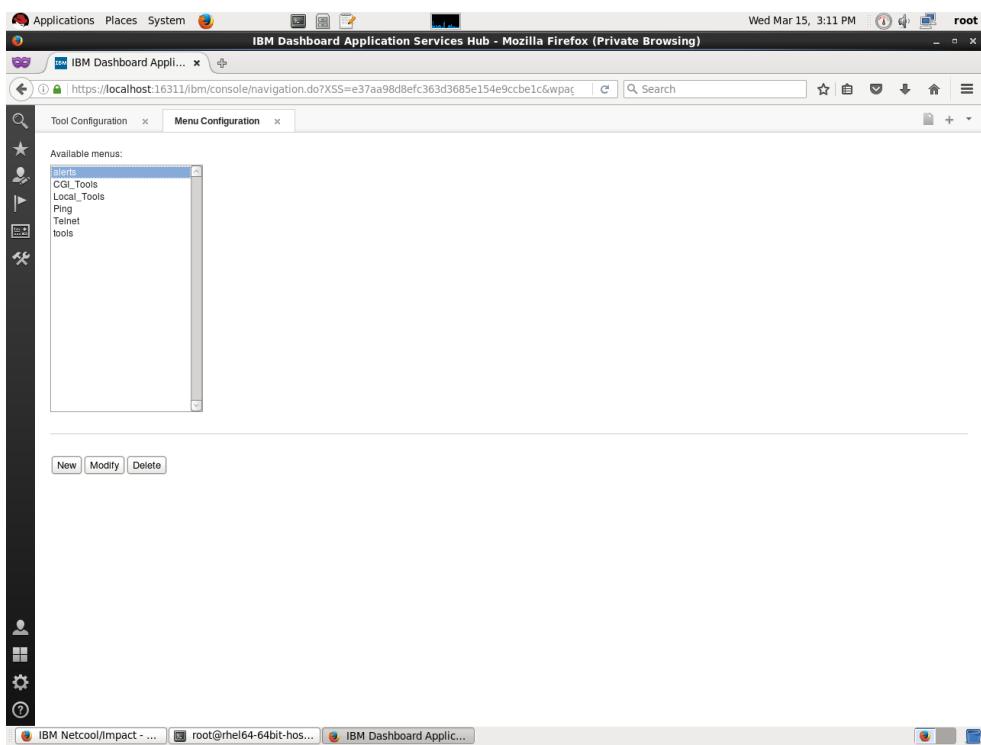
```
update alerts.status set Slack=1 where Serial in
($selected_rows.Serial);
```



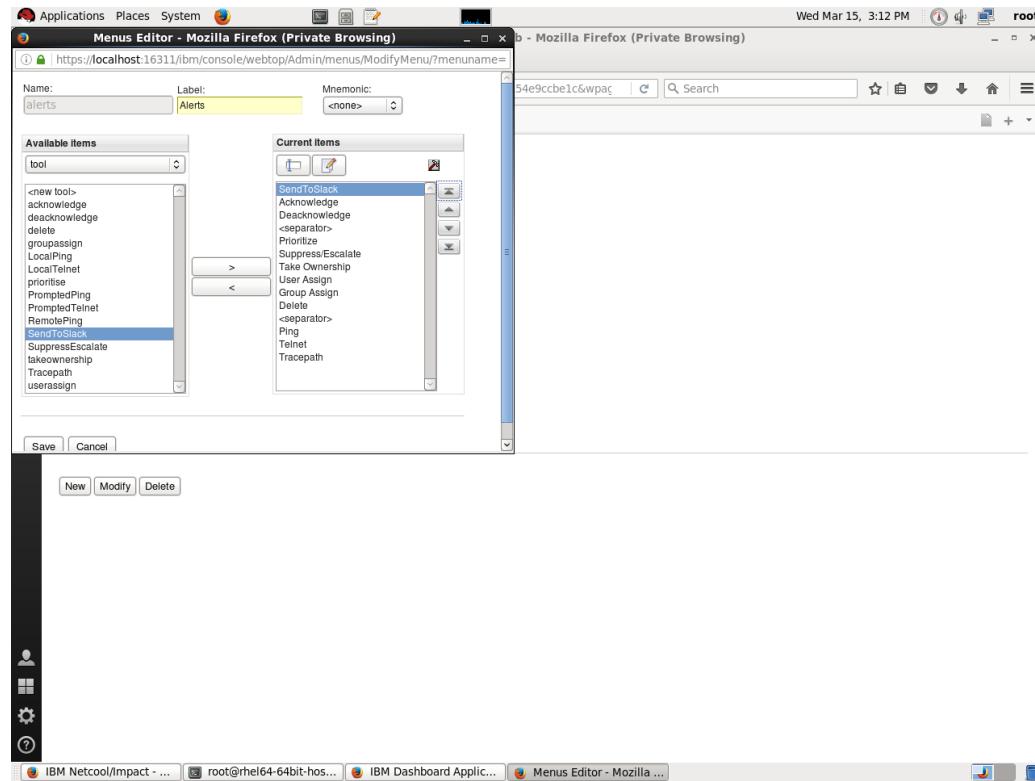
12. Save the tool (you may need to scroll down to see the save button)



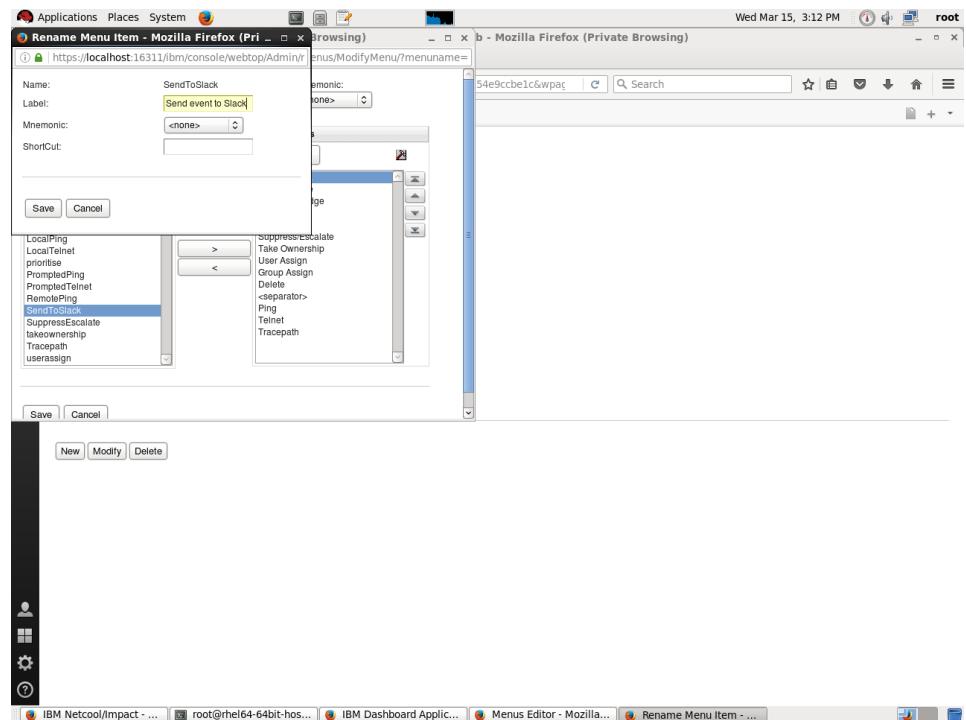
13. Open the "Menu Configuration" tab and choose the "alerts" menu to modify



**14. Modify the "alerts" menu by moving the SendToSlack tool to the right**



**15. Rename the tool in the menu to "Send event to Slack"**



## 16. Open the event viewer tab

The screenshot shows the IBM Dashboard Application Services Hub interface in Mozilla Firefox. The title bar reads "IBM Dashboard Application Services Hub - Mozilla Firefox". The address bar shows the URL "https://localhost:16311/bm/console/navigation.do?XSS=f7b18895755ee9bd4f93ff07f816f68c&wpageid=1". The left sidebar has a tree view with nodes like "Incident", "Events", "Event Dashboard", "Event Viewer" (which is selected), "Active Event List (AEL)", "Key Performance Indicators (KPIs)", "Operational KPIs", "Event Database KPIs", "Netcool/OMNIbus System KPIs", and "Netcool Health". The main content area displays the "IBM® Tivoli® Netcool®/OMNIbus" logo and version "Version 8.1.0.7". Below the logo are four circular icons representing different monitoring functions. At the bottom of the main area, there is a link "» WAAPI Client Information". The status bar at the bottom indicates "root" and the date "Wed Mar 15, 3:25 PM".

## 17. right click an event to verify that you see the new tool.

The screenshot shows the "Event Viewer" table in the IBM Dashboard Application Services Hub. The table has columns: Sev, Ack, Node, Alert Group, Summary, First Occurrence, Last Occurrence, and Count. There are 12 rows of data. The 4th row, which corresponds to the event "rhe164-64bit-host" with alert group "DBStatus" and summary "Last 5 mins alerts.journal (inserts): 0", has a context menu open over it. The menu items are: Send event to Slack, Acknowledge Ctrl+A, De-acknowledge Ctrl+D, Prioritize, Suppress/Escalate, Take ownership, User Assign, Group Assign, Ping, Information..., Journal..., Copy Ctrl+C, and Quick Filter. The status bar at the bottom indicates "Total: 12 Selected: 1", "3:25 PM : 12 row(s) inserted.", and "Refresh in: 31".

18. Right click again and show the event details, verify that the event has been modified.

The screenshot shows a Firefox browser window titled "IBM Dashboard Application Services Hub - Mozilla Firefox". The address bar shows the URL <https://localhost:16311/ibm/console/navigation.do?XSS=f7b18895755ee9bd4f93ff07f816f68c&wpage1>. The main interface is the "Event Viewer" tool, displaying a list of events. A specific event, "Properties for event 5 on OMNIBUS", is selected and shown in a detailed properties dialog box. The properties dialog has tabs for "Fields", "Details", and "Journal". The "Fields" tab is active, showing a table of fields and their values. One field, "Slack", has its value set to "Sent". The "Details" tab shows the event occurred at 3/15/17, 7:32 PM. The "Journal" tab shows a history of modifications, with the most recent entry being "3/15/17, 7:32 PM" by user "AM". The status bar at the bottom indicates "Total: 12 Selected: 1" and "3:33 PM : 11 row(s) modified".

19. Check Slack and see if your event appears

## Format the event sent to Slack.

20. Create a new Impact policy with the following contents:

```
SlackToken      = "__REPLACE_WITH_TOKEN";  
  
DASH_Server    =  
"https://REPLACE_WITH_SERVER_FQDN_OR_IP:16311/ibm/console";  
  
HTTPPort=443;  
  
Protocol="https";  
  
ChannelKey="";  
  
Method="POST";  
  
AuthHandlerActionTreeName="";  
  
FormParameters=null;  
  
FilesToSend=null;  
  
HeadersToSend=null;  
  
HTTPHost="slack.com";  
  
Path="/api/chat.postMessage";  
  
HttpProperties=NewObject();  
  
HttpProperties.ContentType="application/x-www-form-urlencoded";  
  
  
SlackChannel = "general";  
  
SlackNode     = @Node;  
  
SlackTime     = LocalTime(@LastOccurrence, "EEE MMM dd HH:mm:ss yyyy");  
  
SlackMessage = replace(@Summary,'','');
  
  
  
if (@Severity == 0 ) { SlackSeverity = "Clear";           SlackColour =  
"#00FF00"; PreText = "*Clearing alert*"; } elseif  
  
    (@Severity == 1 ) { SlackSeverity = "Indeterminate"; SlackColour =  
"#808080"; PreText = "*Information*"; } elseif  
  
    (@Severity == 2 ) { SlackSeverity = "Warning";          SlackColour =  
"#00FFFF"; PreText = "*Alert*"; } elseif  
  
    (@Severity == 3 ) { SlackSeverity = "Minor";           SlackColour =  
"#FFFF00"; PreText = "*Alert*"; } elseif
```

```

        (@Severity == 4 ) { SlackSeverity = "Major";           SlackColour =
 "#FFA500"; PreText = "*Alert*"; } elseif
        (@Severity == 5 ) { SlackSeverity = "Critical";      SlackColour =
 "#FF0000"; PreText = "*Alert*"; } else
        { SlackSeverity = "Indeterminate"; SlackColour =
 "#808080"; PreText = "*Information*"; }

if (@Acknowledged == 0) { SlackAcked = 'False'; }
else { SlackAcked = 'True';}

SlackSerial = @Serial; // Need to use local variables so that Impact
will not try to update them fields after we pass them as parameters.

SlackIdentifier = @Identifier; // Need to use local variables so that
Impact will not try to update them after we pass them as parameters.

SlackPayload =
"mrkdwn=true&username=Omnibus&icon_emoji=:itsm:&text=" + PreText + " on
" +
SlackNode + "&" ;

Attachments = "attachments=[ { \"color\":\""+ SlackColour +
"\", \"ts\":"+ @LastOccurrence + ", \"text\": \""+
"\", \"mrkdwn_in\": [\"text\"], \"fields\": [ "+
"\"{\\\"title\\\": \"Alert Summary\" + \" (Serial #"+ SlackSerial +
") \" + SlackSeverity + "\" , \\\"value\\\": \"\" +
SlackMessage + "\", \\\"short\\\": false}\" + \"\"]}] " ;
// Post the main body

payload = "token=" + SlackToken + "&channel=" + SlackChannel + "&" +
SlackPayload + "&" + Attachments;

HttpProperties.Content=( payload );
Log( HttpProperties );

```

```

rawResult=GetHTTP(HTTPHost, HTTPPort, Protocol, Path, ChannelKey,
Method, AuthHandlerActionTreeName, FormParameters, FilesToSend,
HeadersToSend, HttpProperties);

Log (ThePage); // "ThePage" is useful for diagnosing http errors

Log (resultCode); // -> Status Code associated with HTTP call

Log (HeadersSent); // -> Http Request Headers

Log (HeadersReceived); // -> Http Response Headers

Log (ErrorReason); // -> Returns the status text associated with the
latest response.

result = ParseJSON(rawResult);

Log(result);

Log("-----");

slackresultCode = resultCode;

@Slack = 2;

ReturnEvent(EventContainer);

```

21. Correct the values for the Slack token and the DASH IP.
22. Modify the Impact service mapping to use the new policy instead of the old one and stop/start the service (see steps 4 & 5)

## Using a bot to update the event from Slack

1. Modify the Objectserver configuration file to allow remote HTTP access  
modify the file /opt/IBM/tivoli/netcool/omnibus/etc/AGG\_P.props

```
NHttpd.EnableHTTP: TRUE  
NHttpd.ListeningPort: 7070  
NRestOS.Enable: TRUE
```

2. Restart the objectserver with the following commands:

```
/opt/IBM/tivoli/netcool/omnibus/bin/nco_pa_stop -server host-1_PA -process  
MasterObjectServer  
/opt/IBM/tivoli/netcool/omnibus/bin/nco_pa_stop -server host-1_PA -process  
MasterObjectServer  
Use the root password when asked.
```

3. Test that you have remote access by running the command

```
netstat -nap | grep 7070
```

4. Open a cmd window and run the following commands as root:

```
curl -sL https://rpm.nodesource.com/setup\_6.x | sudo -E bash -  
yum install -y nodejs
```

These commands install node.js to the server

5. Run the following command as root:

```
npm install -g yo generator-hubot coffee-script
```

This command installs a bot "generator".

6. Run the following command as root:

```
npm install -g node-omnibus
```

This command installs a node.js library that can converse with the ObjectServer over REST

7. The following commands must be run as localuser

```
su ibmuser
```

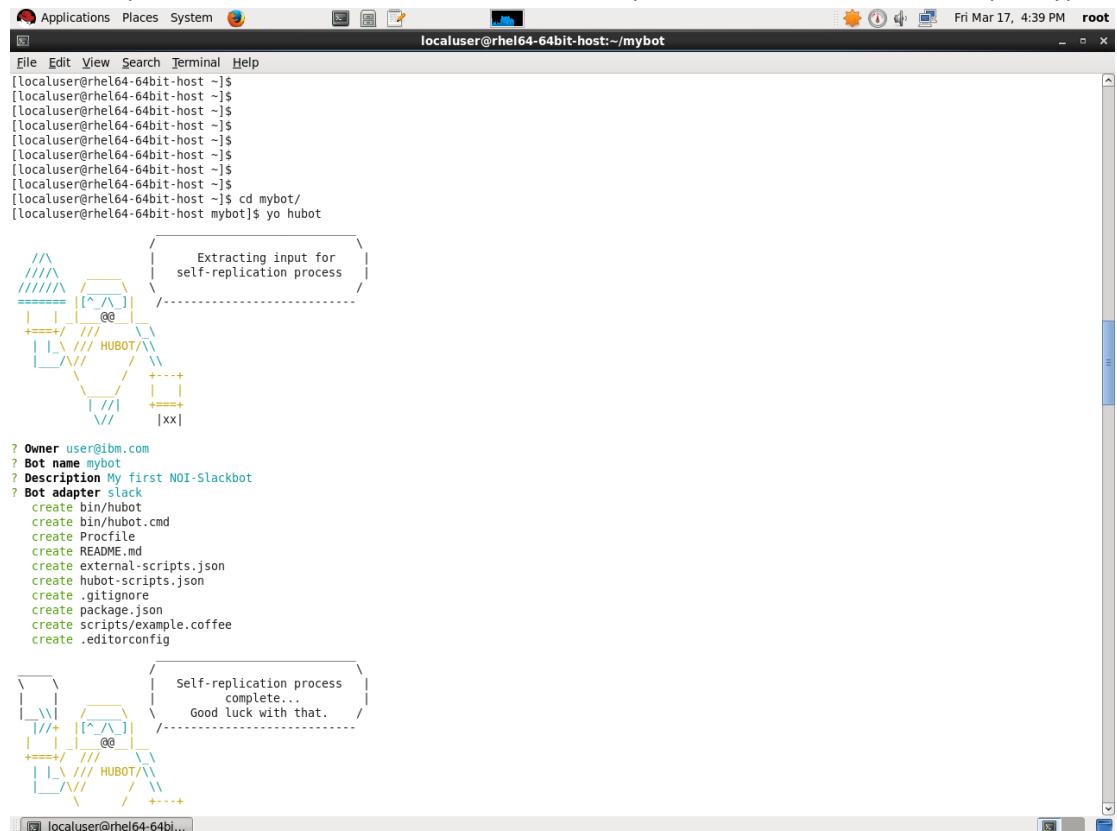
```
cd ~
```

```
mkdir bot
```

```
cd bot
```

```
yo hubot
```

8. Enter your own details for the bot name and description, choose "slack" as the adaptor type



```
[localuser@rhel64-64bit-host ~]$ cd mybot/
[localuser@rhel64-64bit-host mybot]$ yo hubot

Extracting input for
self-replication process

Owner user@ibm.com
Bot name mybot
Description My first NOI-Slackbot
Bot adapter slack
create bin/hubot
create bin/hubot.cmd
create Procfile
create README.md
create external-scripts.json
create hubot-scripts.json
create .gitignore
create package.json
create scripts/example.coffee
create .editorconfig

Self-replication process
complete...
Good luck with that.

[localuser@rhel64-64bi...]
```

9. Run the command "ls -ltr" and you will see the following files:

```
[localuser@rhel64-64bit-host mybot]$ [localuser@rhel64-64bit-host mybot]$ [localuser@rhel64-64bit-host mybot]$ ls -ltr
total 36
drwxrwxr-x.  2 localuser localuser 4096 Mar 17 16:38 bin
-rw-r--r--.  1 localuser localuser 7820 Mar 17 16:38 README.md
-rw-r--r--.  1 localuser localuser  24 Mar 17 16:38 Procfile
-rw-rw-r--.  1 localuser localuser 213 Mar 17 16:38 external-scripts.json
drwxrwxr-x.  2 localuser localuser 4096 Mar 17 16:38 scripts
-rw-rw-r--.  1 localuser localuser  2 Mar 17 16:38 hubot-scripts.json
drwxrwxr-x. 173 localuser localuser 4096 Mar 17 16:39 node_modules
-rw-r--r--.  1 localuser localuser 611 Mar 17 16:39 package.json
[localuser@rhel64-64bit-host mybot]$
```

10. Edit the file package.json and add a dependency to the node-omnibus component:

```
"node-omnibus": "^0.1.1"
```

11. Create the file noi.coffee in the ./scripts subdirectory and insert the following code into it:

```
console.log ('Omnibus = ' +
process.env.HUBOT_OMNIBUS_HOST)

omnibus = require('node-omnibus')

request = require('request')

HubotSlack = require 'hubot-slack'

noiChannelName = ""

omnibusConnection = omnibus.createConnection(

  host: process.env.HUBOT_OMNIBUS_HOST

  port: '7070'

  user: process.env.HUBOT_OMNIBUS_USER

  password: process.env.HUBOT_OMNIBUS_PASSWORD)

module.exports = (robot) ->

  robot.hear /noi ack (.*)/i, (msg) ->

    sql = 'UPDATE alerts.status set Acknowledged =
where Serial=' + msg.match[1]

    omnibusConnection.sqlCommand sql, (err, rows,
numrows, coldesc) ->

      console.log "err:" + err

      if numrows == 0

        msg.send "I can't find any event with a
serial number of " + msg.match[1]

        msg.send "Perhaps the event has been
closed already? Otherwise, try another serial number."
```

```

        else

            msg.send "Event acknowledged"

    robot.hear /noi deack (.*)/i, (msg) ->

        sql = 'UPDATE alerts.status set Acknowledged = 0
where Serial=' + msg.match[1]

        omnibusConnection.sqlCommand sql, (err, rows,
numrows, coldesc) ->

            console.log "err:" + err

            if numrows == 0

                msg.send "I can't find any event with a
serial number of " + msg.match[1]

                msg.send "Perhaps the event has been
closed already? Otherwise, try another serial number."

            else

                msg.send "Event de-acknowledged"

```

12. Run the bot using the command

```

export HUBOT_OMNIBUS_USER=root
export HUBOT_OMNIBUS_PASSWORD=passw0rd
export HUBOT_OMNIBUS_HOST=localhost
export HUBOT_SLACK_TOKEN=<<YOURTOKENHERE>>
export HUBOT_SLACK_BOTNAME=<<Your Slack Bot Name>>
./bin/hubot --adapter slack

```

13. From the Slack window, invite the bot to your slack channel with the command /invite <botname>
14. In the DASH event viewer, choose an event and view it's details to find the Serial number. Run the command "noi ack <serial#>" in the Slack command and verify that it has been acknowledged in the DASH event viewer.
15. Stop the bot using ctrl-C and add the following rows to the end of the noi.coffee file:

```

robot.hear /noi journal (.*) (.*)/i, (msg) ->

dt = Date.now()

```

```

        dt = dt / 1000

        sql = 'Insert into alerts.journal (KeyField,
Serial, UID, Chrono, Text1) values (\'' + msg.match[1] +
'-' + dt + '\', ' + msg.match[1] + ', 10000 , ' + dt + ',
\'' + msg.match[2] + '\')'

        console.log sql

        omnibusConnection.sqlCommand sql, (err, rows,
numrows, coldesc) ->

        console.log "Err=" + err

        msg.send "Journal entry added"

```

16. Start the bot and run the command "noi journal <serial#> This is a test". Check in the event viewer to see if the event's journal has been updated.
17. Stop the bot using ctrl-C and add the following rows to the end of the noi.coffee file:

```

robot.hear /noi sev (\d) (.*)/i, (msg) ->

        sql = 'UPDATE alerts.status set Severity = ' +
msg.match[1] + ' where Serial=' + msg.match[2]

        omnibusConnection.sqlCommand sql, (err, rows,
numrows, coldesc) ->

        console.log "Err=" + err

        if numrows == 0

            msg.send "I can't find any event with a
serial number of " + msg.match[2]

            msg.send "Perhaps the event has been
closed already? Otherwise, try another serial number."

        else

            msg.send "The event severity has been
set to " + msg.match[1]

```

18. Start the bot and run the command "noi sev <serial#> 5". Check in the event viewer to see if the event's priority has been changed to Critical/Red.
19. Stop the bot using ctrl-C and add the following rows to the end of the noi.coffee file:

```
robot.hear /noi resolve (.*)/i, (msg) ->

    sql = 'UPDATE alerts.status set Severity =
0,CASE_ICD_Status=\'RESOLVED\' where Serial=' +
msg.match[1]

    omnibusConnection.sqlCommand sql, (err, rows,
numrows, coldesc) ->

        console.log "Err=" + err

        msg.send "Event resolved (Severity set to
0)"
```

20. Start the bot and run the command "noi resolve <serial#>". Check in the event viewer to see if the event's priority has been changed to Clear/Green.
21. Stop the bot using ctrl-C and add the following rows to the end of the noi.coffee file:

```
robot.hear /noi show (.*)/i, (msg) ->

    query = 'SELECT Serial, Summary, Severity, Node,
Acknowledged, LastOccurrence from alerts.status where
Serial=' + msg.match[1]

    omnibusConnection.query query, (err, rows,
numrows, coldesc) ->

        console.log err

        i = 0

        msg.send

            text : rows[i].Summary

            attachments: [ {

                title: 'Node'

                text: rows[i].Node

                fields: [ {

                    short : true
```

```

        title : 'Severity'
        value : rows[i].Severity
    } , {
        title : 'Acknowledged'
        value : rows[i].Acknowledged
        short : true
    } , {
        title : 'LastOccurrence'
        value :
rows[i].LastOccurrence
        short : true
    } , {
        title : 'Serial'
        value : rows[i].Serial
        short : true
    } ]
} ]

username:
process.env.HUBOT_SLACK_BOTNAME
as_user: true

```

22. Start the bot and run the command "noi show <serial#>"

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