



EUROPEAN COMMISSION

DIGIT
Connecting Europe Facility

CEF eSignature DSS

Version [1.03](#)

Qualified electronic signature (QES) validation algorithm

Document Status:

Status
[Draft/Approved/Final]

Summary of Changes:

Version	Date	Created by	Short Description of Changes
1.01	14/05/2018	Olivier Barette	Creation
1.02	17/07/2018	Olivier Barette	Update
1.03	09/09/2019	Xavier Schul	Update

© European Union, 2019

Reuse of this document is authorised provided the source is acknowledged. The Commission's reuse policy is implemented by Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents.

Table of Contents

INTRODUCTION	4
1. DEFINITIONS AND ABBREVIATIONS	5
1.1. General definitions and abbreviations	5
1.2. Definitions and abbreviations regarding signature levels.....	5
1.3. Definitions and abbreviations regarding the content of a certificate	6
1.4. Definitions and abbreviations regarding the content of a trusted list.....	7
1.5. Other definitions and abbreviations	8
2. UNDERLYING PRINCIPLES	9
2.1. CA/QC trust service(s) matching the sigCert	9
2.2. Overruling by the TL	9
2.3. Two moments in time to be considered under Article 32 and Article 40 of eIDAS	10
2.4. Before eIDAS vs. under eIDAS	10
2.5. The qualified status of a certificate if the qualified status of the issuing trust service entry in the TL is withdrawn	11
2.5.1. Trusted List (TL) interpretation	12
2.6. Interpretation of QcType in the sigCert	12
3. PRELIMINARY STEPS AND CHECKS	14
3.1. Access LOTL and all TLs.....	14
3.2. Identify CA/QC service(s) in the TL as trust anchor(s), and detect inconsistencies	14
4. MAIN ALGORITHM	16
4.1. Qualified status of the sigCert	16
4.2. Type of the sigCert	17
4.3. QSCD status	17

INTRODUCTION

The following algorithm has been implemented in the [DSS open-source library](#) in version 5.5, and represents the [Connecting Europe Facility's \(CEF\) eSignature Building Block](#)'s interpretation of the [eIDAS Regulation's](#) and related standards' requirements for the validation of qualified and advanced electronic signatures (e-signatures) and electronic seals (e-seals).

This algorithm has been designed following discussions and meetings with experts involved in the field, in the context of the CEF eSignature Building Block. This algorithm, however, should not be considered neither as a standard nor as a formal position of the European Commission, but rather as guidelines for implementers, or parties interested in understanding how the validation of qualified electronic signatures is implemented in DSS.

Note that two European Telecommunications Standards Institute (ETSI) standards, TS 119 615 and TS 119 172-4, are currently being drafted with the aim of standardising "procedures for using and interpreting European Union Member States national trusted lists" and "signature applicability rules (validation policy) for European qualified electronic signatures/seals using trusted lists". The public ETSI drafts are available [here](#).

The algorithm below focuses on determining three sub-conclusions:

- whether the certificate is qualified;
- what is the type of this certificate;
- whether the corresponding private key is protected by a qualified signature/seal creation device (QSCD).

These sub-conclusions are important for handling the eIDAS Regulation's Articles 32.1(a), (b) and (f) (and corresponding Article 40 for e-seals) with the aim of determining whether an e-signature or e-seal can be considered as QESig / QESeal / AdESig-QC / AdESeal-QC / AdESig / AdESeal / AdES(?). Note, however, that verifying compliance against Articles 26 and 36 (requirements for advanced electronic signatures and advanced electronic seals) are outside of the scope of the present document.

For the sake of simplicity, the algorithm focuses on the case where the time of signing is after 1 July 2016, when eIDAS came into full effect and the eSignature Directive of 1999 was repealed. Note that this time of signing is the "best possible time", for which a proof of existence is available. By default, it is the validation time (current time). If any proof of existence of signature is found, the earliest trusted time is used (signature-timestamp).

1. DEFINITIONS AND ABBREVIATIONS

These definitions and abbreviations are based on [ETSI TR 119 001](#) and [ETSI EN 319 102-1](#).

1.1. General definitions and abbreviations

LOTL: List of The Trusted Lists.

QC: Qualified Certificate.

SB: Supervisory Body.

sigCert: Signing Certificate. The certificate corresponding to the private key that was used to produce a digital signature.

TL: Trusted List.

TSP: Trust Service Provider.

Type of QC: type of a Qualified Certificate. Three types are currently defined by the eIDAS Regulation: for electronic signature, for electronic seal, for web site authentication.

WSA: Web Site Authentication (type of certificate).

1.2. Definitions and abbreviations regarding signature levels

AdES: digital signature that is either a CAdES signature, or a PAdES signature, or a XAdES signature. A digital signature is defined as data appended to, or a cryptographic transformation of a data unit that allows a recipient of the data unit to prove the source and integrity of the data unit and protect against forgery, e.g. by the recipient.

Note: Regulation (EU) No 910/2014 (the "eIDAS" Regulation) defines the terms electronic signature, advanced electronic signature, electronic seals and advanced electronic seal. These signatures and seals are usually created using digital signature technology. The present document aims at supporting the Regulation (EU) No 910/2014 [i.15] for creation and validation of advanced electronic signatures and seals when they are implemented as AdES digital signatures.

AdESig: AdES supported by a non-qualified certificate for electronic signatures.

AdESeal: AdES supported by a non-qualified certificate for electronic seals.

AdESig-QC: AdES supported by a qualified certificate for electronic signatures.

AdESeal-QC: AdES supported by a qualified certificate for electronic seals.

AdES(?): AdES supported by a non-qualified certificate for which the type could not be determined. That is, the algorithm could not determine whether it is a certificate for electronic signatures, for electronic seals, or even for web site authentication.

QES: AdES supported by a qualified certificate, with the corresponding private key protected by a QSCD.

QESig: QES where the certificate is for electronic signatures.

QESeal: QES where the certificate is for electronic seals.

1.3. Definitions and abbreviations regarding the content of a certificate

QcCompliance: QcStatement standardized by ETSI EN 319 412-5 that can be present in the qcStatements extension of a X.509 certificate. The presence of this QcStatement claims that the certificate is an EU qualified certificate that is issued according to Directive 1999/93/EC [i.3] or the Annex I, III or IV of the Regulation (EU) No 910/2014 whichever is in force at the time of issuance. Its formal syntax is id-etsi-qcs-QcCompliance. According to ETSI EN 319 412-5, the precise meaning of this statement is enhanced by the QcType statement:

- Absence of QcType: The certificate is issued according to Directive 1999/93/EC or Annex I of the Regulation (EU) No 910/2014 (for electronic signatures).
- Presence of QcType: The certificate is issued according to Annex I, III or IV of Regulation (EU) No 910/2014 as of the types declared by the QcType.

A certificate that includes this statement shall comply with all requirements defined of clause 5 of that standard, which for instance mandates the use of the QcType when the certificate is issued in accordance with Annex III or Annex IV of Regulation (EU) No 910/2014.

QcType: QcStatement standardized by ETSI EN 319 412-5 that can be present in the qcStatements extension of a X.509 certificate. The presence of this QcStatement claims that an EU qualified certificate is issued as a certificate of one of the types according to Annexes I, III or IV of the Regulation (EU) No 910/2014 when used in combination with the QcCompliance defined above. When used on its own it indicates that it is used for the purposes of electronic signatures, seals or web sites for "nonqualified certificates" within the context of Regulation (EU) No 910/2014. Its formal syntax is id-etsi-qcs-QcType. For the moment, 3 values are defined:

- id-etsi-qct-esign (for the purpose of electronic signatures)
- id-etsi-qct-eseal (for the purpose of electronic seals)
- id-etsi-qct-web (for web site authentication)

Note: This statement, without the one defined in clause 4.2.1 of ETSI EN 319 412-5, can be potentially used in other regulatory environments which use an electronic signature, electronic seal or web site with the same meaning.

QcQSCD: QcStatement standardized by ETSI EN 319 412-5 that can be present in the qcStatements extension of a X.509 certificate. The presence of this Qcstatement claims that the private key related to the certified public key resides in a QSCD according to the Regulation (EU) No 910/2014 [i.8] or a secure signature creation device (SSCD) as defined in the Directive 1999/93/EC [i.3]. Its formal syntax is id-etsi-qcs-QcSSCD.

QCP and QCP+: certificate policies defined in ETSI TS 101 456.

- QCP (qcp-public): a certificate policy for qualified certificates issued to the public.
- QCP+ (qcp-public-with-sscd): a certificate policy for qualified certificates issued to the public, requiring the use of secure signature-creation devices.

1.4. Definitions and abbreviations regarding the content of a trusted list

More information can be found in version 2.1.1 of [ETSI TS 119 612](#).

CA/QC: Service type identifier <http://uri.etsi.org/TrstSvc/Svctype/CA/QC>: trust service issuing qualified certificates.

SDI: Service Digital Identity unambiguously identifying the trust service. The standard imposes it to contain at least one certificate (if the service uses PKI public-key technology). In the present document, the SDI is said to be “catching” a sigCert if a path can be found from the sigCert up to the SDI.

Sie:aSI:ForXX: Service information extension / additional service information that specifies for which type of certificates the service is provided. ForXX is an abbreviation for ForeSignatures / ForeSeals / ForWebSiteAuthentication.

Sie:Q:QcStatement: Service information extension / qualification that is composed of one or more criteria and a qualifier. The qualifier applies to the sigCert only if the sigCert meets the criteria. In the present document, “a Sie:Q:QcStatement is present” shall be understood as “a Sie:Q:QcStatement that applies to the sigCert is present”.

Sie:Q:notQualified: Service information extension / qualification that is composed of criteria and a qualifier. The qualifier applies to the sigCert only if the sigCert meets the criteria. In the present document, “a Sie:Q:notQualified is present” shall be understood as “a Sie:Q:notQualified that applies to the sigCert is present”. The criteria are then said to “catch” this sigCert.

Sie:Q:QCForXX: Service information extension / qualification that is composed of criteria and a qualifier. The qualifier applies to the sigCert if and only if the sigCert is qualified and meets the criteria. In the present document, “a Sie:Q:QCForXX is present” shall be understood as “a Sie:Q:QCForXX that applies to the sigCert is present”. The criteria are then said to “catch” this sigCert. QCForXX is an abbreviation for QCForESig / QCForESeal / QCForWSA.

Sie:Q:QCXXQSCD: Service information extension / qualification that is composed of criteria and a qualifier. The qualifier applies to the sigCert only if the sigCert is qualified and meets the criteria. In the present document, “a Sie:Q:QCXXQSCD is present” shall be understood as “a Sie:Q:QCXXQSCD that applies to the sigCert is present”. The criteria are then said to “catch” this sigCert. QCXXQSCD is an abbreviation for QCWithQSCD / QCNoQSCD / QCQSCDStatusAsInCert / QCQSCDManagedOnBehalf.

1.5. Other definitions and abbreviations

OJEU: Official Journal of the European Union.

QSCD: qualified signature creation device, as defined in the Regulation (EU) No 910/2014 (the “eIDAS” Regulation).

2. UNDERLYING PRINCIPLES

The algorithm presented in the next section is based on the following principles:

2.1. CA/QC trust service(s) matching the sigCert

A CA/QC entry in a TL will correspond to the sigCert if and only if:

- A path can be found from the sigCert up to the SDI of this entry.
- The type of the sigCert is in line with the type of qualified certificates this service is issuing, taking into account possible overruling of the TL (see below the section on overruling). Even if the SDI is matching, a CA/QC entry will not be related to a sigCert if the corresponding types (Sie:aSI:ForXX and QcType respectively) are not matching.
- The certificate is confirmed to be qualified, taking into account possible overrule in the TL entry (see below the section on overruling). Even if the SDI is matching, a CA/QC entry will not be related to a sigCert if the sigCert is not qualified.

For instance, when looking for the CA/QC entry that catches the sigCert:

- Several CA/QC entries with the same catching SDI but with different Sie:aSI:ForXX may exist. The entry actually catching the sigCert will be the one with the appropriate Sie:aSI:ForXX.
- One CA/QC entry may exist with a catching SDI. This entry will not be catching the sigCert because the sigCert is not qualified.
- One CA/QC entry may exist together with a CA/PKC, with the same catching SDI and the same Sie:aSI:ForXX. If the certificate is not qualified, the CA/QC entry will not be considered as catching it (and so will not be considered as applicable).

A further check should be performed to rule out unapplicable cross-certification or root signing (e.g. outside of EU): When present, the organizationIdentifier attribute of the issuer of the sigCert, or the issuerAltName field, should match the TSP name or the TSP trade name of the TSP service entry.

2.2. Overruling by the TL

- Sie:Q:QcStatement or Sie:Q:notQualified qualifier in the TL overrules the QcCompliance statement present in the sigCert, if any.
Note: As stated in its definition above, it is also subject to the condition that the corresponding criteria are catching this sigCert.
- Sie:Q:QCXXQSCD qualifier(s) in the TL overrule(s) the QSCD statement present in the sigCert, if any.

Note: As stated in its definition above, it is also subject to the conditions that the corresponding criteria are catching this sigCert, and that this sigCert is concluded to be qualified.

- Sie:Q:QCForXX qualifier in the TL overrules the QcType statement present in the sigCert, if any.

Note: As stated in its definition above, it is also subject to the conditions that the corresponding criteria are catching this sigCert, and that this sigCert is concluded to be qualified.

2.3. Two moments in time to be considered under Article 32 and Article 40 of eIDAS

There are two moments in time to be considered when validating a signature under Article 32 (and a seal under Article 40):

- Time of issuance of the certificate, due to Article 32 1(b);
- Time of signing, due to Article 32 1(a) and Article 32 1(f) among others.

The type of the certificate at the time of issuance and at the time of signing regarding shall be the same. The algorithm will raise an error if the type has changed in between.

2.4. Before eIDAS vs. under eIDAS

The fields to be checked, as well as the way to check them, in both the sigCert and the TL differ depending on whether the moment in time under consideration is before the entry into force of eIDAS, or after.

The entry into force of eIDAS is 1 July 2016 0:00:00 CET, due to the eIDAS Regulation being signed in Brussels. This translates to 30 June 2016 22:00:00 in UTC.

Fields to be checked in the sigCert and that differ before and under eIDAS are:

- QCP and QCP+ are alternatives to QcCompliance and/or QcQSCD, but only before eIDAS. They are ignored under eIDAS.
 - o As for the algorithm, QCP is considered as an alternative to the presence of QcCompliance, and QCP+ is considered as an alternative to the presence of both QcCompliance and QcQSCD.
 - o Any combinations of QCP/QCP+/QcCompliance/QcQSCD are accepted, so including QCP and QCP+ simultaneously.
- qcp-natural-qscd and qcp-legal-qscd policy OIDs are not considered as alternatives to QcCompliance and/or QcQSCD. They are ignored by the algorithm.

Fields to be checked in the TL and that differ before and under eIDAS are:

- QCForXX is ignored before eIDAS with a warning, as the only type existing before eIDAS is for electronic signature
- The qualified status of a TSP is designated:

- Before eIDAS by “undersupervision”, “supervisionin cessation”, or “accredited”.
- Under eIDAS by “granted”.

2.5. The qualified status of a certificate if the qualified status of the issuing trust service entry in the TL is withdrawn

According to Article 3(15) of the eIDAS Regulation, a certificate for electronic signatures is qualified when:

1. It is issued by a qualified TSP, and
2. It meets the requirements laid down in Annex I of eIDAS;

Equivalent provisions hold for certificates for e-seals and website authentication under Article 3(30) and Annex III and Article 3(38) and Annex IV respectively.

This implies that qualified certificates **may lose** their qualified status if they no longer meet the requirements of the applicable Annex of the Regulation. The SB may, in accordance with Article 20 of the eIDAS Regulation, withdraw the qualified status of a trust service or a TSP.

When the trust service of which the qualified status is withdrawn is for the issuance of qualified certificates (i.e. for e-signatures, e-seals or website authentication), this may have effects on:

- Previously issued certificates, that is, certificates issued prior to the withdrawal of the qualified status of the trust service under which they were issued.
- New certificates, that is, certificates issued after the withdrawal of the qualified status of the trust service under which they are issued.

Previously issued certificates

If the qualified status of a trust service is withdrawn this may affect the qualified status of certificates issued under it.

However, a QC **does not automatically** lose its qualified status when the trust service under which it was issued has its qualified status withdrawn, according to the eIDAS Regulation.

It is the responsibility of the SB to decide which measures should be adopted (including the revocation of certificates or the withdrawal of the qualified status of certificates) when the qualified status of a trust service is withdrawn. This may entail withdrawing the qualified status of previously issued, but otherwise valid certificates.

New certificates

A TSP that is not qualified anymore for a trust service for the issuance of QC of a specific type (e.g. for electronic signatures) cannot issue **new QCs** for that type (e.g. for electronic signatures).

2.5.1. TL interpretation

Based on the way in which the TLs currently operate in accordance with the relevant standard, the consequence of setting the status of the trust service entry in the TL to 'withdrawn'¹ is that **previously issued QCs** for that type (e.g. for e-signatures) can no longer be validated as a qualified certificate.

Commission Implementing Decision 2015/1505 states on pages L 235/30 and L 235/31, Section "Interpretation of the Trusted List", that end-entity certificates issued by or under the CA represented by the "Service digital identifier" ("Sdi") CA's public key and CA's name (both CA data to be considered as trust anchor input), is a QC provided that it includes at least one of the following:

- the id-etsi-qcs-QcCompliance ETSI defined statement (id-etsi-qcs 1),
- the 0.4.0.1456.1.1 (QCP+) ETSI defined certificate policy OID, 9.9.2015 L 235/30 Official Journal of the European Union EN,
- the 0.4.0.1456.1.2 (QCP) ETSI defined certificate policy OID

provided that this is ensured by the Member State SB through a valid service status (i.e. "undersupervision", "supervisionincessation", "accredited" or "granted") for that entry.

In brief, in the TL, the withdrawal of the qualified status of the issuing trust service entry will entail that starting from the date & time of the withdrawal:

- Newly issued certificates are not qualified;
- Previously issued qualified certificates can no longer be validated as qualified.

This effect on previously issued qualified certificates has to be considered when a decision is made to set the status of a trust service as withdrawn in the TL.

2.6. Interpretation of QcType in the sigCert

QcType can be present without QcCompliance in the sigCert. Depending on the QcStatements in the TL, the certificate will be either qualified (QC) or non-qualified.

Following ETSI EN 319 412-5 Section 4.2.3, the QcType declares that a certificate is issued as one and only one of the purposes of electronic signature, electronic seal or web site authentication. Therefore, when following this standard, only one QcType is allowed within a sigCert. However, both ETSI TS 119 615 and DSS tolerate the case where two or more QcType are present but only if one Sie:Q:QCForXX is present in the TL to overrule this QcType. Otherwise, DSS doesn't validate the certificate.

¹

`<ServiceStatus>http://uri.etsi.org/TrstSvc/TrustedList/Svcstatus/withdrawn</ServiceStatus>`

For a QC, the absence of QcType is interpreted as the presence of QcType 1 id-etsi-qct-esign (i.e. certificate for electronic signatures), as explained in Section 2.3 above.

Some specific cases (cf. ETSI TS 119 615 and ETSI EN 319 412-5) shall be considered such as:

- QcCompliance in the absence of QcType (and in the absence of overruling in the TL) shall lead to conclude that the sigCert is QC for eSig.
- Absence of QcCompliance, overruled by Sie:Q:QcStatement in the TL, and absence of QcType (in the absence of further overruling in the TL) shall lead to conclude that the overruling in the TL is incomplete as it should contain an indication of type as well (Sie:Q:QCForXX). ETSI TS 119 615 conclusion is then indeterminate: INDET_QC_For_eSig / INDET_QC_For_eSeal. This particular case is not yet considered in DSS (the sigCert is considered here as QC for eSig in DSS) and will be corrected in a later version.

This slight difference prevents an algorithm from implementing completely separately the conclusion on the QC status (based on QcCompliance and Sie:Q:QcStatement / Sie:Q:NotQualified) and the conclusion on the type (based on QcType and Sie:Q:QCForXX).

Lastly, a certificate for WSA is not accepted neither as a certificate for e-signatures nor as a certificate for e-seals.

3. PRELIMINARY STEPS AND CHECKS

There can be problems:

- When accessing and validating the LOTL and the TLs.
- With incompatible statements in the TL.
- With incompatible statements between the content of the sigCert and the TL.

The subsections below describe consistency checks related to these potential problems. If such consistency check fails:

- In most of the cases, a warning is included in the validation report.
- In some critical cases, a full stop of the process, with the result being an error.

3.1. Access LOTL and all TLs

- General checks on LOTL
 - o Availability: if not available immediately, ensure a certain freshness.
 - o Not expired (listIssue date, nextUpdate).
 - o Correctly signed (based on EUOJ and pivot LOTL(s)).
- General checks on TL
 - o Availability: if not available immediately, ensure a certain freshness.
 - o Not expired (listIssue date, nextUpdate date).
 - o Correctly signed (based on information present in the LOTL).
- Failures of these checks are reported as warnings in the validation report.

3.2. Identify CA/QC service(s) in the TL as trust anchor(s), and detect inconsistencies

Based on all TLs, identify the CA/QC entry(ies) to which a path can be built from the sigCert. This part is further detailed in the next section.

The following coherence checks on these TL entry(ies) are performed:

- Sie:aSI:ForXX shall not be set for a service status entry before eIDAS. The algorithm will ignore it and raise a warning.
- Sie:Q:QcForXX shall not be set for a service status entry before eIDAS. The algorithm will ignore it and raise a warning.
- The following Sie:Q:* statements are mutually exclusive and will raise an error:
 - o QcStatement and NotQualified for the same sigCert under consideration.

- QcForeSig, QcForeSeal, QcForWSA for the same sigCert under consideration.
- QcForLegalPerson, QcForeSig for the same sigCert under consideration.
- One shall not be able to conclude both QSCD and not QSCD. The following combinations are inconsistent:
 - QcNoQSCD together with any of the following statements: QcWithQSCD, QcQSCDManagedOnBehalf or QcQSCDStatusAsInCert,
 - QcWithQSCD and QcQSCDStatusAsInCert,
 - QcQSCDManagedOnBehalf and QcQSCDStatusAsInCert.
 - The same 3 combinations, with "QSCD" replaced by "SSCD" in all statements.
- Sie:aSI:ForXX and Sie:Q:QcForXX shall be consistent, i.e. if Sie:Q:QcForXX is forcing certificates to be for eSignature / eSeal / WSA, then a corresponding Sie:aSI:ForXX shall be declared for that trust service.
- The organizationIdentifier or the issuerAltName of the sigCert shall match the TSP Name or the TSP trade name. Note: It could be located at other places in the sigCert, but the algorithm only checks these 2.

4. MAIN ALGORITHM

The algorithm is composed of 3 main parts, based on Articles 32 and 40 of the eIDAS Regulation:

- Determining if the sigCert was a QC for eSig / eSeal (and is valid) at the time of issuance.
- Determining if the sigCert was a QC for eSig / eSeal and is related to a QSCD (and is valid) at the time of signing.
- Determining if the signature is an AdES. This step is based on ETSI EN 319 102-1 and will not be developed further in the present document.

Provided that it is parametrized with a date, the first 2 parts can be factorized into:

- Determining the qualified status of the sigCert, and its type.
- At the time of signing: If the sigCert is qualified, determining if the corresponding private key is protected by a QSCD.

For executing these steps, one has to find which CA/QC entry(ies) is(are) corresponding to the sigCert. Because of the overruling of the trusted list on the sigCert content, several CA/QC entries may catch the sigCert at first, and so the algorithm considers all these CA/QC entry(ies) catching the sigCert, irrespective of the service status, and irrespective of the Sie:aSI:ForXX type. For instance:

- A CA/QC Sie:aSI:ForeSignatures might catch a qualified sigCert with QcType eSeal if there is an overruling Sie:Q:QcForeSig catching this sigCert and forcing it to be for electronic signatures.
- A CA/QC might catch a non-qualified sigCert if there is an overruling Sie:Q:QcStatement catching this sigCert and forcing it to be qualified.

For each applicable entry, conclusion based on the 3 subsections below can be: QESig / QESeal / AdESig-QC / AdESeal-QC / AdESig / AdESeal / AdES(?).

However, after considering all these CA/QC entries corresponding to the sigCert, applying for each the rules presented in the following subsections, there should remain only one applicable CA/QC entry and one conclusion:

- If there is no applicable CA/QC entry left, the sigCert is considered as not qualified, and its type is QcType.
- If there is more than one applicable CA/QC entry left, and their conclusions are different, it raises an error and the algorithm stops.
- If there is more than one applicable CA/QC entry left, and their conclusions are identical, it raises a warning and the algorithm conclusion is this one.

4.1. Qualified status of the sigCert

- If the CA/QC entry under consideration is not in granted status, the sigCert is not qualified.

- If the CA/QC entry under consideration is overruling the qualified status of the sigCert (Sie:Q:QcStatement or Sie:Q:NotQualified), then the conclusion on the sigCert qualification is based on the CA/QC entry, whatever is present in the sigCert.
- If the CA/QC entry under consideration is not overruling the qualified status of the sigCert, then the conclusion on the sigCert qualification is based on the sigCert content:
 - o Before eIDAS, the algorithm considers both the QcCompliance and the QCP / QCP+ OIDs
 - o Under eIDAS, the algorithm considers the QcCompliance only

4.2. Type of the sigCert

- If the last subsection concluded on the sigCert being not qualified, then the type of the sigCert is as declared by the QcType.
- If the last subsection concluded on the sigCert being qualified, this conclusion is only applicable provided that the type of certificate does match. The type declared in the certificate and the type declared in the CA/QC entry under consideration do match if:
 - o There is an overruling Sie:Q:QcForXX catching the sigCert. The conclusion on the type is then XX, whatever is present in the sigCert.
 - o There is no overruling Sie:Q:QcForXX catching the sigCert, and the QcType of the sigCert belongs to the list of Sie:aSI:ForXX present in the CA/QC entry. The conclusion is on the type is then QcType. In case of absence of QcType, the QcType is considered to be eSig.

If these two types do not match, then the CA/QC entry is not applicable, and the algorithm removes it from the list of potential CA/QC entries.

4.3. QSCD status

If sigCert is not qualified, no conclusion is drawn on QSCD. The algorithm proceeds to this step only if in the last subsection the sigCert was concluded to be qualified. Then:

- If there is an overruling Sie:Q:QCXXQSCD catching the sigCert, conclusion on QSCD is drawn from Sie:Q:QCXXQSCD, whatever is present in the sigCert.
- If no overruling Sie:Q:QCXXQSCD is catching the sigCert, conclusion on QSCD is drawn based on the sigCert content:
 - o Before eIDAS, the algorithm considers both the QcQSCD and the QCP+ OID.
 - o Under eIDAS, the algorithm considers the QcQSCD only.