

EXPERIMENT 8

Aim: Implementation and analysis of cloud security using Eucalyptus / Google Cloud / AWS / Azure / Owncloud

Theory:

Cloud security consists of a set of policies, controls, processes and technologies that work together to protect cloud-based systems, data and infrastructure

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.

Benefits of cloud security

- 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 feature that offers 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 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 Algorithm

### \* File integrity checking

### \* Authentication performed by

- SSO / SAML 2.0
- AD / LDAP
- 2-Factor authentication

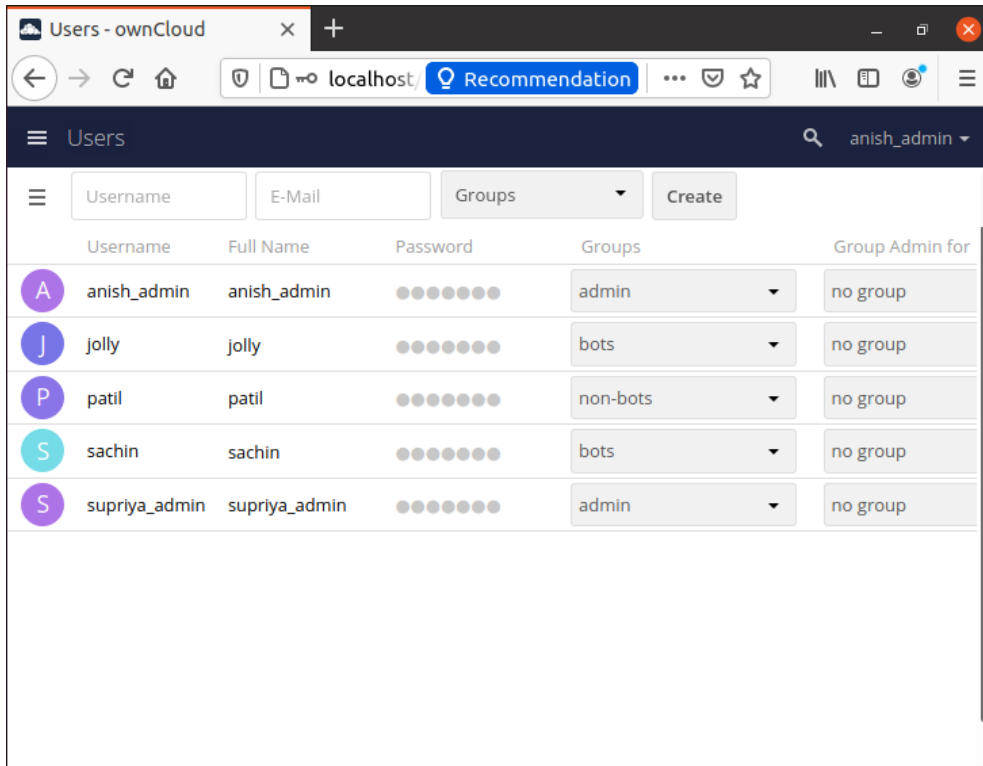
### \* Virus scan

### \* Auditability / login

### Conclusion

Hence we have successfully implemented and analyzed cloud security using AWS cloud.

## Logging in as admin in own cloud



Users - ownCloud

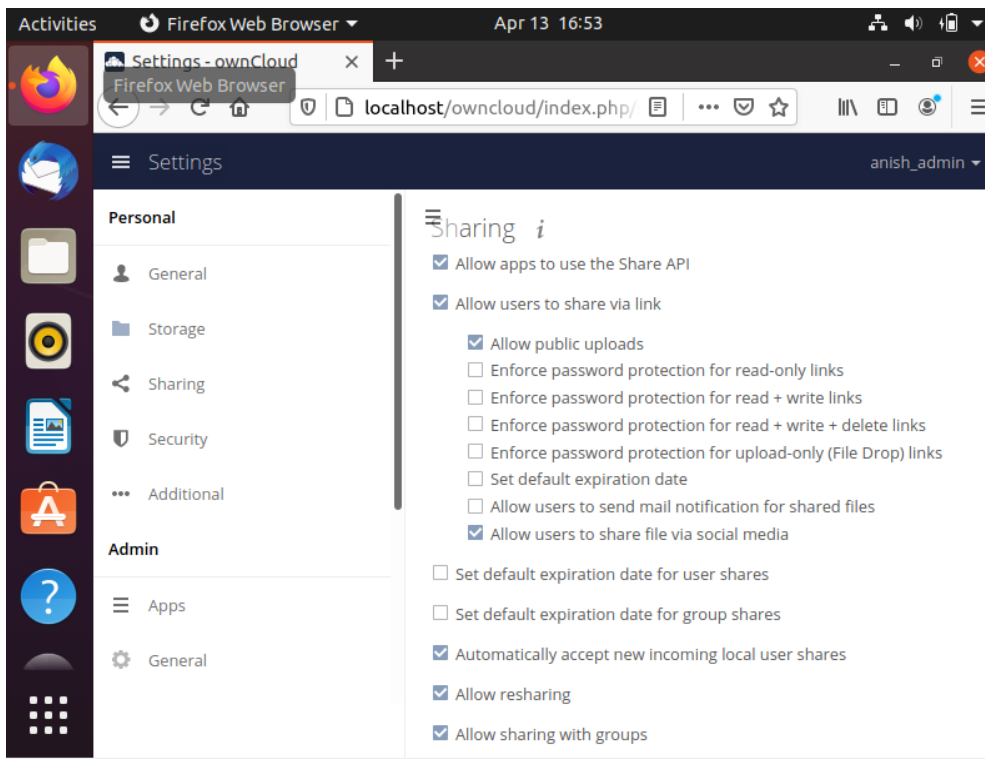
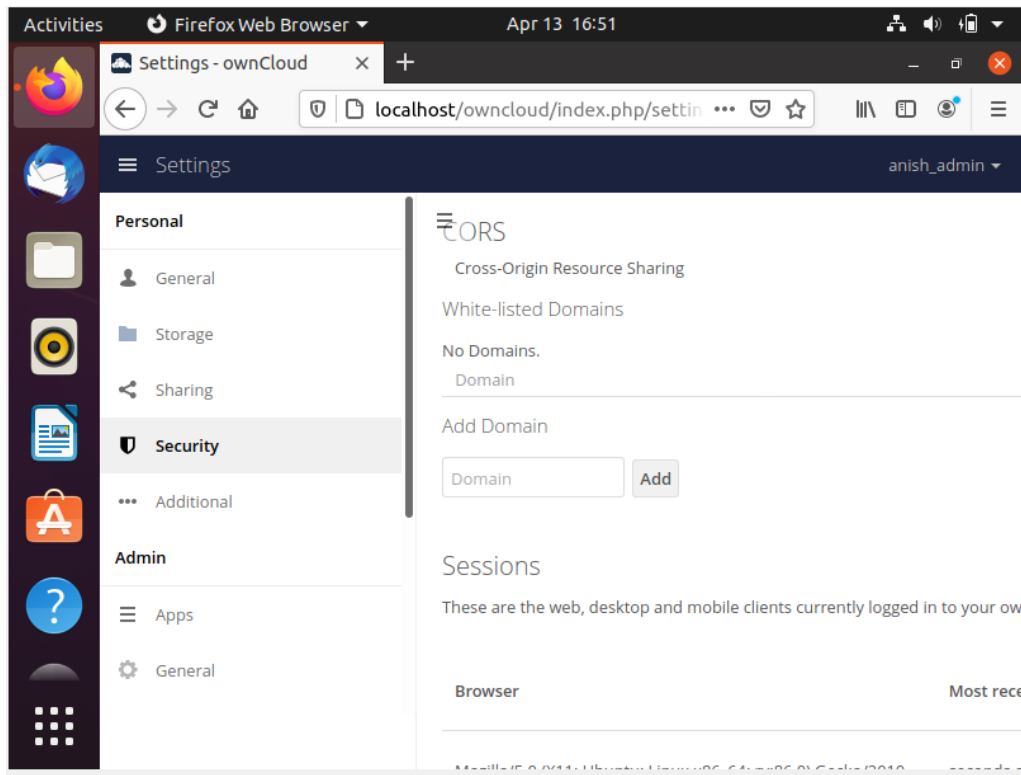
localhost Recommendation

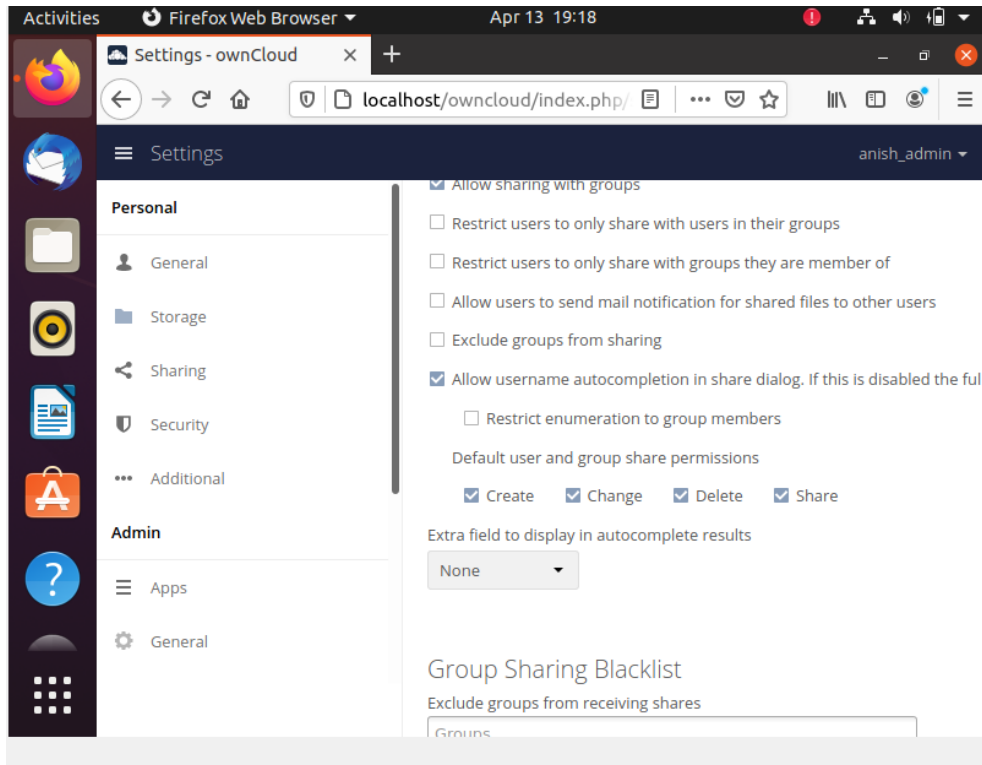
Users anish\_admin

Username E-Mail Groups Create

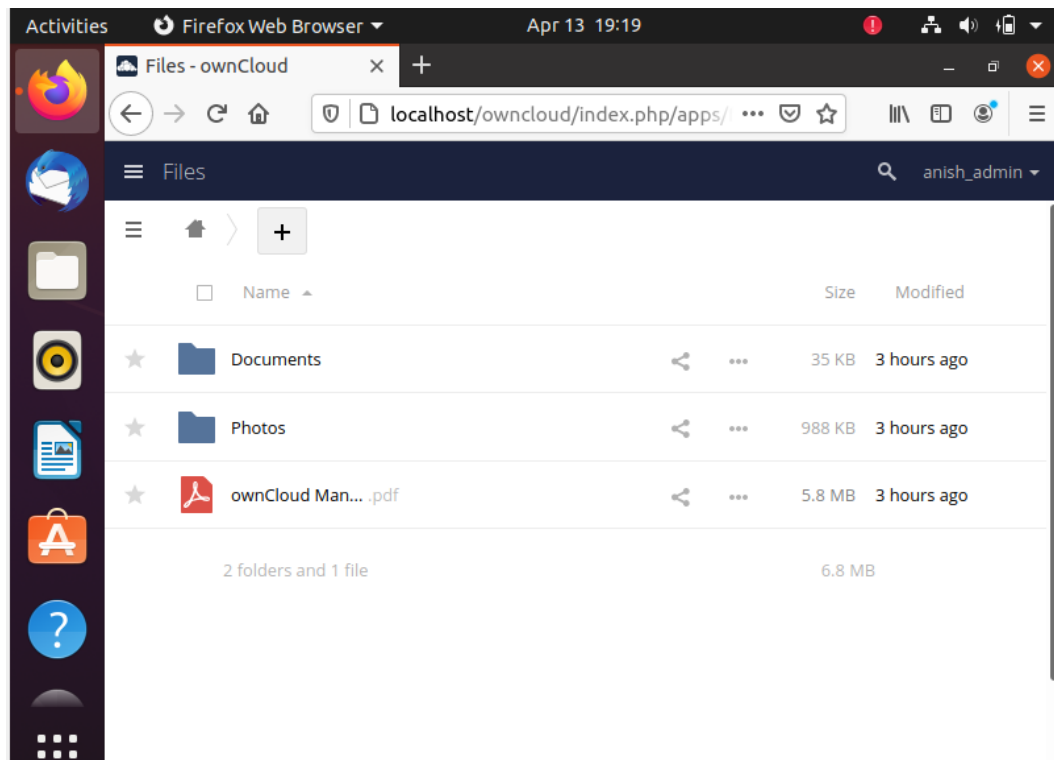
	Username	Full Name	Password	Groups	Group Admin for
A	anish_admin	anish_admin	●●●●●●●●	admin	no group
J	jolly	jolly	●●●●●●●●	bots	no group
P	patil	patil	●●●●●●●●	non-bots	no group
S	sachin	sachin	●●●●●●●●	bots	no group
S	supriya_admin	supriya_admin	●●●●●●●●	admin	no group

## Configuring security and sharing in settings

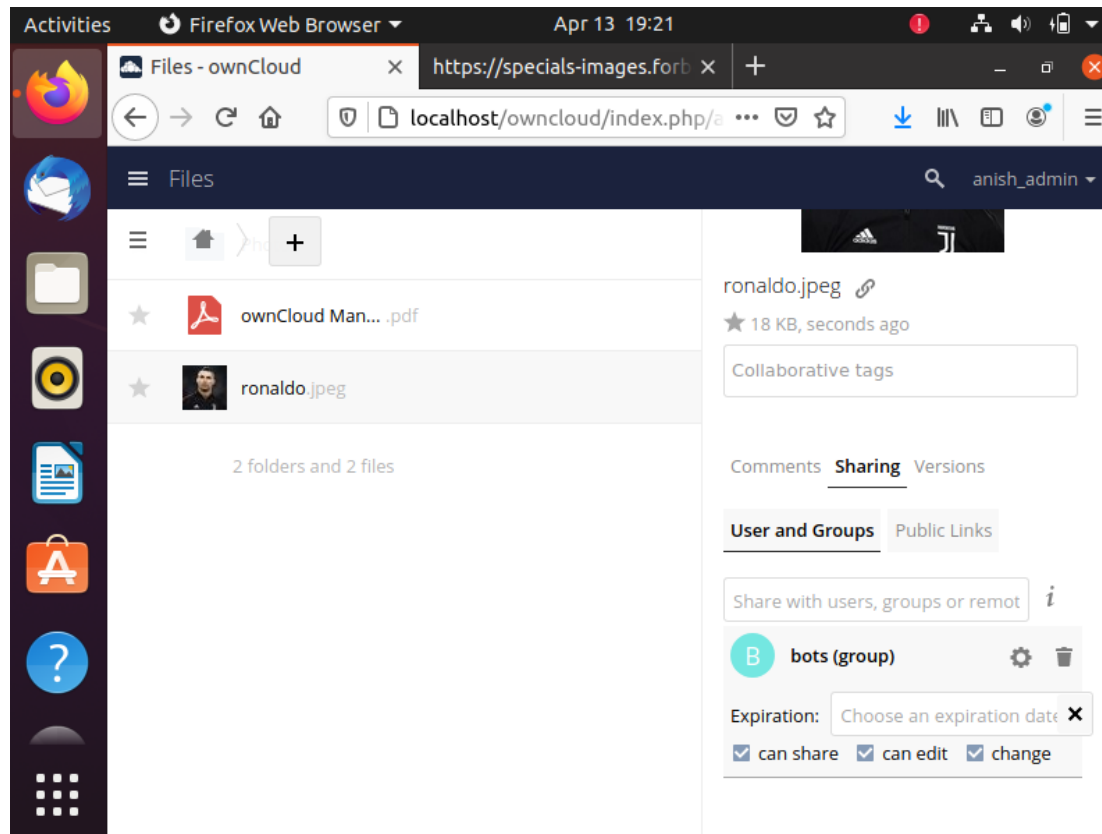




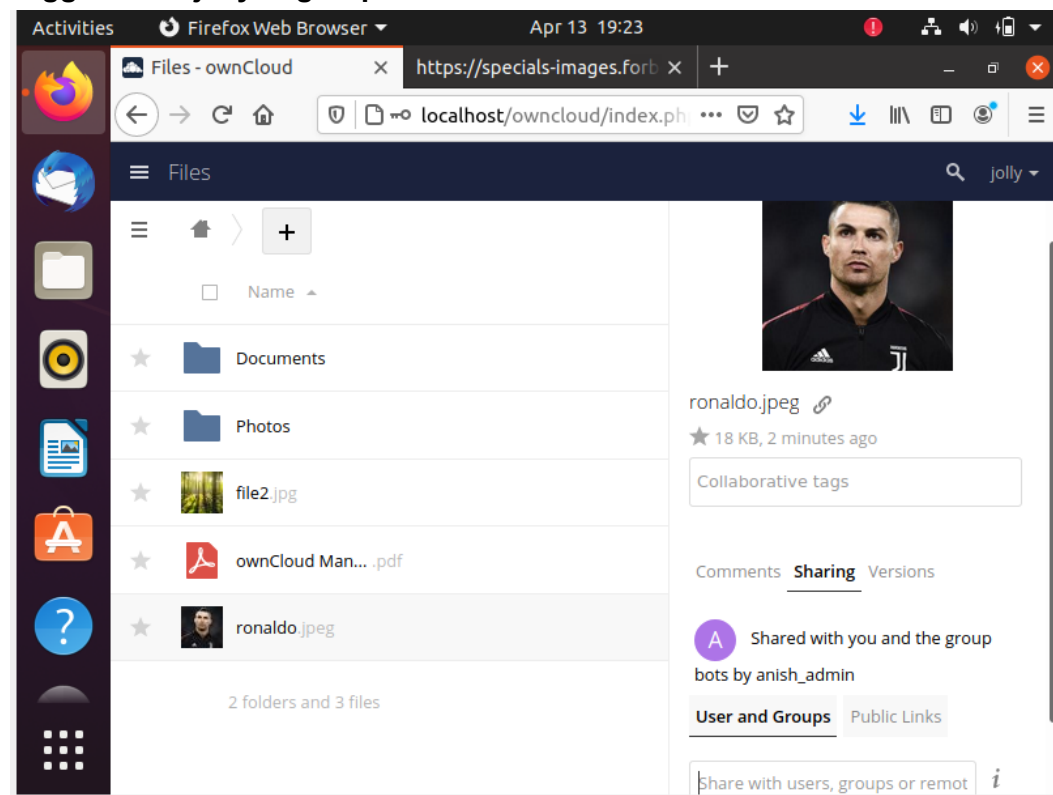
## Admin Dashboard



## Sharing files with different groups



## Logged in as jolly in group bots



Logged in as Patil not in group bots

Activities Firefox Web Browser Apr 13 19:24

Files - ownCloud x https://specials-images.forb x +

localhost/owncloud/index.ph ...

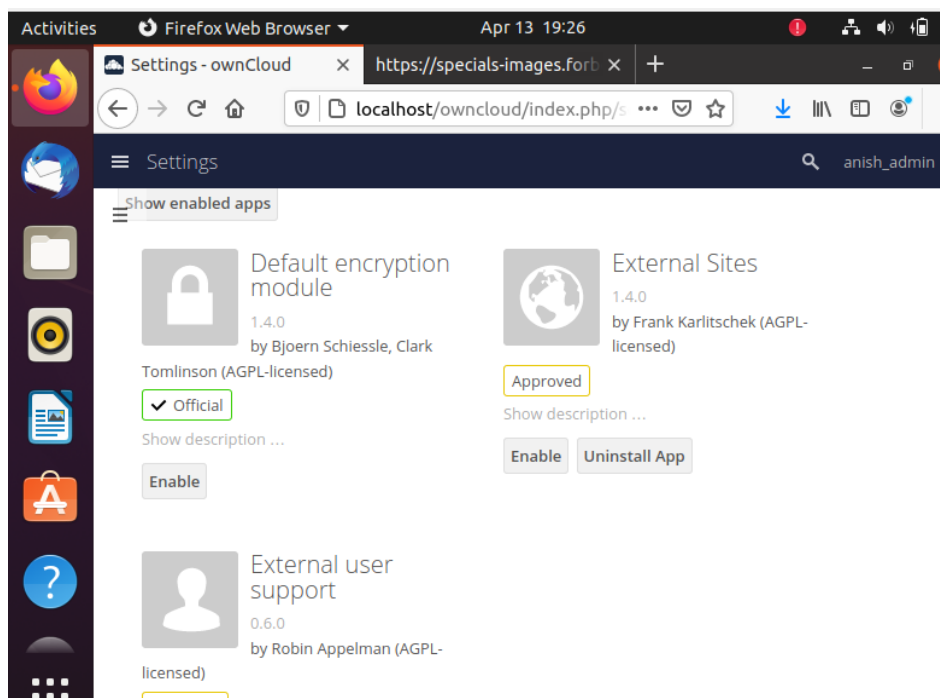
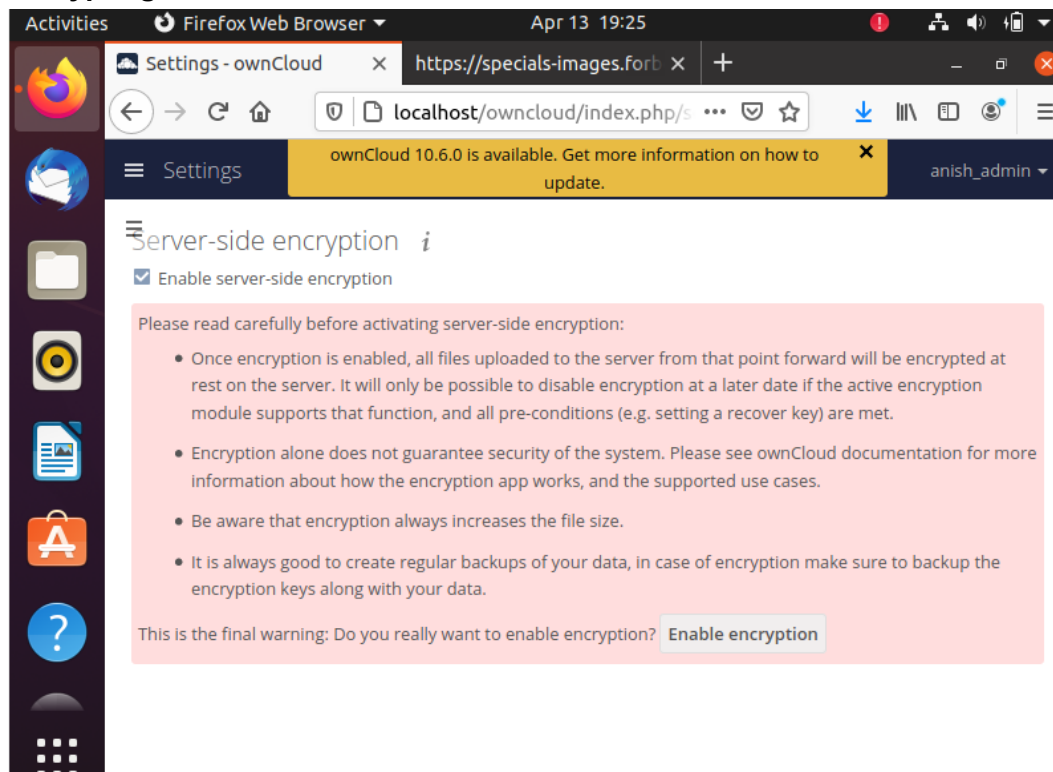
Files patil

Home +

	Name		Size	Modified
★	Documents	🔗 ...	35 KB	a month ago
★	Photos	🔗 ...	988 KB	a month ago
★	ownCloud Man... .pdf	🔗 ...	5.8 MB	a month ago
2 folders and 1 file			6.8 MB	



## Encrypting all files



## Encryption enabled


Activities Firefox Web Browser Apr 13 19:27

Settings - ownCloud <https://specials-images.forb>

localhost/owncloud/index.php/s ...

Settings anish\_admin

Show enabled apps



Default encryption module


1.4.0

by Bjoern Schiessle, Clark Tomlinson (AGPL-licensed)

✓ Official

Show description ...

Disable



External Sites


1.4.0

by Frank Karlitschek (AGPL-licensed)

Approved

Show description ...

Enable Uninstall App



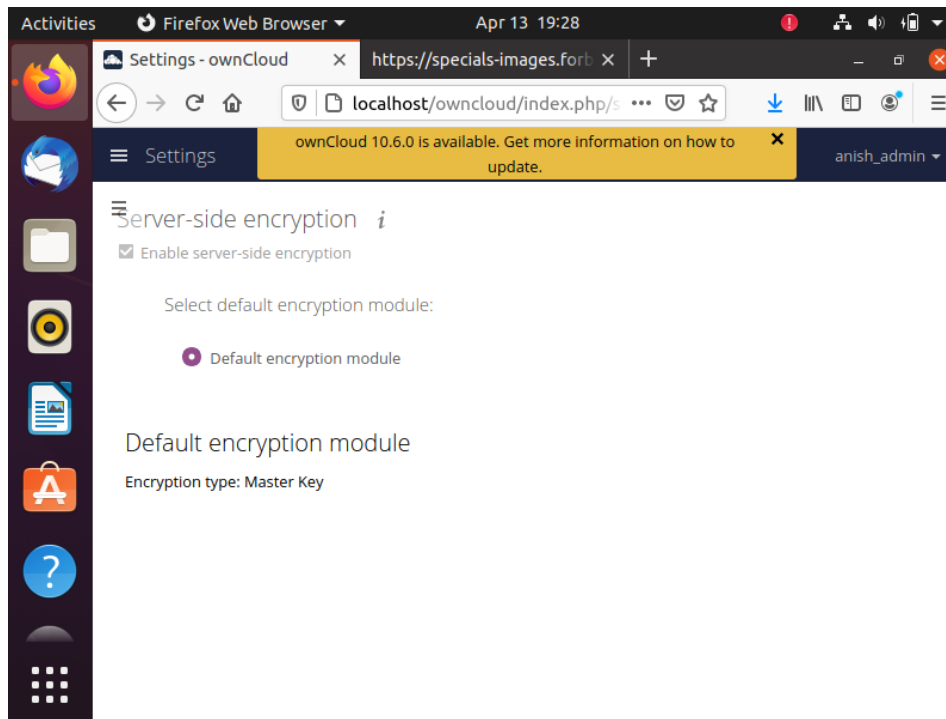
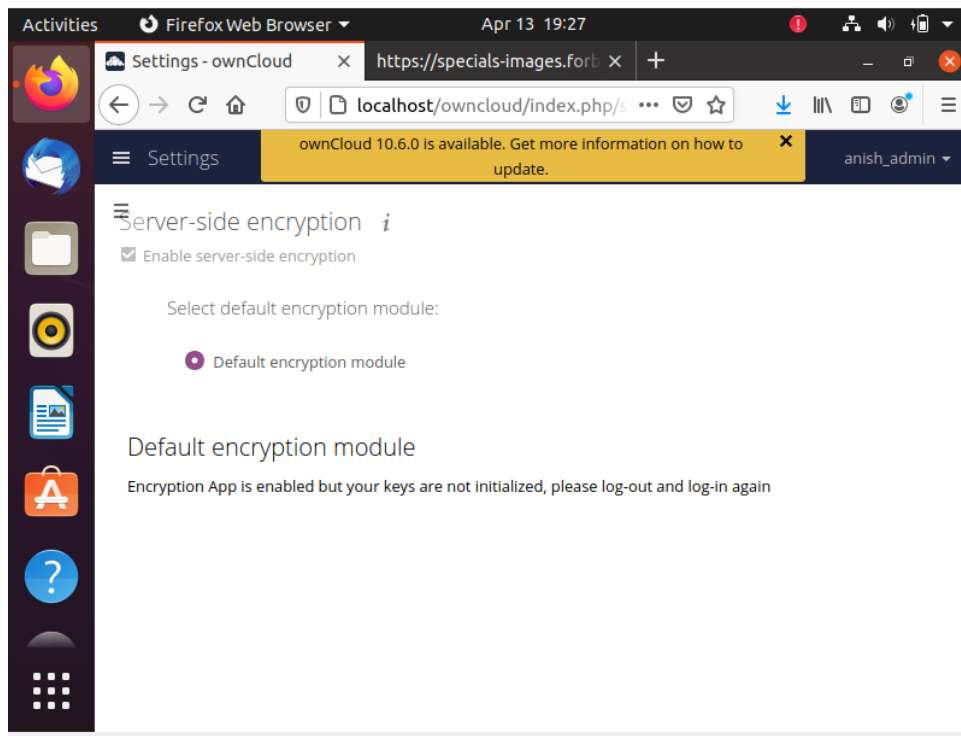
External user support

0.6.0

by Robin Appelman (AGPL-licensed)

Approved

## All files are encrypted using master key-based encryption



AWS WAF Console:

AWS WAF

Web ACLs

Rules

Conditions

Cross-site scripting

IP addresses

Size constraints

SQL injection

String matching

AWS Shield

Protected resources

Incidents

Web ACLs

Create web ACLDelete

Filter:

US East (N. Virginia)

Name

ProtectMyALB

ProtectMyALB

RequestsRules

If a request matches all of the conditions in a rule, take the corresponding action

Edit web ACL

Order	Rule	Action
1	BlockSQL	Block requests

If a request doesn't match any rules, take the default action

Default action

Allow all requests that don't match any rules

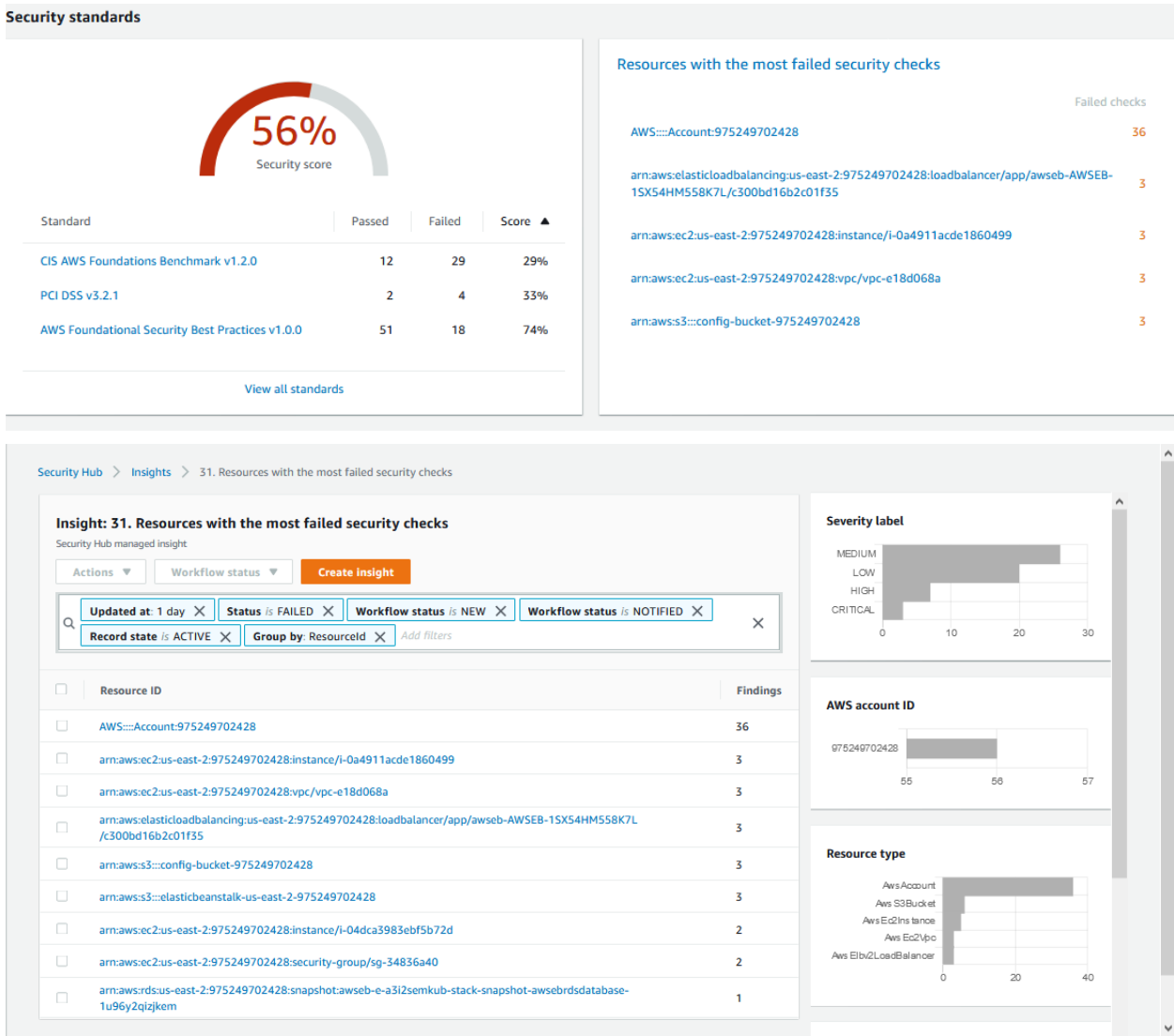
AWS resources using this web ACL

Add association

Resource	Type
my-alb	Application load balancer



# AWS overall security score and insights:



# Security standard PCI DSS results:

