

CLAIMS

1. A method for determining a database state, the method comprising:
 - determining a state transition operation performed on a first target database and determining one or more data operation objects used to perform the state transition operation on the first target database ;
 - serializing each of the one or more data operation objects into corresponding serialized data in binary format;
 - obtaining spliced serialized data by splicing the serialized data corresponding to the one or more data operation objects;
 - obtaining spliced data based on the spliced serialized data and a first state value of the first target database before the state transition operation;
 - determining, based on the spliced data, a first state value of the first target database after the state transition operation, wherein the first state value is used to represent a first state of the first target database and is used to uniquely represent a characteristic of data stored in the first target database; and
 - in response to determining that the first state value of the first target database matches a second state value of a second target database, determining that the first target database is consistent with the second target database.
2. The method according to claim 1, wherein the first target database is a blockchain database.
3. The method according to claim 2, wherein determining the first state value of the first target database after the state transition operation comprises:
 - determining a hash value of the one or more data operation objects; and
 - determining, based on the hash value of the one or more data operation objects and the first state value of the first target database before the state transition operation, the first state value of the first target database after the state transition operation.
4. The method according to claim 3, wherein determining the hash value of the one or more

data operation objects comprises:

- serializing the one or more data operation objects to obtain serialized data;
- determining a hash value of the serialized data; and
- using the hash value of the serialized data as the hash value of the one or more data operation objects.

5. The method according to claim 4, wherein serializing the one or more data operation objects to obtain the serialized data comprises:

- in response to determining that there is more than one data operation object used to perform the state transition operation on the first target database:

- in response to determining that a sequence of performing the state transition operation by all data operation objects is fixed, splicing, based on the sequence of performing the state transition operation, serialized data corresponding to all data operation objects, to obtain the spliced serialized data; or

- in response to determining that a sequence of performing the state transition operation by all data operation objects is not fixed, splicing, based on a first predetermined sequence, serialized data corresponding to all data operation objects, to obtain the spliced serialized data.

6. The method according to claim 5, wherein splicing the serialized data corresponding to all data operation objects comprises:

- placing a predetermined separator between at least two pieces of serialized data; and
- obtaining the spliced serialized data by splicing all pieces of serialized data obtained after the predetermined separator is placed.

7. The method according to claim 3, wherein determining the first state value of the first target database after the state transition operation comprises:

- obtaining the spliced data by splicing, based on a second predetermined sequence, the hash value of the one or more data operation objects and the first state value of the first target database before the state transition operation; and

- determining a hash value of the spliced data; and

- using the hash value of the spliced data as the first state value of the first target database after the state transition operation.

8. The method according to any one of claims 1 to 7, wherein the first target database is a database corresponding to any node in a blockchain.

9. A device for determining a database state, the device comprising a plurality of modules configured to perform the method of any one of claims 1 to 8.