NGS Encryption++

ADDING SECURITY , FINE GRANULAR ACCESS, & COMPLIANCE TO GENOMIC DATA MANAGEMENT

PetaSuite Protect

Overview

Whether your organisation plans to add genomic data to a federated storage platform, keep the data local, or physically share it with semi-trusted partners, PetaSuite Protect is able to satisfy your data privacy, encryption, access control and monitoring needs.

Transparent encryption and key management

It secures data with robust encryption which is transparent to the user and eliminates key management and access control headaches for data stewards and admins.

Give users visibility of only parts of the genome

The same encrypted intact BAM file is provided to everyone, but PetaSuite Protect gives fine-grain access, so that each user can be granted visibility of only the parts of the genome that they need to see, on a per-user or per-group basis. Which parts are accessible can be modified in real-time by data stewards.

Monitor and log all accesses, for deep auditing

It monitors and logs all authorised accesses and unauthorised attempts to access genomic data and what precisely was done with it, both within your organisation and if shared with others.

Redact sensitive metadata without deleting it

Even for authorised access, it further aids patient privacy by allowing configurable redaction of sensitive metadata (such as portions of the BAM header).

Comply with HIPAA Minimum Necessary Rule

It allows you to satisfy the Minimum Necessary Requirement of the HIPAA/GDPR privacy rule, and the GDPR requirement of being able to remove individual samples from cohorts after distribution, both which are otherwise problematic when providing access to genomic data.

Transparent integration

It integrates transparently with existing environments such as NextFlow, Cromwell, Seven Bridges, Docker, Singularity.

Compression and cloud access also possible

It can be optionally combined with the other PetaSuite capabilities of transparent compression and cloud access, as a specialized management tool for genomic data.

Secure your data

PetaSuite Protect prevents unauthorised access to genomic data by applying FIPS 140-2 compliant AES-256 regional encryption. Multi level granular access permissions control who has access to any given file, or part of a file. Admins and data stewards can control permissions using the PetaSuite Protect Management Server and can grant or revoke access in real-time.

Audit the use of your data

Via the PetaSuite Protect Management Server users who have appropriate permissions can grant access on a granular basis to people within their organization, and outside (screenshot overleaf).

Once access has been granted and the data made available, the cryptographic ledger also records searchable information relating to how the data is accessed and used.

PetaSuite Protect records how your data is used, including:

- The identity of the user
- The file/object and region accessed by the user
- Date and time of access
- The command line of software with options used to access the data

PetaGene

More Benefits of PetaSuite Protect:

Easy to use

PetaSuite Protect Management Server accessed via browser or with bed files to enable easy set up and management of access to data.

Transparent Access

Transparent cloud or on-premises integration so there is no need to amend your existing tools or pipelines.

Won't slow you down

On-the-fly client-side decryption and decompression provide quick scalable access to data across multiple simultaneous users.

The right access for the right people

Unique keys for each region of each file mean users only see the data you allow them to (see screenshot).

Demonstrate compliance with regulations

To be compliant with the relevant regulations, holders of genomic data must implement the necessary security protocols and demonstrate that those steps have been taken.
PetaSuite Protect simplifies these tasks firstly by applying robust encryption to the data. Then, it creates records of who has access, and how that access is used, allowing data stewards to demonstrate that the appropriate measures have been taken.