Hierarchical Data Format (HDF5): HDF5 is a data model, library, and file format for storing and managing data. It supports large, complex, and heterogeneous data. HDF5 is ideal for handling large volumes of structured numerical data and is designed for high parallel I/O performance and storage efficiency.

When loading existing runs

Selective Loading: Instead of loading the entire dataset into memory, selectively load only parts of the data for parameter sampling decisions. HDF5 can read slices of datasets without loading the entire dataset into memory.

Chunking: When creating the HDF5 file, use chunking to divide the dataset into smaller, manageable blocks. This is especially useful for datasets that are too large to fit into memory as it allows efficient partial I/O operations.

Compression: Use compression to reduce the storage size. HDF5 supports various compression levels. While compression reduces file size, decompressing data on-the-fly increases load time, though this is often a worthy trade-off for saving hard drive space.