Assignment 3 - Glossary and Terms

Some of the terms used within the assessment may seem a little strange and/or unfamiliar to you. We have constructed an initial glossary.

Glossary

- File-Transfer - A method to transfer files, typically over a network.

- Chunk - A portion of a file

- Chunks - Many portions of a file, if you were to merge all the chunks together you get the file

- BPKG Package File - Specifically, the .bpkg file is a metadata file that describes the file and its hashes

- File Integrity - Refers to the state of the file, if it has been compromised or not

- Merkle Tree - A full and complete (typically) binary tree, each node has a hash associated A merkle tree, has a hash function associated with it.

- Merkle Tree Node - A node within a merkle tree, if a non-leaf node, it will compute its hash from its children, typically Hash(Hash(Left) + Hash(Right)), where Left and Right are the two children.

  If it is a leaf-node, it will compute its hash from the chunk it is associated with.

- Children - A node that is typically referred to as a descendent of another node. In a binary tree, a child node is either a `left` or `right` node.

- Node - A data structure object that typically links to other nodes while also holding data itself. In the context of a binary tree, it can be an object that has the potential to link to two other nodes.

- Leaf Node - A data structure object that is very similar to a Node (See: Node) but it has no connections to other nodes except its parent.

- Hash - A fixed-size value derived from data of arbitrary size. It is the output of a hash function. Refer: SHA256

- Hash Function - A function that accepts data of arbitrary size and produces a fixed-size value. Refer: SHA256 Function

- SHA256 - A cryptographic hash function, it will produce a 32byte hash or 64 byte hash as a hexadecimal string.

- Configuration File - A file to help configure software. Typically have parameters with associated values that can be adjusted.

- Tree Depth - When referenced in relation to a binary tree, it is the distance from the root of the tree to its lowest leaf-child

- Peer - Another process that your program has established a connection with and can talk to.

- Peer List - A list of peers, See: Peer

- Network Protocol - A set of rules around format and packets to establish a dialogue between two or more processes in a network.

- Daemon - A process that typically runs in the background.

- File - A collection of data with a name stored on a computer disk storage device (hard disk or otherwise).

- Neighbour - See Peer. Another participant on the network that your process is talking to.

- TCP - Transmission Control Protocol, common internet protocol, commonly used in conjunction with IP. Is referred to as `SOCK_STREAM` in UNIX socket API.

- IP - Internet Protocol, used to communicate with other devices over the internet.

- IP Address - Address of computer on a network, typically IPv4 addresses have four, max-three digit addresses (within the range of 0-255). Within UNIX socket API, `AF_INET` refers to the communication domain for IPv4. Example: `192.168.1.2`

- Port - The network port that an application is listening on. The IP Address is associated with the device, a port is used by a process to receive or send data through.