We claim:

1 . A non-transitory computer-readable data storage medium storing computer-executable code executable by a replaceable item to perform a method comprising:

in response to receiving a request for an authentication value of a plurality of authentication values of the replaceable item from a host device to which the replaceable item has been connected, determining whether the replaceable item previously sent the authentication value;

in response to determining that the authentication value was previously sent, sending the authentication value to the host device;

in response to determining that the authentication value was not previously sent, determining whether the replaceable item previously sent a maximum number of unique authentication values of the authentication values, the maximum number of unique authentication values less than a total number of the authentication values;

in response to determining that the maximum number of unique authentication values has not been sent, sending the authentication value to the host device; and

in response to determining that the maximum number of unique authentication values has been sent, refusing to send the authentication value to the host device.

2. The non-transitory computer-readable data storage medium of claim 1 , wherein each authentication value has a different identifier, wherein the request for the authentication value comprises a requested identifier of the authentication value,

wherein determining whether the replaceable item previously sent the authentication value comprises:

looking up the requested identifier within a table of at least the different identifiers of the authentication values that have been previously sent,

wherein determining that the authentication value was previously sent comprises:

determining that the requested identifier is one of the different identifiers within the table,

wherein determining that the authentication value was not previously sent comprises:

determining that the requested identifier is not one of the different identifiers within the table,

and wherein the method further comprises, in response to determining that the maximum number of unique authentication values has not been sent:

retrieving the authentication value from a different table of all of the authentication values by the requested identifier; and

storing at least the different identifier of the authentication value within the table of at least the different identifiers of the authentication values that have been previously sent.

3. The non-transitory computer-readable data storage medium of claim 2, wherein the table of at least the different identifiers of the authentication values that have been previously sent has a preset number of entries that are initially empty, the preset number of entries equal to the maximum number of unique authentication values that the replaceable item is permitted to send,

wherein storing at least the different identifier of the authentication value within the table of at least the different identifiers of the authentication values that have been previously sent comprises:

locating an empty entry of the table of at least the different identifiers of the authentication values that have been previously sent; and

storing at least the different identifier of the authentication value within the empty entry,

and wherein determining whether the replaceable item previously sent the maximum number of unique authentication values comprises:

determining whether the table of at least the different identifiers of the authentication values that have been previously sent has any empty entries.

4. The non-transitory computer-readable data storage medium of claim 1, wherein determining whether the replaceable item previously sent the maximum number of unique authentication values comprises:

determining whether a counter of a unique number of the authentication values that the replaceable item has previously sent is equal to the maximum number of unique authentication values,

and wherein the method further comprises, in response to determining

that the maximum number of unique authentication values has not been sent:

incrementing the counter.

5. The non-transitory computer-readable data storage medium of claim 1, wherein determining whether the replaceable item previously sent the maximum number of unique authentication values comprises:

determining whether a flag corresponding to the maximum number of unique authentication values having previously been sent has been set,

and wherein the method further comprises, in response to determining that the maximum number of unique authentication values has not been sent:

determining whether the maximum number of unique authentication values has now been sent or will have now been sent;

in response to determining that the maximum number of unique authentication values has now been sent or will have now been sent,

setting the flag.

6. The non-transitory computer-readable data storage medium of claim 1, wherein the method further comprises, in response to determining that the maximum number of unique authentication values has not been sent:

once the authentication value has been sent or will have been sent to the host device, determining whether the maximum number of unique authentication values has now been sent;

in response to determining that the maximum number of unique authentication values has now been sent or will have been sent,

functionally erasing at least the authentication values from the replaceable item that have not been sent.

7. The non-transitory computer-readable data storage medium of claim 1, wherein the method further comprises, in response to determining that the maximum number of authentication values has not been sent:

generating the authentication value from a cryptographic key stored within the replaceable item.

8. The non-transitory computer-readable data storage medium of claim 7, wherein the method further comprises, in response to determining that the maximum number of authentication values has not been sent:

once the authentication value has been sent or will have been sent to the host device, determining whether the maximum number of unique authentication values has now been sent;

in response to determining that the maximum number of unique authentication values has now been sent or will have been sent,

functionally erasing the cryptographic key from the replaceable item so that the authentication values that have not been sent cannot be generated.

9. The non-transitory computer-readable data storage medium of claim 1, wherein the request is a first request, and the method further comprises:

receiving a second request, by the replaceable item from the host device, for a one-way hash value of the authentication value; and

sending the one-way hash value by the replaceable item to the host device,

wherein the first request is received prior to or after the second request is received.

10. The non-transitory computer-readable data storage medium of claim 1 , wherein the host device is a printing device, and the replaceable item is a print substance cartridge for the printing device.

11. A print substance cartridge for a printing device, comprising:

a supply of print substance for the printing device;

a non-volatile memory storing a plurality of passwords and/or a cryptographic key from which the passwords are able to be generated; and

logic to permit retrieval of a predetermined maximum number of the passwords, less than a total number of the passwords, from the non-volatile memory, to authenticate the print substance cartridge within the printing device.

12. The print substance cartridge of claim 11 , wherein the logic is further to:

permit retrieval of the predetermined maximum number of the passwords an unlimited number of times from the non-volatile memory; and

prohibit retrieval of any password of the passwords other than the predetermined maximum number of the passwords even one time from the non-volatile memory.

13. The print substance cartridge of claim 11, wherein the logic is further to:

select the predetermined maximum number of the passwords as any device requests a particular password of the passwords from the non-volatile memory, until the predetermined maximum number of the passwords has been reached.

14. The print substance cartridge of claim 11, wherein the non-volatile memory is write-once, read-limited memory in which the predetermined maximum number of the passwords is readable an unlimited number of times and the passwords other than the predetermined maximum number of the passwords is unreadable once the predetermined maximum number of the passwords has been selected.

15. The print substance cartridge of claim 11, wherein the logic is further to:

at least functionally erase at least the passwords other than the predetermined maximum number of the passwords once the predetermined maximum number of the passwords has been selected.

16. The print substance cartridge of claim 11, wherein the logic is further to, in response to receiving a request for a particular password of the passwords:

if the particular password has previously been sent, return the particular password;

if the particular password has not been previously sent and the predetermined maximum number of the passwords has not been sent, generate the particular password from the cryptographic key and return the particular

password; and

if the particular password has not been previously sent and the predetermined maximum number of the passwords has been sent, refuse to generate and return the particular password.

17. The print substance cartridge of claim 16, wherein the logic is further to, after generating the particular password from the cryptographic key:

at least functionally erase the cryptographic key if the predetermined maximum number of the passwords has now been sent or will have now been sent.

18. The print substance cartridge of claim 11, further comprising:

a non-volatile memory storing a plurality of hash values of the passwords,

wherein the logic is to permit retrieval of any hash value an unlimited number of times from the non-volatile memory.

19. The print substance cartridge of claim 11, wherein the print substance is one or more of: ink, toner, two-dimensional (2D) colorant, three-dimensional (3D) printing agent, and 3D printing build material.