

AIM: Implementation and analysis of Cloud Security using Eucalyptus / Google Cloud / Axis / Azure / OwnCloud

THEORY:

- ❖ Cloud security consists of a set of policies, controls, procedures and technologies that work together to protect cloud-based systems, data and infra
- ❖ From authenticating access to filtering traffic, cloud security can be configured to exact needs of the business
- ❖ Because of this, rules can be configured and managed in one place, administration overheads are reduced and IT teams empowered to focus on other areas of the business
- ❖ The way cloud security is delivered will depend on the individual cloud provider or cloud security solutions in place. However, it should be joint responsibility between owner and provider
- ❖ Cloud security offers many benefits:
 1. Centralised Security:
 - Cloud based business networks consist of numerous devices and endpoints
 - Managing these entities centrally enhances traffic analysis and filtering, streamlines monitoring of network events and results in fewer software and policy updates.
 2. Reduced cost:
 - Elimination of need to invest in dedicated hardware. It also reduces administrative overheads
 - It delivers proactive security features that offer protection 24X7
 3. Reduced administration:
 - There is less manual security configurations and almost constant security updates
 - When all resources are moved to cloud, all security administrative takes place in one area
 4. Reliability:
 - Users can safely access data and application within cloud no matter where they are or what device they are using

Security in Eucalyptus:

- ❖ All eucalyptus components use WS-security for authentication
 - Encryption of inter-component communication is not enabled by default
- ❖ SSM key generation and installation at a EC2 is implemented
 - Cloud controller generated the public/private key pairs and install them
- ❖ User sing-up is web based
 - User specifies a password and submits sign-up request
 - Certificate is generated but withheld until admin approved request
 - User gains access to certificate though password protected web page

Security is OwnCloud:

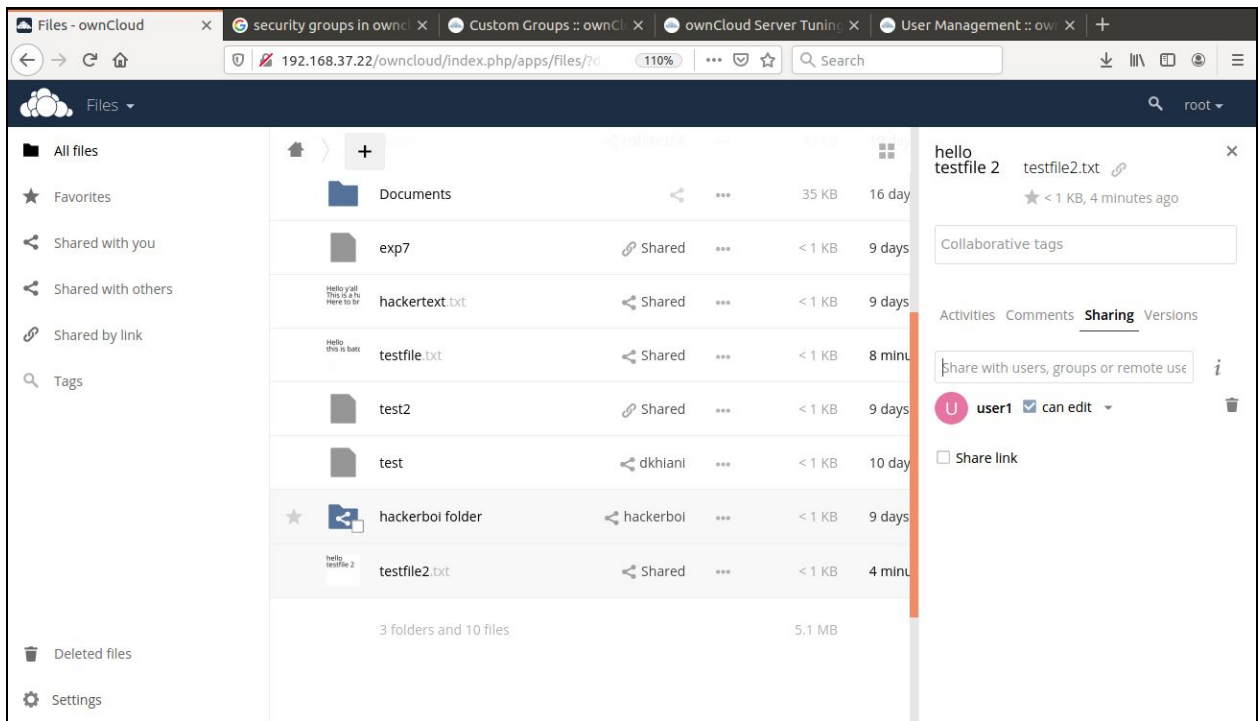
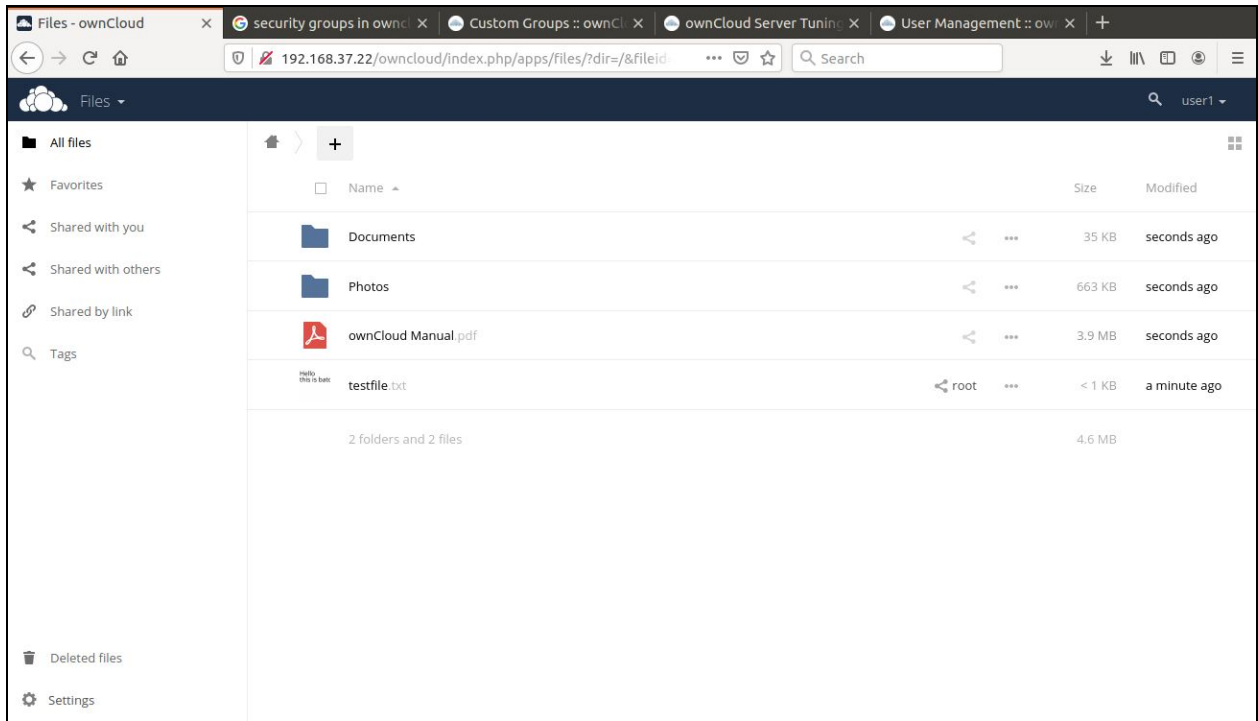
- ❖ Admin set user / file level permission:
 - Can be defined when and where files are shared

- ❖ File firewall:
 - It provides a policy engine for instance, prohibiting access to files that do not meet standards
- ❖ Encryption:
 - Encrypting server data at rest, data in motion
- ❖ Key management / choose algo:
- ❖ File integrity checking
- ❖ Authentication performed by
 - SSO/SAML 2.0
 - AD / LDAP
 - 2-factor authentication
- ❖ Virus scan
- ❖ Auditability / logging

CONCLUSION: Implemented and analysed Cloud Security using OwnCloud.

EXPERIMENT NO. 8

OWNCLOUD SECURITY



Files - ownCloud

security groups in ownCloud | Custom Groups :: ownCloud | ownCloud Server Tuning | User Management :: ownCloud

192.168.37.22/owncloud/index.php/apps/files/?d 110% Search

Files root

All files

Favorites

Shared with you

Shared with others

Shared by link

Tags

Deleted files

Settings

test2

test

hackerbol folder

testfile2.txt

testfile3.txt

3 folders and 12 files 5.2 MB

Testfile3

testfile3.txt

< 1 KB, seconds ago

Collaborative tags

Activities Comments **Sharing** Versions

user1

No users or groups found for user1

Share link

Files - ownCloud

security groups in ownCloud | Custom Groups :: ownCloud | ownCloud Server Tuning | User Management :: ownCloud

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testfile2.txt

testfile3.txt

3 folders and 12 files 5.2 MB

Testfile3

testfile3.txt

< 1 KB, seconds ago

Collaborative tags

Activities Comments **Sharing** Versions

test123

Share link

Files - ownCloud

security groups in ownCloud | Custom Groups :: ownCloud | ownCloud Server Tuning | User Management :: ownCloud

192.168.37.22/owncloud/index.php/apps/files/?d=110%

Files

root

All files

Favorites

Shared with you

Shared with others

Shared by link

Tags

Deleted files

Settings

test2

test

hackerbol folder

testfile2.txt

testfile3.txt

3 folders and 12 files

5.2 MB

Testfile3

testfile3.txt

< 1 KB, a minute ago

Collaborative tags

Activities Comments **Sharing** Versions

Share with users, groups or remote use

test123 can edit

Share link

Files - ownCloud

security groups in ownCloud | Custom Groups :: ownCloud | ownCloud Server Tuning | User Management :: ownCloud

192.168.37.22/owncloud/index.php/apps/files/?d=110%

Files

user1

All files

Favorites

Shared with you

Shared with others

Shared by link

Tags

Deleted files

Settings

Documents

Photos

ownCloud Manual.pdf

testfile.txt

testfile2.txt

2 folders and 3 files

4.6 MB

hello testfile 2

testfile2.txt

< 1 KB, 8 minutes ago

Collaborative tags

Activities Comments **Sharing** Versions

Shared with you by root

Resharing is not allowed

Admin - ownCloud

security groups in ownCloud

Custom Groups :: ownCloud

ownCloud Server Tuning

User Management :: ownCloud

192.168.37.22/owncloud/index.php/settings

Admin

root

Security & setup warnings

Sharing

Server-side encryption

Federation

File handling

Generate Config Report

Mail Templates

Cron

Email server

Log

Tips & tricks

☐ Allow public uploads

☐ Enforce password protection

☒ Set default expiration date

☒ Allow users to send mail notification for shared files

Expire after days ☐ Enforce expiration date

☐ Allow resharing

☐ Allow sharing with groups

☒ Restrict users to only share with users in their groups

☐ Allow users to send mail notification for shared files to other users

☒ Exclude groups from sharing

These groups will still be able to receive shares, but not to initiate them.

☒ Allow username autocompletion in share dialog. If this is disabled the full username needs to be entered.

Federated Cloud Sharing

☒ Allow users on this server to send shares to other servers

☒ Allow users on this server to receive shares from other servers

Files - ownCloud

security groups in ownCloud

Custom Groups :: ownCloud

ownCloud Server Tuning

User Management :: ownCloud

192.168.37.22/owncloud/index.php/apps/files/?d

Files

root

All files

Favorites

Shared with you

Shared with others

Shared by link

Tags

Deleted files

Settings

hackerbol folder

testfile2.txt

testfile4.txt

testfile3.txt

3 folders and 13 files

5.2 MB

Testfile4

testfile4.txt

< 1 KB, seconds ago

Collaborative tags

Activities Comments Sharing Versions

group1

No users found for group1

Files - ownCloud

192.168.37.22/owncloud/index.php/apps/files/?d

Files

root

All files

Favorites

Shared with you

Shared with others

Shared by link

Tags

Deleted files

Settings

testfile.txt

test2

test

hackerbol folder

testfile2.txt

abcexpire.txt

testfile3.txt

testfile4.txt

3 folders and 14 files

5.2 MB

192.168.37.22/owncloud/remote.php/webdav/testfile3.txt

Files - ownCloud - Mozilla Firefox

192.168.37.22/owncloud/index.php/apps/files/?d

Files

root

All files

Favorites

Shared with you

Shared with others

Shared by link

Tags

Deleted files

Settings

testfile.txt

test2

test

hackerbol folder

testfile2.txt

testfile3.txt

3 folders and 12 files

5.2 MB

Error uploading file "puppylinux1.iso": Total file size 354 MB exceeds upload limit 1 MB

Files - ownCloud

security groups in ownCloud | Custom Groups :: ownCloud | ownCloud Server Tuning | User Management :: ownCloud

192.168.37.22/owncloud/index.php/apps/files/?dir=/&fileid=

Files

root

All files

Documents

exp7

hackertext.txt

testfile.txt

test2

test

hackerboi folder

3 folders and 9 files

5.1 MB

Deleted files

Settings

Hello this is batc testfile.txt

< 1 KB, seconds ago

Collaborative tags

Activities Comments **Sharing** Versions

Share with users, groups or remote users...

user1 can share can edit

Share link

Files - ownCloud

security groups in ownCloud | Custom Groups :: ownCloud | ownCloud Server Tuning | User Management :: ownCloud

192.168.37.22/owncloud/index.php/apps/files/ 110%

Files

user1

All files

ownCloud Manual.pdf

testfile.txt

testfile2.txt

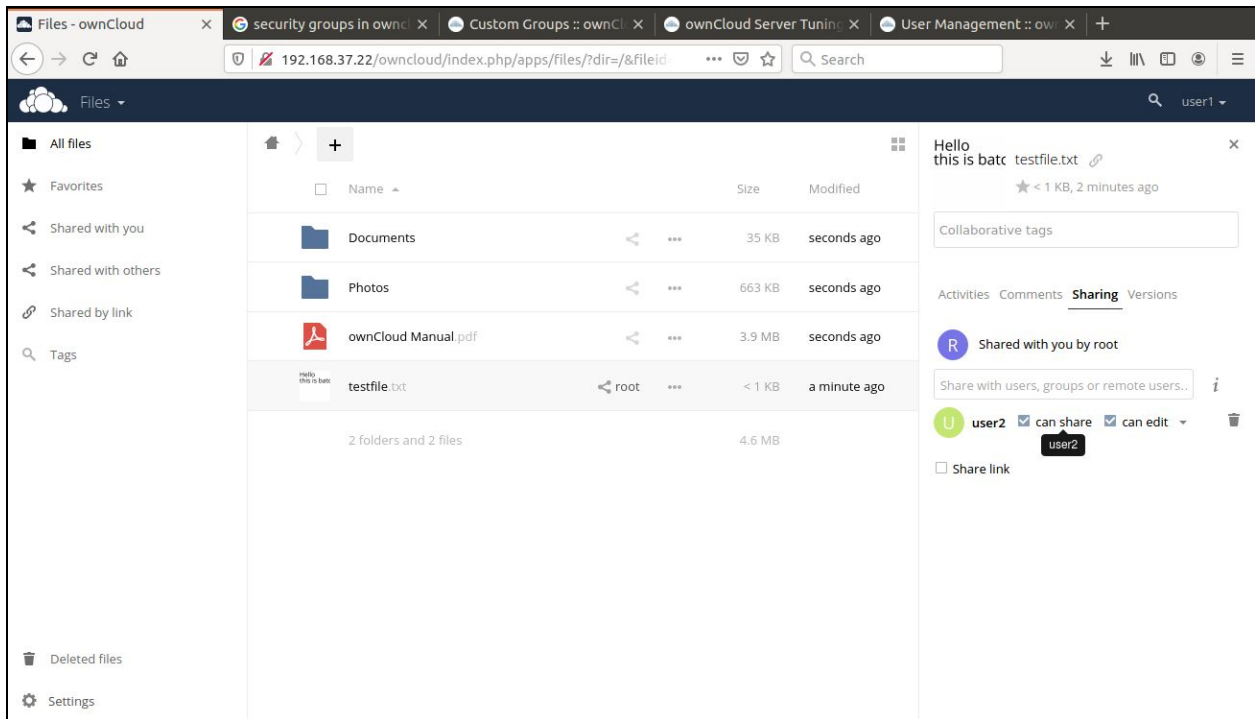
testfile5.txt

2 folders and 4 files

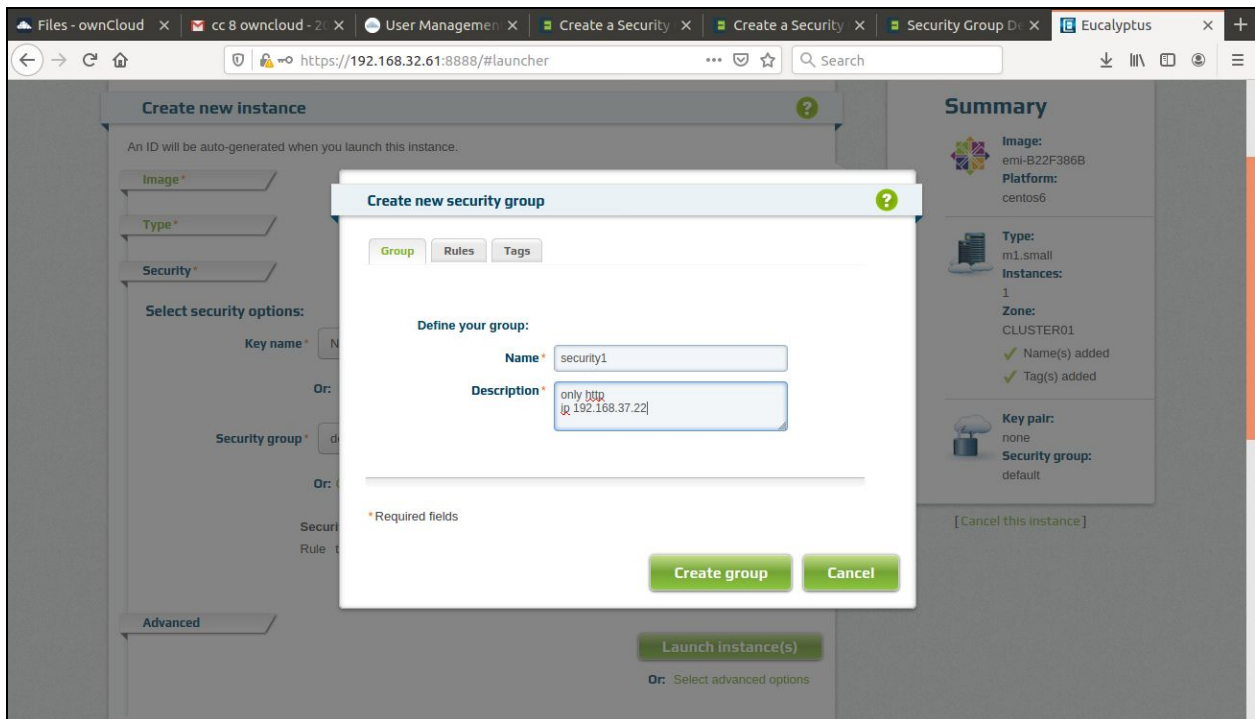
4.6 MB

Deleted files

Settings



EUCALYPTUS SECURITY



Files - ownCloud x cc 8 owncloud - 2 x User Management x Create a Security x Create a Security x Security Group D x Eucalyptus x

https://192.168.32.61:8888/#launcher

Search

DashboardImagesInstancesStorageNetwork & Security

Create new instance?

An ID will be auto-generated when you launch this instance.

Image*

Type*

Security*

Select security options:

Key name*None (advanced option)

Or: Create new key pair

Security group*security1

Or: Create new security group

Security group security1 incoming traffic rules

Advanced

Launch instance(s)

Or: Select advanced options

Summary

Image:
emi-B22F386B

Platform:
centos6

Type:
m1.small

Instances:
1

Zone:
CLUSTER01

✓ Name(s) added

✓ Tag(s) added

Key pair:
none

Security group:
security1

[Cancel this instance]

Files - ownCloud x cc 8 owncloud - 2 x User Management x Create a Security x Create a Security x Security Group D x Eucalyptus x

https://192.168.32.61:8888/#instance

Search

DashboardImagesInstancesStorageNetwork & Security

Manage instances?

Launch new instance

More actions

2 instances found. Showing: 10 | 25 | 50 | 100

	INSTANCE	STATUS	IMAGE ID	AVAILABILITY ZONE	PUBLIC ADDRESS	PRIVATE ADDRESS	KEY NAME	SECURITY GROUP	LAUNCH TIME
<input type="checkbox"/>	Instance2	✓	emi-B22F386B	CLUSTER01	192.168.32.64	172.31.254.205	security1		2020-02-13T11:20:05.654Z
<input type="checkbox"/>	Instance1	✓	emi-B22F386B	CLUSTER01	192.168.32.63	172.31.254.181	default		2020-02-13T11:07:49.621Z

Running Pending Stopping Stopped Shutting-down Terminated

1

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Files - ownCloud X cc 8 owncloud - 2 X User Management X Create a Security X Create a Security X Security Group D X Eucalyptus X

https://192.168.32.61:8888/#instance

Launch new instance More actions

2 instances found. Showing: 10 | 25 | 50 | 100

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<div>General Volumes Tags</div> <table border="1"> <tbody> <tr> <td>INSTANCE NAME instance2</td> <td>INSTANCE ID i-08073CA1</td> <td>STATUS running</td> <td>AVAILABILITY ZONE CLUSTER01</td> <td>PUBLIC ADDRESS 192.168.32.64</td> <td>PUBLIC HOSTNAME 192.168.32.64</td> </tr> <tr> <td>KEY NAME</td> <td>SECURITY GROUP security1</td> <td>INSTANCE TYPE m1.small</td> <td>LAUNCH TIME 04:50:05 PM Feb 13th 2020</td> <td>IMAGE ID emi-B22F386B</td> <td>IMAGE NAME cc8cfa09-ks-centos6-202002121141</td> </tr> <tr> <td>SCALING GROUP</td> <td>LOAD BALANCER</td> <td>OS linux</td> <td>ROOT DEVICE instance-store</td> <td>KERNEL ID eki-FB043DCB</td> <td>IMAGE MANIFEST centos6/ks-centos6-202002121141.img.manifest.xml</td> </tr> <tr> <td>PRIVATE ADDRESS 172.31.254.205</td> <td>PRIVATE HOSTNAME 172.31.254.205</td> <td>ACCOUNT ID 123485434404</td> <td>RESERVATION ID r-4451430B</td> <td>RAM DISK ID eri-35543F94</td> <td></td> </tr> </tbody> </table>									INSTANCE NAME instance2	INSTANCE ID i-08073CA1	STATUS running	AVAILABILITY ZONE CLUSTER01	PUBLIC ADDRESS 192.168.32.64	PUBLIC HOSTNAME 192.168.32.64	KEY NAME	SECURITY GROUP security1	INSTANCE TYPE m1.small	LAUNCH TIME 04:50:05 PM Feb 13th 2020	IMAGE ID emi-B22F386B	IMAGE NAME cc8cfa09-ks-centos6-202002121141	SCALING GROUP	LOAD BALANCER	OS linux	ROOT DEVICE instance-store	KERNEL ID eki-FB043DCB	IMAGE MANIFEST centos6/ks-centos6-202002121141.img.manifest.xml	PRIVATE ADDRESS 172.31.254.205	PRIVATE HOSTNAME 172.31.254.205	ACCOUNT ID 123485434404	RESERVATION ID r-4451430B	RAM DISK ID eri-35543F94	
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 ✖ Stopping
 ✖ Stopped
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 ✖ Terminated

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Files - ownCloud X cc 8 owncloud X User Management X Create a Security X Create a Security X Security Group X Eucalyptus X Eucalyptus X

https://192.168.32.61:8888/#launcher

An ID will be auto-generated when you launch this instance.

Image*

Type*

Security*

Select security options:

Key name*

Or:

Security group*

Or:

Security rule*

Advanced

*Required fields

Launch instance(s)

Or: Select advanced options

Create new security group

Group Rules Tags

Define your group:

Name* security2

Description* smtp

*Required fields

Create group Cancel

Image: emi-B22F386B

Platform: centos6

Type: m1.small

Instances: 1

Zone: CLUSTER01

✓ Name(s) added

✓ Tag(s) added

Key pair: none

Security group: default

[Cancel this instance]

