

# 004 Business operations and use-cases

## Economy Use Cases

As Sample Protocol based on Ethereum blockchain, we use its financial terminology like accounts and account numbers, transactions and (smart) contracts.

Sample Protocol also uses its own terminology:

Data-block - is the smallest data package which may be indexed, curated and traded.

Data-consumer - is the account which purchases data block.

Data-producer - is the account which sells data block.

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Sample Protocol is a data marketplace which provides its users the infrastructure to:

- Register scientific data as Intellectual Property.
- Store scientific data secured online.
- Sell license to use scientific data.
- Manage partnerships and allocate shares for each partner/shareholder
- Transfer entities shares
- Assign ownership of scientific data

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Sample-Protocol operated by the below contracts:

1. Entity management (EM) contract - manages entities (which are types of users) and their permissions.
2. Partnership (PTR) contract - manages partnership between different data-producers over their data-block.
3. Data-block Trading (DBK) contract - manages and executes datablock trading, protects purchase and stores a reference to owner account (PTR contract).

Short description of the above contracts:

1. EM contract - Manages a list of accounts numbers and their related parameters. This contract provides the below functionality:
  - Entity and their permissions, which may be one of the list below:
    - Foundation Owner
    - Foundation Admin

- Service Provider
    - Data User
  - Deployment of other contracts (PTR/DBK contracts)
  - Increase/decrease entity reputation
  - Increase/decrease data reputation
  - ~~Increase/decrease group reputation~~
  - Authorize/unauthorized entities
2. PTR contract - Manages a list of account numbers and their shares (in a specific partnership). This contract provides the below functionality:
    - Create a list of shareholders and allocate their shares.
    - Transfer shares between entities.
    - Allocate new shares (dilution).
    - Calculate partnership reputation (average reputation of its members).
  3. DBK contract - provide the data trading contract. This contract provides the below functionality:
    - Ownership over a data-block (Intellectual Property) registration.
    - Data purchase and consumer protection.
    - Increase/decrease data reputation.
    - Change data owner.
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### **Use case: Genesis registration**

In order to start the economy we need an address of an Ethereum account. This account will be the Genesis foundation-owner.

note: there is no difference between foundation-owner and genesis foundation-owner except the fact that one of them was registered before the other.

Genesis deployment and registration are the beginning of Sample-Protocol economy:

- The Economy starts with the deployment of EM contract.
- The Genesis foundation-owner which deployed the contract becomes the first foundation-owner entity.
- After the contract deployment and foundation-owner registration are completed, new entities may be added.

### **Use case: Foundation owner Registration**

Foundation-owner registration is the procedure of adding new entity (to EM contract) with foundation-owner permissions. Needed for:

- Highest governance

- Foundation-admin registration

#### **Use case: Foundation admin Registration**

Foundation Admin registration is the procedure of adding new entity (to EM contract) with Foundation Admin permissions. Needed for:

- Middle Governance
- Reduce foundation owners' daily involvement
- Register service providers

#### **Use case: Service provider Registration**

Service Provider registration is the procedure of adding new entity (to EM contract) with service-provider permissions. Needed for:

1. Data users KYC procedure
2. Data users registration
3. Network Support
  - Operate nodes.
  - Data operation (like search and curate scientific data).
  - Front end + back end.
  - Data base integration.

#### **Use case: Data-user Registration**

Data-user registration is the procedure of adding new entity (to EM contract) with Data-user permissions. Needed for:

- Consume scientific data (purchase data).
- Produce scientific data (sell data).

#### **Use case: upload scientific data**

Data users can upload data onto the marketplace for trade:

- Data producer sends a request (to EM contract) to generate PTR contract.
- Data Producer sends a request (to EM contract) to generate DBK contract (with a references to a PTR contract address and data's digital signature).
- Upload data-block.

#### **Use case: sell/purchase scientific data**

Data users can purchase data from the marketplace. Sample Protocol allows data trading through DBK contract.

- Data producer sends a request (to EM contract) to generate PTR contract.

- Data Producer sends a request (to EM contract) to generate DBK contract with a references of a PTR contract address and data's digital signature.
- upload the claim/proof to service provider (based on the storage technique selected by the data producer)

As a/an...	I want to...	So that...	Comment
First foundation-owner (Genesis)	Deploy EM contract	Sample Protocol will begin execution.	That's the Big-Bang of Sample-Protocols economy
Foundation-owner	Add new foundation owner	Expand foundation owners group.	When more than 1 foundation owners exist, a >50% consensus must be achieved for this operation
Foundation-owner	Add new foundation admin	Foundation admin will handle daily tasks.	Foundation Admin's goal is to reduce daily workload from foundation owners
Foundation-admin	Add new service provider	Service provider will support the network and handle data users.	
Service-provider	Support Sample-Protocol network	Allow more computing power, distribution and economy load.	
Service-provider	Add new data-users	Data user will be able to produce/consume scientific data to/from the marketplace.	
Data-user (producer)	Upload data to marketplace.	The data will be trad-able on the scientific data marketplace	
Data-user (consumer)	Search data using parametric search	Sample Protocol will display the best results for my search.	

	Purchase data from the marketplace.		
Group of Data-users	create partnership and allocate shares in it.	All income to this partnership will be spread between the shareholders in relation to their shares.	

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