



Offer CORTX Motr as a datastore for Filecoin

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Introduction

- Filecoin is a peer-to-peer network that stores files on the Internet, with built-in crypto to incentivize participation and blockchain to ensure files are stored reliably overtime.
- CORTX is Seagate’s open-source distributed object storage system and Motr is its underlying block storage layer.
- Can we use CORTX Motr as the underlying datastore for Filecoin?

Filecoin price (FIL)



Figure 1. Filecoin Market value.

Objective

- Integrate CORTX Motr with Filecoin
- Use CORTX Motr as the underlying datastore

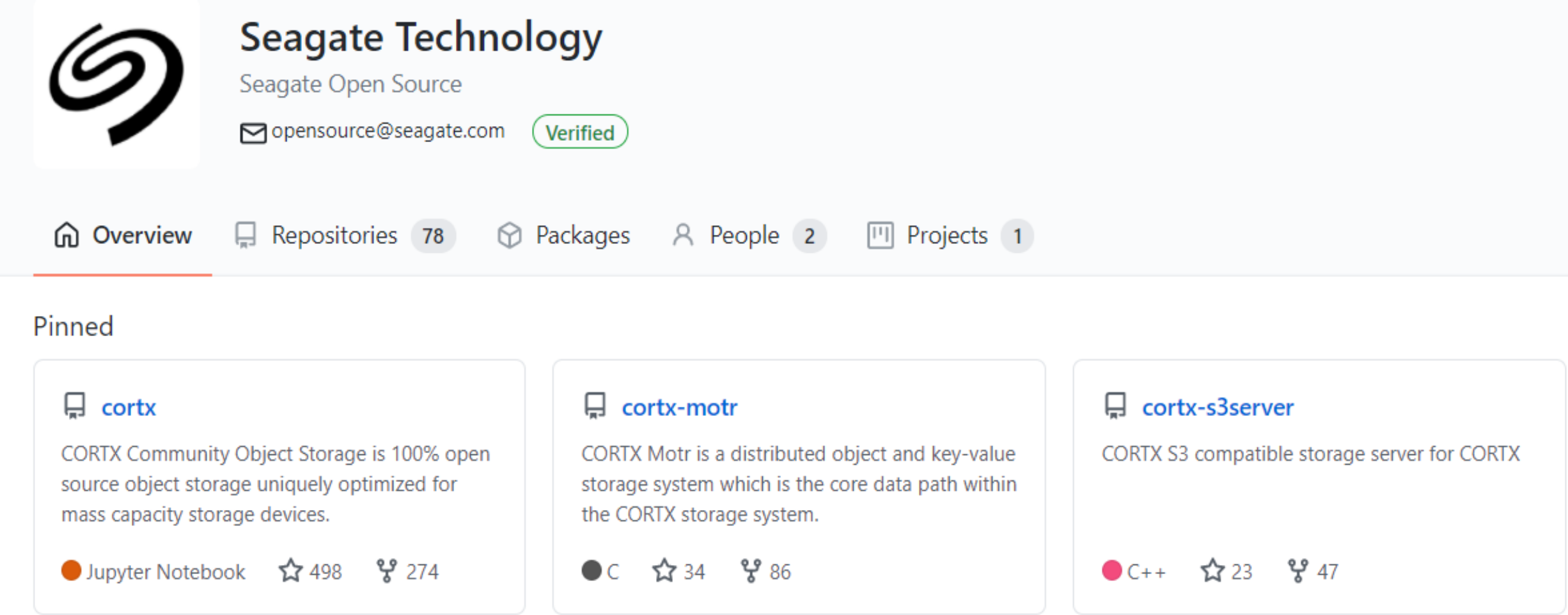


Figure 2. CORTX: a distributed object storage system.

Solution: go-ds-motr

- Filecoin stores data via an abstraction layer called “go-datastore”.
- There are several existing go-datastore implementations , which are based on different key-value stores (KVS) including Flatfs, Badger, LevelDB, Amazon S3, etc.
- CORTX Motr has a built-in KVS called Motr Index, which can be exactly used as the underlying KVS for go-datastore.
- I’ve built go-ds-motr module, an implementation of go-datastore based on CORTX motr.
- Go-ds-motr implements all the necessary functions required for Filecoin.

Interface	Function	CORTX	S3	Badger
Datastore	Sync	TRUE	TRUE	TRUE
Write	Put	TRUE	TRUE	TRUE
Write	Delete	TRUE	TRUE	TRUE
Read	Get	TRUE	TRUE	TRUE
Read	Has	TRUE	TRUE	TRUE
Read	GetSize	TRUE	TRUE	TRUE
Read	Query	TRUE	TRUE	TRUE
Batching	Batch	TRUE	TRUE	TRUE
Batch	Put	TRUE	TRUE	TRUE
Batch	Delete	TRUE	TRUE	TRUE
Batch	Commit	TRUE	TRUE	TRUE
CheckedDatastore	Check	Not Yet	Not Yet	Not Yet
ScrubbedDatastore	Scrub	Not Yet	Not Yet	Not Yet
GCDatastore	CollectGarbage	Not Yet	Not Yet	TRUE
PersistentDatastore	DiskUsage	Not Yet	Not Yet	TRUE
TTLDatastore	PutWithTTL	Not Yet	Not Yet	TRUE
TTLDatastore	SetTTL	Not Yet	Not Yet	TRUE
TTLDatastore	GetExpiration	Not Yet	Not Yet	TRUE
TxnDatastore	Discard	Not Yet	Not Yet	TRUE
TxnDatastore	NewTransaction	Not Yet	Not Yet	TRUE

Figure 3. Comparison of go-ds-motr vs other Filecoin datastore implementations

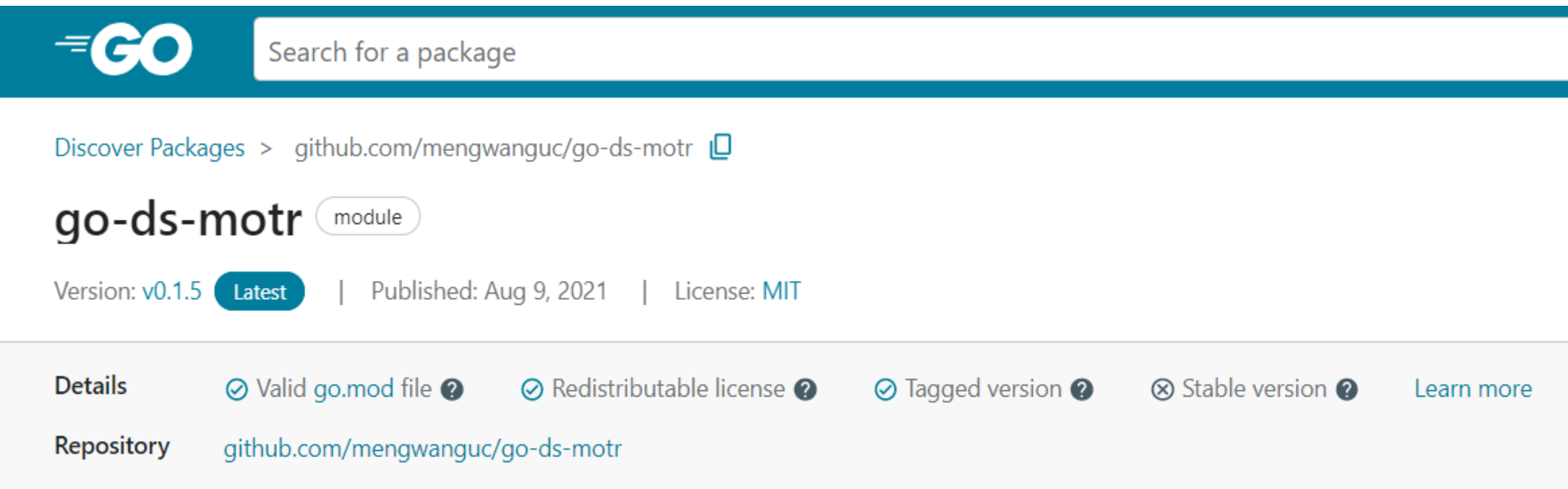


Figure 4. go-ds-motr module published in pkg.go.dev

Put all together

- Filecoin stores blockchain data, metadata, client data and miner data in different datastore. Each datastore is implemented as an Motr Index via go-ds-motr.
- In Filecoin, user-stored data are stored in large sectors, and every sector can be stored as a large object in CORTX Motr.

	A	B	C	D
1	Filecoin data	original ds	motr method	motr status
2	metadata	badger	motr index	Done
3	client	leveldb	motr index	Done
4	staging	badger	motr index	Done
5	client	badger	motr index	In progress
6	user stored data	local FS	motr object	In progress

Figure 5. Current implementation status of Integration of Filecoin and CORTX

Acknowledgments

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