
Personal certification in a multichain environment

Workingparty Blockchain, Federal Austrian Economic Chamber (WKÖ)/AUSTRIAPRO

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What is Federal Austrian Economic Chamber?

- We represent the interests of Austrian companies
 - The Austrian Economic Chambers represent more than 517,000 member companies. As the voice of Austrian business, we are committed to forward-looking policies which benefit the economy e.g. tax relief, cutting red tape, subsidies.
- We boost the economy through our comprehensive services
 - The Economic Chambers are modern service providers and offer fast expert advice on topics from labour laws to customs information.
- We support Austrian companies with our expert knowledge
 - Through our educational facilities – WIFI, universities of applied sciences – we contribute to improving the competitive ability of domestic companies.
- **ADVANTAGE AUSTRIA** (Foreign Trade Promotion Organisation) offers support to Austrian companies interested in export.
 - Helping Austrian companies to export their goods and services using our global network with over 100 locations eg Chicago, LA, New York, Washington

Focus of the project

- personal certificates
 - according to EN/ISO/IEC 17024
 - relevant for persons in production- and servicesector
 - 14 accredited certification bodys in Austria
 - under supervision of Accreditation Austria
- quantity structure (p.a.)
 - initial certifications ~ 75.000
 - recertification ~ (25%) 18.000
- current problems for business users
 - different service providers
 - complex search and validation of certificates

Why certificates in the blockchain?

- Benefit for businesses
 - possibility to digitise own paperprocesses across all certification bodys (simplification of administration)
 - global customers can easily online validate Austrian certificates (Increase advertising value, global Innovation)
 - create market transparency (support for the whole topic of certificates)
- Benefit for Ministry of Digital and Economic
 - [Accreditation Austria](#) is part of the Ministry
 - Pionier in Europe
 - immediate insight in all certificates of all accredited certification bodies (without technical or financial effort)
 - Showcase at the interface between digital administration and businesses

Why certificates in the blockchain?

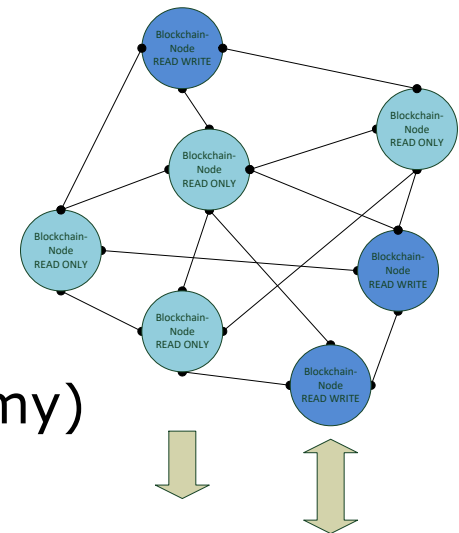
- Benefit for certification bodies
 - they all use the „same database“ for publication, needs only to be maintained once
 - easy integration, manageable costs
- Benefit for national economy
 - better and faster information for citizens and businesses
 - new business models are possible
 - Pioneer
 - in international Blockchain-Szene
 - this project can be used in any form of administration of certifications (eg colleges, universities,..)

From the idea to the pilot-project

- May 2018: First talks to accreditation Austria
- June 2018: Development of Online-Consulting Service to identify reasonable Blockchain services
- July 2018:
 - Talks to all substantial certification bodys
 - definition of data structure
- August 2018: development of technical pilot
- September 2018: presentation of pilot
- October 2018: first assessment of GDPR requirements
- November 2018: Development of legal opinion, University Vienna, [Department of Innovation and Digitalisation in Law](#), Prof Nikolaus Forgo
- January 2019: First draft of legal opinion available

System participants

- Rule
 - „Every participant operates a blockchain node“
 - especially „writing“ participants
 - participants have different roles
- Participants
 - certification bodies
 - Accreditation Austria (Ministry of economy)
 - Interest groups (WKO, AK ...)
 - Other users (search, validation)
 - Service providers
 - Companies (e.g. construction ...)



Pilot: „CertiChain“

- Prototype implementation
- Blockchain-Lab of AustriaPro
- Web-GUI – different roles, e.g.
 - Accreditation Austria
 - Certification body
 - Service provider
 - Public sector

Accreditation Austria

- Master data
 - Certification bodies
 - Certificate types
 - ...

Zertifikatstypen

Name	Code
Stahlschweißer/in nach EN ISO 9606-1	A1010
Aluminiumschweißer/in nach EN ISO 9606-2	A1020
Hartlöten EN 13585	A1030
Installateur-Rohrschweißen ÖNORM M 7807	A1040
Kunststoffschweißen EN 13067	A1050
Betonstahlschweißen EN 17660	A1060

CeC-accreditation Zertifizierungsstellen Zertifikatstypen

Zertifizierungsstellen

ID	ZS-A
Name	Zertifizierungsstelle A
Street	Teststrasse 4
PostalCode	1230
City	Wien
Web	https://zert-a.at
Date	2000-01-01

ID	ZS-B
Name	Zertifizierungsstelle B
Street	Waldweg 88
PostalCode	8020
City	Graz
Web	https://zert-B.org
Date	2000-01-01

Accreditation Austria

- Search/view all certificates
- Generate reports
- ...

CeC-accreditation	Zertifizierungsstellen	Zertifikatstypen	Alle Zertifikate
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Certificates in: cec-pc1 – 10 of 10 items

Publishers	FullNode@VIE-cb1 (1SskTuQepupmwzHnR8ti6WXqNNdYHsA3wBmesb)
Key 0	ZS-A
Key 1	ZS-A:5b8ed0b912330
Key 2	Gruber, Peter
Key 3	A1010
ID	a215cb7d5bd3071dcc67c98a79ff959f368655e55d5c35ba2260b8136022ab70
Data	stdClass Object ([cald] => ZS-A [caCertId] => ZS-A:5b8ed0b912330 [titlePre] => [givenName] => Peter [familyName] => Gruber [titlePost] => [certType] => A1010 [issued] => 2018-09-04 [validUntil] => 2020-07-20 [remarks] =>)

Issuer:	Zertifizierungsstelle A, Teststrasse 4, 1230 Wien, AT
Cert.:	ZS-A:5b8ed0b912330
Person:	Peter Gruber
Type:	Stahlschweißer/in nach EN ISO 9606-1 (A1010)
Valid:	2018-09-04 - 2020-07-20

Certification bodies

- Issue certificates
- Generate certs as PDF

CeC-certification Zertifikat ausstellen Ausgestellte Zertifikate Alle Zertifikate

Zertifikat ausstellen

Typ:

Titel (vor):

Vorname:

Familienname:

Titel (nach):

Gültig bis:

Bemerkung:

Personenzertifikat gemäß EN ISO/IEC 17024

Aussteller

caId	ZS-A
name	Zertifizierungsstelle A
street	Teststrasse 4
postalCode	1230
city	Wien
web	https://zert-a.at

Person

titlePre	Ing.
givenName	Paul
familyName	Gruber
titlePost	MBA

Zertifikat

caCertId	ZS-A:5b9e61a7e5d7f
certType	A1010
certTitle	Stahlschweißer/in nach EN ISO 9606-1
issued	2018-09-16
validUntil	2020-09-17
remarks	



Certification bodies

- Search, View
 - Own certificates
 - All certificates

Certificates in: cec-pc1 – 11 of 11 items with key: ZS-A

Publishers	FullNode@VIE-cb1 (1SskTuQepupmwzHnR8ti6WXqNNdYHsA3wBmesb)	
Key 0	ZS-A	
Key 1	ZS-A:5b9e61a7e5d7f	
Key 2	Gruber, Paul	
Key 3	A1010	
ID	e6e2cd865754e831c8869a7a0ccb28510a6d95fd7de782656b3619ca877f4a0	
Data	stdClass Object ([cald] => ZS-A [caCertId] => ZS-A:5b9e61a7e5d7f [titlePre] => Ing. [givenName] => Paul [familyName] => Gruber [titlePost] => MBA [certType] => A1010 [issued] => 2018-09-16 [validUntil] => 2020-09-17 [remarks] =>)	
	Issuer:	Zertifizierungsstelle A, Teststrasse 4, 1230 Wien, AT
	Cert.:	ZS-A:5b9e61a7e5d7f
	Person:	Ing. Paul Gruber MBA
	Type:	Stahlschweißer/in nach EN ISO 9606-1 (A1010)
	Valid:	2018-09-16 - 2020-09-17
Added	2018-09-16 13:59:17 GMT (confirmed)	
Publishers	FullNode@VIE-cb1 (1SskTuQepupmwzHnR8ti6WXqNNdYHsA3wBmesb)	
Keys	ZS-A ZS-A:5b8ed0b912330	
ID	a215cb7d5bd3071dcc6	
Data	stdClass Object ([cald] => ZS-A [caCertId] => ZS-A:5b8ed0b912330 [titlePre] =>)	
	Issuer:	Zertifizierungsstelle A, Teststrasse 4, 1230 Wien, AT
	Cert.:	ZS-A:5b8ed0b912330
	Person:	Peter Gruber
	Type:	Stahlschweißer/in nach EN ISO 9606-1 (A1010)
	Valid:	2018-09-04 - 2020-07-20
Added	2018-09-04 18:37:01 GMT (confirmed)	

Render as PDF

Service providers

- Z.B. Search, View, Verify

CeC-service Alle Zertifikate Verifikation

Certificates in: cec-pc1 – 11 of 11 items

Publishers	FullNode@VIE-cb1 (1SskTuQepupmwzHnR8ti6WXqNndYHsA3wBmesb)	
Keys	ZS-A ZS-A:5b9e61a7e5d7f Gruber, Paul A1010	
ID	e6e2cd865754e831c8869a7a0ccbb28510a6d95fd7de782656b3619ca877f4a0	
Data	Issuer:	Zertifizierungsstelle A, Teststrasse 4, 1230 Wien, AT
	Cert.:	ZS-A:5b9e61a7e5d7f
	Person:	Ing. Paul Gruber MBA
	Type:	Stahlschweißer/in nach EN ISO 9606-1 (A1010)
	Valid:	2018-09-16 - 2020-09-17
Added	2018-09-16 13:59:17 GMT (confirmed)	

CeC-service Alle Zertifikate Verifikation

Verify Transaction

ID:

Example

- Certificate (as PDF)
 - Issuer
 - Personal data
 - Certificate info
 - Logo
 - QR-Code containing link to validation service
 - Digital signature of issuer

CertiChain Prototype - AUSTRIAPRO.at

Personenzertifikat gemäß EN ISO/IEC 17024

Aussteller

certid	ZS-A
name	Zertifizierungsstelle A
street	Teststrasse 4
postalCode	1230
city	Wien
web	https://zert-a.at

Person

certidNo	Mag.
givenName	Karl
familyName	Gruber
certidPass	MBA

Zertifikat

certid	ZS-A-5b8ece32cd390
certType	B1001
certTitle	Qualitätsbeauftragte/r
issueDate	2018-09-04
expiryDate	2020-08-20
remarks	Test



Zertifikat prüfen

Zur Prüfung wird die dem Zertifikat zugrunde liegende Blockchain-Transaktion in CertiChain gesucht. Verwenden Sie dazu obigen QR-Code oder eine Prüfstelle aus der Liste unter <https://notarisierung.at>
Transaktions-ID: b6222d3d0fd5fc0009e920a1bb6aa00c12cb443802f4dda6bfd6b6a9675025f

Dokument erstellt

Datum/Uhrzeit	2019-01-16T15:05:43+01:00
Zustand	...

Signator: Max Mustermann Abteilungsleiter
Datum: 17.09.2019 15:05:43
DIESES DOKUMENT IST DIGITAL SIGNIERT!
Prüfung der Signatur: https://www.handy-signatur.at



CertiChain: Zertifikat verifizieren

Verifying Transaction

Blockchain Transaction found: e6e2cd865754e831c8869a7a0ccbb28510a6d95fd7de782656b3619ca877f4a0

TxID: e6e2cd865754e831c8869a7a0ccbb28510a6d95fd7de782656b3619ca877f4a0

Publisher: 1SskTuQepupmwzHnR8ti6WXqNNdYHsA3wBmesb

Address: FullNode@VIE-cb1 (1SskTuQepupmwzHnR8ti6WXqNNdYHsA3wBmesb, local)

Keys: ZS-A, ZS-A:5b9e61a7e5d7f, Gruber, Paul, A1010,

Data:

stdClass Object

(

```
[caId] => ZS-A
[caCertId] => ZS-A:5b9e61a7e5d7f
[titlePre] => Ing.
[givenName] => Paul
[familyName] => Gruber
[titlePost] => MBA
[certType] => A1010
[issued] => 2018-09-16
[validUntil] => 2020-09-17
[remarks] =>
```

)

Time: 2018-09-16 13:59:17 GMT

Blockhash: 00ba20d1426b1291579afcb11a49a23d8bc740f1053330ed60d1453cd8346e17

Blocktime: 2018-09-16 13:59:17 GMT

Confirmations: 33

Example: storage of certificate data in a blockchain (MultiChain)

Stream: cec-pc1 – 11 of 11 items

Publishers	1SskTuQepupmwzHnR8ti6WXqNNdYHsA3wBmesb
Key 0	ZS-A
Key 1	ZS-A:5b9e61a7e5d7f
Key 2	Gruber, Paul
Key 3	A1010
Data	<pre>{"caId":"ZS-A","caCertId":"ZS-A:5b9e61a7e5d7f","titlePre":"Ing. ","givenName":"Paul","familyName":"Gruber","titlePost":"MBA","certType":"A1010","issued":"2018-09-16","validUntil":"2020-09-17","remarks":""}</pre>
Added	2018-09-16 13:59:17 GMT (confirmed)

Publishers	1SskTuQepupmwzHnR8ti6WXqNNdYHsA3wBmesb
Key 0	ZS-A
Key 1	ZS-A:5b8ed0b912330
Key 2	Gruber, Peter
Key 3	A1010
Data	<pre>{"caId":"ZS-A","caCertId":"ZS-A:5b8ed0b912330","titlePre":"","givenName":"Peter","familyName":"Gruber","titlePost":"","certType":"A1010","issued":"2018-09-04","validUntil":"2020-07-20","remarks":""}</pre>
Added	2018-09-04 18:37:01 GMT (confirmed)