

## Contractor engagement solution project biometrics

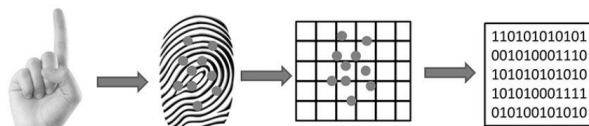
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Biometrics is short for biological measurable characteristics. Biometrics is the measurement and analysis of unique physical characteristics distinct to every individual. Biometric authentication uses this information to identify a person.

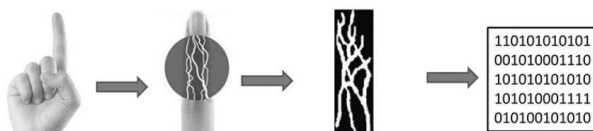
### Fingerprint authentication

The fingerprint is unique for every individual. When this is used for authentication, the unique ridges in the fingerprint are analysed, a unique pattern is identified and captured as a code in the system. Rio Tinto is not storing the actual image of the fingerprint, only the unique text that is created.



### Finger vein authentication

As with the fingerprint, an individual's finger vein pattern is unique. The finger is scanned using near-infrared light transmitted through the finger, enabling an image of the finger vein pattern to be captured by a sophisticated camera. This unique pattern is then translated to a code. As with the fingerprint, no image is stored in the system, only the unique text that is generated.



### Fingerprint and finger vein structure authentication

By combining a fingerprint and finger vein structure our system creates a byte stream of 400 bytes, then encodes using base-64 to create a unique text. This text is linked to the individual's profile in Browz (Rio Tinto's new qualification recording system).

When the individual tags in and out of the Smart Swipe™ kiosks this unique text is matched to the individual's text in Browz. We then know who the individual is and that they have all the appropriate qualifications to safely be on site.

### Why combine fingerprint and finger vein authentication?

By combining fingerprint and finger vein authentication we are achieving greater processing speed for quicker tagging in and out of a shift. We will also have a two factor ID that gives us high identification accuracy. Similar to providing multiple forms of identification to achieve 100 points of ID.

Biometric identification offers a fast, convenient and non-invasive method of authentication, while maintaining individual privacy. Therefore, biometrics are extremely difficult to acquire, forge and manipulate

## Biometrics also bring benefits to our contractor personnel:

#1

No need to remember a password or code

#2

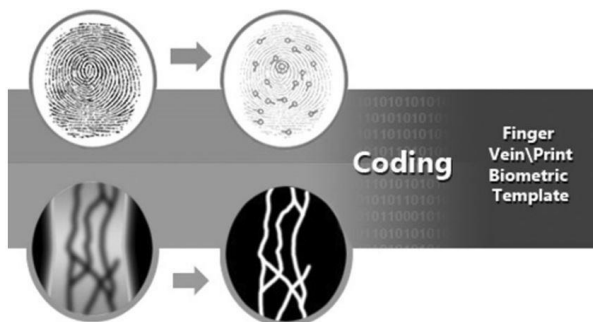
No need to bring a card

#3

No risk of anyone impersonating you or stealing your identity

### Is the fingerprint or the finger vein image stored?

Rio Tinto is not storing the actual fingerprint or finger vein image. How the technology works is to store the data created by the combined readings of the fingerprint and vein as a unique text from a 400 byte stream, this text is linked to your profile in Browz. The reoccurring match is then made to this text each time the contractor personnel tags on and off.



There is nothing stored in our Rio Tinto systems that can be used to recreate a fingerprint or finger vein. The unique data points that are coded are

only parts of a full fingerprint, but enough to be a unique identifier. The finger vein structure is subdermal, i.e. under the skin and cannot be recreated.

### Rio Tinto and biometrics

Rio Tinto is using the leading biometric technology in terms of security and convenience. Combined fingerprint and finger vein authentication eliminates potential loss and theft of key cards, password cracking and impersonations.

Rio Tinto has chosen dual biometric scanning technology in its contractor engagement solution (CES) project out of respect for its contractor personnel's privacy and to make it easier to tag in and out of a shift.

### Key contacts:

For any further information on the CES project, how Rio Tinto is using biometrics, or if you have any concerns using biometrics, please contact Katrina Byrne ([Katrina.byrne@riotinto.com](mailto:Katrina.byrne@riotinto.com)).

Biometrics have become a very common and convenient way of verifying personal identity. Most of us use biometrics everyday, whether it is using our fingerprint or face to unlock our smartphone or when we process through border control at international airports.

For more information on **biometrics** please go to:

<https://www.bayometric.com/fingerprintr-vs-finger-vein-biometric-authentication/>

<http://www.m2sys.com/finger-vein-reader/>

<https://ieeexplore.ieee.org/document/4547655/>