

A collection of various diamonds of different shapes and sizes scattered across a dark background. The diamonds are in sharp focus, showing their facets and reflections. The text "ALPIUM | BRILLIANCE IN UNIQUITY" is centered in the middle of the image in a white, serif font.

ALPIUM | BRILLIANCE IN UNIQUITY

MISSION

The Alpium Consortium consists of experts in the field of Gemology and Cyber Security whose mission is to provide an end to end, simple to use solution for marking and identifying loose diamonds from the mine to the finger, that will enable inspectors, dealers, and consumers alike to verify the authenticity of the stone.



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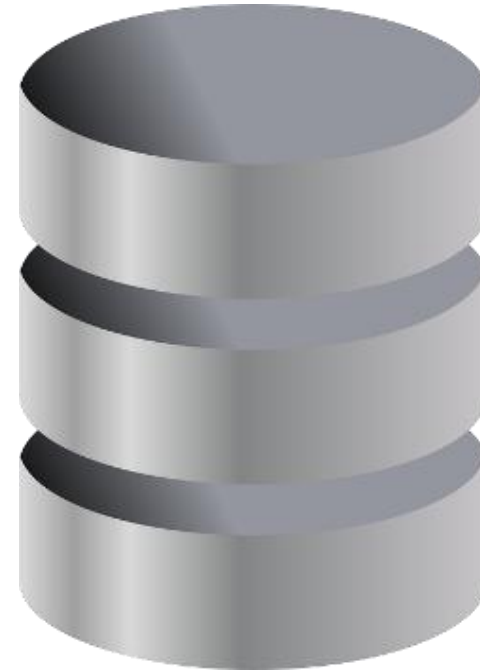


THE DATABASE DILEMMA



[HTTPS://CERTAUTHORITY.COM/
1939527GB08A](https://certauthority.com/1939527GB08A)

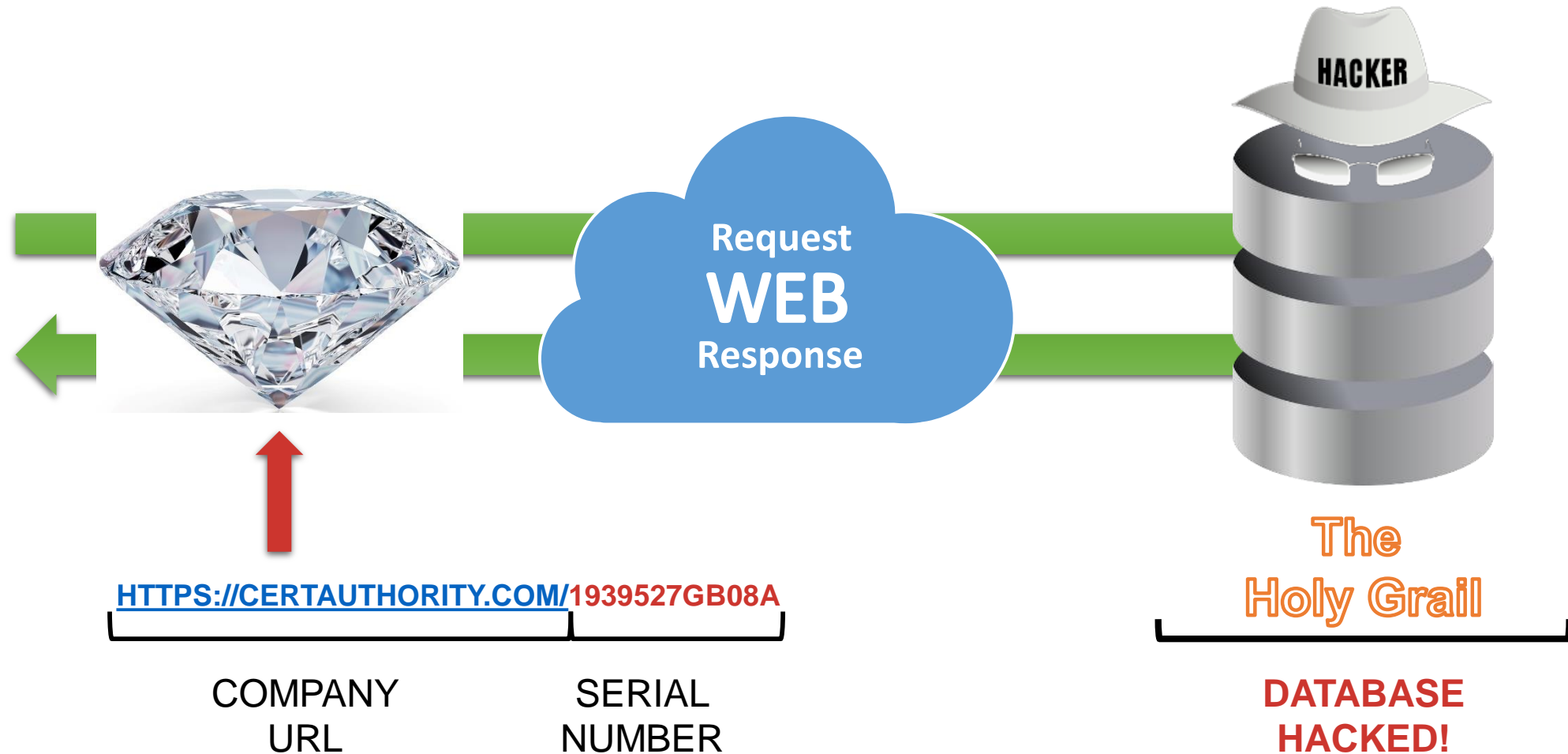
**MEANINGLESS DATA
MARKED ON STONE**



**- THE 4 C'S
- LIGHT PERFORMANCE
- DIMENSIONS
- VALUE
- OWNERSHIP DATA**

**SENSITIVE DATA IN
EXPOSED DATABASE**

THE AUTHENTICATION DILEMMA



WHY NOT TO USE A DATABASE

For those of you keeping up with current events, the number of database breaching are growing in numbers and multitude.

Until now, this has affected Fortune 500 Corporations, Governments, and Military alike. **But were you aware that it has targeted the diamond industry as well?**

October 23, 2015 – GIA has invalidated 1,042 diamond grading reports that were altered by an outside party who gained unauthorized remote access to GIA's grading information database before the reports were printed and provided to the submitting clients. Anyone in possession of any of these grading reports or diamonds is strongly requested to return them immediately to GIA. <http://www.gia.edu/gem-lab/laboratory-alert-october-2015>



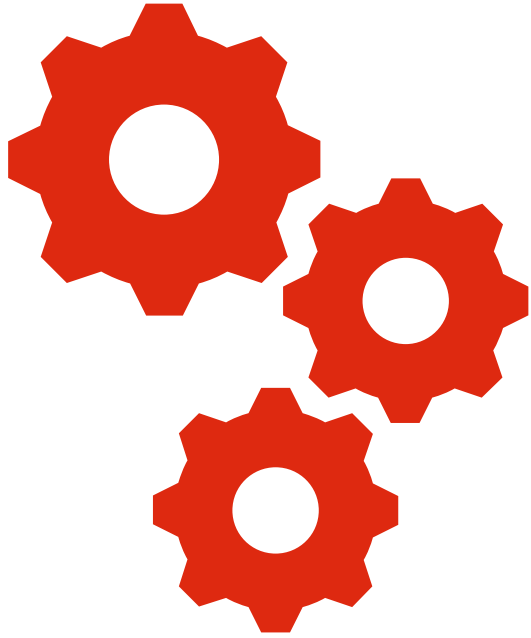
GIA®

<http://www.quantoms.com/gia6.pdf>



Six Degrees Counterfeit Prevention, LLC | 6DCP.com





SO HOW
DOES
ALPIUM
WORK?

THE DATABASE LESS SOLUTION

1

GENERATE SENSITIVE INFORMATION

2


TRANSMIT ALPIUM BARCODE FOR INSCRIPTION

3

ENGRAVE ALPIUM BARCODE ON STONE



STEP 1: GENERATE SENSITIVE INFORMATION



Cryptocodex Ltd

Identification Data

Site:


Certificate Number:

Shape:

Dimensions (X,Y,Z):
X: mm
Y: mm
Z: mm

Value:

Range:



GIA®



The 4Cs Grading

Carat:

Color:

Clarity:

Cut:



Select image 1:
 No file chosen

0003_002080B702_1.PNG has been successfully uploaded.

Select image 2:
 No file chosen

0003_002080B702_2.PNG has been successfully uploaded.


Light Performance

Polish:

Symmetry:


Fluorescence:

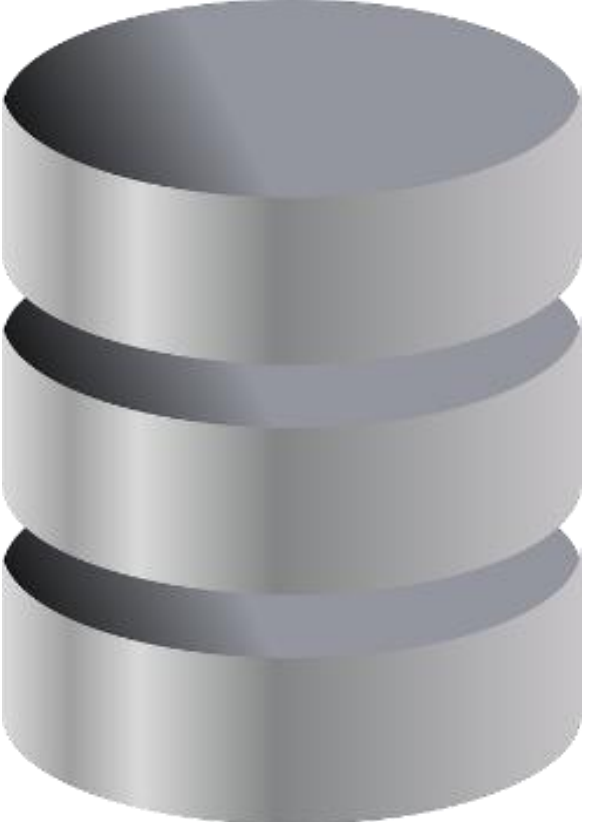
Encrypted Barcode



Email:

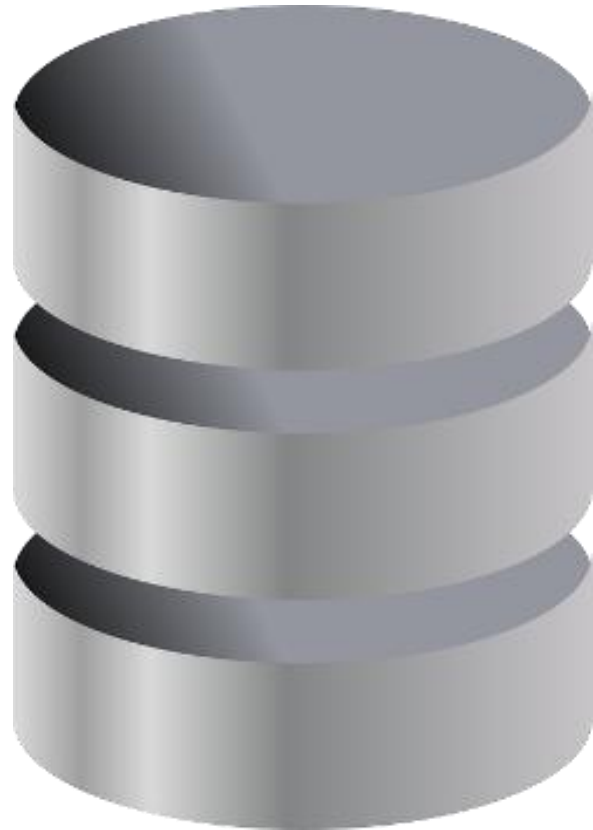
BARCODE GENERATED





OFFLINE Database

STEP 2: TRANSMIT ALPIUM BARCODE FOR ENGRAVING

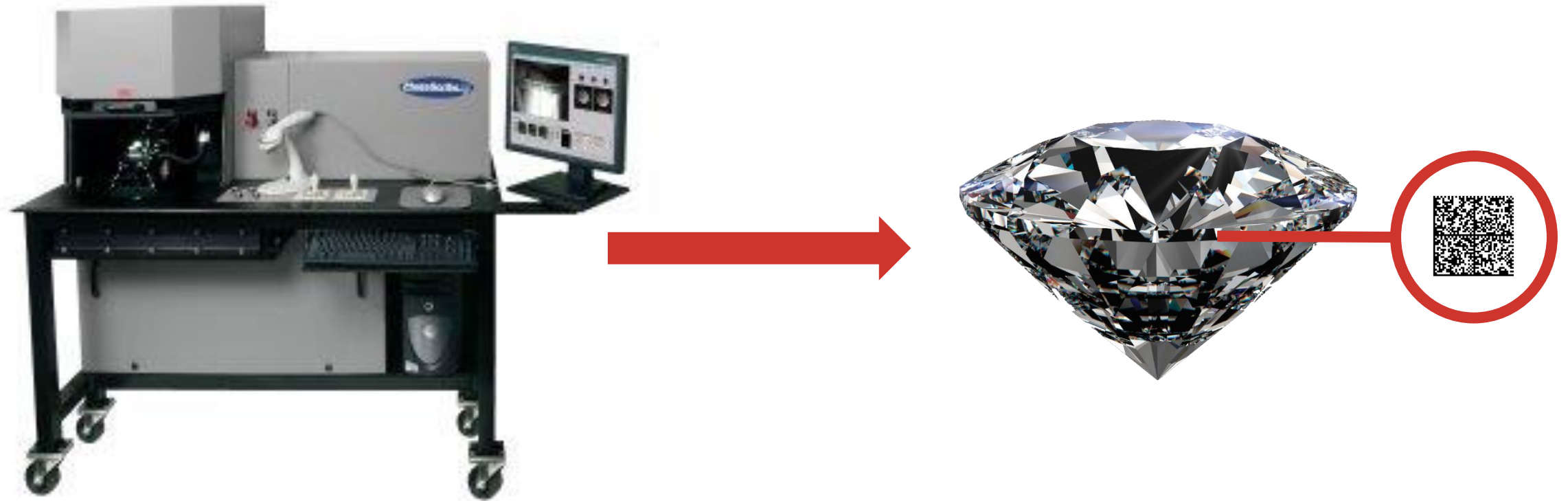


OFFLINE Database



Courtesy of
<http://www.photoscribetech.com/directpart/directpart.htm>

STEP 3: ENGRAVE ALPIUM BARCODE ONTO STONE




Courtesy of
<http://www.photoscribetech.com/directpart/directpart.htm>

EXAMPLES



Magnified image of encrypted barcode laser engraved on the surface of the diamond.



GIA
GEMOLOGICAL INSTITUTE OF AMERICA®

5355 Armada Drive | Carlsbad, CA 92008-4602
T: 760-603-4500 | F: 760-603-1814

GIA Laboratories
Bangkok Carlsbad Gaborone
Johannesburg Mumbai New York

www.gia.edu

DIAMOND GRADING REPORT

July 21, 2008

Shape and Cutting Style **Marquise Brilliant**
Measurements **11.32 x 6.27 x 4.22 mm**

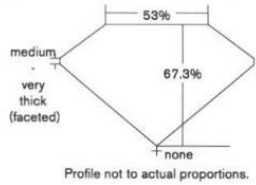
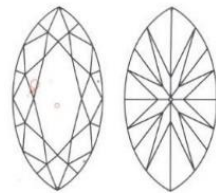
GRADING RESULTS

Carat Weight **98.6**
Color Grade **G**
Clarity Grade **SI2**

ADDITIONAL GRADING INFORMATION

Finish
Polish Excellent
Symmetry Very Good
Fluorescence Strong Blue
Comments:
Pinpoints are not shown.

REFERENCE DIAGRAMS



medium
very thick (faceted)
none


Profile not to actual proportions.

KEY TO SYMBOLS


- Crystal
- Cloud
- Needle
- Indented Natural
- Natural

Red symbols denote internal characteristics (inclusions). Green or black symbols denote external characteristics (blemishes). Diagram is an approximate representation of the diamond, and symbols shown indicate type, position, and approximate size of clarity characteristics. All clarity characteristics may not be shown. Details of finish are not shown.

GIA COLOR SCALE		GIA CLARITY SCALE	
D	EXCELLENT	FLAWLESS	EXCELLENT
E			
F			
G			
H	VERY GOOD	VS1	VERY GOOD
I			
J			
K			
L	GOOD	VS2	GOOD
M			
N			
O			
P	FAIR	S1	FAIR
Q			
R			
S			
T	POOR	S2	POOR
U			
V			
W			
X	VERY POOR	I1	VERY POOR
Y			
Z			



310720301



Shop With 100% Guarantee



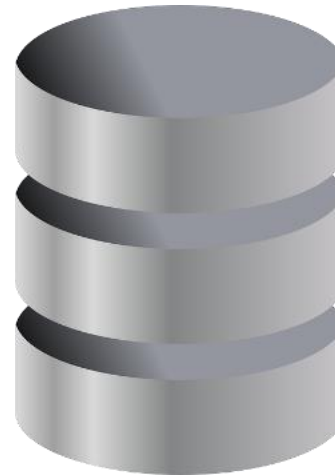
You could use google translation to check out the certificate when you receive it. The first line of number below the product image of the certificate is the inspection number and the 2nd line of number is the checksum.

DATABASE LESS AUTHENTICATION PROCESS



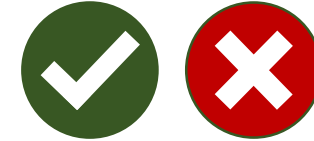
STEP 1

Scan Alpium Barcode:
payload transmitted over
the internet to the
decryption server



STEP 2

Decryption server
contains the keys to
authenticate the item

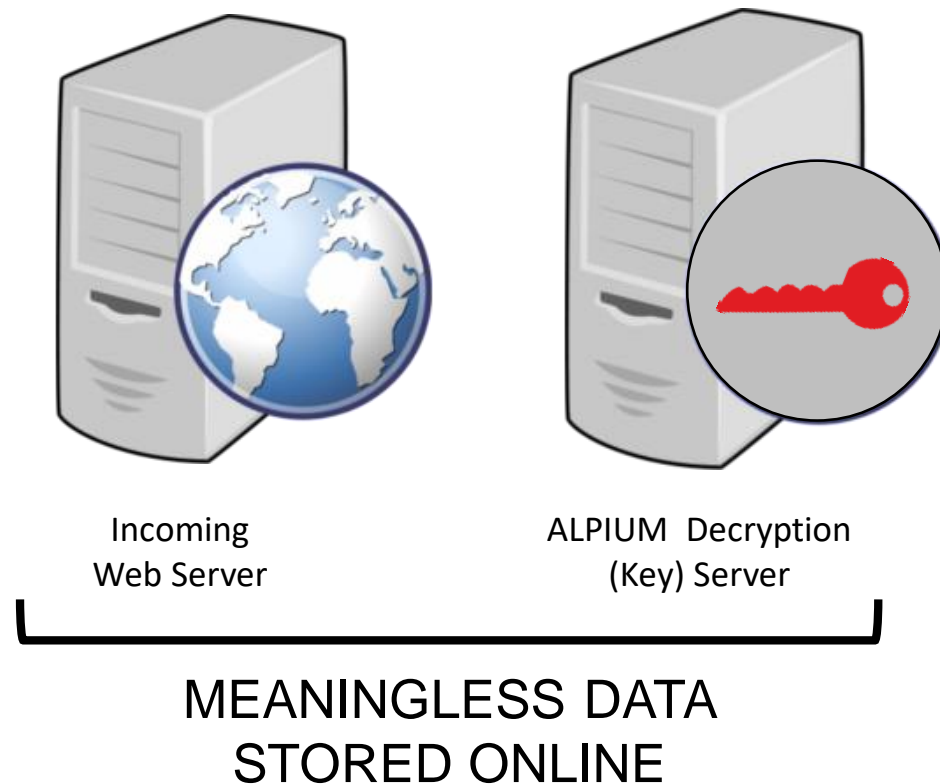


- THE 4 C'S
- LIGHT PERFORMANCE
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STEP 3

Confirms or
denies
authentication

DATABASE LESS AUTHENTICATION PROCESS



The decryption server stores **ONLY** the keys to authenticate the ALPIUM Mark

The decryption server is protected by The Iron Ring, a revolutionary database less authentication method

Even if the decryption server is hacked, no sensitive information will be exposed

SCANNING DEVICES

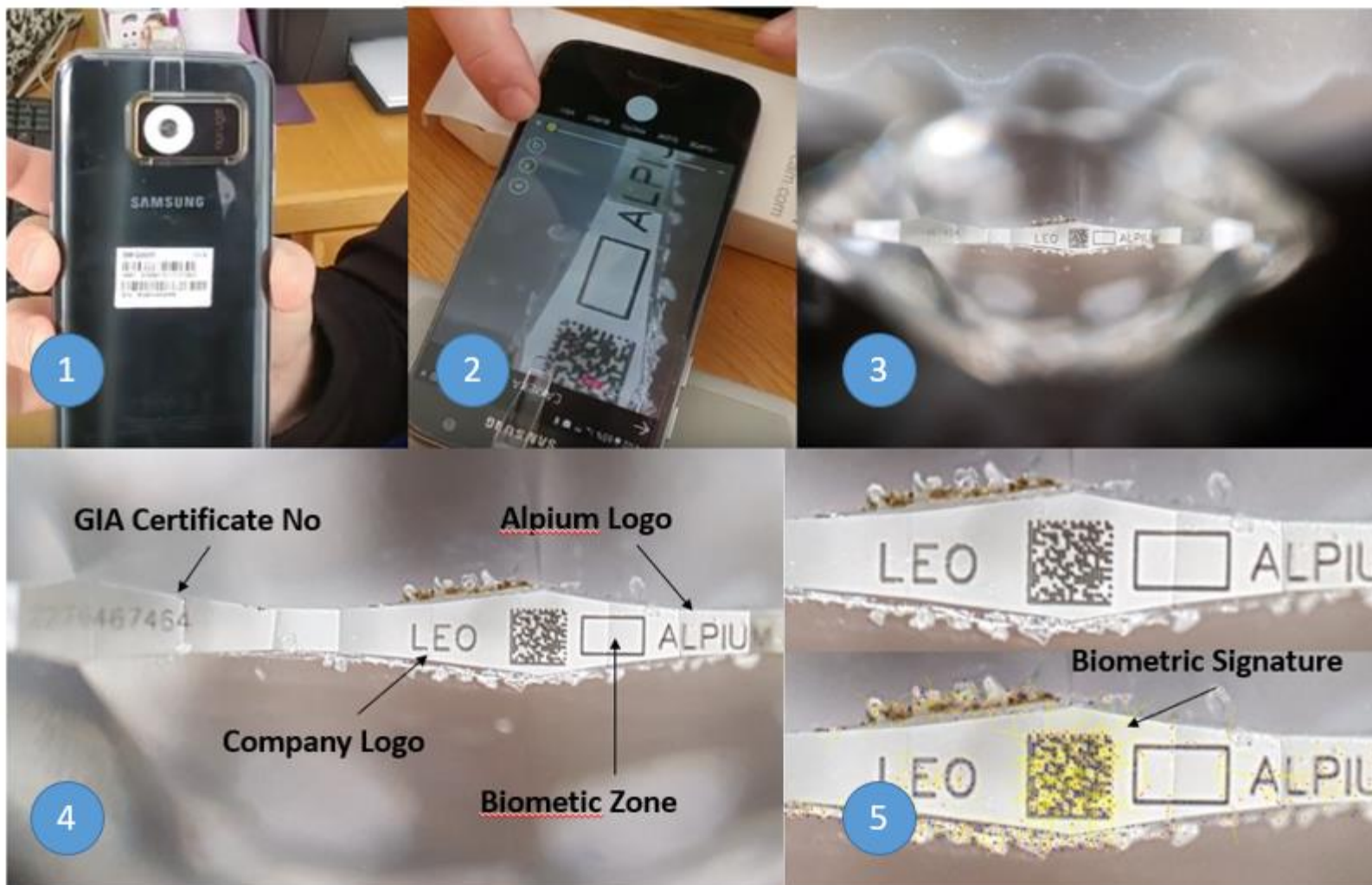
Magnification Device

- USB Powered Microscope
- Nurugu Cell Phone Attachment

Authentication Device

- Cellular Phone
- Barcode Reader
- Hand-Held Terminal





1. Place Nurugu camera onto smartphone.

2. Position smartphone onto diamond.

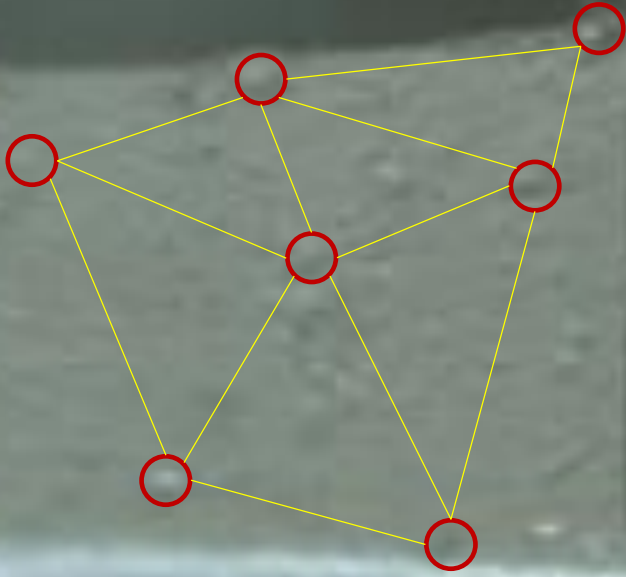
3. Internal image of diamond before magnification.

4. Zoom in to identify GIA certification no., company logo, Alpium Mark, Alpium logo, and biometric zone.

5. Smartphone app identifies biometric markers (in yellow) and scans the barcode for authentication.

See video presentation of process: <http://quantoms.com/diamond.html>

BIOMETRIC SIGNATURE EXPLAINED



1. The natural micro abrasions/fracture resulted from polishing create a **BIOMETRIC** signature **UNIQUE** to each stone. These values are encrypted and encapsulated together with the Laboratory Certificate in the 2D barcode.
2. To authenticate stone, a user **ONLY** needs to magnify and capture an image of the stone (like you see here) and forward it to the Alpium server. The server does **ALL THE WORK**.

○ Micro abrasion/fracture creates an identifier that is unique **ONLY** to this stone. No 2 stones will ever be the same.

— Represents a measurement between two unique micro abrasion/fracture points.

BENEFITS OF THE ALPIUM MARK



Capability of creating two unique identifiers for each stone. One on the diamond, the other on the certificate.



Simple to verify the authenticity of the diamond with any smartphone and free 2D barcode reader application. No special training required.



Stronger than military grade encryption technology.



Prestige in knowing the origin and accurate information about the diamond.



Eliminates the need for a centralized database system.



Prestige in knowing the origin and accurate information about the diamond.



Possibility for registration and transfer of ownership.



Optional: Loss recovery for loose diamond inventory

KEY ADVANTAGES

The Alpium Consortium provides the Government with the following Key Advantages in Gemological Document Certification.

1. Provides protection for Gemological Laboratory Certificates against manipulation and fraud.
2. Provides full Governmental control of the certifications, prevents stock manipulation, and the improper assessment of tax on precious and semi-precious stones.
3. Provides import and taxation controls by acting as a form of tax stamp.
4. Provides insurance companies with a solution that dramatically reduces their risk so they can provide better rates to their customers.
5. Provides a unique identification (on each item) and helps protect against money laundering.
6. Provides a platform for online trading whereby consumers can be sure that what they received is what they purchased.



KEY ENABLERS

1. Enables the Government to uniquely identify each and every stone.
2. Enables the inexperienced buyer equipped with a smartphone and a specific application to KNOW what they're buying is accurate and genuine.
3. Enables Tax Investigators to identify and control the taxation of each stone.
4. Enables Governmental control over imports and exports.
5. Enables Non-Governmental Organizations to confirm that stones are Conflict Free.
6. Enables Diamond Dealers to control their inventory and prevent product replacement.
7. Enables Consumer confidence that a Dealer cannot replace their stone.
8. Enables verification and matching of the stone to the certificate.
9. Enables Governmental control over the distribution of Lab Grown Diamonds.



ADDITIONAL USES FOR THE ALPIUM MARK





DEGREES

TECHNICAL SPECIFICATIONS

Six Degrees Counterfeit Prevention, LLC. | www.6DCP.com

Military Grade Encryption

Patented encryption ([US Patent No. 8914369](#)) method that eliminates need to store sensitive information in an online database.

Encryption Key is truly chaotic.

Based on a innovative and patented technology called Pure Human Randomization, or PHR.

PHR is protected against Rainbow Crack, Dictionary Attack, Cryptanalysis and Brute Force.



Encryption – Performance Features

Key Strength – 1 million bit or more

400% faster when compared to AES.

MPU use – Mathematical Process Unit in CPU use only 3% –7%.

+/- 5% overhead of the file from original data set.

Capable of encrypting entire columns of a database (up to 300 characters)
into one 2D barcode.

[US Patent No. 8914369](#)

[White Paper](#)



Six Degrees Counterfeit Prevention, LLC | 6DCP.com



WHAT THE EXPERTS SAY ABOUT US

“Defining drop shipments is an important issue. **There are novel low cost methods that guarantee product authentication as pennies per unit that cannot be reverse engineered.** Check out www.6dcp.com/track-and-trace”.....“While I did not work with Privacy Inside (now Cryptocodex) on this application, **I did a preliminary analysis of their merging barcodes with PHR and found this approach a strong audit tool for counterfeit commercial goods**”
– **Andre Szykier, Chief Scientist at Aegis Health Security**

“Having come from a solution provider that used encryption based technologies for serialization, ***I was well aware of your company and knew the respect you have garnered for your technology.*** However, as I have come to know more about it through our discussions and demonstrations, **I am simply overwhelmed by the strength of your product. You are able to cover the three central tenets of brand protection in the most forceful way possible – security, scalability, and performance.** – **Dr. Avi Chaudhuri**



A CALL TO ACTION!

Alpium solves the full cycle of identifying and tracking stones from mine to the finger by protecting the content and fingerprint of the stone.

The solution is designed to survive even the most sophisticated modern day attacks.

We're calling you to join the Alpium Consortium.

Please take a moment to consider why time is of the essence.



<https://youtu.be/eTOaxAinUj8>



Six Degrees Counterfeit Prevention, LLC | 6DCP.com



ABOUT US

Six Degrees Counterfeit Prevention, LLC (6DCP) is authorized by CryptoCodex LTD. to represent Alpium, an advanced security solution for the Diamond and Gemological Industry.





6411 Independence Ave.
Woodland Hills, Ca. 91367 USA

Tel: 818-570-1277
Email: info@6dcp.com
Web: www.6dcp.com

CONTACT
