TRACELINK UNIVERSITY

Certificate of analysis canonical guidelines

A Certificate of Analysis (CoA) is an electronic document used by suppliers to confirm that a specific product batch or lot meets defined quality specifications. These specifications can include identity, potency, impurities, and microbiological or physical properties.

Canonical guidelines

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
Canonical Element	–	JSon object type/root element.	–	–	–
controlFileHeader	–	Canonical control file header to store data for control segments ..	–	–	–
canonicalCertificateOfAnalysisHeader	–	Header details for the canonical Digital certificate of Analysis	–	–	–
processingFunctionTypeCode	string	Processing function, transaction set purpose code. Valid values include `ORIGINAL`.	–	–	–
documentRevision	Number	File information to maintain the version of files after multiple activities.	–	–	–
systemRevision	Number	System information to maintain the version of system after multiple activities.	–	–	–
documentOwnerEmail	string	Email address of business entity related to that file (shipper, consignee, carrier, forwarder, broker, etc.).	–	–	–
dataOwnerEmail	string	Email address of business entity related to the content of file (shipper, consignee, carrier, forwarder, broker, etc.).	–	–	–
documentContentRevision	Number	Document content revision history to maintain the version of document content after multiple activities.	–	–	–

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
description	string	Description of Digital certificate transaction set to set the context of document, share free form test.	–	–	–
verificationDate	string	Date on which tests reports were verified.	–	–	–
approvalDate	string	Date on which tests reports were approved.	–	–	–
verifiedBy	string	Details of the person verified the test report.	–	–	–
approvedBy	string	Details of the person provided final approval for test report.	–	–	–
documentGenerationDate	string	Date on which COA document was generated with all details of tests conducted against defined materials.	–	–	–
documentGenerationTime	string	Time when COA document was generated with all details of tests conducted against defined materials.	–	–	–
epochVerificationDate	Integer	Epoch date on which tests reports were verified.	–	–	–
epochApprovalDate	Integer	Epoch date on which tests reports were approved.	–	–	–
epochDocumentGenerationDate	Integer	Epoch date on which COA document was generated with all details of tests conducted against defined materials.	–	–	–
transactionReferenceIdentifierList	array	Digital Certificate Analysis Document identifier.	–	–	–
b2bTransactionIdentifierType	string	Transaction reference type for X12 segments REF and EDIFACT RFF for general reference data that is not a transaction document identifier. Valid values include: • `CERTIFICATEOFANALYSIS` - Certificcate of Analysis (required) • `PURCHASEORDER` - Purchase Order Number	–	–	–
b2bTransactionIdentifierValue	string	Transaction reference identifier value.	–	–	–
transactionDate	string	Transaction reference date and time, if time available, in date format YYYY-MM-DD or YYYY-MM-DDTHH:MM:SS.nnnZ if time available.	–	–	–
epochTransactionDate	string	Transaction reference date and time, if time available, in epoch date format.	–	–	–
lineItemNumber	integer	Transaction reference date and time in EPOCH date time format.	–	–	–
b2bTransactionIdentifierTypeName	string	B2B Transaction Identifier Type Name.	–	–	–
timeZone	string	Time Zone.	–	–	–
transactionReferenceInformation	array	Dgitial Certificate Analysis Document reference identifier.	–	–	–

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
transactionReferenceType	string	Transaction reference type for general reference data that is not a transaction document identifier. Valid values include: CATALOGIDENTIFIER - Catalog Number	–	–	–
transactionReferenceIdentifier	string	Transaction reference identifier value.	–	–	–
description	string	Identifier or description defined by qualifier code in transactionReferenceIdentifier (REF02)	–	–	–
transactionReferenceDate	string	Transaction reference date and time/ if time available/ in date format YYYY-MM-DD or YYYY-MM-DDTHH:MM:SS.nnnZ if time available.	–	–	–
epochTransactionReferenceDate	integer	Transaction reference date and time in EPOCH date time format.	–	–	–
digitalSignatureInformation		Signing, encoding, algorithm. Used for signing the document.	–	–	–
signatureIdentifier	string	A unique identifier for the digital signature instance applied to the Certificate of Analysis.	–	–	–
digitalSignatureSigningEncodingInformation		Signed Info specifies the canonicalization, cryptographic algorithms, and document references that define the integrity and verification rules of a Digital Certificate of Analysis.	–	–	–
signingAuthorityIdentifier	string	The Signed Info ID uniquely identifies the exact signature instruction set that is cryptographically signed and verified.	–	–	–
canonicalizationAlgorithm	string	Algorithm followed for canonicalization or rules followed to normalize XML / JSON files before hashing.	–	–	–
signatureAlgorithm	string	Algorithm followed for generating signature for signing generated document.	–	–	–
base64Signature	string	Digital signature Value. SignedInfo ID is used to produce SignatureValue.	–	–	–
description	string	Description for signature value, if required.	–	–	–
digitalSignatureSigningReference	array	Digital Signature signing references like URI, identifiers, algorithm, etc.	–	–	–
referenceIdentifier	string	Signing Authority Identifier.	–	–	–
uniformResourceIdentifier	string	Uniform resource Identifier for signing methods and references.	–	–	–

Canonical Element		Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
	signingReferenceType	string	There are different types of signing references available for digital certificate of analysis. Valid values are are: • TRANSFORMS - Signing based on transforms or pre-processing step before signing • DIGEST - Signing based on hash algorithm	–	–	–
	referenceAlgorithm	string	Algorithm followed for signing in the signature for transforms method.	–	–	–
	digestReferenceAlgorithm	string	Algorithm followed for signing in the signature for digest method.	–	–	–
	digestBase64Value	string	Digest value. Based on digest value final approval is provided to COA document.	–	–	–
cryptographicCertificateOrKeyInformation			Digital certificate or key selection criteria.	–	–	–
certificateKeyIdentifier		string	Certificate or key identifier.	–	–	–
certificateKeyType		string	There are different methods to handle signature. Users will have options to select based on their requirement. Valid values are: • RSAKEY - RSA key pair • DSAKEY - DSA key pair • PGPKEY - PGP Key Pair • RETRIEVALMETHOD - Anonymous certificate or key retrieval • X509 - X509 Certificate • SPKI - Subject public key information • OTHER - Any other type of method used for signature	–	–	–
keyPairName		string	Name of Key Pair.	–	–	–
description		string	Description for signature value, if required.	–	–	–
dsaKeyInformation		-	P, Q, and G define the DSA cryptographic domain; Y is the public key; J provides verification that the domain parameters were correctly constructed.	–	–	–
	keyPairName	string	Name of Key Pair.	–	–	–
	primaryKey	string (Base64 binary)	A large prime number, defines the finite field	–	–	–
	lengthOfPrimaryKey	string (Base64 binary)	A prime divisor of P, but much smaller than P, it determines signature size and security.	–	–	–
	primaryKeyGenerator	string (Base64 binary)	A number derived from P and Q. Generates a subgroup of size Q within modulo P. Ensures all operations stay within a secure subgroup.	–	–	–

Canonical Element		Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
	publicKey	string (Base64 binary)	It is used by verifiers to validate signatures. It is shared publicly.	–	–	–
	subGroupFactorKey	string (Base64 binary)	Used to verify that G is correctly generated. It is not required for signing or verification.	–	–	–
	privateKey	string (Base64 binary)	It is a private to the system, part of key pair. Never shared with any other business partner.	–	–	–
	randomSeedNumber	string (Base64 binary)	Random value used to generate.	–	–	–
	randomPageCounterNumber	string (Base64 binary)	Iteration count during key pair generation.	–	–	–
rsaKeyInformation		-	RSA key pair information to handle encryption, decryption, key generation and validation.	–	–	–
	keyPairName	string	Name of Key Pair.	–	–	–
	keyPair	string (Base64 binary)	The modulus is the large composite number in an RSA key that defines the cryptographic domain and determines the key's security strength.	–	–	–
	keyPairExponent	string (Base64 binary)	The RSA exponent is the power applied in modular arithmetic that enables encryption, decryption, signing, and verification in RSA cryptography.	–	–	–
keyCertificateRetrieval		-	Anonymous certificate and key retrieval method to retrieve key / certificate information from target server to handle encryption, decryption, key generation and validation.	–	–	–
	uniformResourceIdentifier	string	The URI in a RetrievalMethod identifies the location of cryptographic key material required for signature verification.	–	–	–
	certificateRetrievalType	string	Certificate or key retrieval type.	–	–	–
	retrievalDereferenceAlgorithm	string	The transform algorithm in a RetrievalMethod defines the processing steps required to normalize and extract cryptographic key material from a referenced resource before signature verification.	–	–	–
x509CertificateInformation		-	X509 certificate information to handle encryption, decryption, key generation and validation.	–	–	–
	certificateName	string	The certificate issuer name identifies the Certificate Authority that issued and signed the digital certificate.	–	–	–
	certificateIdentifier	string	The certificate serial number uniquely identifies a digital certificate issued by a Certificate Authority and is used for revocation and audit purposes.	–	–	–

Canonical Element		Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
	certificateUsage	string	The Subject Name is the distinguished identity of the entity that owns the public key in an X.509 certificate.	–	–	–
	signingCertificate	string	A digital certificate establishes trust by binding a verified identity to a public key used for secure communication and signature verification.	–	–	–
	certificateChain	string	A Certificate Revocation List (CRL) is a CA-published list of digital certificates that are no longer trusted, even though they have not yet expired.	–	–	–
	certificateSubjectKeyIdentifier	string	SKI is a certificate extension that uniquely identifies the public key associated with a digital certificate. It is used to identify the subject's public key	–	–	–
pgpKeyInformation		-	PGP information in a Digital CoA consists of the keys, signatures, and metadata used to authenticate the issuer and protect the integrity (and optionally confidentiality) of the certificate.	–	–	–
	pgpKeyIdentifier	string	A PGP Key ID is a fingerprint-derived identifier used to reference the public key that signs or verifies a Digital Certificate of Analysis.	–	–	–
	pgpKeyDetachedSignature	string	A PGP key packet is a structured OpenPGP data unit that carries key material, identity, or signatures and collectively forms a usable PGP key.	–	–	–
	pgpKeyDetachedReceiverSignature	string	A PGP key packet is a structured OpenPGP data unit that carries key material, identity, or signatures and collectively forms a usable PGP key at receiver end.	–	–	–
	description	string	Free form text, to set the context for PGP key usage	–	–	–
subjectPublicKeyInformation		-	Subject Pblic Key Information (SPKI) key in a Digital CoA is the standardized public key representation used to verify the document's digital signature.	–	–	–
	spkiAlgorithm	string	The modulus is the large composite number in an RSA key that defines the cryptographic domain and determines the key's security strength.	–	–	–
	spkiPublicKey	string	The RSA exponent is the power applied in modular arithmetic that enables encryption, decryption, signing, and verification in RSA cryptography.	–	–	–
additionalSigningEncodingInformation		array	Additonal Signing and Encoding Information.	–	–	–
signingAuthorityIdentifier		string	Signing Authority Identifier.	–	–	–

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
signingMimeType	string	Mime Type used for singing, like type of hash or signing algorithm used.	–	–	–
signatureEncoding	string	Signature Encoding mechanism, it includes permutation and combination of different bits of key, respective algorithm for encryption and decryption.	–	–	–
description	string	Free form text, to mention any remarks around addition signing and encoding parameters.	–	–	–
businessPartyInformation	array	Partner Entity group identifiers and address information.	–	–	–
partnerEntityType	string	Explains the type of the partner entity involved in this business transaction. valid values include: • SENDER = Message from • RECEIVER = Message to	–	–	–
businessName	string	Business name for partner or location.	–	–	–
additionalBusinessName	string	Additional Business name for partner or location.	–	–	–
companyLocationPartnerName	string	Additional Location of same Business partner.	–	–	–
mpcCompanyLocationIdentifierList	array	Identifier list for business party.	–	–	–
isIdentifierPresentInEvent	boolean	Is identifier present in event boolean.	–	–	–
companyIdentifierType	string	Company identifier type for business partner .	–	–	–
companyIdentifierValue	string	Company identifier value for business partner.	–	–	–
alternateCompanyLocationIdentifierValue	string	Alternate company location identifier value.	–	–	–
address	-	Party address information.	–	–	–
address1	string	Main street address.	–	–	–
address2	string	Supplemental street address.	–	–	–
city	string	City	–	–	–
district	string	District	–	–	–
state	string	State or region code	–	–	–
postalCode	string	Postal code	–	–	–
country	string	Country code	–	–	–
telephone	string	Telephone number	–	–	–
fax	string	Fax number	–	–	–
url	string	Website URL	–	–	–
buildingNumber	string	Building number	–	–	–
plantNumber	string	Plant number	–	–	–
floorNumber	string	Floor number in building.	–	–	–
lscAddressIdentifier	string	LSC address identifier.	–	–	–
village	string	Village name	–	–	–
houseNumber	string	House number	–	–	–
township	string	Township	–	–	–
premisesCode	string	Premises code.	–	–	–
mpcAdditionalAddressInformation	-	Additional address information that is not included in addressTypeDefinition.	–	–	–

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
externalERPUserName	string	External ERP system user name for user who generated message.	–	–	–
organizationCode	string	Code for organization responsible for generating the message.	–	–	–
organizationDescription	string	Description of the organization responsible for generating the message.	–	–	–
groupCode	string	Code identifying group responsible for generating the message.	–	–	–
language	string	Language key for message.	–	–	–
languageCode	string	ISO language code for message.	–	–	–
referenceIdentifier	string	Partner reference identifier.	–	–	–
orderType	string	Order Type.	–	–	–
address3	string	Additional address information that is not included in addressTypeDefinition.	–	–	–
postalArea	string	Postal Area.	–	–	–
timeZone	string	Time zone for referenced dates.	–	–	–
telephone	string	Telephone Number.	–	–	–
emailAddress	string	Email Address.	–	–	–
vatRegistrationNumber	string	Vat Registration Number.	–	–	–
taxExemptCode	string	Tax exempt Code.	–	–	–
locationType	string	Business Partner Location Type.	–	–	–
locationIdentifier	string	Business Partner location Identifier.	–	–	–
countrySubDivisionCode	string	Describes the country subdivision.	–	–	–
companyLocationContactInformation	-	-	–	–	–
contactType	string	Contact type. Valid values include: • `INFORMATION` - Information contact • `FORWARDER` - Forwarder contact • `SENDER` - Message sender contact	–	–	–
contactName	string	Contact name	–	–	–
contactTitle	string	Title of contact.	–	–	–
contactPhone	string	Contact phone number.	–	–	–
contactEmail	string	Contact email address.	–	–	–
freeTextNote	array	Free form text required for text message at header.	–	–	–
textReferenceCode	string	Text reference or subject code.	–	–	–
textFunctionCode	string	Text function code.	–	–	–
language	string	Language of free text.	–	–	–
textFormatCode	string	Format code for free text.	–	–	–
freeText	string	Free test string.	–	–	–
customFields	array	Name value pairs for mapping pass through elements that will not be processed in TL system but may be passed outbound. Line item level.	–	–	–
name	string	Name of mapped field.	–	–	–
value	string	Value in named field.	–	–	–

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
canonicalCertificateOfAnalysisItemDetails	array	Line item details for the digital certificate of analysis. Line item level describes types of tests, materials, specifications, quantity, etc.	–	–	–
description	string	A brief Description about the type of materials or tests involved.	–	–	–
materialInformation	array	Material Information to store the data related to materials being tested or reported.	–	–	–
verificationSignatoryAuthority	string	The verification Signatory Authority is the trusted entity that validates the identity and cryptographic credentials of the document signer.	–	–	–
approvalSignatoryAuthority	string	Quality Control Authority, provides final approval.	–	–	–
productName	string	Name of the material to be tested and certified.	–	–	–
quantity	Number	Total quantity of material for which tests performed.	–	–	–
quantityUnitOfMeasure	string	Material unit of measure, for each lot numbers for performing tests.	–	–	–
manufacturerProductCodeValue	string	Material Part Number.	–	–	–
lotNumber	string	Manufacturer lot number.	–	–	–
customerLotNumber	string	Customer lot number.	–	–	–
description	string	A brief Description about the type of materials or tests involved.	–	–	–
materialManufacturerInformation	-	Manufacturer details to understand, where material was manufactured, which party shared material for testing.	–	–	–
manufacturerType	string	There are different types of manufacturers considered for materials from which materials are expected for testing. Valid values are: • `DISTRIBUTOR` = Material Distributor • `MANUFACTURER` = Material Manufacturer	–	–	–
manufacturerHierarchy	string	Hierarchy of manufacturer for specified product. • `0` - Main Manufacturer or Direct Supplier • `1` - Distributor or substitute supplier location • `2` - Retailer	–	–	–
plantIdentifier	string	Plant within which material was manufactured.	–	–	–
description	string	A brief Description about the manufacturer or supplier.	–	–	–
materialLotDateInformation	-	Lot date information to understand expiry, manufacturing, received, etc.	–	–	–
lotManufacturingDate	string	Manufacturing date of complete lot or batch.	–	–	–
receivedDate	string	Date on which batch received for testing.	–	–	–

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
lotManufacturingDateType	string	Lot Manufacturing or received date in the lab for inspection.	–	–	–
expirationDate	string	Expiry date for complete lot.	–	–	–
retestDate	string	Retesting of batch, if required.	–	–	–
description	string	Manufactured product lot related description.	–	–	–
epochLotManufacturingDate	string	Epoch Manufacturing date of complete lot or batch.	–	–	–
epochReceivedDate	string	Epoch Date on which batch received for testing.	–	–	–
epochExpiryDate	string	Epoch Expiry date for complete lot.	–	–	–
epochRetestDate	string	Epoch Retesting of batch, if required.	–	–	–
materialInspectionSpecifications	array	Specifications of materials on which different types of testing were performed.	–	–	–
materialDescription	string	Short description of material.	–	–	–
description	string	Free form text, so if any other details to be specified for material, can be mentioned.	–	–	–
inspectionType	string	A test of attribute is an evaluation performed to confirm that a defined material or component characteristic complies with specified acceptance criteria.	–	–	–
inspectionCriteria	string	Criteria used to inspect or qualify for test.	–	–	–
unitOfMeasure	string	Material parameter unit of measure, for each lot numbers for performing tests.	–	–	–
inspectionMethod	string	Method defined by supplier, for specified material measurement conducted.	–	–	–
testResultSpecificationLimit	string	Specifies the relational condition used to evaluate a measured result against its acceptance criteria.	–	–	–
testResultSpecificationValue	Number	Test result value. Only numeric values are accepted.	–	–	–
testResultDescription	string	Description related to test results. Test results value will sppear with symbols in data character field.	–	–	–
testSpecificationLotIdentifier	string	Identifier used for test execution, to track information related to test results.	–	–	–
testSpecificationIdentifier	string	Identifier of test specification document.	–	–	–
testSpecificationDescription	string	Free form text for test specification document in brief.	–	–	–
sampleCollectionLocation	string	Material sample collection location, to specify source of truth to be specified in test specification and result document as reference.	–	–	–
businessPartyInformation	array	Partner Entity group identifiers and address information.	–	–	–

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
partnerEntityType	string	Explains the type of the partner entity involved in this business transaction. valid values include: • SENDER - Message from • RECEIVER - Message to	–	–	–
businessName	string	Business name for partner or location.	–	–	–
additionalBusinessName	string	Additional Business name for partner or location.	–	–	–
companyLocationPartnerName	string	Additional Location of same Business partner.	–	–	–
mpcCompanyLocationIdentifierList	array	Identifier list for business party.	–	–	–
isIdentifierPresentInEvent	boolean	Is identifier present in event boolean.	–	–	–
companyIdentifierType	string	Company identifier type for business partner.	–	–	–
companyIdentifierValue	string	Company identifier value for business partner.	–	–	–
alternateCompanyLocationIdentifierValue	string	Alternate company location identifier value.	–	–	–
address	-	Party address information.	–	–	–
address1	string	Main street address.	–	–	–
address2	string	Supplemental street address.	–	–	–
city	string	City	–	–	–
district	string	District.	–	–	–
state	string	State or region code.	–	–	–
postalCode	string	Postal code.	–	–	–
country	string	Country code.	–	–	–
telephone	string	Telephone number.	–	–	–
fax	string	Fax number.	–	–	–
url	string	Website URL.	–	–	–
buildingNumber	string	Building number.	–	–	–
plantNumber	string	Plant number.	–	–	–
floorNumber	string	Floor number in building.	–	–	–
lscAddressIdentifier	string	LSC address identifier.	–	–	–
village	string	Village name.	–	–	–
houseNumber	string	House number.	–	–	–
township	string	Township.	–	–	–
premisesCode	string	Premises code.	–	–	–
mpcAdditionalAddressInformation	-	Additional address information that is not included in addressTypeDefinition.	–	–	–
externalERPUserName	string	External ERP system user name for user who generated message.	–	–	–
organizationCode	string	Code for organization responsible for generating the message.	–	–	–
organizationDescription	string	Description of the organization responsible for generating the message.	–	–	–
groupCode	string	Code identifying group responsible for generating the message.	–	–	–
language	string	Language key for message.	–	–	–
languageCode	string	ISO language code for message.	–	–	–
referenceIdentifier	string	Partner reference identifier.	–	–	–
orderType	string	Order Type.	–	–	–

Canonical Element	Type Definition	Description	IDoc mapping	X12 mapping	EDIFACT mapping
address3	string	Additional address information that is not included in addressTypeDefinition.	–	–	–
postalArea	string	Postal Area.	–	–	–
timeZone	string	Time zone for referenced dates.	–	–	–
telephone	string	Telephone Number.	–	–	–
emailAddress	string	Email Address.	–	–	–
vatRegistrationNumber	string	Vat Registration Number.	–	–	–
taxExemptCode	string	Tax exempt Code.	–	–	–
locationType	string	Business Partner Location Type.	–	–	–
locationIdentifier	string	Business Partner locatiion Identifier.	–	–	–
countrySubDivisionCode	string	Describes the country subdivision.	–	–	–
companyLocationContactInformation	-	-	–	–	–
contactType	string	Contact type. Valid values include: • `INFORMATION` - Information contact • `FORWARDERREQUEST` - Forwarder contact • `SENDER` - Message sender contact	–	–	–
contactName	string	Contact name.	–	–	–
contactTitle	string	Title of contact.	–	–	–
contactPhone	string	Contact phone number.	–	–	–
contactEmail	string	Contact email address.	–	–	–
freeTextNote	array	Free form text required for text message at line item.	–	–	–
textReferenceCode	string	Text reference or subject code.	–	–	–
textFunctionCode	string	Text function code.	–	–	–
language	string	Language of free text.	–	–	–
textFormatCode	string	Format code for free text.	–	–	–
freeText	string	Free test string.	–	–	–
customFields	array	Name value pairs for mapping pass through elements that will not be processed in TL system but may be passed outbound. Line item level.	–	–	–
name	string	Name of mapped field.	–	–	–
value	string	Value in named field.	–	–	–
customFields	array	Name value pairs for mapping pass through elements that will not be processed in TL system but may be passed outbound. Line item level.	–	–	–
name	string	Name of mapped field.	–	–	–
value	string	Value in named field.	–	–	–

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A Certificate of Analysis (CoA) is an electronic document used by suppliers to confirm that a specific product batch or lot meets defined quality specifications.

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