

Factur-X

Franco-German

Standard for Hybrid Invoices



Factur-X Version 1.0.07 (ZUGFeRD v. 2.3) | September 18th, 2024

A joint Franco-German consortium is responsible for the definitions and developments of Factur-X/ZUGFeRD:

The French Factur-X Team(FNFE-MPE)	The German ZUGFeRD team(FeRD)
Coordinators : M. Cyrille SAUTEREAU, Président FNFE-MPE, Admarel Conseil	Coordinators : M. Bernd Wild, DWC M. Rolf Wessel, SEEBURGER, UN/CEFACT M. Dominique Corazolla, SYMTRAX S.A. M. Daniel Vinz, AVW, FeRD
Editorial Committee: M. Pierre BONSACK, FNFE-MPE, Saint Gobain Distribution Bâtiment France M. Claude CHARMOT, Secrétaire FNFE-MPE, Auratechcom, CLEEP M. Emmanuel FLESSELLES, FNFE-MPE, Serensia Mme Nadine GARAUD, FNFE-MPE, GALIA Mme Nadia GHOZALI, FNFE-MPE, VENTYA Mme Anne-Claire KRID, FNFE-MPE, GS1 France Mme Corinne LAVIGNE, FNFE-MPE, Crédit Mutuel Alliance Fédération M. Jean-Louis MATHIEU, FNFE-MPE, CNOEC M. Beckar RABHI, FNFE-MPE, E-business Expert M. Frank POURCHASSE, FNFE-MPE, CASedi	Editorial Committee: Mme Monique Ostermann, ZUGFeRD-Community Mme Ulrike Linde, Strategien für die digitale Gesellschaft M. Klaus Förderer, GS1 Germany GmbH M. Siegmund Gorr, CIB M. Jochen Stärk, Mustangproject usegroup M. Gerhard Heemskerk, GH Consultancy, UNCEFACT M. Jörg Walther, VDA M. Svante Schubert, Schubert Consulting, UN/CEFACT, CEN M. Nicolas Guillet, ABACUS M. Hugo Mall, 1&1 M. Andreas Starke, ZUGFeRD-Community M. Steffen Walther, DATEV M. Alexander Geller, Four Js Development Tools M. Andreas Pelekies, GEFEG, validool.org

Version management

Version Number	Version Date	Author of modification	Description of modification
V1.0	2017 12 31	FNFE-MPE Coordinators	Initial version
V1.1	2018 07 24	FNFE-MPE Coordinators	Updates and English version
V1.2	2018 07 31	FNFE-MPE Coordinators	Profile BASIC_WL is BASIC WL (without “_”), as it was previously (erratum), in XMP.
V1.2a	2018 09 30	FNFE-MPE Coordinators	Corrigendum XPATH BT-95-0, BT-95, BT-99 (xsd was correct), add BT-95-00 and BT-102-00 as respective parent of BT-95 and BT-102
1.0.3	2018 10 31	FNFE-MPE Coordinators	<p>In order to avoid any confusion between the factur-x versioning and the documentation versioning, we have renamed the versioning of the current documentation as factur-x 1.0.3.</p> <p>Following the publication of the Corrigendum of the EN 16931 standard syntax binding, the following corrections have been made:</p> <ul style="list-style-type: none"> • BT-24, correction of value for BASIC and EXTENDED profiles in order to align with EN 16931 naming recommendations <u>(Basic : urn:cen.eu:EN 16931:2017#compliant#urn:factur-x.eu:1p0:basic)</u> <u>Extended : urn:cen.eu:EN 16931:2017#conformant#urn:factur-x.eu:1p0:extended)</u> • BT-81 : code 57 added : Standing Agreement. • BT-105 & BT-145 : update most used values from UNTDID 7161. • BT-151, BT-118, BT-95, BT-102 : VAT code « Z » added in the respect with EN 16931 (not used in France). <p>A sheet « codelists » has been added in the Excel model file with detail of all codelists available for XML UNCEFACT CII D16B.</p> <p>German version updated: ZUGFERD 2.0 = Factur-X 1.0.3</p>

Version Number	Version Date	Author of modification	Description of modification
1.0.04	2019 06 30	FNFE-MPE Coordinators	<p>In order for the BASIC profile to, remain “compliant” as defined in the EN 16931, i.e. respects all business rules from the EN 16931, all business terms on which a Business Rule applies must be at least in the BASIC profile. In addition, all business Terms on document level that are in BASIC must also be in BASIC WL. As a consequence, the following business terms have been added to BASIC and / or BASIC WL profiles:</p> <ul style="list-style-type: none"> • Profiles BASIC: BT-140, BT-139, BT-145, BT-144, reason in text and code for allowances and charges at line level. • Profiles BASIC WL and BASIC: delivery address and date BT-71 (BT-71-0, BT-71-1), BT-70, BT-78, BT-75, BT-76, BT-165, BT-77, BT-80, BT-79. • Profiles BASIC and BASIC WL: invoicing period on document level (BG-14): BT-73 (BT-73-00, BT-73-0), BT-74 (BT-74-00, BT-74-0) <p>Also, business terms “CountrySubDivisionName” of Postal Addresses have been added to BASIC WL and BASIC profiles as other address fields for coherence and because it is used in European countries, starting with Germany: BT-39, BT-54, BT-68 and BT-79.</p> <p>Paragraph 6.2.2: more detail on different AZF/Relation in XMP, depending on profiles and country.</p> <p>Paragraph 6.3: more details on how to code the extension scheme in XMP, cf example.</p> <p>Paragraph 6.2.2 and 6.4: clarify the ability to insert a branch /Kids between « /EmbeddedFiles » and « /Names » in XMP, as some PDF/A-3 creation tools are used to.</p> <p>Paragraph 7.1.5: more details on the number of digits that are a maximum. For instance, quantities should be with 4 digits MAXIMUM (so 2 or 0 is OK also)</p> <p>Update of the code list (see Excel), to be used in the Norm EN 16931</p> <p>Profile EXTENDED, common with ZUGFeRD 2.0.</p>
1.0.05	2020 03 24	FNFE-MPE Coordinators	<p>Full Alignment with ZUGFERD 2.1.</p> <p>Updated xsd for each profile, including codelists.</p> <p>Chapter 5.3 on usage specification.</p> <p>Chapter 7, tables, cardinality of each data in full XML CII D16B in addition to the cardinality of the XML profile BASIC / BASIC WL potentially restricted, knowing that the cardinality on the left of the tables is for the Semantic Norm EN 16931.</p>

Version Number	Version Date	Author of modification	Description of modification
1.0.06	2022 03 01	FNFE-MPE & FeRD Coordinators	<p>Evolution of BASIC WL profile:</p> <ul style="list-style-type: none"> • BT-6, BT-20, BT-111 added <p>Evolution of BASIC profile:</p> <ul style="list-style-type: none"> • BT-6, BT-20, BT-111 added • BT-127, BT-148, BT-147, BG-26 (BT-134, BT-135) added <p>Evolution of EXTENDED Profile: new BT added in order to align with Order-X, B2B mandate CTC reform in France and B2G implementation in Germany.</p> <p>Capability to use a specific CIUS XRechnung profile in Germany.</p> <p>Wording corrections.</p> <p>New 6.3.2 chapter: For memory: PDF/A Extension schema for ZUGFeRD 2.0</p> <p>New 6.6 chapter: Factur-X 1.0 maintenance and validation artefacts</p> <p>New 7.7 Chapter: Reference Profile XRECHNUNG</p>
1.0.07	2024 09 18	FNFE-MPE & FeRD Coordinators	<p>Factur-X.xml based on UN/CEFACT CII D22B (instead of D16B), in order to be more in line with EN 16931 (BG-3 cardinality 0..n)</p> <p>All Profiles (except MINIMUM) : BG-3 cardinality 0..n instead of 0..1</p> <p>Profiles EN 16931, BASIC BASIC WL; Excel corrections:</p> <ul style="list-style-type: none"> • BT-159 (Item Country of origin): Card 1..1 (only child) • BT-47 (Buyer legal ID): Card 0..1 (not 1..1) • BT-61(Payee legal ID): Card 0..1 (not 1..1) • Excel file update: <ul style="list-style-type: none"> • New column with French EXTENDED-CTC-FR BT IDs • New columns to state the presence of each data in each profile • List of Business Rules updated with EN 16931 <p>EXTENDED Profile, creation of IDs for all BT (BT-X-zzz).</p> <p>EXTENDED Profile New BT added:</p> <ul style="list-style-type: none"> • 5 Business Terms which are present in D22B but not in D16B, and are in Order-X EXTENDED profile, and added in Factur-x EXTENDED : for Item description : Industry Assigned ID, Model Name ID, Batch ID, Brand Name ID, Model Name • Sales Order Reference on line level: Issuer Assigned ID, Referenced Sales Order Line Reference, Sales Order line Reference issue Date • “Role Code” added for all Parties, Cardinality 0..1 • Line ID on preceding invoice reference on line level • Reference to preceding invoice (identifier, issue date, type code) in block for Advanced Payments (BG-X-45).

Version Number	Version Date	Author of modification	Description of modification
			<p>EXTENDED Profile, modified Cardinalities:</p> <ul style="list-style-type: none"> • BT-22 (Note Content) : 0..1 instead of 1..1, because a Content Code has been added. • BT-46 (Buyer Identifier) changed to cardinality 0..n instead of 0..1 in order to comply with French B2B Mandate CTC Reform (and in anticipation of EN 16931 evolution). • BT-127 (Note Content on line level): 0..1 instead of 1..1, because a Content Code has been added. • BT-X-27: Issuer Assigned Document ID for Additional Document on line level: 1..1 Instead of 0..1, to align with the same at Document level. • BT-X-299: Document Description for Additional Document on line level: 0..1 Instead of 1..1, to align with the same at Document level. • BT-X-331: Preceding invoice Reference at line level: 0..1 instead of 1..1, in case it is already referenced at Document level (BG-3), and only the line reference of the preceding invoice reference is given on line level. • Alignment: Postal Address for third Parties is 0..1 instead of 1..1: Sales Agent, Buyer Tax Representative, Product End User, Buyer Agent => Only Seller, Buyer and Seller Tax Representative have a mandatory Postal Address. • Global ID is 0..n on all Parties for Alignment: ShipToTrade (BT-71), Payee (BT-60), Payer (BT-X-479), Payee under Specified Payment Terms (to allow multiple Payee on a Payment Schedule). • Party Name for Invoicer (BT-X-207) and Invoicee (BT-X-226) is 1..1 (instead of 0..1). • Country Subdivision Name of Invoicee (BT-X-240) is 0..1 instead of 0..n (Excel correction). • Payee legal ID (BT-61): cardinality is 0..1 instead of 1..1 (Excel correction). • BG-16: Cardinality 0..n instead of 0..1 to allow providing more than one bank account for PayeePartyCreditorFinancialAccount. It is necessary to have multiple SpecifiedTradeSettlementPaymentMeans (BG-16) for it. • Applied Trade Tax on LOGISTICS SERVICE CHARGE (BT-X-273-00): cardinality 1..n instead of 0..n. • Total Amount with VAT (BT-112): cardinality 1..1 instead of 1..2 (no need to have this amount in two currencies). <p>EXTENDED Profile: BR-O-11, BR-O-12, BR-O-13, BR-O-14 are deleted in order to allow invoices with lines Out of Scope and other kind of lines.</p> <p>EXTENDED Profile: Business Rules modification in order to introduce a tolerance of 0,01 € per line or Document level Allowances or Charges on calculation rules (when VAT is calculated on line level or prices are defined including VAT, especially for B2C invoices):</p> <ul style="list-style-type: none"> • BR-S-08, BR-S-09 replaced with BR-FXEXT-S-08, BR-FXEXT-S-09

Version Number	Version Date	Author of modification	Description of modification
			<ul style="list-style-type: none"> • BR-Z-08, BR-E-08, BR-AE-08, BR-IC-08, BR-G-08, BR-O-08, BR-AF-08, BR-AG-08, replaced with BR-FXEXT-Z-08, BR-FXEXT-E-08, BR-FXEXT-AE-08, BR-FXEXT-IC-08, BR-FXEXT-G-08, BR-FXEXT-O-08, BR-FXEXT-AF-08, BR-FXEXT-AG-08. • BR-CO-10, BR-CO-11, BR-CO-12, BR-CO-13 replaced with BR-FXEXT-CO-10, BR-FXEXT-CO-11, BR-FXEXT-CO-12, BR-FXEXT-CO-13 • BR-CO-17 does not apply (redundant) <p>EXTENDED Profile: 3 new Business Rules required because of new Business Terms: BR-FXEXT-01, BR-FXEXT-02, BR-FXEXT-03.</p>

About this Document

In response to the European Directive 2014/55/EU and the publication of the European Norm EN 16931, the French National Forum for Electronic Invoicing and Market Places & Public Electronic procurement (FNFE-MPE) and The Forum for Electronic Invoicing Germany (FeRD) have been working together to create a Franco-German standard for electronic invoices, which is at the same time the more compliant to the EN 16931 and suitable to SMEs needs and capabilities.

The national forums for e-invoicing of both countries together came to the conclusion that a hybrid format (PDF with embedded XML) was the most fitting solution to meet the Directive's goal to create an e-invoicing format which allows invoice process automation, and which is accessible and manageable by millions of SMEs, because it is readable for humans and machines alike. It is this bilateral collaboration which gave birth to Factur-X, the first hybrid invoice format compliant with EN 16931.

IMPORTANT: UN/CEFACT SCRDM CII D16B XML is semantically not fully aligned with EN 16931 as the cardinality of BG-3 (previous invoice reference) is 0..1, while the Norm EN 16931 states 0..n. This has been corrected in UN/CEFACT SCRDM CII D22B, which is fully backward compatible with D16B (any invoice instance compliant with D16B is also compliant with D22B).

This is why Factur-X is now based on UN/CEFACT CII D22B. The only consequence is that an invoice will be rejected if the recipient does not use CII D22B xsd but CII D16B xsd, provided the invoice was issued on the basis of EN 16931 or BASIC Profiles with more than one invoice preceding reference. The sender will then have to find a solution to send an invoice with only 1 preceding invoice reference, as permitted by D16B xsd.

In addition, as a reminder, it is highly recommended to use the last validation tools of Factur-X, which means UN/CEFACT SCRDM CII D22B xsd per profile, and the last schematrons published for the profile chosen (Factur-X 1.0.07 version), like what is done for EN 16931 validation schematrons and codelist updated every 6 months.

This document covers a range of key aspects:

- It is the **specification of the Factur-X standard format** with regard to its principles of operation, and the description of how the readable PDF and the attached invoice data file are compiled, as well as any other documents attached.
- It is a **guide for the implementation of the profiles** Minimum, Basic and BASIC WL of this format, all of which are subsets of the European Semantic Standard EN 16931, but also the EN 16931 and EXTENDED profiles, and which all follow the syntax UN/CEFACT SCRDM CII D22B XML.
- It includes **Core Invoice Usage Specifications (CIUS) for B2G in France, as required by ChorusPro national platform** and 2 subsets of the EXTENDED profile, the first named EXTENDED-CTC-FR specified on B2B mandate CTC e-invoicing and e-reporting reform in France and a secund named EXTENDED-B2B-FR already present in previous version ; as a guidance for implementation of business cases not addressed by the EN 16931 (like multi deliveries and multi purchase orders invoices).
- It includes the **concept of the new Reference Profile**, which was originally developed to incorporate the German standard XRechnung. The Reference Profile makes it possible, to embed XML-structures into Factur-X, even when they are defined by authorities other than the Factur-X Consortium.

Originally called "ZUGFeRD" in Germany, this hybrid format has now fully adopted its French name "Factur-X", thus underpinning its international nature and perspective, and putting it onto one level with its recently developed equivalent for order processes, the hybrid format Order-X.

In this document, we shall refer to ZUGFeRD and Factur-X with its now common name "Factur-X".

Note: This specification of Factur-X is complemented by a separate Technical Appendix and an Excel description of the different subset of invoice data (profiles), the business rules and codelists.

Disclaimer

This document has been drawn up based on the basis of the best knowledge and experience of its contributors. All necessary steps have been taken to ensure that the information compiled in this document is accurate. This document is "Work in Progress"; it is reviewed and updated continuously, and versioned. Although all reasonable care has been taken, the content may require changes. The contributors, therefore, reserve the right to make modifications or additions whenever necessary.

The contributors do not, under any circumstances, guarantee the completeness of this document, designed to support the creation of the documents according to Standard EN 16931 and associated documents. The user is solely responsible for any implementation made following this documentation. Equally, the user is responsible to for any reference to the source documents of the European Standard:

- EN 16931-1:2017 Electronic invoicing — Part 1: Semantic data model of the core elements of an electronic invoice
- CEN/TS 16931-2:2017 Electronic invoicing — Part 2: List of syntaxes that comply with EN 16931-1
- CEN/TS 16931-3-1:2017 Electronic invoicing — Part 3-1: Methodology for syntax bindings of the core elements of an electronic invoice
- CEN/TS 16931-3-3:2017 Electronic invoicing — Part 3-3: Syntax binding for UN/CEFACT XML Cross Industry Invoice D16B
- CEN/TR 16931-4:2017 Electronic invoicing — Part 4: Guidelines on interoperability of electronic invoices at the transmission level
- CEN/TR 16931-5:2017 Electronic invoicing — Part 5: Guidelines on the use of sector or country extensions in conjunction with EN 16931-1, methodology to be applied in the real environment.
- CEN/TR 16931-6:2017 Electronic invoicing — Part 6: Result of the test of EN 16931-1 with respect to its practical application for an end user - Testing methodology

This document and its appendices retrieve information from the EN 16931-1 standard for the purposes of an implementation guide, or details in the context of specifications for use respectively. The user is therefore responsible for respecting the copyright of these documents as well as and in addition to this document.

The contributors of this document cannot in any way be held responsible for any direct or indirect damage, loss of use, loss of profit, loss of data, loss of communication, loss of income, loss of contract, or loss of business that may result from using this document.

This document is copyright free, on an "AS IS" basis, subject to the above-mentioned limitations, and falls under Apache 2.0 license terms available at <https://www.apache.org/licenses/LICENSE-2.0>.

Contents

1 PREAMBLE.....	11
1.1 An invoice is a document that has multiple functions	11
1.2 The main challenge lies in reducing payment delays, which therefore requires faster transmission and processing of invoices	11
1.3 The exchange of electronic invoices in the form of structured data (EDI): the solution for trade with extensive frequency and high volumes.....	12
1.4 Hybrid invoices: the trade-off between buyer expectations and supplier capabilities	12
2 THE CONCEPT OF THE HYBRID INVOICE.....	13
2.1 The principles of content	13
2.2 PDF/A-3 as the chosen format embedding full readable view and xml invoice data set	14
3 THE PRINCIPLES OF THE "FACTUR-X" HYBRID INVOICE:	17
4 HOW TO SECURE FACTUR-X	19
5 CONSISTENCY OF INFORMATION BETWEEN THE VISUAL AND STRUCTURED REPRESENTATIONS, THE AUDIT TRAIL AND GOOD PRACTICES.....	19
5.1 Factur-X and audit trails	19
5.2 Good practice for presenting the readable PDF	20
5.3 Specific Usage specifications (Factur-X 1.0 / ZUGFeRD 2.3 in particular).....	21
6 EMBEDDING THE XML INVOICE FILE IN A PDF/A-3 FILE.....	21
6.1 PDF/A-3-compliant structure	22
6.2 Embedding of the XML file	23
6.2.1 <i>Embedding relationship</i>	23
6.2.2 <i>Data relationship</i>	23
6.3 PDF/A extension schema.....	25
6.3.1 <i>PDF/A extension schema for Factur-X 1.0</i>	25
6.3.2 <i>Legacy: PDF/A Extension schema for ZUGFeRD 2.0</i>	27
6.4 Embedding additional files.....	28
6.5 Logos to identify a Factur-X invoice and its profiles on visual representation	30
6.6 Factur-X 1.0 maintenance and validation artefacts	30
7 PRESENTATION AND ASSIGNMENT OF SEMANTIC MODEL DATA PER PROFILE	31
7.1 European Semantic Standard (EN 16931), UN/CEFACT XML D22B syntax	31
7.1.1 <i>Principle of the semantic standard EN 16931: 1 invoice for 1 delivery on 1 order</i>	31
7.1.2 <i>Extensions and attached files other than the structured invoice data file</i>	31
7.1.3 <i>Usage specifications and compliance with public sector requirements in France (Chorus Pro)</i>	32
7.1.4 <i>Cardinalities</i>	32
7.1.5 <i>Data types</i>	33
7.1.6 <i>Credit note management</i>	34
7.1.7 <i>Calculation rule</i>	34

7.1.8 Rounding rule in calculations.....	35
7.1.9 VAT management	36
7.1.10 Management of taxes other than VAT, case of WEEE eco-tax	36
7.1.11 Allowances, charges and rebate / discount management.....	37
7.2 MINIMUM profile.....	37
7.2.1 Semantic description of the Profile MINIMUM	37
7.2.2 Presentation of Profile MINIMUM in UN/CEFACT XML Syntax	39
7.2.3 Example of a complete message:.....	42
7.3 Profile Basic Without Lines (BASIC WL) and BASIC	44
7.3.1 Message identification block	46
7.3.2 Document header block	47
7.3.3 Commercial transaction information block:	49
7.3.3.1 Block « ram:ApplicableHeaderTradeAgreement »	49
7.3.3.2 Block "ram:ApplicableHeaderTradeDelivery".....	51
7.3.3.3 The block "ram:ApplicableHeaderTradeSettlement"	52
7.4 The Profile BASIC.....	56
7.5 The profile of the EUROPEAN NORM: EN 16931	61
7.6 The Profile EXTENDED	61
7.7 Reference Profile XRECHNUNG	62
APPENDIX 1 – DETAILED SPECIFICATIONS: PROFILE EN 16931 AND EUROPEAN STANDARD	66
APPENDIX 2 – EXAMPLES	67
Example Factur-X invoices.....	67
Example of a factur-x.xml file under BASIC profile.....	67
Example of invoice readable presentation.....	78
APPENDIX 3: XML DESCRIPTION	81
3.a BASIC Profile	81
3.b EN 16931 Profile	82
3.c Business Rules.....	83

1 Preamble

1.1 An invoice is a document that has multiple functions

An invoice is a document that has several functions:

- It is a document that is part of the commercial transaction between the seller and the buyer and materializes a claim to be paid by the buyer to the seller.
- It is a document of accountancy that feeds the accounts of the seller and the buyer, in particular by including the expenses and income in income statements, the VAT due or deductible, and the accounts payable or accounts receivable in the balance sheets.
- It is a tax document, and as such proof of the deductibility of VAT. Therefore, the invoice constitutes in a way a claim on the State, up to its amount of VAT, provided it is deductible.

As a result, invoices are subject to numerous regulatory provisions relating to commercial, accounting and fiscal laws in particular, which determine which information must be included (the "mandatory information"), as well as the conditions for keeping the original version of the invoice by the addressee and its accurate and durable document or copy by the issuer. These requirements are applicable to paper invoices as well as to electronic invoices, based on a principle of equal treatment between paper and electronic documents.

1.2 The main challenge lies in reducing payment delays, which therefore requires faster transmission and processing of invoices

The number of B2B invoices is estimated at around 2 billion in France and 20 billion in Europe. Inter-company receivables borne by these invoices represent 600 billion euros in France. This corresponds to 45 to 50 days of turnover on receivables (customer invoices issued). In contrast, the delayed payment of supplier invoices accumulates to a trade balance worth between 11 and 14 days the past years. There is also a significant disparity by sector of activity and by company size of enterprise¹.

The contractual payment period (which must not exceed the maximum legal deadlines), i.e. the time between the invoice date and its due date, gives purchasing companies enough time to process the purchase invoices (transmission, distribution/routing, accounting, validation, payment). This process is often only little optimized, and generally of a complexity corresponding to the size of the purchasing company. This is the reason why the actual payment period may exceed the contractually agreed one, thus causing late payments.

All this forces a company to activate additional financial resources, both to deal with the trade balance, but also with the risk of late payment which often has not been anticipated correctly and is hitting the suppliers. This can lead to situations of defaulting payment, even for healthy businesses.

This is why reducing of payment terms, beginning by adhesion to contractually agreed deadlines, is a national issue, in particular with regard to improving the economic fabric of SMEs and a more appropriate use of the companies' resources. To give an idea about the issue at stake, the average payment delay for customer invoices represents around 11 to 14 days of turnover. This corresponds to approximately 3.5% of the turnover that the supplier must activate in additional cash assets to cope with this excess of Working Capital Requirement (WCR), instead of investing in Research and Development (R&D), for instance.

Consequently, the main challenge is the reduction of payment deadlines. This can be achieved by adhering to contractual deadlines, but also by third-party refinancing or discounting tools. First and foremost, transmission delays must be accelerated (by electronic mail), especially the processing time of invoices, i.e.

¹ See Banque de France Observatoire des délais de paiement – rapport annuel 2020.

receipt, routing, accounting, matching and reconciliation, and validation to go to payment. A supplier's invoice that has been processed fast (i.e. before its due date), meaning that the buyer has matched it to a purchase order and especially to a delivery of goods or services, becomes a "safe" receivable for the supplier, payable at the due date, or which can alternatively be refinanced with better conditions.

1.3 The exchange of electronic invoices in the form of structured data (EDI): the solution for trade with extensive frequency and high volumes

The solution for automating and accelerating invoice processing is well known and has been around for a long time: companies need to exchange invoices in the form of data that can be used by computerized processes. This works perfectly if buyer and seller have taken the time to agree on how to exchange their invoicing data (and more broadly other management documents involved in the commercial transaction such as catalogues, order forms, delivery/receipt slips). This is the field of EDI (Electronic Data Interchange) which has been widely tried and tested for invoice exchanges with extensive frequency and high volumes between key customers and their strategic suppliers and typically within industry sectors.

However, the deployment of projects such as these is hampered by the difficulty for suppliers to produce electronic invoices of fully structured data as expected by their customers, which also should include all regulatory information as required.

On the one hand, suppliers, and in particular SMEs, do not manage all their invoicing information in a structured form. Indeed, it is often free text entered on the fly when creating the invoice and where it fits the best (as explanation, a description, a blank line, etc.), including even in the footer of the page together with legal information.

On the other hand, business cases may differ from one buyer to another, requiring the supplier to adapt to the buyer's requirement and even going as far as modifying their invoicing databases, requiring a phase of point-to-point testing. Where the number of invoices exchanged is less than 50 to 500 invoices per year, the cost for implementing such a customer-supplier connection may prove to be too prohibitive.

To overcome the difficulties described above, there are two options:

- Standardize the electronic invoice data, i.e. precisely define the mandatory and most essential business data that must be found on an invoice. The CEN (European Committee for Standardization) has done this and produced the European Semantic Standard for electronic invoicing (EN 16931). However, it remains difficult for suppliers to manage all their information in a structured form and to give up their habits of including in their invoices information that has not been included in the European Semantic Standard EN 16931.
- Reduce the amount of data required, to focus on data that is only useful to or essential for a certain level of automation, given that with less constraints placed on suppliers, their ability to meet their customers' requirements will be greatly increased. However, this can lead to both non-compliance with the regulations (mandatory information) and the abandonment of unstructured information that may prove helpful in the case of legal disputes, or when checking invoices manually.

1.4 Hybrid invoices: the trade-off between buyer expectations and supplier capabilities

In parallel with the European standardization work, France and Germany are firmly committed to shifting their companies towards a general adoption of electronic invoice exchanges. As a consequence of the EU-Directive 2014/55/EU, Member States had to implement legal regulations to ensure that, all invoices intended for the public sector had to be submitted electronically by 2020 (i.e. for France alone 95 million invoices, to 135,000 public entities issued by nearly one million businesses). In addition, following the Continuous Transactional Control wave in the world, France and recently Germany have decided to implement a B2B mandate for e-invoicing associated to real time VAT e-reporting. As a result, a large number

of companies (and in the coming years all of them) will be able to produce electronic invoices, which will benefit not just B2G trade, but B2B, too.

Taking into account the difficulty for suppliers to manage all the invoicing information as structured data, while being capable of producing invoices in PDF format, two approaches are possible:

- Allowing companies time to develop the ability to produce fully structured invoices (i.e. containing at least all the mandatory invoice details, as well as additional business data required by the buyer). This may require information systems to be upgraded, especially for SMEs, which may be time intensive and costly. During this period, companies will have to manage a mix of paper invoices and electronic invoices, which complicates their tasks, generates additional costs and may finally cause opposition.
- Promoting a rapid switch to the use of electronic invoices, starting from what companies already have:
 - ✓ guiding them on the prioritization of their information systems' upgrade first of all to generate invoicing data that can be used for process automation by their customers,
 - ✓ by allowing them to rely on their legacy systems, regardless of whether this includes electronic or paper invoices (in PDF format),
 - ✓ by arranging a smooth transition for users who are used to seeing invoices in a "paper bill" format when they need to process them (in the case of disputes and validations).

The hybrid invoice is the answer to this second approach which, by associating the two types of electronic invoice, makes the best of both: a PDF invoice as the visual representation of all invoice information and an embedded XML-structure with invoice information which allows for automated data processing. In this way, invoice processing can be automated to a greater or lesser degree, while allowing the recipient to enrich the attached data and/or process the invoice manually when necessary. This responds perfectly to the diversity of business needs regardless of sector or company size.

Thanks to hybrid invoices, invoices can be processed fully automated and without human intervention, while at the same time not excluding manual handling where necessary.

In particular, it is clear that SMEs or very small businesses are today often excluded from the productivity gains procured by the deployment of electronic invoices, due to the cost of implementation related to the volume of invoices issued. The purpose of the hybrid invoice is thus to promote a smooth transition to automated processing for all companies or public entities, by reducing the complexity and cost of implementing the transition to an electronic invoice solution that complies with regulatory requirements and process automation.

2 The Concept of the Hybrid Invoice

2.1 The principles of content

A hybrid Invoice must first of all be readable both by humans and machines. On the one hand it must be possible to process such an invoice by machines such as computer programs that facilitate the automation of distribution or routing, the integration into accounting processes and reconciliation. On the other hand, however, users must be able to visually inspect such invoices, for instance in the case of litigation or in the context of an audit.

As invoices nowadays are usually generated by means of a computer, it is likely that almost any company is able to produce PDF-documents. It is also true that most businesses supplying goods or services are likely to keep at least a minimum of invoice information in a structured way in order to store them in a database. This

makes information searchable and allows them to be archived. Such sets of information are likely to consist at least of the following:

- the name or corporate name of the business
- its legal registration numbers (e.g. SIREN/SIRET in France)
- its intra-community VAT identification number if the company has one
- a customer identifier or its name
- the invoice date
- the type of invoice (credit note or invoice)
- the invoice number (identifier)
- some kind of a reference field (often used for a purchase order number or a delivery identifier)
- a total amount without taxes
- a total amount of VAT
- of a total amount including taxes or net to be paid
- a VAT breakdown (basis, rate, amount)
- often also a due date
- ... and other information, depending on the business management tools.

2.2 PDF/A-3 as the chosen format embedding full readable view and xml invoice data set

Bringing the two worlds together, human readable invoice document and structured invoice information which can be processed by machines is what determines a hybrid invoice format.

Thus, human readable PDF representation contains in principle all the necessary and regulatory information, since it is the presentation usually used for paper invoices. The structured invoice dataset, generally a subset of the EN 16931 standard, intends to contain the most invoice information that the supplier can provide in a structured way, which is usually the most useful for invoice process automation on the buyer's side.

Therefore, by combining on one hand the complete PDF visual representation, and on the other hand the invoice data available for a primary level of automation, we obtain a hybrid invoice consisting of 2 complementary elements, although partially redundant in terms of information:

- the (text-based) PDF for visual representation contains all the information of the invoice, including all the mandatory regulatory information. It can constitute the legible presentation as required by tax regulation. The format of choice is PDF/A-3-compliant document according to ISO 19005-3 [IS19005-3]. It makes the invoice legible for humans and can be archived long-term.
- the XML-based data structure which can be read and processed by machines without any human intervention. The invoice data is embedded in the PDF/A-3 file in XML format (data representation) with reference to the entire document using a so-called File Specification Dictionary. This XML document can be provided under different profiles, all subsets of the UN/CEFACT SCRDM CII D22B implementation of the EN 16931, and also the EXTENDED profile as defined in the EN 16931 specification.

PDF/A-3 was selected as the carrier format for Factur-X invoices because it allows for the combination of structured XML data including the use of supporting metadata in a standardised way (for process automation), and their visual representation (for readability for human users).

In order to ensure conformity, the PDF/A-3 document must entail the following constructs:

- A PDF/A-3 compliant structure, i.e. the source document must be PDF/A-3 compliant even without the embedded data. The so-called conformity level (i.e. 3a, 3b or 3u) is irrelevant. However, it is recommended to issue 3a level in order to comply with accessibility requirements for blind or visually impaired persons.
- The embedding of the XML invoice file with the specification of a corresponding relation (AFRelationship) at document level (see 6.2.2).
- The presence of a specific PDF/A XMP extension scheme to describe the document as a Factur-X invoice corresponding to this specification, as well as the corresponding XMP metadata.

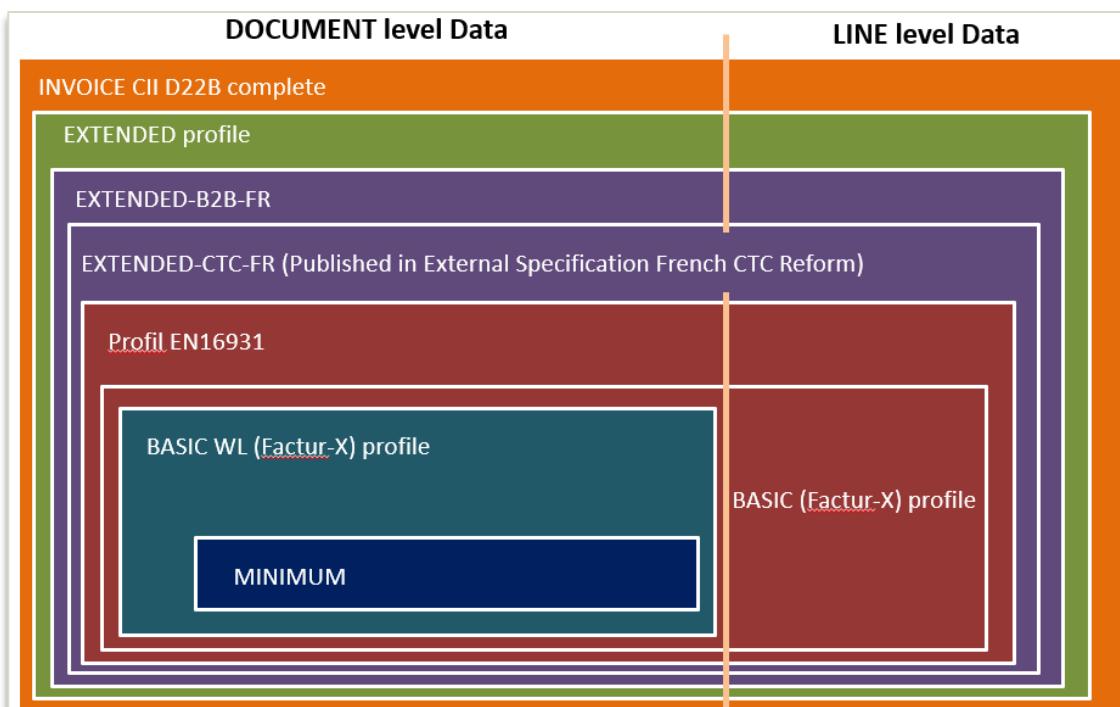
The objective of the hybrid invoice is to enable the most efficient possible enrichment of usable data, i.e. useful to the buyer party receiving the invoices, whilst avoiding any need for a bilateral test prior to any exchange between seller and buyer.

The hybrid invoice ought to fully comply with the European semantic standard for electronic invoices (EN 16931) so as to allow customers to have a standardized exploitable dataset. It will also enable unified processing between hybrid invoices, regardless of whether they contain a limited range of structured data or a comprehensive set, depending on the invoicing processes and systems of each party. The dataset is structured according to the XML-structure as defined by the UN/CEFACT SCRDM CII format (Supply Chain Reference Data Model Cross Industry Invoice).

As early as 2014, the German and French teams developed together a first version of the hybrid format, long before a standard was defined by CEN. It was initially called "ZUGFeRD" in Germany. Following the publication of the EN 16931 Standard, a joint version of the hybrid invoice was built and published at the end of 2017 by FNFE-MPE under the name Factur-X which had been selected together with FeRD. Ever since alignment work had been undertaken to harmonise both ZUGFeRD and Factur-X which culminated in a joint publication on March 24th, 2020, both French and German versions are identical and are henceforth referred to as "Factur-X".

In order to help suppliers to prioritize their efforts to manage invoicing data, all business fields of the semantic model have been "classified" according to profiles built, a bit like as Russian dolls:

- **MINIMUM** profile: Minimum data required.
- **BASIC WL** profile (Basic without lines): Header and footer data highly recommended, because they are often necessary if not indispensable for a buyer's invoice process automation where invoice lines are not required. BASIC WL is a subset of BASIC, only without lines and business rules which implies line level business terms.
- **BASIC** profile: Additional line data highly recommended for suppliers who are able to manage and generate them as structured data. This profile is compliant to the EN 16931, which means that all mandatory business terms are present and all business rules of the EN 16931 must be respected. BASIC is a subset and a CIUS (Core Invoice Usage Specification) of EN 16931.
- **EN 16931** profile (the standard profile, also originally referred to as COMFORT): All core data of the European Semantic Standard (EN 16931) that make it possible to obtain all the invoice information in a fully structured form and all the business rules of the EN 16931.
- **EXTENDED** profile: All data including extension, which may be useful for certain use cases or because of certain additional customer requirements. The EXTENDED profile contains a subset called EXTENDED-CTC-FR which is referenced by French Tax Administration in the context of e-invoicing B2B mandate and real time VAT e-reporting CTC reform. This subset is in itself a subset of EXTENDED-B2B-FR, designed to address all business cases inventoried in France.



Nested Factur-X Profiles

In addition, a **XRECHNUNG Reference Profile** has been added. Reference profiles have been designed to accommodate invoice structures which are not managed by the Factur-X community, such as the German standard XRechnung (referred to by their reference profile, i.e. here reference profile **XRECHNUNG**).

Note: Documents containing only information of the first two profiles (MINIMUM and BASIC WL) are not considered to be invoices according to German fiscal law ([→ GoBD](#)); they may therefore not be used as electronic invoices in Germany. They will not be considered as invoices in France anymore once the e-invoicing B2B mandate CTC reform has been fully deployed (2028). It is then highly recommended to target the BASIC profile at minimum.

Suppliers can now produce electronic invoices which look like paper invoices thanks to their PDF visual representation, enhanced by a supplementary file of machine-readable invoice data embedded which contains all information which the respective system is able to provide.

Customers, on the other side, will benefit from the choice of which information they will pick out of the hybrid invoice to match in the best possible way their needs and those of their information systems:

- The PDF is suitable for "traditional" processing as well as for any operational need for visualization by a user (validation, litigation, audit)
- The invoice data present in the structured XML dataset and useful for process automation, provided such a system has been put in place.

In order to allow the simplest use of hybrid invoices by the recipients, the hybrid invoice uses the PDF representation as the envelope for the invoice. The machine-readable invoice dataset, in XML format, is therefore integrated into the PDF file as required by the PDF/A-3 ISO standard. Thus, recipients can read the PDF invoice with their current office software and extract the XML file for process automation if necessary. This also makes it possible to natively embed the PDF digital signature options, if the supplier has chosen this mode of encrypting electronic invoices.

Tax Administration may consider that the machine-readable invoice data file, for profile which contains all invoice mandatory fields in it (BASIC, EN 16931, EXTENDED), constitutes the source of invoice information for fiscal regulation.

3 The principles of the "Factur-X" hybrid invoice:

Principle no. 1: Factur-X is a PDF/A-3 file (ISO 19005-3 based on ISO 32000-1:2008)², which is the human readable presentation of **one and only one invoice and the envelope of the structured data in XML file**. Where applicable, other supporting documents for the commercial transaction may be added, such as purchase order, delivery note, shipping note, receipt form, consumption bill, etc., as long as they comply with authorized formats listed. **The PDF file as a whole constitutes the e-invoice (it is the original tax invoice). It includes all attachments, the first of which** is the structured invoice data file. Where applicable, any other supporting document in PDF or TEXT format may be added, including XML, EDIFACT, txt, csv formats, which contain additional information, receipts or supporting information, such as consumption details, evidence for expenses claim or chargeback etc., or even general conditions of sale. Each attached document is qualified to indicate its function (invoice data file, voucher, general condition of sale, etc.).

Principle no. 2: the human readable presentation of the PDF file **contains all the invoice information**. The structured XML file **can only contain information** present in the readable PDF. This principle gives room for the option that the structured file may contain less information than provided in the human readable presentation in the PDF. In Germany, it is required that at least all invoice mandatory information to be present in the XML file. This should be also required when Directive ViDA will be approved and applicable, and also in France when the e-invoicing B2B mandate CTC reform will be fully deployed (in 2028).

Principle no. 3: It is essential that the **structured XML file must contain all information necessary for invoice process automation on the buyer's side**. Consequently, certain information available for invoicing in the human readable view (PDF) may not be included in the structured XML file, particularly such information that cannot or will not be exploited for invoice process automation on the buyer's side.

Principle no. 4: The issuer of the invoice or in the case where there is an e-invoicing mandate agreement with a third Party, the entity on whose behalf the invoice is generated ensures **the consistency of the hybrid invoice's information**, i.e. any information present in the structured XML file must be present and conformant with the one present in the readable PDF representation (identical data).

Principle no. 5: The **structured XML file is compliant or conformant with the European Semantic Standard** (including the methodology of Core Invoice Usage Specifications and Extensions) and is implemented in a syntax defined by the standard EN 16931, as specified in the relevant documentation. The reference syntax is UN/CEFACT SCRDM CII XML, but other syntaxes may be implemented to satisfy better interoperability with uses on structured e-invoice data sets. This includes the namespaces used within the XML structure as published by UN/CEFACT³.

Principle no. 6: The recipients may **use the information of their choice for the processing of their invoice**. They can use all or part of the information contained in the structured XML file. Equally, they can decide to use just the human readable PDF for their processing operations. **Whatever their choice**, as part of their internal control documentation and reliable audit trail, **it is recommend that they document how they use the Factur-X invoice's information** and which source they have chosen (either the structured XML file or the human readable PDF). They also ought to explain their discrepancy management process, for example:

- Using structured XML file in a first step of automated processing of the invoice.
- In case of discrepancy management, use of the readable PDF to identify errors in addition to a viewer to read the information contained in the structured XML-file.
- In case of data inconsistency (within the structured data file, or between the structured data file and the human readable PDF), defining a process how to resolve the issue in agreement with the invoice issuer (starting by rejecting the invoice and requesting a coherent invoice instead).

² Optionally, a PDF/A-4f file (ISO 19005-4, based on PDF 2.0 ISO 32000-2:2020) is allowed.

³ [UN/CEFACT: XML Naming and Design Rules Technical Specification V3.0](#)

Principle no. 7: The issuer produces a unique invoice template, containing all the information at his disposal and as much as possible in a machine-readable data format. It should include information specific to his activity and be aimed at all his customers. It is their responsibility, though, to select the relevant information for their processing (accountancy, VAT management, validation, payment).

Principle no. 8: Factur-X relies on data profiles to guide invoice issuers in prioritizing the management of their invoicing data in structured form. These profiles are based on the business data model identified in the European Semantic Standard EN 16931 and enable a move towards an increasingly complete structured data file. In this way, 5 profiles are identified plus the so-called Reference Profile “XRECHNUNG”:

- **The Profile “Minimum” (MINIMUM):** contains the minimum of data which must be present in the structured data file, some of which may depend on the data being actually available, like the supplier's intra-community VAT identifier number which is mandatory if the supplier has one.
- **The Profile “Basic Without Lines” (BASIC WL):** This includes the profile MINIMUM plus some additional data which is typically required for process automation on the buyer's side. Such data may be optional or conditional, depending on the underlying business transaction. This profile does not include any invoice information at line level, but it contains all mandatory fields on document level, including those on which business rules from the EN 16931 may apply.
- **The Profile “Basic” (BASIC):** This profile includes BASIC WL with some details at line level. It is a subset of EN 16931, which contains all mandatory fields including those on which business rules from the EN 16931 may apply. It is a compliant CIUS (Core Invoice Usage Specification), which means that all business rules of the EN 16931 apply.
- **The Profile “EN 16931” (EN 16931, formerly known as COMFORT):** This profile includes BASIC, with all the additional data required by the European Semantics Standard, whether optional or conditional. It is **fully compliant to EN 16931**, focussing on the core elements of an electronic invoice.
- **The Profile “Extended” (EXTENDED):** The EXTENDED profile constitutes an extension of EN 16931 aimed at supporting complex business processes (i.e. invoices which are being invoiced across multiple deliveries or delivery locations, structured terms of payment, further details at item level to facilitate warehousing etc.), and any business case inventoried in France (gathered in a subset named EXTENDED B2B FR and its subset EXTENDED-CTC-FR, as referenced by the French Tax Administration and National Platform PPF – Portail Public de Facturation). This includes additional code lists values which are not part of the [European Norm EN 16931 code lists](#).
- **The Reference Profile “XRECHNUNG”:** This profile has been included specifically to include invoices for Germany. The validity of the structure is based on and is under the sole responsibility of KoSIT, Germany's central coordination agency for IT's e-invoice CIUS "XRechnung". It is defined as the standard for electronic invoices issued to public administrations, and may include specific business rules to EN 16931 in order to comply with national laws and regulations. The CIUS XRechnung is more specific than profile EN 16931 (Comfort). Any changes to the underlying CIUS XRechnung will be available immediately for the user of Factur-X / ZUGFeRD because of the referencing nature of the profile XRECHNUNG. The current specification of the standard XRechnung can be found here: <https://xeinkauf.de/>, additional artefacts such as validation tools, schematrons, visualisation components and test instances at <https://github.com/itplr-kosit>.

The various profiles contain optional data, mandatory data and conditionally mandatory data (for example, a referenced invoice number is mandatory with reference to a credit note only). Any optional data may or may not be included in the issuer's structured data file at his discretion (in fact depending on his ability to provide it in a structured form). There is no obligation to provide structured data of **optional** information, even if contained in the visual part of the PDF.

4 How to secure Factur-X

The hybrid invoice is a PDF file containing at least one attached file of structured invoice data. To ensure the authenticity of the invoice origin, its integrity of content and its legibility (which is a native feature of the PDF), two modes can be applied:

- Using a qualified electronic signature or a qualified electronic seal, applied to the PDF envelope.
- Implementing documented and continuous controls to establish a reliable audit trail between the invoice and the relating delivery of goods or services.

Even if the structured data file is complete, EDI mode (corresponding to Article 233, 2b of the Directive 2006-112-EC updated with Directive 2010-45-UE) does not seem suited for use within a hybrid invoice, since the exchanged file is not actually a fully structured file. However, when AFRelationship of factur-x.xml is “Alternative” or “Source”, this mode may be applied on the structured XML file factur-x.xml of the Factur-X invoice instance.

In order to meet the obligation of archiving the original electronic invoice as it has been received, any transformation of the hybrid invoice for archiving purposes is not recommended and may potentially not be allowed under national regulation, as is the case e.g. in France in 2024. For example, it is not recommended to extract the human readable presentation on a simple PDF file on the one hand, and the structured invoice’s dataset file on the other hand, especially when the hybrid invoice has been secured by an electronic signature or an electronic seal.

5 Consistency of information between the visual and structured representations, the audit trail and good practices

5.1 Factur-X and audit trails

Factur-X consists of a file of structured XML data and a visual representation, the PDF file. All information contained in the structured file must be present in the PDF representation. This constitutes a commitment by the invoice issuer towards his recipient. This also applies to the overall consistency of the information therein, in particular regarding calculations applied within the invoice (at line level, invoice document level and VAT breakdown level).

In terms of processing, the choice of elements used to process the hybrid invoice remains at the recipient’s discretion. He may therefore decide to use only the readable PDF (for example because he is not equipped to extract and utilize the data attached in the structured file). Equally, he may also decide to process the structured data first. In this case, depending on the extent of information present in the structured file (and therefore the implemented profile), the processing of the invoice can be based partly on the structured data available and partly by extraction from the visual representation on the PDF. Recipients should then document and clarify their processing method, especially when applying reliable audit trailing to ensure the authenticity of the origin, integrity of content and legibility of the invoice.

In the latter case, the following has proved to be good practice:

- For recipients who wish to rely primarily on the PDF representation:
 - ✓ The documentation for their reliable audit trail should state clearly that the processing of the invoices is based on utilization of the information contained in the PDF representation, which implies that the information provided in the structured data is not taken into account but ignored.
- For recipients who wish to rely primarily on the structured data file:
 - ✓ The documentation for reliable audit trail should state that the processing of invoices is based on the use of the invoice data contained in the structured data file.

- ✓ Where the profile used does not contain all the mandatory details for an invoice in structured form (MINIMUM and BASIC WL), processing may begin with information which is consistent in order, invoice and receipts (3-way-matching). Where this does not provide enough information to book and approve the invoice, an approval procedure may be applied using the PDF representation, by analogy to the procedure known from paper invoices.
- ✓ In the event of the absence of automatic matching and validation, a “classic” discrepancy management process may be applied manually, based on the complete visual representation of the invoice in PDF format and, if applicable, its comparison with the attached structured data.
- ✓ In case of discrepancies between the PDF representation and the structured data file, a resolution process with the supplier must be defined to ensure that this shortcoming does not affect other invoices from the same supplier, and that the supplier modifies his process in order to create compliant invoices (so that they all are coherent). It basically boils down to the same process that leads a company to realize that some paper invoices received contain errors, either regarding their calculations or regarding missing mandatory information. This can be detected when validation discrepancies arise or by statistical analysis on samples.
- ✓ The richer the profile selected (and therefore the more invoice information in the structured file is provided by the issuer), the more likely it is that the structured file will suffice to process the invoice, even in the event of validation discrepancies. It is therefore recommended that the issuers meet at least the requirements of the BASIC WL profile. We highly recommend starting from the BASIC profile or EN 16931 profile, though.

Apart from these recommendations of good practice for processing hybrid invoices, it is also possible to use complementary tools to improve the control processes, in particular:

- By using a visualization tool for structured data files (as is the case for fully structured electronic invoices), it is possible to visually examine the coherence between the information contained both in the structured data file and the PDF representation.
- By using a tool to validate the coherence between the data contained in the structured file and the information contained in the PDF representation, it is possible, for instance, to include checking that each data item in the structured file is also contained in the PDF representation.

5.2 Good practice for presenting the readable PDF

In order to facilitate automatic processing for the customer, and in particular to facilitate the consistency check of the information present in the structured file and the readable PDF, it is recommended to present the invoices in accordance with two main models (examples attached in appendix 2 and in the Excel referenced in Appendix 1):

- A single-page invoice, conventional:
 - ✓ header with all the necessary references appearing in a structured way: qualifier/name of data, followed by the data appearing in detached form as a list (tabulated). Free text containing all the information should be avoided.
 - ✓ Lines organized in columns
 - ✓ VAT breakdown
- A multi-page invoice consisting of:
 - ✓ a first page containing all header and footer information (such as in a single-page invoice, but without the lines)
 - ✓ additional pages consisting of line information, arranged in columns.

5.3 Specific Usage specifications (Factur-X 1.0 / ZUGFeRD 2.3 in particular)

As well as the standard EN 16931 there are usage specifications for certain communities and dedicated profiles (such as X-Rechnung) which may apply. There are in total **2 differences in the use of Factur-X** between France and Germany which are specified in the following chapters, but which are detailed in this chapter for better understanding:

- Within XMP the data document relationship AFRelationship, chapter 6.2.2, for BASIC, EN 16931 and EXTENDED profiles:
 - ✓ In France the values "Data", "Source" or "Alternative" are allowed, depending on how the PDF part was created.
 - ✓ In Germany, only the value "Alternative" is allowed for legal reasons, which means that all invoice information present in the human readable PDF must be present in the XML file as well, even if contained in non-structured text.
- For the coding of the document type (BT-3), as noted in 7.3.2 and 7.2.1:
 - ✓ In France, the type of document is free in accordance with the codes possible in the Norm EN 16931, including for the MINIMUM and BASIC WL profiles. For CHORUSPRO, the code 751 cannot be used because it obliges to codify credit notes as negative invoices, which is not supported by CHORUSPRO.
 - ✓ In Germany, the document type for MINIMUM and BASIC WL XML profiles can only be 751, which means "Invoice information for accounting purposes" ("Buchungshilfe").

6 Embedding the XML invoice file in a PDF/A-3 file

Since the end of 2005, PDF/A has been the ISO standardized version of a PDF-based document format designed for long-term archival storage. It is now widely accepted in all industries and has been adopted by many users.

At present, ISO has published three parts to the standard: PDF/A-1 or ISO 19005-1, PDF/A-2 or ISO 19005-2 and PDF/A-3 or ISO 19005-3. To reflect the technical enhancement in the world of IT, ISO has clearly stated that the approved parts will never become invalid and that the individual parts define new, useful features. PDF/A-1 (ISO 19005-1) and PDF/A-3 (ISO 19005-3) were adopted in 2005 and 2012 respectively.

Compared with PDF/A-2, the new PDF/A-3 offers only one additional feature: users can embed arbitrary file formats in a PDF/A-3 file. By enhancing the nature of PDF/A so that it serves not only as a format for long-term archiving but also as a container, the demands of enterprises, authorities and software manufacturers can be met. Among other things, it also allows PDF/A to be used in new areas, such as sending and receiving invoices together with an invoice structured data XML file for process automation.

Archiving of digital documents can be integrated at an early stage in the document life cycle, whilst still retaining the option of further editing (keyword "hybrid archiving"). For example, Excel tables, Word files or even CAD drawings for which the life cycle is still ongoing, can be firmly combined with their archivable PDF/A counterpart in one file.

For hybrid invoices (Factur-X), PDF/A-3 is defined as a carrier format. It is distinguished by three main characteristics:

1. The invoice data are represented visually by means of a PDF/A-3-compliant document. This document shows the invoice in a form that is human readable and can be archived for the long-term. At the same time, compliance with PDF/A also guarantees that the technical quality of invoice files is high, which virtually eliminates interpretation or presentation errors.
2. The invoice data are embedded in the PDF/A file in the XML format with a relationship to the whole document via a file specification dictionary. In the current version of the Factur-X standard, only one

invoice data XML file must be referenced per PDF/A-3 document (named “factur-x.xml” or “xrechnung.xml”). As a basic principle, it is of course possible to use PDF/A-3 as a container for several files, thereby enabling additional information on the invoice to be packaged and be pooled together in PDF/A-3. The main advantage is that XML is machine-readable and can therefore be automatically processed further without having to deal with digitizing paper documents.

3. The PDF/A-3 document is classified as a Factur-X-compliant invoice by means of a specific XMP extension schema and the accompanying XMP metadata. The PDF/A standard requires both the schema definition and the metadata themselves to be embedded in the document. In addition to the PDF/A property and the level of conformance, the metadata also include the indication that the document is a Factur-X invoice. Apart from the version of the Factur-X standard, the Factur-X profiles (MINIMUM, BASIC WL, BASIC, EN 16931, EXTENDED, XRECHNUNG) are also stored here.

PDF/A-3 is the ideal carrier format for Factur-X invoices as it allows users to package XML invoice data together with the invoice image whilst linking the metadata (code lists) in a standardized manner.

The internal constructs of the PDF/A-3 document must be as follows in order to guarantee conformance:

- A PDF/A-3-compliant structure, i.e. the original document is already compliant with PDF/A-3 without any embedded file (beginning with the structured invoice dataset). The level of conformance (i.e. 3a, 3b or 3u) does not matter. However, it is recommended (and indeed good practice) to use 3a in order to provide accessibility for blind or visually impaired persons.
- The XML-syntax of the file of structured invoice data must be embedded by means of a relationship type “Alternative” for Germany, or also “Data” or “Source” for France, correlating to the whole document.
- The presence of a specific XMP extension schema to describe the document as a Factur-X-compliant invoice as well as the presence of the relevant XMP metadata.

There are no Factur-X conventions regarding the file name of the PDF document itself.

6.1 PDF/A-3-compliant structure

A PDF/A-3-compliant document must meet the requirements of ISO 19005-3. It describes the fundamental differences and restrictions of an A-3 file based on the underlying ISO 32000-1 standard, also known as PDF 1.7. The requirements have already been taken into account in previous standards, i.e. PDF/A-1 and PDF/A-2.

The most important features of a PDF/A file compared with an arbitrary PDF document are the following:

- There must be an indication in the form of an XMP extension schema which explicitly contains the PDF/A property and the level of conformance.
- All metadata must be embedded in XMP form. The XMP schema used can be taken either from the multitude of predefined schemas. Alternatively, a separate schema must be created and must always be embedded together with the metadata.
- All of the fonts used must be embedded in the PDF/A file. For optimisation purposes, it is also possible to embed only subsets of the glyphs actually used, instead of full fonts.
- No external files such as films, sound files or other binary files should be embedded, unless the A-3-compliant mechanism described subsequently is used.
- No more active elements must be present in PDF/A. These include JavaScript for actions or Flash for animations, for example.
- Only precisely defined image formats may be embedded. These include CCITT Group 3 and Group 4, JBIG2, JPEG and JPEG2000.

- The document must not contain any encryption or other authorization control. The use of DRM (Digital Rights Management) is prohibited.

6.2 Embedding of the XML file

The invoice data in the XML format is embedded using a file specification dictionary¹⁵. In order to do this, a valid MIME type must be specified for the document to be embedded. The MIME type for Factur-X is always text/xml.

The embedded file's stream dictionary should contain a Params key. Params refers to a dictionary containing at least a ModDate indicating the last modification date of the embedded file.

The embedded document must also be included in the Names object tree so as to enable compliant PDF tools to represent the file together with additional information.

As a basic principle, several files can be embedded in the PDF/A-3 document, thereby enabling information documents relating to the invoice to be packaged together with the invoice data XML file in the PDF/A-3. To identify, at PDF level, which of the embedded files is the invoice data document, the name of the invoice data document must be included in the corresponding metadata attribute.

The XML file is always embedded with the name "factur-x.xml". The only exception to this is the reference profile XRECHNUNG, where the name must be "xrechnung.xml". As an option, additional supporting documents may be embedded.

6.2.1 Embedding relationship

In the PDF/A-3 standard, an embedded file can principally relate to the whole (PDF) document (document level) or to a particular page (page level). Irrespective of the type of relationship, the file specification dictionary can be found in either the Document dictionary or the Page dictionary. The relationship link is established by use of an array called AF (for Associated Files), which is entered in the respective dictionaries and contains a reference to the file specification dictionary.

In Factur-X 1.0 standard, the structured invoice dataset is always provided in factur-x.xml file or a reference profile such as xrechnung.xml file (see chapter 7.7) embedded in PDF/A-3 document. The "document level" is therefore the relationship type to be selected. This does not affect the embedding of other documents and files supporting the invoice.

6.2.2 Data relationship

In addition to the relationship type, ISO 19005-3 requires a data relationship to be specified, i.e. the relationship between the embedded document and the PDF part, i.e. its visualization. This data relationship is expressed by the AFRelationship tag and may have one of the following values:

- Data: the embedded file contains data which is used for the visual representation in the PDF part, e.g. for a table or a graph.
- Source: the embedded file contains the source data for the visual representation derived therefrom in the PDF part, e.g. a PDF file created via an XSL transformation from an (embedded) XML source file or the MS Word file from which the PDF file was created.
- Alternative: this data relationship should be used if the embedded data are an alternative representation of the PDF contents.
- Supplement: this data relationship is used if the embedded file serves neither as the source nor as the alternative representation, but the file contains additional information, e.g. on easier automatic processing.

- Unspecified: this data relationship term applies where none of the data relationships above apply, or where there is an unknown data relationship.

Note:

There are no technical consequences within the PDF file from specifying the data relationship. In particular, this means that specifying a **Source** data relationship, for instance, does not suggest that the contents of the embedded data and the invoice image are identical. Instead, they provide the invoice with an indication of how the role of the embedded data should be understood.

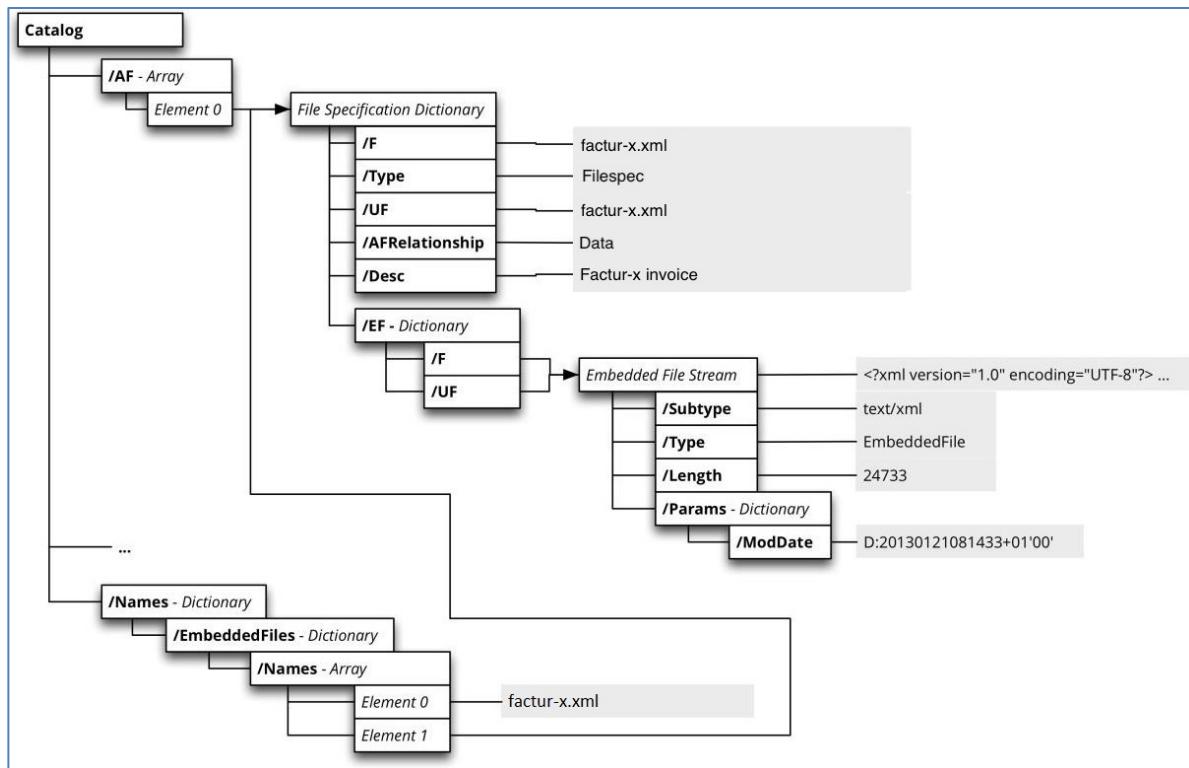
If the visual representation contains more invoicing data than the XML structured file (especially for MINIMUM and BASIC WL profiles), the Data value must be used. It indicates that the XML structured file contains invoicing information that is strictly identical to what is shown in the visual representation to enable an automatic invoice process.

If the visual representation has been built from the XML structured file, the Source value can be used. It indicates that the source file is the entire structured XML file and that the visual representation, which consequently contains strictly the same invoicing information as the structured file, has been built from this structured XML file attached in the PDF ("factur-x.xml" or "xrechnung.xml").

Finally, if the XML structured file and the visual representation contain both strictly the same invoicing information and constitute two alternative presentations of an identical invoice content, the Alternative value must be used. This indicates that the fiscally relevant content of both representations is identical, and that the XML file is an alternative and independent form of representation which is better suited for machine processing (copies of a document with identical contents). For the use of Factur-X in Germany (ZUGFeRD 2.2.x and 2.3 = Factur-X 1.0), it is imperative to use the value Alternative in conjunction with the permissible profiles BASIC, EN 16931, EXTENDED and XRECHNUNG.

Profile / AF Relation	France	Germany
MINIMUM	Data	Data
BASIC WL	Data	Data
BASIC	Alternative, Source or Data	Alternative
EN 16931	Alternative, Source or Data	Alternative
EXTENDED	Alternative, Source or Data	Alternative
XRECHNUNG	<i>Not applicable</i>	Alternative

The diagram below highlights this structure using the example of a Factur-X invoice. The embedded invoice file has the name factur-x.xml. The array AF is part of the document dictionaries (directly under Root), which is why the invoice file always refers to the whole document. The data relationship is Data, i.e. the XML invoice data, makes it possible to obtain invoicing data present in the PDF visual representation for automated processing, but may not contain all invoice information.



PDF/A-3 structure for embedding the XML file in a Factur-X

Note: it is also allowed to insert one or two “/Kids” steps level between “/EmbeddedFiles” and “/Names”, as some PDF/A-3 creation tools are doing. It is then important to adhere to the above tree structure in order to import attached files. For more detail, see PDF 1.7 documentation, chapter 3.8.5: (https://www.adobe.com/content/dam/acom/en/devnet/acrobat/pdfs/pdf_reference_1-7.pdf).

6.3 PDF/A extension schema

If the metadata attributes are user-specific (i.e. they are not included in the XMP schemas declared in the PDF/A standard), a separate metadata schema must be defined, so that metadata will be included in a way which conforms to the PDF/A standard. This schema definition complies with the conventions for PDF/A extension schemas. In addition to the specific form of metadata, the extension schema must also be embedded into each PDF/A document. The simple reference to a form of external storage is not sufficient.

A corresponding extension schema is defined for using invoice documents which conform to Factur-X.

6.3.1 PDF/A extension schema for Factur-X 1.0

The properties of the extension schema are shown below:

Property	Value	Description
Name of the extension schema	Factur-X PDFA extension Schema	
URI	urn:factur-x:pdfa:CrossIndustryDocument:invoice:1p0#	The "#" character at the end of the URI should be noted!
Schema prefix	fx	Namespace prefix

Properties of the XMP extension schema

Please, be aware of the fact that the version number in the URI of the PDF/A extension schema is not related to the version number of the XML data specification (i.e. 1.01.07 for this version). The extension version number indicates exclusively the version of the extension schema.

The table below shows the fields of the extension schema:

Field	Description	Example
fx:DocumentType	For Factur-X invoices, the document type always contains INVOICE	INVOICE
fx:DocumentFileName	The file name of the embedded invoice data document; must be identical to the value of the F-tag in the file specification dictionary. In the Factur-X standard, this value is fixed as faktur-x.xml	faktur-x.xml
fx:Version	The version of the XML extension schema for the invoice data	1.0
fx:ConformanceLevel	The XML invoice data profile in accordance with Factur-X requirements (permitted values MINIMUM, BASIC WL, BASIC, EN 16931, EXTENDED, XRECHNUNG)	EXTENDED

XMP extension schema fields

Example:

The example of an invoice document below shows how the extension scheme is used in a PDF document:

```
<rdf:Description rdf:about="">
  xmlns:fx="urn:faktur-x:pdfa:CrossIndustryDocument:invoice:1p0#"
    <fx:DocumentType>INVOICE</fx:DocumentType>
    <fx:DocumentFileName>faktur-x.xml</fx:DocumentFileName>
    <fx:Version>1.0</fx:Version>
    <fx:ConformanceLevel>EXTENDED</fx:ConformanceLevel>
</rdf:Description>
```

Alternative coding is also possible, as follows:

```
<rdf:Description xmlns:fx="urn:faktur-x:pdfa:CrossIndustryDocument:invoice:1p0#"
  fx:ConformanceLevel="BASIC"
  fx:DocumentFileName="faktur-x.xml"
  fx:DocumentType="INVOICE"
  fx:Version="1.0"
  rdf:about="" />
```

Note: the URN (Uniform Resource Name) of the extension schema must end with the "#" character.

6.3.2 Legacy: PDF/A Extension schema for ZUGFeRD 2.0

Although marked as deprecated, the current version of ZUGFeRD still supports the settings in the XMP metadata for the ZUGFeRD 2.0 specification. This may change in future. Otherwise, the same rules apply as stated in chapter 6.3.

Property	Value	Description
Name of the extension schema	ZUGFeRD PDF/A Extension Schema	
URI	urn:zugferd:pdfa:CrossIndustryDocument:invoice:1p0#	The PDF/A extension schema namespace URI. Note the "#" character at the end of the URI!
Schema prefix	zf	Namespace prefix

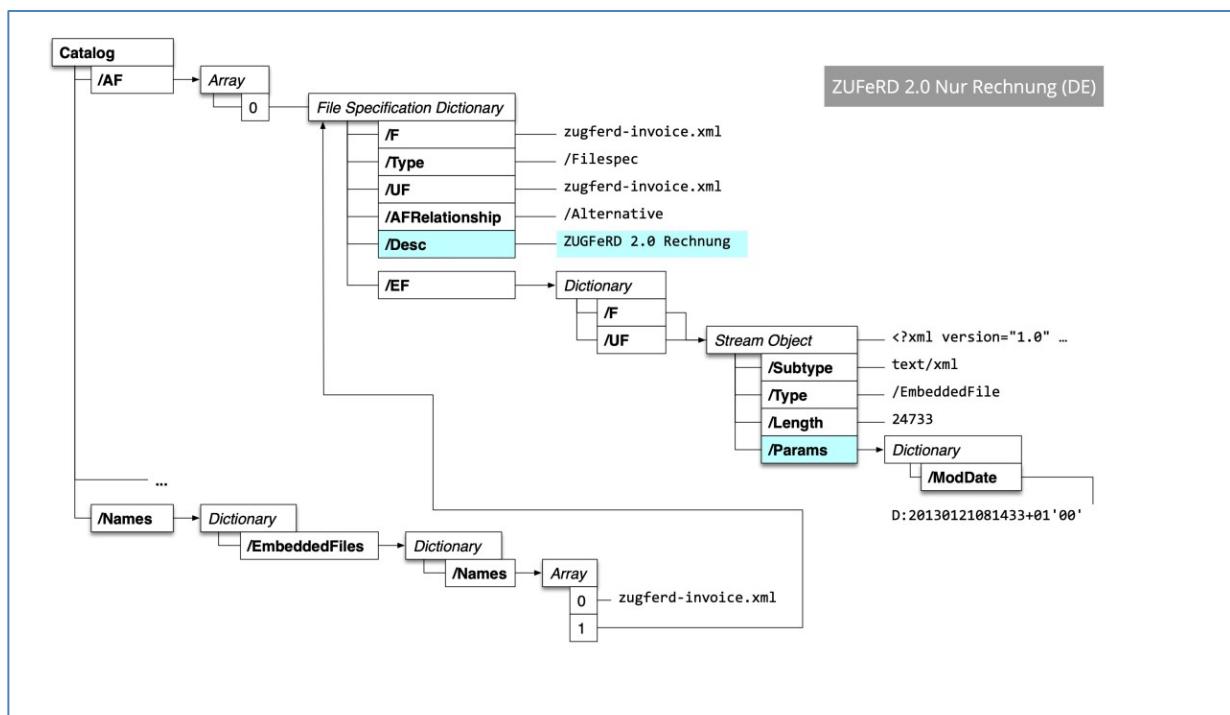
Field	Description	Example
zf:DocumentType	For ZUGFeRD invoices, the document type always contains INVOICE	INVOICE
zf:DocumentFileName	The file name of the embedded invoice data document; must be identical to the value of the F tag in the file specification dictionary. In the ZUGFeRD 2.0 standard this value is defined as zugferd-invoice.xml	zugferd-invoice.xml
zf:Version	The version of the XML schema for the invoice data	2p0
zf:ConformanceLevel	The XML invoice data profile in accordance with ZUGFeRD requirements (permitted values MINIMUM, BASIC WL, BASIC, EN 16931, EXTENDED)	EXTENDED

Example:

The example below shows how to use the extension schema changes:

```

<rdf:Description rdf:about="">
  xmlns:zf="urn:zugferd:pdfa:CrossIndustryDocument:invoice:1p0#"
    <zf:DocumentType>INVOICE</zf:DocumentType>
    <zf:DocumentFileName>zugferd-invoice.xml</zf:DocumentFileName>
    <zf:Version>2p0</zf:Version>
    <zf:ConformanceLevel>EXTENDED</zf:ConformanceLevel>
</rdf:Description>
```

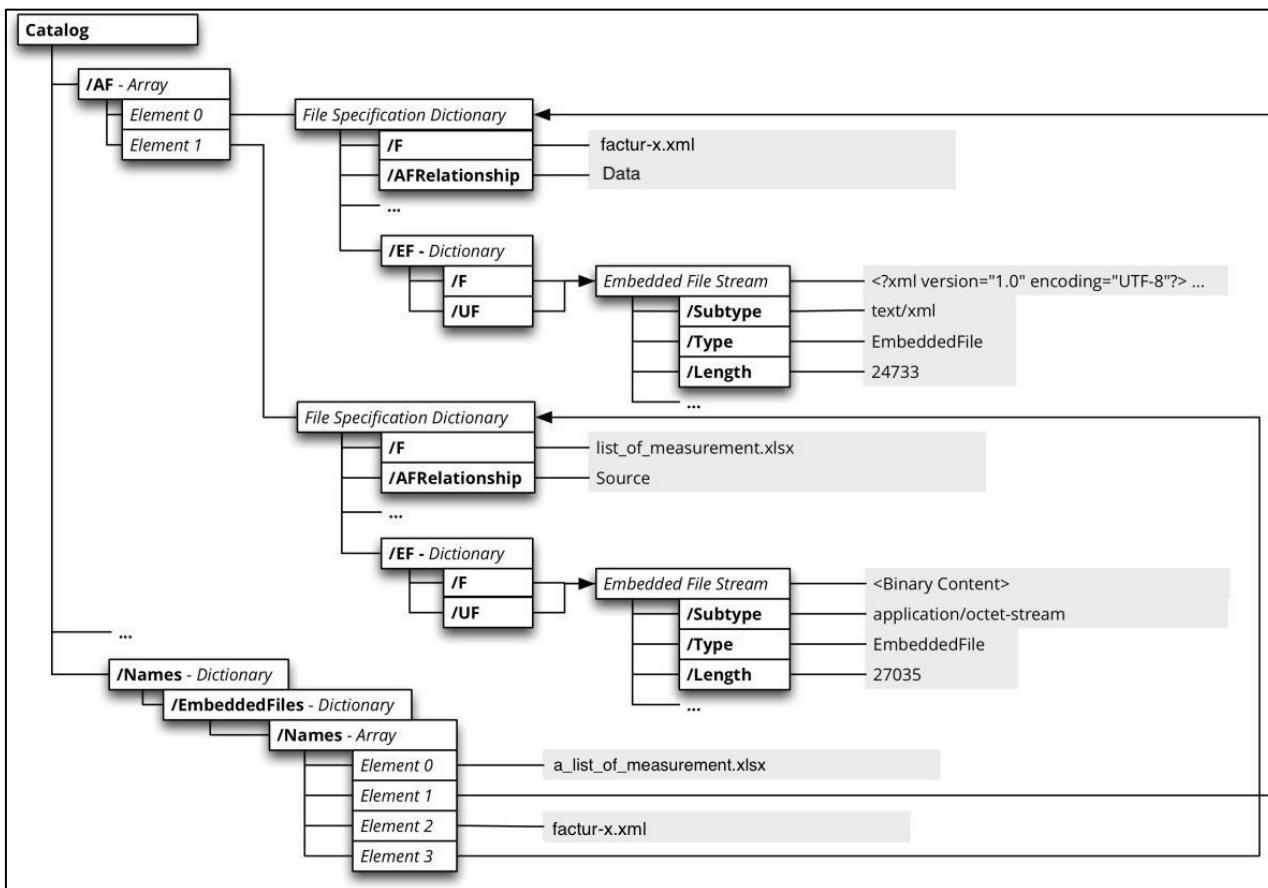


6.4 Embedding additional files

In addition to the XML invoice file, the PDF/A-3 standard also allows the embedding of any other file. In this case, only the MIME type for the file in question needs to be specified. Files of the following type may be incorporated: spreadsheets containing calculations and dimensions (XLSX, ODS, etc.), CAD drawings (PDF, DWG, etc.), images (JPEG, PNG, etc.) or other XML files which are technically related to the invoice, or which may be relevant for checking the invoice's contents.

Factur-X does not need to explicitly record or store any further metadata for the additional files that have been incorporated, because the embedding into the PDF/A-3 document conforms to the requirements of the ISO standard. This means that Factur-X does not specify any XMP metadata structures for non-invoice files.

The figure below shows the data structures in a PDF/A-3 file in which a MS Excel file with dimensional data for the invoice under the name "list_of_measurement.xlsx" is incorporated, together with the Factur-X invoice file (here named "factur-x.xml").



PDF/A-3 structure with additional embedded file

Note: it is also allowed to insert one or two “/Kids” steps level between “/EmbeddedFiles” and “/Names”, as some PDF/A-3 creation tools do. In such a case it is important to accept this tree structure in order to import attached files. For more detail, see PDF 1.7 documentation, chapter 3.8.5:

(https://www.adobe.com/content/dam/acom/en/devnet/acrobat/pdfs/pdf_reference_1-7.pdf).

Only the following formats may be used for attachments:

- PDF
- TXT
- GIF
- TIFF
- JPG
- CSV
- XML
- JSON
- XLSX
- ODS

Some of the additional supporting documents can be complementary or additional representations of invoice data in other formats (for instance EDIFACT). The name of a complementary representation of the invoice in UBL or EDIFACT must then be:

- For an EDIFACT representation: factur-xedifact.edi (which is a TXT file).
- For a UBL representation: factur-xubl.xml.

6.5 Logos to identify a Factur-X invoice and its profiles on visual representation

In order to quickly grasp that a PDF invoice is in fact a Factur-X invoice, the logos below are proposed and may be added to the visual representation (see examples):

	MINIMUM profile		BASIC WL profile
	BASIC profile		EN 16931 profile
	EXTENDED profile		

6.6 Factur-X 1.0 maintenance and validation artefacts

Factur-X standard needs a maintenance process in order to take in account the evolutions of business practices and the regulation, especially regarding continuous transactional control which leads to new obligations to send, receive and report.

The main principle of Factur-X Standard is to minimize the impact of existing flows and solutions. In addition, validation artefacts are provided in the Factur-X package, such as xsd and schematron for the different profiles (except reference profile XRECHNUNG, see 7.7), which only might need updates to amend bugs.

Provided upward compatibility is maintained for the Factur-X Standard, meaning that Factur-X invoice instances issued in the respect of a previous version of the Factur-X documentation remains valid for the latest Factur-X 1.0 documentation, the versioning of Factur-X invoice instances remains 1.0:

- in XMP “fx:version”,
- and in BT-24 of factur-x.xml (specification identifier, for instance for BASIC profile: urn:cen.eu:en16931:2017#compliant#urn:fatur-x.eu:1p0:basic).

As a consequence, the **validation artefacts must be updated to the latest version**, in order to ensure that Factur-X invoice instances issued with the latest version of Factur-X Standard will not be rejected by mistake. The versioning of the validation artefacts corresponds with the versioning of the Factur-X Standard documentation, which is 1.0.07 for this current version. If an urgent update is necessary, for instance for bug correction or update of the EN 16931 code list, the versioning will be modified by adding a third level of numbering: 1.01.07.01,

As the EN 16931 Codelist is updated every 6 months, applicable on 15th of May and 15th of November, Factur-X will follow this update accordingly. A new Schematron will be published at the latest 2 weeks after the new EN 16931 Schematron has been published (currently on 1st Friday of April and 1st Friday of October).

The latest validation artefact can be found on Gitlab, the link is available on the websites of FNFE-MPE (www.fnfe-mpe.org) and FeRD (www.ferd-net.de).

As an example, the validation artefacts 1.0.07.02 stand for the second version of the validation artefacts of version 07 of Factur-X 1.0 documentation.

Use of validation artefact

For each profile a specific xsd is published, reduced to what is required for the profile. A schematron based on this xsd is also published for each profile. Validation needs then to use the xsd and the schematron published for each profile.

For EN 16931 and BASIC profiles, it is also possible to use the full D22B CII xsd (uncoupled) and the EN 16931 CII Schematron.

7 Presentation and assignment of semantic model data per profile

7.1 European Semantic Standard (EN 16931), UN/CEFACT XML D22B syntax

7.1.1 Principle of the semantic standard EN 16931: 1 invoice for 1 delivery on 1 order

The data profiles of the Factur-X standard are directly derived from the European Semantic Standard for electronic invoices and therefore also rely on the assumptions made.

One important rule is that the European Semantic Standard was built on the assumption that invoices must refer to a single delivery and a single order. The practical consequence is that there is no reference to the order or delivery in the invoice lines.

The documentation of the European Semantic Standard EN 16931 is necessary to have all the detailed management rules in particular, as well as examples of implementation of the EN 16931 profile.

It is available from the websites of FNFE-MPE (www.fnfe-mpe.org) or FeRD (<http://www.ferd-net.de/>) respectively.

The Semantic Standard EN 16931 is a description of a set of 164 Business Terms, named BT-XX from BT-1 to BT-165 (BT-4 does not exist), organised into Business Groups, named BG-XX from BG-1 to BG-31. In addition, it also includes several sets of Business Rules: 96 VAT-related Business Rules, 128 Business Rules related to a specific presence of a Business Term, e.g. related to calculations or conditional rules (if a Business Term is equal to xxx then another Business Term must be present), to rounding (number of decimals per amount), or to the permissible code list values. Finally, some Business Terms are coded through metadata, which are codes available in specific code lists. This code lists is updated every 6 months.

The Semantic Standard EN 16931 allows for two syntaxes, UBL and UN/CEFACT CII D16B. However, version D16B was not fully aligned semantically with EN 16931 as the Business Group BG-3 "Preceding Invoice Reference" composed with BT-25 (Preceding Invoice Reference) and BT-26 (Preceding Invoice Reference Date), which are mandatory in case of a Credit Note cancelling an invoice, is repeatable in the EN 16931 (cardinality 0..n), but unfortunately not in UN/CEFACT CII D16B (cardinality 0..1).

This has been corrected in version UN/CEFACT CII D22B. This is why Factur-X 1.0.07 is now based on UN/CEFACT CII D22B with Cardinality 0..n for BG-3.

The Factur-X Documentation contains an Excel description of the different profiles implemented in UN/CEFACT CII D22B, with the full list of Business Rules and the last Code lists published with the EN 16931.

7.1.2 Extensions and attached files other than the structured invoice data file

The European Semantic Standard has foreseen the possibility of building extensions that go beyond the Standard. It is within this framework that the Factur-X standard incorporates an "EXTENDED" profile, which is presented in supporting documents (Excel description and technical appendix), which notably makes it possible to manage multi-delivery and multi-purchase order invoices, payment schedule for multi-payee, withholding taxes etc. All business Terms added in the EXTENDED profile have been identified with an ID.

The Factur-X standard is intended to be capable of embedding any type of extension to the Semantic Standard, insofar as it is implemented in the UN/CEFACT XML D22B syntax and complies with the extension methodology of the European Semantic Standard. This allows recipients to only use the data of the Semantic Standard which they need.

Finally, it is also possible to add other files, in compliance with the rules set out in the previous chapters, including additional files in different syntaxes (consumption records, more detailed sector EDIFACT invoice

file, etc.), their use and enforceability being based on the strict bilateral relationship between the supplier and the customer.

Two subsets of the profile EXTENDED have been included in the Documentation for information only:

- EXTENDED-CTC-FR, which corresponds to the EXTENDED profile designed by French Tax Administration in order to address the different business cases inventoried for e-invoicing B2B mandate CTC Reform, showing French Business Term IDs as stated in French B2B mandate CTC Reform documentation (Annex 1).
- EXTENDED-B2B-FR, which includes all EXTENDED-CTC-FR and some additional Business Terms the FNFE-MPE considers useful for invoice process automation for specific business cases.

7.1.3 Usage specifications and compliance with public sector requirements in France (Chorus Pro)

The European Semantic Standard provides for the possibility of setting up "Usage Specifications" (CIUS = Core Invoice Usage Specification), the purpose of which is to make the management rules more stringent, for example by making optional elements mandatory, removing optional elements that are not needed for the scope in question, and by restricting code lists.

As part of Factur-X, a number of usage specifications have been incorporated so that Factur-X is be directly compliant with public sector requirements, in particular the potentially required presence of the public sector customer's business registration number (SIRET), the "Service Exécutant" and the "Engagement Juridique" (which corresponds to the purchase order number). These usage specifications are given in the documentation for information only. They are not implemented in xsd and schematrons published with the Factur-X 1.01.07 package as they have to be published by French Administration in charge of ChorusPro.

7.1.4 Cardinalities

Below, we have arranged the set of data constituting the structured data format in the order of profiles. The data are organized in accordance with the syntax UN/CEFACT CII D22B XML and in line with the European Semantic Standard, consisting of "Business Terms" (label beginning with "BT-") and business data groups or subgroups (label beginning with "BG-"). A status associated with these data, groups or subgroups may be applied to specify the conditions of use of a data item:

- **Mandatory:** the data must always be present in the structured data format.
- **Conditional:** the data are present in the structured data format under certain conditions (for example, according to the management rule "if the block is present then the data must be present", or "if the invoice is not outside the VAT scope, then the "VAT breakdown" block must be present", etc.).
- **Highly recommended optional:** the data may be present in the structured data format and are usually requested by the customer.
- **Optional:** the data may be present in the structured data format, but this is left to the discretion of the invoice issuer.

A repeatability criterion (i.e. an example of an invoice line) is added to these types of status:

- **Repeatable:** the data, the group or the subgroup can be repeated several times in the same structured data file.

Some of these data are the subject of one or more attributes making it possible to qualify them (for example an attribute specifying the identification baseline of a data item, such as the French business registration number (SIREN) for a legal identification).

Each profile is described in an xsd schema attached in the Appendix, which is also described in this document for the Minimum and Basic profiles.

The codification of the cardinality of the data is as follows:

- 1..1: mandatory data or block, non-repeatable
- 0..1: optional data or block, non-repeatable
- 0..n: optional data or block and potentially repeatable
- 1..n: mandatory data or block and potentially repeatable

7.1.5 Data types

Each data item of the semantic model corresponds to one of the following four basic data types: Binary, Date, Decimal, String. This determines the format.

The data types are as follows (for more details, see chapter 6.5 of the Semantic Standard EN 16931-1: 2017 (E)):

- **Amount:** This is a "decimal" type with 2 digits maximum after the decimal point, without a thousand separator, and with the ". ." (point) being the decimal separator. It can be supplemented by a "Currency" attribute, if different from the currency in the header. Example: 10000.34
- **Unit Price Amount:** This is a "decimal" type, without a thousand separator, and with the ". ." (point) being the decimal separator. It can be supplemented by a "Currency" attribute, if different from the currency in the header. Example: 1000.3454
- **Quantity:** This is a "decimal" type, without a thousand separator, and with the ". ." (point) being the decimal separator. Example: 10000.85476
- **Percentage:** This is a "decimal", without a thousand separator, and with the ". ." (point) being the decimal separator. To apply this percentage to the amount to which it applies, the percentage value indicated should be divided by 100. For a VAT rate of 20%, the value is therefore 20. Example: 24.1234 represents a percentage of 24.1234%
- **Identifier:** This is a type which can be composed of up to three text fields (described in the detailed documentation):
 - ✓ The value of the identifier (string). For example, FR13456789321 for an intra-community VAT number.
 - ✓ An Identification Scheme, mandatory if there is a choice of several possible Identification Schemes to qualify the identifier baseline. For example, the qualifier "VA" makes it possible to specify that the identifier is an intra-community VAT number.
 - ✓ An Identification Scheme version, optional data in text.
- **Document Reference:** This is a string data item.
- **Date:** Dates are represented as YYYYMMDD.
- **Text:** It's a string type allowing for free text
- **Code:** this is string type code, which is accompanied by an attribute identifying the list from which it comes, and potentially the version of the list and the identifier of the agency publishing the list.
- **Binary Object:** This is a type potentially consisting of 3 fields:
 - ✓ The content, mandatory, in binary data
 - ✓ The type of file (Mime Code) as text string, to be picked from a predefined list
 - ✓ The filename as text string

7.1.6 Credit note management

There are 2 ways of managing credit notes:

- "**Negative invoice**": This is an invoice where the total sum, including taxes, is negative, either because the invoice contains negative lines whose sum is greater in absolute value than the sum of the positive lines (as can be the case particularly with final invoices after a set of prepaid invoices or after previous invoices with estimates such as energy bills), or because it contains only negative lines to generally cancel an invoice. It is therefore a credit note, which must refer to the invoice or to the period to which it relates. At line level, the unit price is positive, and the quantities are negative. The calculation rules remain the same and result in negative lines, and consequently in negative totals (including VAT breakdown on the bases excluding taxes and the amounts of tax). In this case, the amounts of allowances and charges are also reversed (therefore negative). The types of documents (BT-3 data) that can thus be the subject of this process are those corresponding to invoices (and therefore not credit notes), namely 380 (commercial invoice, 384 (corrective invoice), 389 (self-billed invoice), 386 (pre-payment invoice), and 751 (invoice information for accounting)).
- "**Credit note**": this corresponds to "credit note type" documents, i.e. 381 (credit note) or 261 (self-billed credit note) respectively. In this case, all line and document total amounts have the same sign as the invoice which the credit note cancels. However, it remains possible to have some lines with a negative total amount, just as this is allowed on an invoice. On the other hand, it is not possible (i.e. authorized according to the semantic standard) to have negative credit notes, i.e. credit notes whose amount including taxes is negative. If the document type is used to codify credit notes, they must have a positive total including taxes amount.

In France, the most widespread practice is to codify a credit note that cancels an invoice by the "credit note" type. In this way, all the data of the credit note are the same as those of the invoice that it cancels. The only changes are the credit note invoice number (which must follow the chronological sequence, like invoices), the date of the credit note, and the invoice number that the credit note cancels which must be filled in (in the PDF representation and from the BASIC WL profile upwards in BT-25 data).

The "negative invoice" representation is used when it results from an invoicing calculation that leads to this result, due to reversals on previous invoices (estimates, pre-payments, return of empty packaging, pallets, etc.).

This, at least, is the practice chosen by Chorus Pro (credit notes cancelling 381 type invoices and acceptance of negative invoices when they result from a billing calculation due to reversals).

However, there are countries in Europe that exclusively use negative invoices (even for credit notes cancelling only one invoice).

7.1.7 Calculation rule

The rule for calculating invoices (excluding B2C invoices where Unit Price and amounts are mainly shown with VAT included) is as follows:

- For each line, the net line amount (BT-131) is equal to:
 - ✓ the unit price (positive, BT-146), where applicable divided by the basic quantity of the price (business data present from profile EN 16931 BT-149 which indicates the quantity of each batch of product sold), multiplied by the invoiced quantity (positive or negative, BT-129), rounded to 2 decimals,
 - ✓ minus the amount of the line allowances (BT-136), which are already 2 decimals,
 - ✓ plus the amount of the line charge (BT-141), which are already 2 decimals.

This calculation rule is not governed by a schematron rule as it is not required by EN 16931, and because there are actually too many rounding issues associated with it.

- In a further step, the totals on the document level are arranged as follows and checked by EN 16931 business rules (BR-XX):
 - ✓ Sum of line net amounts (BT-106), equal to the sum of the line net amounts calculated above (BT-131), see BR-CO-10.
 - ✓ Sum of allowances on document level (BT-107) equal to the sum of Document level allowance amount (BT-92), See BR-CO-11.
 - ✓ Sum of charges on document level (BT-108) equal to the sum of Document level charge amount (BT-99), see BR-CO-12.
 - ✓ The total excluding the taxes on the invoice (BT-109), equal to (BR-CO-13):
 - the total of the line net amounts (BT-106)
 - minus the total of the document level allowances (BT-107)
 - plus the total of the document level charges (BT-108)
 - ✓ The total amount of VAT (BT-110) is equal to the sum of the VAT amounts (BT-117) by rate and type of VAT, see BR-CO-14.

The type of VAT makes it possible to distinguish the different cases where VAT is not applicable in particular. The VAT amount per rate corresponds to the basis amount excluding tax of each VAT rate, multiplied by the VAT rate, divided by 100 and rounded to 2 decimals. The basis amount excluding tax of each VAT rate is equal to the sum of the line net amounts (BT-131) for the same rate and type of VAT, plus the sum of the net amounts of document charges (BT-108) which the same rate and type of VAT, minus the sum of the net amounts of document allowances (BT-107) with the same rate and type of VAT. All the corresponding business rules are listed in the Excel description published in the Factur-X package, as "Business Rules VAT Related".

- ✓ The total amount including taxes (BT-112) of the invoice is equal to the sum of the total amount excluding taxes (BT-109) and the total amount of VAT (BT-110), see BR-CO-15.
- ✓ The pre-payment amount (BT-113) is equal to the amount already paid before drawing up the invoice, and which will be deducted from the amount including taxes to establish the net amount due for payment.
- ✓ In some cases, there may be a rounding amount (BT-114) to add in order to determine the amount due for payment.
- ✓ The net amount due for payment (BT-115) is equal to the total amount including taxes (BT-112) minus the pre-payment amount (BT-113) and, where applicable, plus the rounding amount (BT-114), see BR-CO-16.

As these calculation rules may not be respected in case of calculation of VAT on line level or for invoices where prices are defined including VAT (especially for B2C invoices), EXTENDED profile introduces a tolerance of 0,01 € per line and document level charges or allowances in different calculation sums involved (see chapter 7.6).

7.1.8 Rounding rule in calculations

The rules that apply to calculate a Factur-X require a rounding calculation at certain stages (e.g. when multiplying or dividing). The rounding method is that of the nearest value, with the rule for determining the residual fraction to 0.5 as follows:

- For positive numbers: rounded up. Example: 13.455 rounded up to 2 digits gives 13.46.
- For negative numbers: Round down to the lower value (so that a rounding of 2 strictly opposite numbers gives strictly opposite rounded numbers). Example: -13.455 gives -13.46.

7.1.9 VAT management

Applicable VAT must be qualified for each invoice line. There are several reasons that lead to omitting VAT or to reduce VAT to 0. The codification of the different VAT-categories is as follows:

- **S: Standard VAT rate.** The rate must be specified.
- **Z: VAT rate equal to 0.** This case does not apply in France, which has no zero VAT rate.
- **E: Exempt from VAT.** To be used if no other case for absent VAT applies. In this case the reason for the exemption must be indicated in the VAT breakdown with reference to the applicable tax provision.
- **AE: VAT Reverse charge.** In this case, the VAT is due by the customer who must declare and pay it directly to the tax authorities (in general, they simultaneously proceed to deduct the same VAT). The reason "Reverse charge" must be indicated in the VAT breakdown, the applicable VATEX Code is VATEX-EU-AE.
- **K: Reverse charge for intra-community delivery.** This is a reverse charge mechanism applying to intra-community delivery. Therefore, this "K" code must be used instead of the "AE" code. "Intra-community delivery" must be indicated in the VAT breakdown the applicable VATEX Code is VATEX-EU-IC.
- **G: Exempt from VAT.** This is the VAT-code used for export outside the European Union, the applicable VATEX code must be VATEX-EU-G.
- **O: Outside the scope of application of VAT.** In this case, no other category of VAT must be included in the invoice (see BR-O-11). The VATEX Code must be VATEX-EU-O.
- **L (IGIC) and M (IPSI) – VAT code for the Canary Islands and Ceuta/Melilla.** This code does not apply in France nor Germany.

At document level, each category of VAT present in the lines must be present in the VAT breakdown, with the basis amount excluding taxes equal to the sum of the amounts without taxes of the lines of the VAT category, the VAT category code, the VAT rate (equal to 0 in case of exemption and not present in case of "outside scope: O"), the amount of VAT (zero if no VAT), and in all cases except "S", the reason for zero VAT.

This detail must be present in the PDF representation of the invoice. Starting from the BASIC WL profile, it must also be codified in the attached structured file.

7.1.10 Management of taxes other than VAT, case of WEEE eco-tax

When goods or services are subject to taxes other than VAT, 2 situations arise:

- The tax is subject to VAT at the same rate as the product or service to which it applies: in this case, the tax is handled as a charge on the invoice line. A reason (BT-144) or a reason code (BT-145) identifies that it is a tax.
- The tax is not subject to VAT or is subject to a VAT rate different from that of the good or service to which it refers: in this case, the tax is codified as an additional service line.

Similarly, when a tax applies to the entire invoice (at document level), it can be treated as a document-level charge, for which the reason (BT-104) or reason code (BT-105) must be indicated; the VAT that does or does not apply must be specified with BT-102 and BT-103.

In particular, the information on the WEEE eco-tax must appear in the invoices. It is generally included in the unit price and is given as information ("of which €xx.xx eco-tax"). It does not make sense to integrate it into the invoice for the buyer; in fact, that would even complicate the integration and reconciliation. Therefore, it is recommended:

- For implementation of the profile EN 16931, all information provided in the PDF file must be present in the XML file: use the "line note" field (BT-127) and/or "invoice note" (BT-21 = "TXD", BT-22) to integrate this eco-tax information;
- When implementing other profiles or if no unstructured information is to be integrated into the XML file (which therefore cannot be used automatically): only ensure that the information on the eco-tax is present in the readable PDF of Factur-X (which is necessarily already the case, as it is mandatory information when applicable in the first place).

7.1.11 Allowances, charges and rebate / discount management

The management of allowances and charges is dealt with at two levels:

- At document level, for allowances or charges that apply to the whole invoice. These allowances and charges are similar to additional lines, as they have their own VAT, for instance. They are available in all profiles, **except for** the MINIMUM profile. They are the subject of a dedicated sum in the "Document Totals" block BG-22 (respectively BT-108 and BT-107).
- At line level they are dealt with like the invoice line; the VAT rate is the same as the one applying to the line. Otherwise, they must be inserted independently as a positive line for charges, and as a negative one for an allowance. They are included in the net amount of line BT-131 (which is therefore equal to the quantity multiplied by the net price plus the sum of the charges and minus the sum of the allowances for the line). Line allowances and charges are present in the BASIC, EN 16931 and EXTENDED profiles.

In the UNCEFACT CII 22B XML syntax, allowances and charges are coded with the same "SpecifiedTradeAllowanceCharge" object, which must therefore be qualified by the "ChargeIndicator" flag. It must be equal (udt: Indicator) to "false" for an allowance and to "true" for a charge.

The allowance and charge amounts are both positive, unless it is necessary to signify a recovery of allowance or charge, for example, in the case of a credit note expressed in the form of a negative invoice.

In the description, this block is therefore repeated on the one hand for the allowances, and on the other hand for the charges.

These blocks of allowances and charges are optional and repeatable (cardinality 0..n).

Finally, only in the profiles BASIC, EN 16931 and EXTENDED will the block "SpecifiedTradeAllowanceCharge" be used. It applies for discounts or rebates on the gross price to constitute the net price (BT-147).

Reminder: The gross price is optional in profile EN 16931, unlike the net price which is a mandatory field. However, the gross unit price can be mandatory, as it is for instance in France in case it differs from the net unit price.

7.2 MINIMUM profile

7.2.1 Semantic description of the Profile MINIMUM

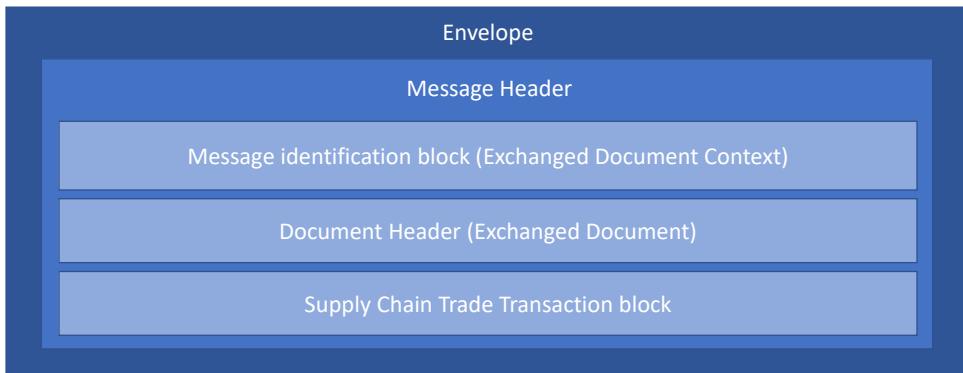
The set of data for the MINIMUM profile are presented below:

- **BG-2:** "Process Control" group: message header, **Mandatory group**:
 - ✓ BT-23: Identification of the business process used, **optional data**, used to indicate which business case is used. This can be used for example to open up to B2C billing where the calculation rules are not the same as for a B2B invoice.
 - ✓ BT-24: Specification identification: reference to the format and profile used: **Mandatory data**
- BT-1: Invoice number, **Mandatory data**

- BT-2: Date of issue of the invoice, **Mandatory data** (as well as the date format)
- BT-3: Type of invoice (invoice or credit note), **Mandatory data**, belonging to the list UNTDID 1001. As part of the MINIMUM profile, the chosen code can be 751 (especially for Germany) because the data file does not contain all the mandatory details of an invoice, but only the data allowing its accounting. As a result, the credit notes must be codified as negative invoices for this profile. However, for France, the use of all the available codes (invoice codes and credit note codes) is allowed.
- BT-10: Buyer reference supplied by the buyer, to send the invoice to the right buyer department. It is **optional data but may be required by the buyer**. **For the French Public Sector**, these **data are mandatory** and correspond to the "Service Exécutant".
- BT-13: Order number provided by the buyer. It is **optional data but may be required by the buyer**. **For the French Public Sector**, these **data can be required** and correspond to the "Engagement Juridique".
- **BG-4:** Seller data group: **Mandatory group**
 - ✓ BT-27: Name of the supplier (legal name under which the supplier is registered), **Mandatory data**
 - ✓ BT-30: Legal identification of the seller (e.g. SIREN/SIRET business/company registration numbers), **Mandatory data if** the seller does not have an intra-community VAT number, **highly recommended otherwise**. This item of data is the object of an attribute indicating the identification scheme used (company registration number).
 - ✓ BT-31: The intra-community VAT number of the seller, **Mandatory data if** the seller has an intra-community VAT number.
 - ✓ **BG-5:** Subgroup of information on the Seller's postal address, **Mandatory group**
 - BT-40: Country code of the seller, **Mandatory data** (which serves to identify the territoriality of the invoice)
- **BG-7:** Buyer data group, **Mandatory group**.
 - ✓ BT-44: Name of the buyer (business name), **Mandatory data**.
 - ✓ BT-47: Legal identification of the buyer (SIREN/SIRET business/company registration numbers), **optional data highly recommended** because it serves to identify the recipient more reliably than a name. **For the Public Sector in France, these data are mandatory** and correspond to the company registration (SIRET) number of the public invoiced entity. This item of data is the object of an attribute indicating the identification scheme (company registration number (SIRET) recommended).
- BT-5: Invoice currency code, **Mandatory data**
- **BG-22:** Group of the total amounts of the invoice (or credit note), **Mandatory block**:
 - ✓ BT-109: Total amount of the invoice excluding taxes (including document level invoice allowances and charges), **Mandatory data**
 - ✓ BT-110: Total amount of VAT of the invoice, **Mandatory data if** the invoice is not outside the scope of VAT. This amount is accompanied by an attribute specifying the accounting currency of the VAT.
 - ✓ BT-112: Total amount including taxes, **Mandatory data**
 - ✓ BT-115: Net amount due for payment from the invoice, **Mandatory data**

7.2.2 Presentation of Profile MINIMUM in UN/CEFACT XML Syntax

The file can be set out as follows:



The structured invoice data file is inside the following envelope:

```
<rsm:CrossIndustryInvoice
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:qdt="urn:un:unece:uncefact:data:standard:QualifiedDataType:100"
  xmlns:udt="urn:un:unece:uncefact:data:standard:UnqualifiedDataType:100"
  xmlns:rsm="urn:un:unece:uncefact:data:standard:CrossIndustryInvoice:100"
  xmlns:ram="urn:un:unece:uncefact:data:standard:ReusableAggregateBusinessInformation
Entity:100">
...
</rsm:CrossIndustryInvoice>
```

Then the file is constructed as follows:

- Identification block of the message "rsm:ExchangedDocumentContext" (BG-2), containing the data:



- ✓ BT-23: **optional** data.

The "ram:BusinessProcessSpecifiedDocumentContextParameter" tag contains the value of the business process identifier in the "ram:ID" tag. The possible identifiers are for example those of Chorus Pro defined in its documentation (A1 (invoice deposit), A2 (previously paid invoice deposit), etc.) for an invoice addressed to the French public sector.

- ✓ BT-24: The "ram:GuidelineSpecifiedDocumentContextParameter" tag contains the value **urn:fatur-x.eu:1p0:minimum** in the "ram:ID" tag

Example

```
<rsm:ExchangedDocumentContext>
  <ram:BusinessProcessSpecifiedDocumentContextParameter>
    <ram:ID>A1</ram:ID>
  </ram:BusinessProcessSpecifiedDocumentContextParameter>
  <ram:GuidelineSpecifiedDocumentContextParameter>
    <ram:ID> urn:fatur-x.eu:1p0:minimum </ram:ID>
  </ram:GuidelineSpecifiedDocumentContextParameter>
</rsm:ExchangedDocumentContext>
```

- Header of the Document containing BT-1, BT-2 and BT-3 data, inside the "rsm:ExchangedDocument" tag:

Document Header (Exchanged Document)

- Invoice identifier
- Invoice date
- Invoice type (code)

- ✓ BT-1: Invoice number in the "ram:ID" tag
- ✓ BT-2: Date of issue of the invoice in the "udt:DateTimeString" tag with the attribute "@format" taking the value 102, itself contained in the "ram:IssueDateTime" tag.
- ✓ BT-3: Invoice type in the "ram:TypeCode" tag, for the following values:
 - 380: Commercial invoice
 - 381: Credit note
 - 384: Corrective invoice
 - 389: Self-billed invoice (created by the buyer on behalf of the supplier). Code not accepted for Chorus Pro
 - 261: Self-billed credit note. Code not accepted for Chorus Pro
 - 386: Pre-payment invoice
 - 751: Billing information for accounting: code required in Germany to meet its regulatory requirements. Code not accepted for Chorus Pro

Example

```
<rsm:ExchangedDocument>
  <ram:ID>NUMFACT</ram:ID>
  <ram:TypeCode>380</ram:TypeCode>
  <ram:IssueDateTime>
    <udt:DateTimeString format="102">AAAAMMJJ</udt:DateTimeString>
  </ram:IssueDateTime>
</rsm:ExchangedDocument>
```

- The block containing the invoice data under the "rsm:SupplyChainTradeTransaction" tag, consisting of the following blocks:

Supply Chain Trade Transaction block

Applicable Header Trade Agreement block (Parties and References)

- Buyer reference
- Supplier and Buyer identification
- Purchase Order Reference

Applicable Header Trade Settlement block (Amounts, VAT, Other)

- Currency
- Total amounts of the invoice

- ✓ Block under the "ram:ApplicableHeaderTradeAgreement" tag containing data BT-10 and BT-13, and groups BG-4 and BG-7:
 - BT-10: Buyer reference, under the "ram:BuyerReference" tag
 - BG-4: Seller information group under the "ram:SellerTradeParty" tag:
 - BT-27: supplier's name (business name) under the "ram:Name" tag

- BT-30: Legal identification of the seller under the double tag "ram:SpecifiedLegalOrganization" "ram:ID" supplemented by a "@schemeID" attribute identifying the baseline (company registration number (SIREN)): 0002.
 - BT-31: Intra-community VAT number under the double tag "ram:SpecifiedTaxRegistration" "ram:ID" supplemented by a "@schemeID" attribute equal to "VA".
 - Group BG-5 of the postal address containing the country of the supplier: in the "ram:CountryID" tag of the "ram:PostalTradeAddress" tag (FR for France).
- BG-7: buyer information group, under the "ram:BuyerTradeParty" tag:
- BT-44: Name of the buyer (business name), under the "ram:Name" tag
 - BT-47: Legal identification of the buyer, under the double tag "ram:SpecifiedLegalOrganization" "ram:ID" supplemented by a "@schemeID" attribute identifying the repository baseline (company registration number (SIREN)): 0002.
- BT-13: Order number provided by the buyer, under the double tag "ram:BuyerOrderReferencedDocument" "ram:IssuerAssignedID"

Example

```

<rsm:SupplyChainTradeTransaction>
    <ram:ApplicableHeaderTradeAgreement>
        <ram:BuyerReference>BUYERREF</ram:BuyerReference>
        <ram:SellerTradeParty>
            <ram:Name>SUPPLIERNAME</ram:Name>
            <ram:SpecifiedLegalOrganization>
                <ram:ID schemeID="0002">123456782</ram:ID>
            </ram:SpecifiedLegalOrganization>
            <ram:PostalTradeAddress>
                <ram:CountryID>FR</ram:CountryID>
            </ram:PostalTradeAddress>
            <ram:SpecifiedTaxRegistration>
                <ram:ID schemeID="VA">FR11123456782</ram:ID>
            </ram:SpecifiedTaxRegistration>
        </ram:SellerTradeParty>
        <ram:BuyerTradeParty>
            <ram:Name>BUYERNAME</ram:Name>
            <ram:SpecifiedLegalOrganization>
                <ram:ID schemeID="0002">987654324</ram:ID>
            </ram:SpecifiedLegalOrganization>
        </ram:BuyerTradeParty>
        <ram:BuyerOrderReferencedDocument >
            <ram:IssuerAssignedID>NUMCOMMAND</ram:IssuerAssignedID>
        </ram:BuyerOrderReferencedDocument>
    </ram:ApplicableHeaderTradeAgreement>
    ...
</rsm:SupplyChainTradeTransaction>

```

- ✓ An empty block (since it is necessary for the conformity of the message) corresponding to the delivery information.

Example

```
<rsm:SupplyChainTradeTransaction>
...
<ram:ApplicableHeaderTradeDelivery/>
...
</rsm:SupplyChainTradeTransaction>
```

- ✓ The block containing the invoice data under the "ram:ApplicableHeaderTradeSettlement" tag, consisting of the following blocks:
 - BT-5: Invoice currency, under the "ram:InvoiceCurrencyCode" tag
 - BG-22: Group of total invoice amounts, under the "ram:SpecifiedTradeSettlementHeaderMonetarySummation" tag:
 - BT-109: Invoice total amount without taxes, under the "ram:TaxBasisTotalAmount" tag
 - BT-110: Invoice total VAT amount, under the "ram:TaxTotalAmount" tag, supplemented by the VAT accounting currency attribute (the same as the invoice currency) "@currencyID"
 - BT-112: Invoice total amount with VAT, under the "ram:GrandTotalAmount" tag
 - BT-115: Amount due for payment, under the "ram:DuePayableAmount" tag

Example

```
<rsm:SupplyChainTradeTransaction>
...
<ram:ApplicableHeaderTradeSettlement>
  <ram:InvoiceCurrencyCode>EUR</ram:InvoiceCurrencyCode>
  <ram:SpecifiedTradeSettlementHeaderMonetarySummation>
    <ram:TaxBasisTotalAmount>100.00</ram:TaxBasisTotalAmount>
    <ram:TaxTotalAmount currencyID="EUR">20.00</ram:TaxTotalAmount>
    <ram:GrandTotalAmount>120.00</ram:GrandTotalAmount>
    <ram:DuePayableAmount>120.00</ram:DuePayableAmount>
  </ram:SpecifiedTradeSettlementHeaderMonetarySummation>
</ram:ApplicableHeaderTradeSettlement>
...
</rsm:SupplyChainTradeTransaction>
```

7.2.3 Example of a complete message:

```
<rsm:CrossIndustryInvoice
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:qdt="urn:un:unece:uncefact:data:standard:QualifiedDataType:100"
  xmlns:udt="urn:un:unece:uncefact:data:standard:UnqualifiedDataType:100"
  xmlns:rsm="urn:un:unece:uncefact:data:standard:CrossIndustryInvoice:100"
  xmlns:ram="urn:un:unece:uncefact:data:standard:ReusableAggregateBusinessInformation
            Entity:100">

  <rsm:ExchangedDocumentContext>
    <ram:BusinessProcessSpecifiedDocumentContextParameter>
      <ram:ID>A1</ram:ID>
    </ram:BusinessProcessSpecifiedDocumentContextParameter>
    <ram:GuidelineSpecifiedDocumentContextParameter>
      <ram:ID>urn:fatur-x.eu:1p0:minimum </ram:ID>
```

```

        </ram:GuidelineSpecifiedDocumentContextParameter>
    </rsm:ExchangedDocumentContext>

    <rsm:ExchangedDocument>
        <ram:ID>NUMFACT</ram:ID>
        <ram:TypeCode>380</ram:TypeCode>
        <ram:IssueDateTime>
            <udt:DateTimeString format="102">AAAAMMMJJ</udt:DateTimeString>
        </ram:IssueDateTime>
    </rsm:ExchangedDocument>

    <rsm:SupplyChainTradeTransaction>
        <ram:ApplicableHeaderTradeAgreement>
            <ram:BuyerReference>BUYERREF</ram:BuyerReference>
            <ram:SellerTradeParty>
                <ram:Name>SUPPLIERNAME</ram:Name>
                <ram:SpecifiedLegalOrganization>
                    <ram:ID schemeID="0002">123456782</ram:ID>
                </ram:SpecifiedLegalOrganization>
                <ram:PostalTradeAddress>
                    <ram:CountryID>FR</ram:CountryID>
                </ram:PostalTradeAddress>
                <ram:SpecifiedTaxRegistration>
                    <ram:ID schemeID="VA">FR11123456782</ram:ID>
                </ram:SpecifiedTaxRegistration>
            </ram:SellerTradeParty>
            <ram:BuyerTradeParty>
                <ram:Name>BUYERNAME</ram:Name>
                <ram:SpecifiedLegalOrganization>
                    <ram:ID schemeID="0002">987654324</ram:ID>
                </ram:SpecifiedLegalOrganization>
            </ram:BuyerTradeParty>
            <ram:BuyerOrderReferencedDocument >
                <ram:IssuerAssignedID>NUMCOMMANDE</ram:IssuerAssignedID>
            </ram:BuyerOrderReferencedDocument>
        </ram:ApplicableHeaderTradeAgreement>
        <ram:ApplicableHeaderTradeDelivery/>
        <ram:ApplicableHeaderTradeSettlement>
            <ram:InvoiceCurrencyCode>EUR</ram:InvoiceCurrencyCode>
            <ram:SpecifiedTradeSettlementHeaderMonetarySummation>
                <ram:TaxBasisTotalAmount>100.00</ram:TaxBasisTotalAmount>
                <ram:TaxTotalAmount currencyID="EUR">20.00</ram:TaxTotalAmount>
                <ram:GrandTotalAmount>120.00</ram:GrandTotalAmount>
                <ram:DuePayableAmount>120.00</ram:DuePayableAmount>
            </ram:SpecifiedTradeSettlementHeaderMonetarySummation>
        </ram:ApplicableHeaderTradeSettlement>
    </rsm:SupplyChainTradeTransaction>
</rsm:CrossIndustryInvoice>

```

7.3 Profile Basic Without Lines (BASIC WL) and BASIC

The BASIC WL and BASIC profiles are presented in blocks. The tables are taken from the Semantic Standard, with:

- The ID of the Business Group or Business Term
- The level of the data or group in the UN/CEFACT XML structure (which is therefore different from its level in the Semantic Standard)
- The semantic cardinality of the EN 16931
- The name of the "Business Term" or "Business group", its description and its usage note, as described in the Semantic Standard
- The Description from the EN 16931
- The Usage Note from the EN 16931
- The CIUS (Core Invoice Usage Specification)
- The business rules from EN 16931 and the XML UNCEFACT CII D22B
- The cardinality of the XML of the Factur-X Profiles, implementing the EN 16931
- The complete UN/CEFACT XML CII D22B Xpath, presented in 2 parts
 - ✓ The parent part, with 1 line per step
 - ✓ The child part corresponding to the field described in the line
- The cardinality of the XML UNCEFACT CII D22B, which is always wider than the Factur-X profiles

In order to take into account the XML structure of the UNCEFACT CII D22B syntax and to show all levels, some lines have been added with a naming based on the Business Term or Business Group from the Norm EN 16931 (ID starting with BT or BG) with a suffix equal to:

- -00, -01, ... when it corresponds to additional tags to respect the XML structure
- -0; -1, ... when it corresponds to additional data for a business term (mainly some attributes and scheme Identifiers).

The structured invoice data file is inside the following envelope:

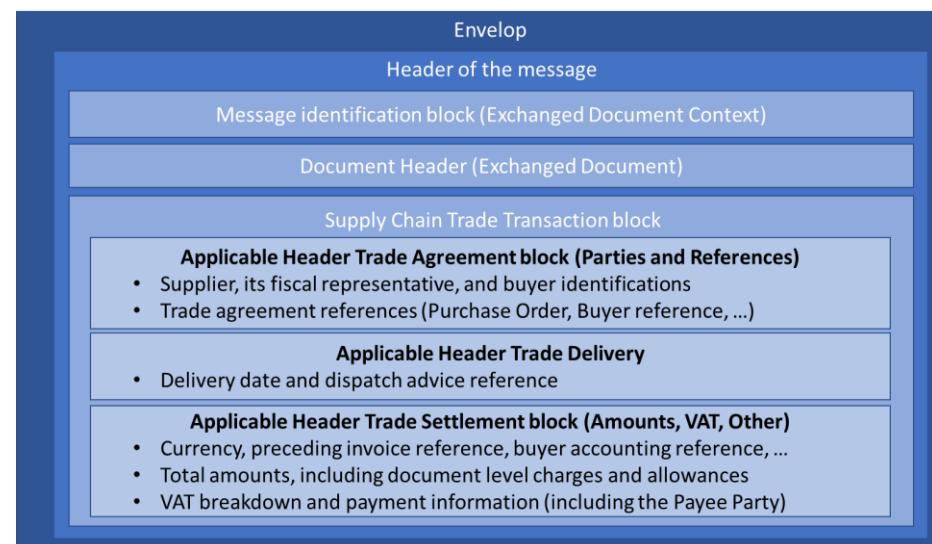
```
<rsm:CrossIndustryInvoice
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:qdt="urn:un:unece:uncefact:data:standard:QualifiedDataType:100"
    xmlns:udt="urn:un:unece:uncefact:data:standard:UnqualifiedDataType:100"
```

```

xmlns:rsm="urn:un:unece:uncefact:data:standard:CrossIndustryInvoice:100"
xmlns:ram="urn:un:unece:uncefact:data:standard:ReusableAggregateBusinessInformationEntity:100">
...
</rsm:CrossIndustryInvoice>
```

It consists of the following blocks:

- The message identification block: "rsm:ExchangedDocumentContext"
- The header block of the Document: "rsm:ExchangedDocument"
- The block of invoice data under the "rsm:SupplyChainTradeTransaction" tag, itself consisting of:
 - ✓ The header data block for transaction references and stakeholders under the "ram:ApplicableHeaderTradeAgreement" tag
 - ✓ The header data block for delivery reference and date under the "ram:ApplicableHeaderTradeDelivery" tag
 - ✓ The header data block for the business transaction, under the "ram:ApplicableHeaderTradeSettlement" tag,



Then the file is built as follows:

7.3.1 Message identification block

Message identification block (Exchanged Document Context)

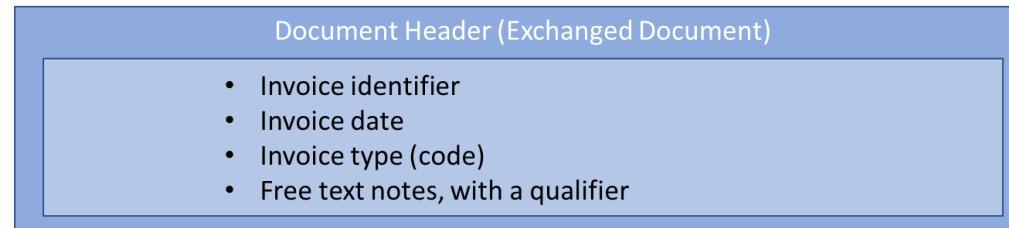
- Underlying business process identification
- Message identification : profile and format

The identification block of the message "rsm:ExchangedDocumentContext" (BG-2), contains the following data:

ID	Xsd Level	EN16931 Semantic Cardinality	Business Term	Description	Usage Note	CIUS (CORE INVOICE USAGE SPECIFICATION)	Business rule	Semantic data type	XML Cardinality	Xpath XML UN/CEFACT22B-Norme	CI Cardinality
BG-2	1	1..1	EXCHANGE DOCUMENT CONTEXT	A group of business terms providing information on the business process and rules applicable to the Invoice document.					1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocumentContext	1..1
BT-23-00	2	0..1	(Business process type)						0..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocumentContext /ram:BusinessProcessSpecifiedDocumentContextParameter	0..n
BT-23	3	0..1	Business process type	Identifies the business process context in which the transaction appears, to enable the Buyer to process the Invoice in an appropriate way.	To be specified by the Buyer.	CHORUS PRO: this data makes it possible to inform the "cadre de facturation" (billing framework, which could be invoice from agent, contractor, subcontractor, invoicing part of a public works contract, etc.). The codes to be used are defined in the CHORUS PRO specifications: A1 (invoice deposit), A2 (prepaid invoice deposit), ... By default (in the absence of this field), the case A1 is applied.		Text	1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocumentContext /ram:BusinessProcessSpecifiedDocumentContextParameter /ram:ID	0..1
BT-24-00	2	1..1	(Specification identifier)						1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocumentContext /ram:GuidelineSpecifiedDocumentContextParameter	0..n
BT-24	3	1..1	Specification identifier	An identification of the specification containing the total set of rules regarding semantic content, cardinalities and business rules to which the data contained in the instance document conforms.	This identifies compliance or conformance to this document. Conformant invoices specify: urn:cen.eu:en16931:2017. Invoices, compliant to a user specification may identify that user specification here. No identification scheme is to be used.	For profile Minimum : urn:fatur-x.eu:1p0:minimum For profile BASIC WL : urn:fatur-x.eu:1p0:basicwl For profile BASIC : urn:cen.eu:en16931:2017#compliant#urn:fatur-x.eu:1p0:basic For Profile EN16931 (Comfort) : urn:cen.eu:en16931:2017 For Profile EXTENDED : urn:cen.eu:en16931:2017#conformant#urn:fatur-x.eu:1p0:extended	BR-1: An Invoice shall have a Specification identifier (BT-24).	Identifier	1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocumentContext /ram:GuidelineSpecifiedDocumentContextParameter /ram:ID	0..1

* BT-24 : value must be urn:fatur-x.eu:1p0:basicwl for BASIC WL profile and urn:cen.eu:EN 16931:2017#compliant#urn:fatur-x.eu:1p0:basic for BASIC Profile.

7.3.2 Document header block



The header block of the Document containing the BT-1, BT-2, BT-3, and BG-1 data, inside the "rsm:ExchangedDocument" tag contains the following data:

ID	Xsd Level	EN16931 Semantic Cardinality	Business Term	Description	Usage Note	CIUS (CORE INVOICE USAGE SPECIFICATION)	Business rule	Semantic data type	XML Cardinality	Xpath XML UN/CEFACT22B-Norme	CI Cardinarity
BT-1-00	1	1..1	EXCHANGE DOCUMENT						1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument	1..1
BT-1	2	1..1	Invoice number	A unique identification of the invoice.	The sequential number required in Article 226(2) of the directive 2006/112/EC [2], to uniquely identify the invoice within the business context, time-frame, operating systems and records of the Seller. It may be based on one or more series of numbers, which may include alphanumeric characters. No identification scheme is to be used.	CHORUSPRO: the invoice number is limited to 20 characters	BR-2: An invoice shall have an invoice number (BT-1).	Identifier	1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument /ram:ID	0..1
BT-3	2	1..1	Invoice type code	A code specifying the functional type of the invoice.	Commercial invoices and credit notes are defined according the entries in UNT/DID 1001 [6]. Other entries of UNT/DID 1001 [6] with specific invoices or credit notes may be used if applicable.	The types of documents used are: 380: Commercial invoice 381: Credit note 384: Corrected invoice 389: Self-billed invoice (created by the buyer on behalf of the supplier) 261: Self-billed credit note (not accepted by CHORUSPRO) 386: Prepayment invoice 751: Invoice information for accounting purposes (not accepted by CHORUSPRO)	BR-4: An invoice shall have an invoice type code (BT-3).	Code	1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument /ram:TypeCode	0..1
BT-2-00	2	1..1	(INVOICE ISSUE DATE)	The date when the invoice was issued.				Date	1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument /ram:IssueDateTime	1..1
BT-2	3	1..1	Invoice issue date	The date when the invoice was issued.		CHORUSPRO: the issue date must be before or equal to the deposit date.	BR-3: An invoice shall have an invoice issue date (BT-2).	Date	1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument /ram:IssueDateTime /udt:DateTimeString	1..1
BT-2-0	4	1..1	Date, format		Only value "102"			Code	1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument /ram:IssueDateTime /udt:DateTimeString /@format	0..1

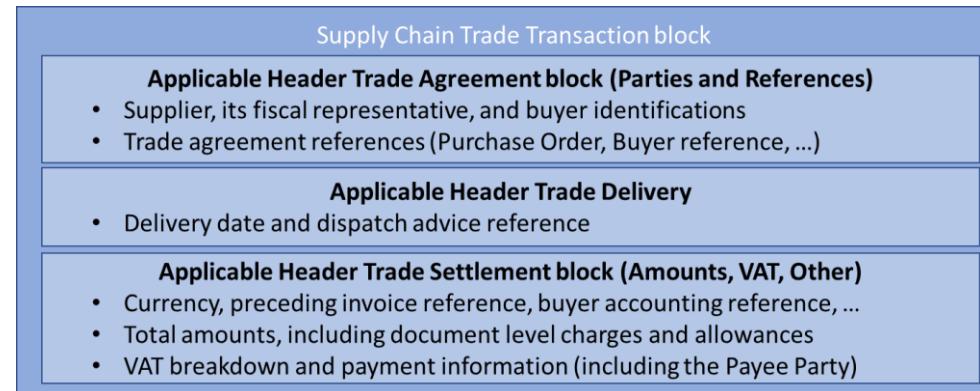
ID	Xsd Level	EN16931 Semantic Cardinality	Business Term	Description	Usage Note	CIUS (CORE INVOICE USAGE SPECIFICATION)	Business rule	Semantic data type	XML Cardinality	Xpath XML UN/CEFACT22B-Norme	CII Cardinality
BG-1	2	0..n	INVOICE NOTE	A group of business terms providing textual notes that are relevant for the invoice, together with an indication of the note subject.					0..n	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument /ram:IncludedNote	0..n
BT-22	3	1..1	Invoice note	A textual note that gives unstructured information that is relevant to the invoice as a whole.	Such as the reason for any correction or assignment note in case the invoice has been factored.			Text	1..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument /ram:IncludedNote /ram:Content	0..n
BT-21	3	0..1	Invoice note subject code	The subject of the textual note in BT-22.	To be chosen from the entries in UNTDID 4451 [6].	Among the list, the following codes can be used: AAI: General Information SUR: Supplier Notes REG: Regulatory Information ALI: Legal Information TXD: Tax Information CLU: Customs Information		Code	0..1	/rsm:CrossIndustryInvoice /rsm:ExchangedDocument /ram:IncludedNote /ram:SubjectCode	0..n

IMPORTANT note regarding the type of invoice: In the BASIC WL profile (Basic without lines), the structured file does not contain all the mandatory details of an invoice (because there are no lines). Under German regulations, for the profiles BASIC WL and MINIMUM, the type code 751 MUST be used (Invoice information for accounting purposes), which implies that the credit values must be specified as negative values. In France, all document type codes can be used from the profiles MINIMUM and BASIC WL. as it is currently not mandatory that all information available in the readable PDF must also be contained in the attached structured XML file.

For the profiles BASIC, EN 16931 and EXTENDED, which contain the lines and all the mandatory details of an invoice, all the codes of an invoice may be used, particularly 380 for an invoice and 381 for a credit note, both in France and in Germany (except for 751 which MUST NOT be used for these profiles in Germany). In France however, the most widespread practice (particularly so by Chorus Pro) is to codify the credit notes cancelling an invoice using the invoice document type for credit notes (381, 261) and to accept negative invoices where they are the result of their calculation due to reversals (on previous estimates, pre-payments, return of empty packaging, etc.). This is more important for cumulated values than for the lines invoiced and will result in a negative total value of the invoice.

7.3.3 Commercial transaction information block:

The block containing the invoice data under the "rsm:SupplyChainTradeTransaction" tag, consisting of the following blocks:



7.3.3.1 BLOCK « RAM:APPLICABLEHEADERTRADEAGREEMENT »



The Block under the "ram:ApplicableHeaderTradeAgreement" tag contains the following data or blocks of data:

- Buyer reference (BT-10), optional data
- The supplier data block (BG-4), mandatory block, containing its address data block (BG-5)
- The buyer data block (BG-7), mandatory block, containing its address data block (BG-8)
- The tax representative data block (BG-11), mandatory block if the supplier has a tax representative, containing its address data block (BG-12)
- Buyer's purchase order number (BT-13), optional data
- Contract Identifier (BT-12), optional data

ID	Xsd Level	EN16931 Semantic Cardinality	Business Term	Description	Usage Note	CIUS (CORE INVOICE USAGE SPECIFICATION)	Business rule	Semantic data type	XML Cardinality	Xpath XML UN/CEFACT22B-Norme	CII Cardinality
BG-25-00	1	1..1	SUPPLY CHAIN TRADE TRANSACTION						1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction	1..1
BT-10-00	2	1..1	HEADER TRADE AGREEMENT						1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeAgreement	1..1
BT-10	3	0..1	Buyer reference	An identifier assigned by the Buyer used for internal routing purposes.	The identifier is defined by the Buyer (e.g. contact ID, department, office id, project code), but provided by the Seller in the Invoice.	CHORUS PRO: for the public sector, it is the "Service Exécutant". It is mandatory for some buyers. It must belong to the Chorus Pro repository. It is limited to 100 characters.		Text	0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeAgreement /ram:BuyerReference	0..1
BG-4	3	1..1	SELLER	A group of business terms providing information about the Seller.					1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeAgreement /ram:SellerTradeParty	0..1
BT-29	4	0..n	Seller identifier	An identification of the Seller.	For many systems, the Seller identifier is a key piece of information. Multiple Seller identifiers may be assigned or specified. They may be differentiated by using various identification schemes. If no scheme is specified, it should be known by Buyer and Seller, e.g. a previously exchanged Buyer assigned identifier of the Seller.		BR-CO-26: In order for the buyer to automatically identify a supplier, the Seller identifier (BT-29), the Seller legal registration identifier (BT-30) and/or the Seller VAT identifier (BT-31) shall be present.	Identifier	0..n	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeAgreement /ram:SellerTradeParty /ram:ID	0..n
BT-29-0	4	0..n	Seller identifier (Global ID)	An identification of the Seller.	GloablID, if global identifier exists and can be stated in @schemeID, ID else	If the seller has a GlobalID, he can qualify it with this attribute. Otherwise, he uses the ID.	GloablID, if global identifier exists and can be stated in @schemeID, ID else		0..n	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeAgreement /ram:SellerTradeParty /ram:GlobalID	0..n
BT-29-1	5	0..1	Seller identifier identification scheme identifier	Scheme identifier	The identification scheme identifier shall be chosen from the entries of the list published by the ISO 6523 maintenance agency.	In particular, the following codes can be used: 0021 : SWIFT 0060 : DUNS 0088 : GLN 0177 : ODETTE		String	1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeAgreement /ram:SellerTradeParty /ram:GlobalID /@schemeID	0..1
BT-27	4	1..1	Seller name	The full formal name by which the Seller is registered in the national registry of legal entities or as a Taxable person or otherwise trades as a person or persons.			BR-6: An Invoice shall contain the Seller name (BT-27).	Text	1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeAgreement /ram:SellerTradeParty /ram:Name	0..1

... see the whole description of the syntax CII D22B implementation in Appendix 3 or Excel file sheet “Factur-X CII D22B BASIC WL” or “Factur-X CII D22B BASIC”.

7.3.3.2 BLOCK "RAM:APPLICABLEHEADERTRADEDELIVERY"

Applicable Header Trade Delivery

- Delivery date and dispatch advice reference

The block under the "ram:ApplicableHeaderTradeDelivery" tag contains the following data or data blocks:

- BT-71, BT-70: Identifier and name of the delivery location (ship to) under the tag « ram:ShipToTradeParty »
- BG-15: BT-78, BT-75, BT-76, BT-165, BT-77, BT-80: Delivery address (including the country code that must be present in case of intracommunity supply, as described in the Business Rule BR-IC-12), under the tag « ram:ShipToTradeParty/ram:PostalTradeAddress »
- BT-72: Delivery date, optional (mandatory if different from the invoice date), under the triple tag "ram:ActualDeliverySupplyChainEvent/ram:OccurrenceDateTime/udt:DateTimeString"
- BT-16: Delivery note reference, optional data under the double tag "ram:DespatchAdviceReferencedDocument/ram:IssuerAssignedID"

ID	Xsd Level	EINF931 Semantic Cardinality	Business Term	Description	Usage Note	CIIUS (CORE INVOICE USAGE SPECIFICATION)	Business rule	Semantic data type	XML Cardinality	Xpath XML UN/CEFACT22B-Norme	CII Cardinality
BG-13-00	2	1..1	(DELIVERY INFORMATION)	A group of business terms providing information about where and when the goods and services invoiced are delivered.					1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeDelivery	1..1
BG-13	3	0..1	DELIVERY INFORMATION	A group of business terms providing information about where and when the goods and services invoiced are delivered.					0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeDelivery /ram:ShipToTradeParty	0..1
BT-71	4	0..1	Deliver to location identifier	An identifier for the location at which the goods and services are delivered.	If no scheme is specified, it should be known by Buyer and Seller, e.g., a previously exchanged Buyer or Seller assigned identifier.			Identifier	0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeDelivery /ram:ShipToTradeParty /ram:ID	0..n
BT-71-0	4	0..1	Deliver to location global identifier		GlobaID, if global identifier exists and can be stated in @schemeID, ID else		GlobaID, if global identifier exists and can be stated in @schemeID, ID else	Identifier	0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeDelivery /ram:ShipToTradeParty /ram:GlobalID	0..n
BT-71-1	5	0..1	Scheme identifier	The identification scheme identifier of the Deliver to location identifier.	"To be chosen from UNTDID 3035, for instance: DL: Factor DS: Distributor MOP: Market operator"1			String	1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeDelivery /ram:ShipToTradeParty /ram:GlobalID /@schemeID	0..1

... see the whole description of the syntax CII D22B implementation in Appendix 3 or Excel file sheet "Factur-X CII D22B BASIC WL" or "Factur-X CII D22B BASIC".

7.3.3.3 THE BLOCK "RAM:APPLICABLEHEADERTRADESETTLEMENT"

Applicable Header Trade Settlement block (Amounts, VAT, Other)

- Currency, preceding invoice reference, buyer accounting reference, ...
- Total amounts, including document level charges and allowances
- VAT breakdown and payment information (including the Payee Party)

The block containing the invoice data under the "ram:ApplicableHeaderTradeSettlement" tag, is composed of the following blocks or data:

- BT-90: ICS number of the payee, in the case of SEPA direct debit, to notify the buyer of the debit, under the "/ram:CreditorReferenceID" tag, optional data highly recommended in the case of direct debit.
- BT-83: "EndtoEnd" or "Remittance information" reference, optional data to reconcile the payment for the supplier, under the "/ram:PaymentReference" tag
- BT-6: VAT accounting currency code, Optional data, under the "ram:TaxCurrencyCode" tag.
- BT-5: Invoice currency, mandatory data, under the "ram:InvoiceCurrencyCode" tag.
- BG-10: Payee data block (if different from the supplier), optional unless there is a payee different from the supplier (e.g. a factor), under the "ram:PayeeTradeParty" tag.
- BG-16: Payment data block, optional block under the "ram:SpecifiedTradeSettlementPaymentMeans" tag, containing:
 - ✓ BT-81: Desired payment method code, compulsory data for the block, under the "ram>TypeCode" tag.
 - ✓ BT-91: Account number to be debited in the case of Direct Debit, optional data, under the double tag "/ram:PayerPartyDebtorFinancialAccount" and "/ram:IBANID".
- BG-17: Data block for bank transfer payment information, optional and repeatable (in the case where the supplier has multiple accounts to receive transfers, under the "ram:PayeePartyCreditorFinancialAccount" tag, which contains BT-84 (IBAN), under the "/ram:IBANID" tag
- BG-23: VAT breakdown block, mandatory unless the invoice is outside the scope of VAT, repeatable (as many times as there is a VAT code in the invoice), under the "ram:ApplicableTradeTax" tag. The management rules on the VAT codification are detailed in subclause 6.4.3 of the semantic standard. There are 9 types of situations (codified under the "CategoryCode" tag):
 - ✓ VAT applicable on a standard or reduced rate: "S"
 - ✓ VAT applicable on a VAT rate equal to 0: "Z"
 - ✓ VAT not applied, but paid by the customer (so no VAT on the invoice) in the case of B2B intra-community delivery: "K"
 - ✓ VAT not applied, but paid by the customer (so no VAT on the invoice) in the case of VAT Reverse charge: "AE"

- ✓ VAT not applicable (exempt): "E"
- ✓ VAT not applied in case of export outside the European Community: "G"
- ✓ Outside the scope of VAT: "O"
- ✓ VAT for sales in the territories of the Canary Islands: "L"
- ✓ VAT for sales in the territories of Ceuta and Melilla: "M"
- BG 14: Invoicing period bloc, that should be present in case of intracommunity supply with no delivery date (business rule BR-IC-11), composed with BT-73 and BT-74 under the tag « ram:BillingSpecifiedPeriod ».
- BG-20: Document level allowance block (at the invoice level and not the lines), optional and repeatable for multiple allowances, under the "ram:SpecifiedTradeAllowanceCharge" tag, accompanied by the `<ram:ChargeIndicator><udt:Indicator>` type indicator, with "false" as the value:


```
<ram:ChargeIndicator>
  <udt:Indicator>false</udt:Indicator>
</ram:ChargeIndicator>
```
- BG-21: Document level charge block (at the invoice level and not the lines), optional and repeatable for multiple charges, under the "ram:SpecifiedTradeAllowanceCharge" tag, accompanied by the `<ram:ChargeIndicator><udt:Indicator>` type indicator, with "true" as the value:


```
<ram:ChargeIndicator>
  <udt:Indicator>true</udt:Indicator>
</ram:ChargeIndicator>
```
- A block of data under the "/ram:SpecifiedTradePaymentTerms" tag, containing:
 - ✓ BT-20: Payment terms, textual description of the payment terms, optional data, under the "/ram:Description" tag
 - ✓ BT-9: Due date, optional data, under the "/ram:DueDateDateTime" tag
 - ✓ BT-89: Single reference of direct debit mandate (RUM (Unique Mandate Reference) for SEPA direct debits)
- BG-22: Group of invoice total amounts, mandatory block, under the "ram:SpecifiedTradeSettlementHeaderMonetarySummation" tag:
 - ✓ BT-106: Sum of net amounts excluding taxes of the invoice lines (after line allowance(s) or charge(s)), mandatory data, under the "ram:LineTotalAmount" tag
 - ✓ BT-107: Sum of document level allowances, optional data, mandatory only if there are allowances, under the "ram:AllowanceTotalAmount" tag

- ✓ BT-108: Sum of document level charges, optional data, mandatory only if there are document level charges, under the tag "ram:ChargeTotalAmount"
- ✓ BT-109: Amount excluding taxes, sum of the BT-106 to BT-109 data, obligatory data under the "ram:TaxBasisTotalAmount" tag
- ✓ BT-110: Amount of VAT, compulsory data unless the invoice is outside the scope of VAT, under the "ram:TaxTotalAmount" tag, supplemented by the VAT accounting currency attribute (the same as the currency of the invoice) "@currencyID"
- ✓ BT-111: Invoice total VAT amount in accounting currency, conditionally mandatory if the VAT accounting currency code (BT-6) is present (rule BR-53), which generally means that the invoice currency is different from the currency needed for VAT accounting or e-reporting, under the "ram:TaxTotalAmount" tag, supplemented by the VAT accounting currency attribute (the same as the VAT accounting currency code (BT-6)) "@currencyID"
- ✓ BT-112: Amount including taxes, mandatory data, under the "ram:GrandTotalAmount" tag
- ✓ BT-113: Pre-payment, mandatory data in case of pre-payment, under the "/ram:TotalPrepaidAmount" tag
- ✓ BT-114: Amount for rounding, optional data except when rounding the amount payable (to be added to the amount of the invoice), under the "ram:RoundingAmount" tag
- ✓ BT-115: Net amount payable, mandatory data, equal to BT-112 – BT-113 + BT-114, under the "ram:DuePayableAmount" tag
- BG-3: Block related to the associated invoice(s), repeatable if several invoices must be referenced, optional, but mandatory in the case of a credit note. In this case, it is a matter of referencing the invoice number(s) to which the credit note relates. This block consists of a document reference (BT-25: the original invoice number), mandatory, and the date of the initial invoice (BT-26), optional. This block is present under the "ram:InvoiceReferencedDocument" tag.
- BT-19: Accounting reference provided by the buyer, optional data, under the double tag "ram:ReceivableSpecifiedTradeAccount/ram:ID"

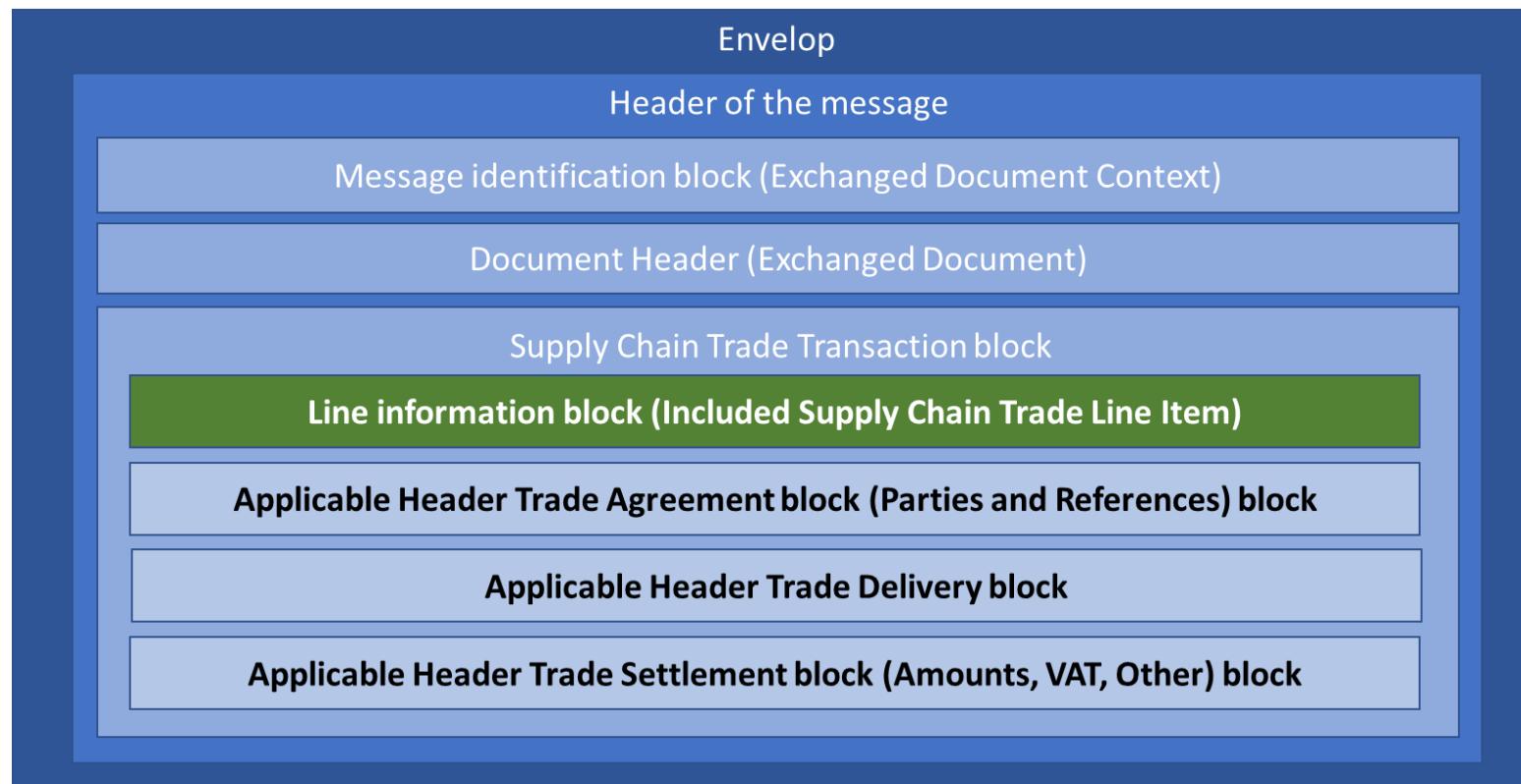
ID	ID Annexe 1 Spec FR	Xsd Level	EN6531 Semantic Cardinality	Business Term	Description	Usage Note	CIUS (CORE INVOICE USAGE SPECIFICATION)	Business rule	Semantic data type	XML Cardinality	Xpath XML UN/CEFACT22B-Norme	CII Cardinality
BG-19	BG-19	2	0..1	[HEADER TRADE SETTLEMENT] DIRECT DEBIT	A group of business terms to specify a direct debit.	This group may be used to give prior notice in the invoice that payment will be made through a SEPA or other direct debit initiated by the Seller, in accordance with the rules of the SEPA or other direct debit scheme.	CHORUS PRO : not used			1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement	1..1
BT-90	BT-90	3	0..1	Bank assigned creditor identifier	Unique banking reference identifier of the Payee or Seller assigned by the Payee or Seller bank.	Used in order to pre-notify the Buyer of a SEPA direct debit.	This is the ICS for SEPA direct debits		Identifier	0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement /ram:CreditorReferenceID	0..1
BT-83	BT-83	3	0..1	Remittance information	A textual value used to establish a link between the payment and the invoice, issued by the Seller.	User to enter a client remittance information. This information element helps the Seller to assign an incoming payment to the relevant payment process. When specifying the textual value, which is commonly the invoice number of the invoice being paid, but may be another seller reference, the buyer should indicate this reference in his payment order when executing the payment.			Text	0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement /ram:PaymentReference	0..n
BT-6	BT-6	3	0..1	VAT accounting currency code	The currency used for VAT accounting and reporting purposes as accepted or required in the country of the Seller.	Shall be used in combination with the Total VAT amount in accounting currency (BT-111) when the VAT accounting currency code differs from the Invoice currency code. The lists of valid currencies are registered with the ISO 4217 Maintenance Agency "Codes for the representation of currencies and funds". Please refer to article 230 of Directive 2006/112/EC on VAT.			Code	0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement /ram:TaxCurrencyCode	0..1
BT-5	BT-5	3	1..1	Invoice currency code	The currency in which all Invoice amounts are given, except for the Total VAT amount in accounting currency.	Only one currency shall be used in the Invoice, except for the Total VAT amount in accounting currency (BT-111) in accordance with article 230 of Directive 2006/112/EC on VAT. The lists of valid currencies are registered with the ISO 4217 Maintenance Agency "Codes for the representation of currencies and funds".	CHORUS PRO: Invoices and credit notes or Chorus Pro are mono-currencies only.	BR-5: An Invoice shall have an Invoice currency code (BT-5).	Code	1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement /ram:InvoiceCurrencyCode	0..1
BG-10	BG-10	3	0..1	PAYEE	A group of business terms providing information about the Payee, i.e. the role that receives the payment.	The role of Payee may be fulfilled by another party than the Seller, e.g. a factoring service.	This group makes it possible to identify the invoices to be paid to a third-party Payee in the case of factoring. CHORUS PRO: In the event of subrogation factoring, the legal information associated with subrogation must be present in the PDF visual presentation of the invoice. In this case, the bank identifier present in the invoice is the Factor one.			0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement /ram:PayeeTradeParty	0..1
BT-60		4	0..1	Payee identifier	An identifier for the Payee.	If no scheme is specified, it should be known by Buyer and Seller, e.g. a previously exchanged Buyer or Seller assigned identifier.			Identifier	0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement /ram:PayeeTradeParty /ram:ID	0..n
BT-60-0	BT-60	4	0..1	Payee global identifier		GlobaID, if global identifier exists and can be stated in @schemeID, ID else				0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement /ram:PayeeTradeParty /ram:GlobalID	0..n
BT-60-1	BT-60-1	5	1..1	Scheme identifier	The identification scheme identifier of the Payee identifier.	If used, the identification scheme shall be chosen from the entries of the list published by the ISO/IEC 6523 maintenance agency.			String	1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:ApplicableHeaderTradeSettlement /ram:PayeeTradeParty /ram:GlobalID /@schemeID	0..1

... see the whole description of the syntax CII D22B implementation in Appendix 3 or Excel file sheet "Factur-X CII D22B BASIC WL" or "Factur-X CII D22B BASIC".

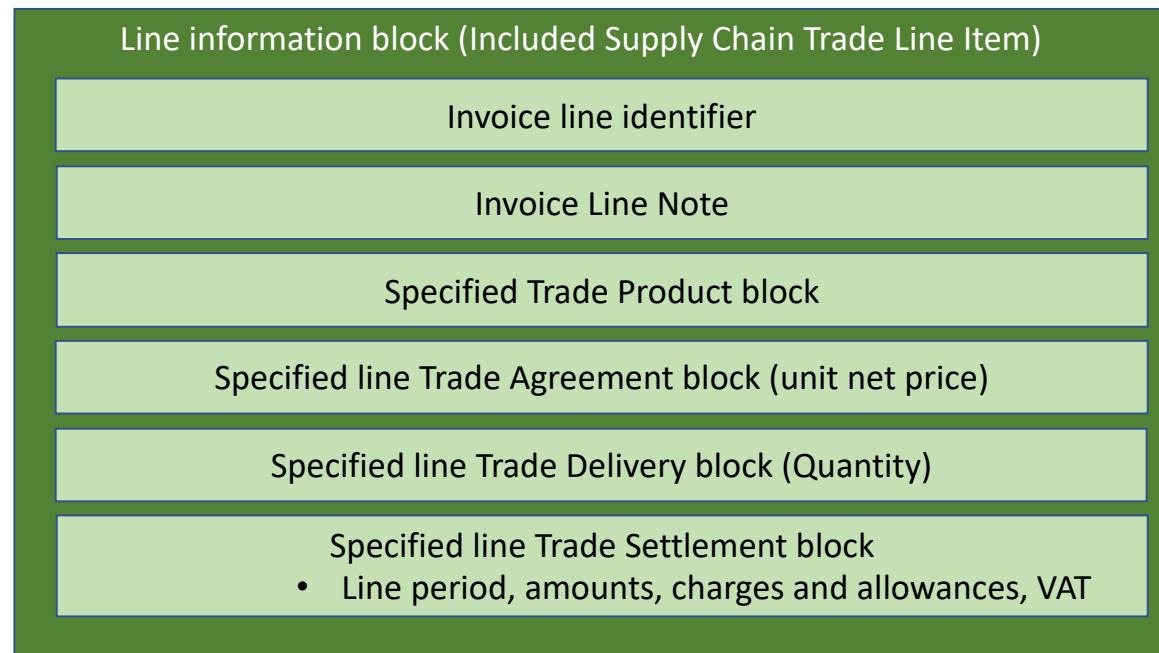
7.4 The Profile BASIC

The profile BASIC consists of the profile "BASIC WL" plus a block corresponding to the line data, mandatory and repeatable (as many as there are lines).

IMPORTANT: this block **MUST** be inserted first in the commercial transaction information block.



This block of lines is located under the tag "ram:IncludedSupplyChainTradeLineItem", and consists of:



- BT-126: Line number, mandatory data, under the double tag "ram:AssociatedDocumentLineDocument/ram:LineID"
- BT-127: Invoice Line Note, optional data, under the triple tag : "ram:AssociatedDocumentLineDocument/ram:IncludedNote/ram:Content"
- BG-31: Data group related to the product (goods or service) invoiced, mandatory block, under the "ram:SpecifiedTradeProduct" tag
- BT-148: Gross unit price, optional data, under the triple tag "ram:SpecifiedLineTradeAgreement/ram:GrossPriceProductTradePrice/ram:ChargeAmount"
- BT-149-1: Item price base quantity for Gross price, optional data, which MUST be equal to BT-149, under the tag "ram:SpecifiedLineTradeAgreement/ram:GrossPriceProductTradePrice/ram:BasisQuantity"
- BT-147: Item price discount, subtracted from the Item gross price to calculate the Item net price, optional, under the triple tag "ram:GrossPriceProductTradePrice/ram:AppliedTradeAllowanceCharge/ram:ActualAmount"
- BT-146: Net unit price, mandatory data, under the triple tag "ram:SpecifiedLineTradeAgreement/ram:NetPriceProductTradePrice/ram:ChargeAmount"

- BT-149: Item price base quantity for Net price, optional data, under the tag "ram:SpecifiedLineTradeAgreement/ram:NetPriceProductTradePrice/ram:BasisQuantity"
- BT-129: Billed quantity, mandatory data, under the double tag "ram:SpecifiedLineTradeDelivery/ram:BilledQuantity", supplemented by:
 - ✓ BT-130: Unit of measurement per invoiced quantity, mandatory data, under the triple tag: ram:SpecifiedLineTradeDelivery/ram:BilledQuantity/@unitCode
- Line level transactional agreement description data group, under the "ram:SpecifiedLineTradeSettlement" tag
 - ✓ BG-30: Line VAT group, obligatory, under the "ram:ApplicableTradeTax" tag, consisting of
 - BT-151: VAT category code (S, Z, AE, K, E, G, O, L, M), mandatory data, under the "ram:CategoryCode" tag, supplemented by a qualifier equal to "VAT" under the "ram>TypeCode" tag
 - BT-152: Invoiced item VAT rate, optional data, under the "ram:RateApplicablePercent" tag
 - ✓ BG-26: Invoice Line Period data group, optional, under the tag "ram:BillingSpecifiedPeriod", consisting of:
 - BT-134: Invoice line period start date, optional, under the tag "ram:StartTime/udt:DateTimeString"
 - BT-135: Invoice line period end date, optional, under the tag "ram:EndDateTime/udt:DateTimeString"
 - ✓ BG-27: Line allowance data group, optional and repeatable, under the "ram:SpecifiedTradeAllowanceCharge" tag, accompanied by the <ram:ChargeIndicator><udt:Indicator> type indicator, with "false" as the value:

```
<ram:ChargeIndicator>
  <udt:Indicator>false</udt:Indicator>
</ram:ChargeIndicator>
```

- BT-136: Allowance net value excluding taxes (same VAT rate as the line to which it is attached). In the case of an allowance with another VAT rate, enter a line reserved for that purpose), under the "ram:ActualAmount" tag
- BT-140, BT-139: Respectively code and text allowance reason, one of the two must be present in case of allowance on line level (BR-CO-23), under the tags « ram:SpecifiedTradeAllowanceCharge/ram:ReasonCode » and « ram:SpecifiedTradeAllowanceCharge/ram:Reason ». The reason code must be chosen among the list UNTDID5189 as detailed in the codelists.
- ✓ BG-28: Line charge data group, optional and repeatable, under the "ram:SpecifiedTradeAllowanceCharge" tag, accompanied by the <ram:ChargeIndicator><udt:Indicator> type indicator, with "true" as the value:

```
<ram:ChargeIndicator>
```

- <udt:Indicator>true</udt:Indicator>
- </ram:ChargeIndicator>
- BT-141: Charge net value excluding taxes (same VAT rate as the line to which it is attached). In the case of a charge with another VAT rate, enter a line reserved for that purpose), under the "ram:ActualAmount" tag
 - BT-145, BT-144: Respectively code and text charge reason, one of the two must be present in case of allowance on line level (BR-CO-23), under the tags « ram:SpecifiedTradeAllowanceCharge/ram:ReasonCode » and « ram:SpecifiedTradeAllowanceCharge/ram:Reason ». The reason code must be chosen among the list UNTDID7161 as detailed in the codelists.
 - ✓ BT-131: Line net amount excluding taxes, mandatory data, under the double tag "ram:SpecifiedTradeSettlementLineMonetarySummation/ram:LineTotalAmount"

Comment on Management of the Item price base quantity (BT-149) at the line level: This value gives the number of units on which the price applies (for example if the value is 3, this means that the unit price is for 3 boxes). In the UNCEFACT CII D22B XML syntax, this value is present in addition to the gross price (BT-148) and the net price (BT-146). In this case the 2 values of the following fields must be identical and present at the same time (or absent at the same time), as well as their respective complement BT-150 (Item price base quantity unit of measure code):

- BT-149 (ram: NetPriceProductTradePrice /ram:BasisQuantity), with BT-150 (/@unitCode) mandatory and identical to BT-150-1 AND BT-130 (Invoiced quantity unit of measure code).
- BT-149-1 (/ram:GrossPriceProductTradePrice /ram:BasisQuantity), with BT-150-1 (/@unitCode) mandatory and identical to BT-150 AND BT-130 (Invoiced quantity unit of measure code).

In this case, the Invoice line net amount (BT-131) is equal to the Item net price (BT-146) divided by the Item price base quantity unit of measure code (BT-149) multiplied by the Invoiced quantity (BT-129), rounded to 2 digits, minus the sum of line allowances plus the sum of line charges. On the other hand, the item net price (BT-146) must be equal to the item gross price (BT-148) minus the Item price discount (BT-147) if it exists, coded as a charge on the item gross price.

ID	Xsd Level	EN16931 Semantic Cardinality	Business Term	Description	Usage Note	CIUS (CORE INVOICE USAGE SPECIFICATION)	Business rule	Semantic data type	XML Cardinality	Xpath XML UN/CEFACT22B-Norme	CII Cardinality
BG-25-00	1	1..1	SUPPLY CHAIN TRADE TRANSACTION						1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction	1..1
BG-25	2	1..n	INVOICE LINE	A group of business terms providing information on individual Invoice lines.			BR-16: An Invoice shall have at least one Invoice line (BG-25).		1..n	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:IncludedSupplyChainTradeLineItem	0..n
BT-126-00	3	1..1	ASSOCIATED LINE DOCUMENT						1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:IncludedSupplyChainTradeLineItem /ram:AssociatedDocumentLineDocument	0..1
BT-126	4	1..1	Invoice line identifier	A unique identifier for the individual line within the invoice.			BR-21: Each Invoice line (BG-25) shall have an Invoice line identifier (BT-126).	Identifier	1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:IncludedSupplyChainTradeLineItem /ram:AssociatedDocumentLineDocument /ram:LineID	0..1
BT-127-00	4	0..1	INVOICE LINE NOTE	Detailed information about the free text of the line item					0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:IncludedSupplyChainTradeLineItem /ram:AssociatedDocumentLineDocument /ram:IncludedNote	0..n
BT-127	5	0..1	Invoice line note	A textual note that gives unstructured information that is relevant to the invoice line.				Text	1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:IncludedSupplyChainTradeLineItem /ram:AssociatedDocumentLineDocument /ram:IncludedNote /ram:Content	0..n
BG-31	3	1..1	ITEM INFORMATION	A group of business terms providing information about the goods and services invoiced.					1..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:IncludedSupplyChainTradeLineItem /ram:SpecifiedTradeProduct	0..1
BT-157	4	0..1	Item standard identifier	An item identifier based on a registered scheme.		CHORUSPRO: this field is limited to 40 characters	BR-64: The Item standard identifier (BT-157) shall have a Scheme identifier	Identifier	0..1	/rsm:CrossIndustryInvoice /rsm:SupplyChainTradeTransaction /ram:IncludedSupplyChainTradeLineItem /ram:SpecifiedTradeProduct /ram:GlobalID	0..1

... see the whole description of the syntax CII D22B implementation in Appendix 3 or Excel file sheet "Factur-X CII D22B BASIC".

7.5 The profile of the EUROPEAN NORM: EN 16931

The profile EN 16931 potentially contains all the data present in the European Semantic Standard. It is described in the European Semantic Standard for its management rules and for its implementation in the UN/CEFACT XML D22B syntax, in the documentation available on the sites www.fnfe-mpe.org and <http://www.ferd-net.de/> and in an XSD, schematron and Excel description, also available online.

Special attention must be given to the following points:

- Use of the same block of the UNCEFACT CII D22B XML syntax (AdditionalReferencedDocument corresponding to Additional Supporting Documents) to code 3 business terms of the EN 16931 standard at the document level and 1 at the line level:
 - ✓ BT-122: Supporting document identifier for any additional documents to be included. The typecode (ram: AdditionalReferencedDocument / ram: TypeCode) must be 916.
 - ✓ BT-17: Tender or lot reference. In this case, the same block is used in the XML syntax (ram: AdditionalReferencedDocument / ram: IssuerAssignedID) for the value of the field, and it must be completed with a typecode equal to 50.
 - ✓ BT-18: Invoiced object identifier. In this case, the same block is used in the XML syntax (ram: AdditionalReferencedDocument / ram: IssuerAssignedID) for the value of the field, and it must be completed with a typecode (ram: AdditionalReferencedDocument / ram: TypeCode) equal to 130.
 - ✓ BT-128: Invoice line object identifier. In this case, the same block is used in the XML syntax (ram: AdditionalReferencedDocument / ram: IssuerAssignedID), but set at the line level (ram: IncludedSupplyChainTradeLineItem / ram: SpecifiedLineTradeSettlement) for the field value, and must be completed with a typecode (/ram:TypeCode) equal to 130.

7.6 The Profile EXTENDED

The Factur-X standard also incorporates the profile EXTENDED, which is still based on the XML UN/CEFACT CII D22B syntax, integrating additional business data and the ability to produce multi-delivery invoices.

All additional Business Terms and Business Groups have been identified with an ID starting by “BT-X-“ or “BG-X-“

This EXTENDED Profile also changes some cardinalities compared to EN 16931 profile:

- BT-46 (Buyer Identifier) changed to cardinality 0..n instead of 0..1 in order to comply with French B2B Mandate CTC Reform (and waiting for EN 16931 evolution).
- BT-127-00 (Invoice line Note) is cardinality 0..n instead of 0..1.
- BT-127 (Note Content on line level) is 0..1 instead of 1..1, because a Content Code has been added.
- Global ID of all Parties are aligned to 0..n, instead of 0..1 for some of them.
- All Parties’ Contact are 0..n instead of 0..1, with a BT “Type of Contact” added.
- Buyer Accounting Reference (BT-19-00) is 0..n instead of 0..1.
- Item Price Discount (BT-147-00) is 0..n instead of 0..1.
- Payment Terms (BT-20) is 0..n instead of 0..1.

EXTENDED Profile deactivates some Business Rules in order to allow invoices with lines out of scope of VAT (Code “O”) and lines in the scope (all other codes): BR-O-11, BR-O-12, BR-O-13, BR-O-14.

EXTENDED profile also changes some Business Rules in order to introduce a tolerance of 0,01 € per line or Document level Allowances or Charges on calculation rules (when VAT is calculated on line level or prices are defined including VAT, especially for B2C invoices):

- BR-S-08, BR-S-09 replaced with BR-FXEXT-S-08, BR-FXEXT-S-09.
- BR-Z-08, BR-E-08, BR-AE-08, BR-IC-08, BR-G-08, BR-O-08, BR-AF-08, BR-AG-08, replaced with BR-FXEXT-Z-08, BR-FXEXT-E-08, BR-FXEXT-AE-08, BR-FXEXT-IC-08, BR-FXEXT-G-08, BR-FXEXT-O-08, BR-FXEXT-AF-08, BR-FXEXT-AG-08.

This profile is detailed in the Excel file attached to this documentation and add its own xsd and schematron.

The profile EXTENDED has a subset named EXTENDED-B2B-FR which includes all business terms which have been considered as necessary to address all standard business cases inventoried during the French B2B mandate CTC reform, and a secund subset named EXTENDED-CTC-FR which corresponds to the set of BT listed by French Administration for its B2B mandate CTC Reform. Those two subsets are given for information for implementers who want to focus first on those Business Terms.

7.7 Reference Profile XRECHNUNG

In order to comply with B2G implementation in Germany, it has been necessary to add a German specific invoice implementation compliant with the EN 16931, in UN/CEFACT SCRDM CII D16B XML, named XRECHNUNG, which is an EXTENDED profile regarding EN 16931.

The name of the xml component of Factur-X / ZUGFeRD is **always named xrechnung.xml** instead of factur-x.xml. As a consequence, a XRECHNUNG profile Factur-X / ZUGFeRD must not contain a factur-x.xml file embedded.

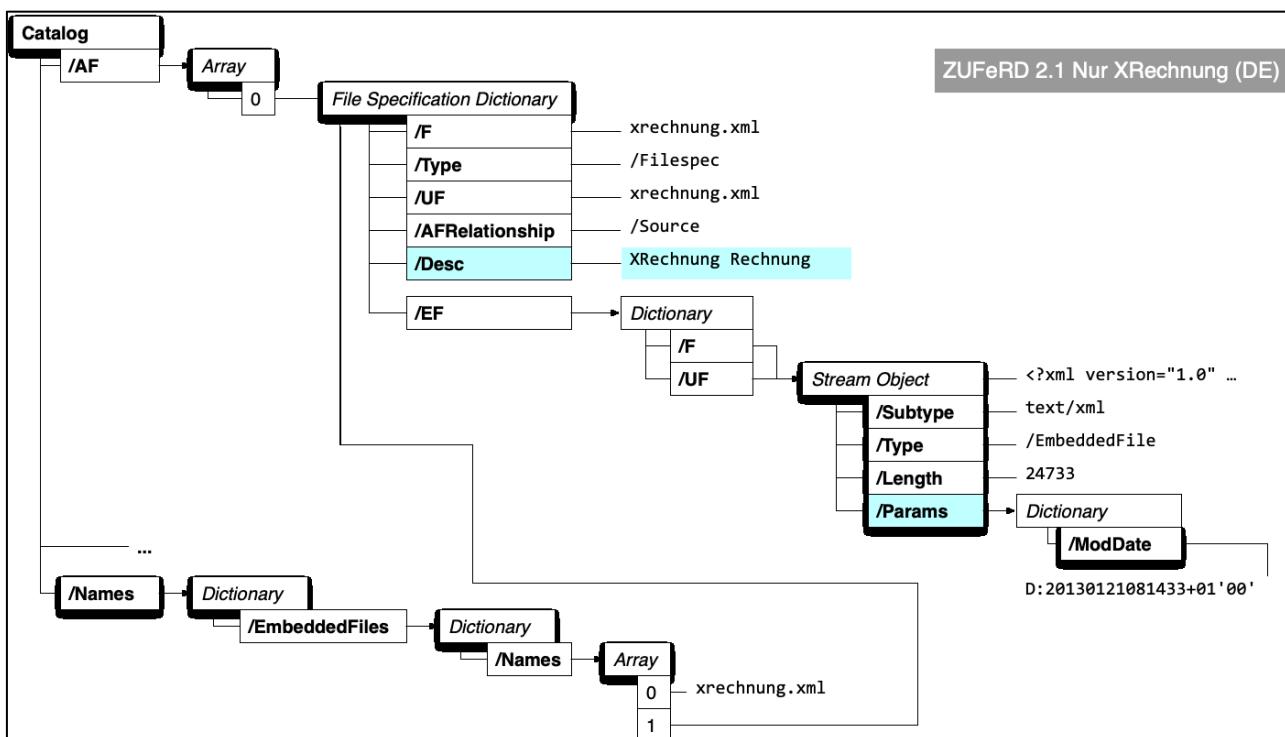
This chapter describes the embedding of the invoice data structured XML file only (xrechnung.xml). The detailed specifications of the xrechnung.xml file embedded can be found on the following website link [XStandards - Current version of XRechnung](#) which offers a download of the latest version and is available in German only.

Please note that XRechnung requires users to use the currently valid version. Each new version is published 6 months prior becoming effective.

Further information can be found on GitHub. This includes example files, specific business rules as part of the CIUS, a validator and other technical artefacts: <https://github.com/itplr-kosit>

The data relationship for profile XRECHNUNG is always Alternative because XRechnung originally is an XML format only. However, in accordance with the hybrid structure of Factur-X / ZUGFeRD, a visual representation (PDF) is being created from the initial xrechnung.xml file, too.

The following figure illustrates this structure using the example of a ZUGFeRD-based XML invoice. The embedded invoice file is named xrechnung.xml. The element / AF is part of the *Document Dictionary* (located directly under root), which is why the invoice file refers to the entire document. The data relationship is "Alternative", i.e. the XML invoice data are an alternative form of displaying the PDF visualization.



The properties of the extension schema are listed here:

Property	Value	Description
Name of the extension schema	ZUGFeRD PDF/A Extension Schema	
	urn:factur-x:pdfo:CrossIndustryDocument:invoice:1p0#	Notice the hash sign („#“) which must be defined
Schema prefix	fx	Prefix of the name space

Table 1: Properties of the XMP extension schema for profile XRECHNUNG

The fields of the extension schema are illustrated in the following table:

Field	Description	Example
fx:DocumentType	The document type; must always contain INVOICE in ZUGFeRD invoices	INVOICE
fx:DocumentFileName	The file name of the embedded invoice data document; must be identical with the value of entry /F in the file specification dictionary. This is a fixed value in profile XRECHNUNG: xrechnung.xml	xrechnung.xml

Field	Description	Example
fx:Version	The Major and Minor Version of the underlying invoice data specification. <u>Important:</u> always use the currently valid version number!	2p1
fx:ConformanceLevel	The profile of the XML-invoice data as specified in ZUGFeRD (permissible values)	XRECHNUNG

The recipients of an invoice may prefer to embed all attachments and invoice-explanatory documents in the XML. However, if this leads to the maximum permissible file size to be exceeded, it is recommended not to embed further files in the PDF, but rather to insert a link. This link would point to an external URL. Depending on the sensitivity of the information referred to, appropriate security measures ought to be applied.

Appendices

Appendix 1

Detailed specifications of the XML UN/CEFACT D22B syntax implementing the European semantic standard and including the Factur-X profiles.

Appendix 1 – Detailed specifications: profile EN 16931 and European Standard

This documentation is available online at www.fnfe-mpe.org and www.ferd-net.de, respectively. It consists of:

- An Excel file detailing
 - ✓ all the data by profile,
 - ✓ the specifications for use
 - ✓ the business rules
 - ✓ and an example of a readable presentation referencing most of the EN 16931 data, indicating both the profile and the mandatory or non-mandatory nature (tax law, commercial or conditional). This example has a version with highly restricted line data and a second page showing all the line data available in the template.
- xsd and schematrons files per profile:
 - ✓ For **EN 16931** and **BASIC** (with lines) profiles, knowing that EN 16931 validates also BASIC
 - ✓ For profiles without lines **BASIC WL** and **MINIMUM**
 - ✓ For **EXTENDED** profile
 - ✓ It is also possible to use the D22B SCRDM CII xsd (uncoupled) to anticipate future extensions. **It is also an option recommended to implement for invoice reception.** This makes it possible to accept all the profiles for the XML schema reception check, including extended profiles, and then to restrict the extracted data according to the profile declared by the issuer.
- An example of an xmp file
- Examples of "Factur-X" invoices

On the other hand, the European Semantic Standard 16931:2017 to which this documentation refers, and which describes and details the set of management rules, in particular for the complete **EN 16931** profile is available in French on the AFNOR website at <https://www.boutique.afnor.org> (search EN 16931-1), in German on <https://www.beuth.de/de/norm/din-en-16931-1/327729047>.

It can also be found on other European standardization sites such as <https://ilnas.services-publics.lu/ecnor/home.action> or <https://www.evs.ee/shop> (search EN 16931-1).

The same is true for all the documents of the European Semantic Standard EN 16931 as presented in the introduction to this document.

Appendix 2: Examples

Appendix 2 – examples

Example Factur-X invoices

Here are some sample invoices, building Factur-X within each profile with an excel generating tool:

- Facture_F20220023 : invoice with all business terms of BASIC profile and some more.
- Facture_F20220024 : invoice with lines without VAT
- Facture_F20220025 : invoice with a few business terms (simplified)
- Facture_F20220026 : intracommunity invoice
- Facture_F20220027 : invoice with 10% VAT and prepaid amount
- Facture_F20220028 : credit note with positive amounts (381)
- Facture_F20220029 : credit note as negative invoice
- Facture_F20220030 : invoice out of scope of VAT
- Facture_F20220031 : Invoice with reimbursement line (exemption code VATEX-EU-79-C)
- Facture_UC1_2023020_AFF-LE_FOURNISSEUR-POUR-L'ACHETEUR : Factored Invoice
- Facture_UC1_2023025_F-LE_FOURNISSEUR-POUR-L'ACHETEUR : commercial invoice

Example of a factur-x.xml file under BASIC profile.

In order to illustrate the BASIC profile, below an example of a message containing in comment (between `<! - ->`) at each line the data, its cardinality, the definition of the business term and its type. Then in bold an example of value. This example contains all possible fields while some are not necessary or timely. It is therefore only to illustrate the completeness of the message.

<rsm:CrossIndustryInvoice>

```
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:qdt="urn:un:unece:uncefact:data:standard:QualifiedDataType:100"
xmlns:udt="urn:un:unece:uncefact:data:standard:UnqualifiedDataType:100"
xmlns:rsm="urn:un:unece:uncefact:data:standard:CrossIndustryInvoice:100"
xmlns:ram="urn:un:unece:uncefact:data:standard:ReusableAggregateBusinessInformationEntity:100">
```

<rsm:ExchangedDocumentContext> <!-- MESSAGE IDENTIFICATION BLOCK -->

```
<ram:BusinessProcessSpecifiedDocumentContextParameter> <!-- BT-23, 0..1, Business process type, Text -->
    <ram:ID> <!-- BT-23, 0..1, Business process type, Text --> ID PROCESSUS </ram:ID>
</ram:BusinessProcessSpecifiedDocumentContextParameter>
<ram:GuidelineSpecifiedDocumentContextParameter> <!-- BT-24, 1..1, Specification identifier, Identifier -->
    <ram:ID> urn:cen.eu:en16931#compliant#factur-x.eu:1p0:basic </ram:ID>
</ram:GuidelineSpecifiedDocumentContextParameter>
</rsm:ExchangedDocumentContext>
```

<rsm:ExchangedDocument> <!-- DOCUMENT HEADER BLOCK : INVOICE NUMBER, TYPE, ISSUE DATE and NOTE -->

```
<ram:ID> <!-- BT-1, 1..1, Invoice number, Identifier --> NUMFACT </ram:ID>
<ram:TypeCode> <!-- BT-3, 1..1, Invoice type code, Code --> 380 </ram:TypeCode>
<ram:IssueDateTime> <!-- BT-2, 1..1, Invoice issue date, Date -->
    <udt:DateTimeString format="102"> <!-- BT-2, 1..1, Invoice issue date, Date, Date --> AAAAMMJJ </udt:DateTimeString>
</ram:IssueDateTime>
<ram:IncludedNote> <!-- BG-1, 0..n, Invoice note-->
    <ram:Content> <!-- BT-22, 1..1, Invoice note, Texte --> NOTE FREE TEXT </ram:Content>
    <ram:SubjectCode> <!-- BT-21, 0..1, Invoice note subject code, Text --> CODE NOTE </ram:SubjectCode>
</ram:IncludedNote>
</rsm:ExchangedDocument>
```

<rsm:SupplyChainTradeTransaction> <!-- COMMERCIAL TRANSACTION INFORMATION BLOCK -->

<ram:IncludedSupplyChainTradeLineItem> <!-- BG-25, 1..n, INVOICE LINE -->

```

<ram:AssociatedDocumentLineDocument> <!-- BT-126, 1..1, Invoice line identifier, Identifier -->
    <ram:LineID> 1 </ram:LineID>
</ram:AssociatedDocumentLineDocument>

<ram:SpecifiedTradeProduct> <!-- BG-31, 1..1, ITEM INFORMATION -->
    <ram:GlobalID schemeID ="ID SCHEME"> <!-- BT-157, 0..1, Item standard identifier, Identifier --> ID ARTICLE </ram:GlobalID>
    <ram:Name> <!-- BT-153, 1..1, Item name, Text --> DESIGNATION ARTICLE </ram:Name>
</ram:SpecifiedTradeProduct>

<ram:SpecifiedLineTradeAgreement> <!-- BG-29, 1..1, PRICE DETAILS -->
    <ram:NetPriceProductTradePrice> <!-- BT-146, 1..1, Item net price,-->
        <ram:ChargeAmount> <!-- BT-146, 1..1, Item net price, exclusive of VAT, after subtracting item price discount --> 20.00 </ram:ChargeAmount>
        <ram:BasisQuantity unitCode="C62"> <!-- BT-149, 0..1, Item price base quantity--> 1 </ram:BasisQuantity>
    </ram:NetPriceProductTradePrice>
</ram:SpecifiedLineTradeAgreement>

<ram:SpecifiedLineTradeDelivery> <!-- BT-129, 1..1, Invoiced quantity, Quantity -->
    <ram:BilledQuantity unitCode ="C62" > <!-- BT-129, 1..1, Invoiced quantity, Quantity --> 5.00 </ram:BilledQuantity>
</ram:SpecifiedLineTradeDelivery>

<ram:SpecifiedLineTradeSettlement>
    <ram:ApplicableTradeTax> <!-- BG-30, 1..1, LINE VAT INFORMATION -->
        <ram:TypeCode> <!-- BT-151-0, 1..1, VAT type code on line level --> VAT </ram:TypeCode>
        <ram:CategoryCode> <!-- BT-151, 1..1, Invoiced item VAT category code, Code --> S </ram:CategoryCode>
        <ram:RateApplicablePercent> <!-- BT-152, 0..1, Invoiced item VAT rate, Percentage --> 20.00 </ram:RateApplicablePercent>
    </ram:ApplicableTradeTax>
    <ram:SpecifiedTradeAllowanceCharge>
        <!-- BG-27, 0..n, INVOICE LINE ALLOWANCES --> <>
            <ram:ChargeIndicator> <!-- BG-27-0, 1..1, Charges and Allowances line Indicator -->

```

```

<udt:Indicator><!-- BG-27-1, 1..1, Allowances indicator value --> FALSE </udt:Indicator>
</ram:ChargeIndicator>
<ram:ActualAmount><!-- BT-136, 1..1, Invoice line allowance amount, Amount --> 7.00 </ram:ActualAmount>
<ram:ReasonCode><!-- BT-140, 1..1, Invoice line allowance reason code, Code --> 100 </ram:ReasonCode>
<ram:Reason><!-- BT-139, 1..1, Invoice line allowance reason, Text --> Remise spéciale </ram:Reason>
<!-- BG-28, 0..n, INVOICE LINE CHARGES --> <>
<ram:ChargeIndicator><!-- BG-28-0, 1..1, Charges and Allowances line Indicator -->
    <udt:Indicator><!-- BG-28-1, 1..1, Charges indicator value --> TRUE </udt:Indicator>
</ram:ChargeIndicator>
<ram:ActualAmount><!-- BT-141, 1..1, Invoice line charge amount, Amount --> 7.00 </ram:ActualAmount>
<ram:ReasonCode><!-- BT-145, 1..1, Invoice line charge reason code, Code --> FC </ram:ReasonCode>
<ram:Reason><!-- BT-144, 1..1, Invoice line charge reason, Texte --> Frais de transport </ram:Reason>
</ram:SpecifiedTradeAllowanceCharge>
<ram:SpecifiedTradeSettlementLineMonetarySummation><!-- BT-131, 1..1, Invoice line net amount -->
    <ram:LineTotalAmount><!-- BT-131, 1..1, Invoice line net amount, Amount --> 100.00 </ram:LineTotalAmount>
</ram:SpecifiedTradeSettlementLineMonetarySummation>
</ram:SpecifiedLineTradeSettlement>
</ram:IncludedSupplyChainTradeLineItem>

<ram:ApplicableHeaderTradeAgreement><!-- ApplicableHeaderTradeAgreement BLOCK -->
<ram:BuyerReference><!-- BT-10, 0..1 Buyer reference, Text --> SERVICE EXEC </ram:BuyerReference>
<ram:SellerTradeParty><!-- BG-4, 1..1, SELLER -->
    <ram:ID schemeID = "Scheme ID"><!-- BT-29, 0..n, Seller identifier, Identifier --> ID VENDEUR </ram:ID>
    <ram:GlobalID schemeID = "GLN"><!-- BT-29-1, 0..1, --> GLOBAL ID VENDEUR </ram:GlobalID>
    <ram:Name><!-- BT-27, 1..1, Seller name, Text --> RAISON SOCIALE VENDEUR </ram:Name>
    <ram:SpecifiedLegalOrganization><!-- BT-30, 0..1, Seller legal registration identifier, Identifier -->
        <ram:ID schemeID = "0002"><!-- BT-30, 0..1, Seller legal registration identifier, Identifier --> 12345678900014 </ram:ID>

```

```

<ram:TradingBusinessName><!-- BT-28, 0..1, Seller trading name, Text --> NOM COMMERCIAL VENDEUR </ram:TradingBusinessName>
</ram:SpecifiedLegalOrganization>

<ram:PostalTradeAddress><!-- BG-5, 1..1, SELLER POSTAL ADDRESS -->
    <ram:PostcodeCode><!-- BT-38, 0..1, Seller post code, Text --> 75007 </ram:PostcodeCode>
    <ram:LineOne><!-- BT-35, 0..1, Seller address line 1, Text --> 55 AVENUE BOSQUET </ram:LineOne>
    <ram:LineTwo><!-- BT-36, 0..1, Seller address line 2, Text --> LIGNE 2 </ram:LineTwo>
    <ram:LineThree><!-- BT-162, 0..1, Seller address line 3, Text --> LIGNE 3 </ram:LineThree>
    <ram:CityName><!-- BT-37, 0..1, Seller city, Text --> PARIS </ram:CityName>
    <ram:CountryID><!-- BT-40, 1..1, Seller country code, Code --> FR </ram:CountryID>
    <ram:CountrySubDivisionName><!-- BT-39, 0..1, Seller country subdivision, Text --> FR </ram:CountrySubDivisionName>
</ram:PostalTradeAddress>

<ram:URIUniversalCommunication><!-- BT-34, 0..1, Seller electronic address, Identifier -->
    <ram:URIID schemeID = "SMTP"><!-- BT-34, 0..1, Seller electronic address, Identifier --> vendeur@vendeur.com </ram:URIID>
</ram:URIUniversalCommunication>

<ram:SpecifiedTaxRegistration><!-- BT-31, 0..1, Seller VAT identifier, Identifier -->
    <ram:ID schemeID = "VA"><!-- BT-31, 0..1, Seller VAT identifier, Identifier --> FRXX123456789 </ram:ID>
</ram:SpecifiedTaxRegistration>

</ram:SellerTradeParty>

<ram:BuyerTradeParty><!-- BG-7, 1..1, BUYER -->
    <ram:ID schemeID = "Scheme ID"><!-- BT-46, 0..1, Buyer identifier, Identifier --> ID ACHETEUR </ram:ID>
    <ram:GlobalID schemeID = "GLN"><!-- BT-46-1, 0..1, --> GLOBAL ID </ram:GlobalID>
    <ram:Name><!-- BT-44, 1..1, Buyer name, Text --> RAISON SOCIALE ACHETEUR </ram:Name>
    <ram:SpecifiedLegalOrganization><!-- BT-47, 0..1, Buyer legal registration identifier, Identifier -->
        <ram:ID schemeID = "0002"><!-- BT-47, 0..1, Buyer legal registration identifier, Identifier --> 98765432100014 </ram:ID>
    </ram:SpecifiedLegalOrganization>

    <ram:PostalTradeAddress><!-- BG-8, 1..1, BUYER POSTAL ADDRESS -->
        <ram:PostcodeCode><!-- BT-53, 0..1, Buyer post code, Text --> 75012 </ram:PostcodeCode>

```

```

<ram:LineOne> <!-- BT-50, 0..1, Buyer address line 1, Text --> 139 RUE DE BERCY </ram:LineOne>
<ram:LineTwo> <!-- BT-51, 0..1, Buyer address line 2, Text --> LIGNE 2 </ram:LineTwo>
<ram:LineThree> <!-- BT-163, 0..1, Buyer address line 3, Text --> LIGNE 3 </ram:LineThree>
<ram:CityName> <!-- BT-52, 0..1, Buyer city, Text --> PARIS </ram:CityName>
<ram:CountryID> <!-- BT-55, 1..1, Buyer country code, Code --> FR </ram:CountryID>
<ram:CountrySubDivisionName> <!-- BT-54, 0..1, Buyer country subdivision, Text --> FR </ram:CountrySubDivisionName>
</ram:PostalTradeAddress>
<ram:URIUniversalCommunication> <!-- BT-49, 0..1, Buyer electronic address, Identifier -->
    <ram:URIID schemeID = "SMTP"> <!-- BT-49, 0..1, Buyer electronic address, Identifier --> acheteur@acheteur.com </ram:URIID>
</ram:URIUniversalCommunication>
<ram:SpecifiedTaxRegistration> <!-- BT-48, 0..1, Buyer VAT identifier, Identifier -->
    <ram:ID schemeID = "VA"> <!-- BT-48, 0..1, Buyer VAT identifier, Identifier --> FRXX987654321 </ram:ID>
</ram:SpecifiedTaxRegistration>
</ram:BuyerTradeParty>
<ram:SellerTaxRepresentativeTradeParty> <!-- BG-11, 0..1, SELLER TAX REPRESENTATIVE PARTY -->
    <ram:Name> <!-- BT-62, 1..1, SELLER TAX REPRESENTATIVE PARTY, Text --> MON REPRÉSENTANT FISCAL </ram:Name>
    <ram:PostalTradeAddress> <!-- BG-12, 1..1, SELLER TAX REPRESENTATIVE POSTAL ADDRESS --> </ram:PostalTradeAddress>
        <ram:PostcodeCode> <!-- BT-67, 0..1, Tax representative post code, Text --> 92100 </ram:PostcodeCode>
        <ram:LineOne> <!-- BT-64, 0..1, Tax representative address line 1, Text --> LIGNE 1 </ram:LineOne>
        <ram:LineTwo> <!-- BT-65, 0..1, Tax representative address line 2, Text --> LIGNE 2 </ram:LineTwo>
        <ram:LineThree> <!-- BT-164, 0..1, Tax representative address line 3, Text --> LIGNE 3 </ram:LineThree>
        <ram:CityName> <!-- BT-66, 0..1, Tax representative city, Text --> BOULOGNE BILLANCOURT </ram:CityName>
        <ram:CountryID> <!-- BT-69, 1..1, Tax representative country code, Code --> FR </ram:CountryID>
        <ram:CountrySubDivisionName> <!-- BT-68, 0..1, Tax representative country subdivision, Text --> FR </ram:CountrySubDivisionName>
    </ram:PostalTradeAddress>
    <ram:SpecifiedTaxRegistration> <!-- BT-63, 1..1, Seller tax representative VAT identifier, Identifier -->
        <ram:ID schemeID = "VA"> <!-- BT-63, 1..1, Seller tax representative VAT identifier, Identifier --> FRXX123987654 </ram:ID>

```

```

        </ram:SpecifiedTaxRegistration>
        </ram:SellerTaxRepresentativeTradeParty>
        <ram:BuyerOrderReferencedDocument><!-- BT-13, 0..1, Purchase order reference-->
            <ram:IssuerAssignedID><!-- BT-13, 0..1, Purchase order reference --> REFBCXXXXXX </ram:IssuerAssignedID>
        </ram:BuyerOrderReferencedDocument>
        <ram:ContractReferencedDocument><!-- BT-12, 0..1, Contract reference -->
            <ram:IssuerAssignedID><!-- BT-12, 0..1 Contract reference --> REF CONTRAT XXXXXX </ram:IssuerAssignedID>
        </ram:ContractReferencedDocument>
</ram:ApplicableHeaderTradeAgreement>

<ram:ApplicableHeaderTradeDelivery><!-- BG-13, 0..1, DELIVERY INFORMATION -->
    <ram:ShipToTradeParty>
        <ram:ID schemeID = "Scheme ID"><!-- BT-71, 0..1, Deliver to location identifier, Identifier --> ID LIVRAISON </ram:ID>
        <ram:GlobalID schemeID = "GLN"><!-- BT-71-1, 0..1, --> GLOBAL ID </ram:GlobalID>
        <ram:Name><!-- BT-70, 0..1, Deliver to party name – SHIP TO PARTY> </ram:Name>
        <ram:PostalTradeAddress><!-- BG-15, 1..1, DELIVERY ADDRESS -->
            <ram:PostcodeCode><!-- BT-78, 0..1, Deliver to post code, Text --> 75012 </ram:PostcodeCode>
            <ram:LineOne><!-- BT-75, 0..1, Deliver to address line 1, Text --> 139 RUE DE BERCY </ram:LineOne>
            <ram:LineTwo><!-- BT-76, 0..1, Deliver to address line 2, Text --> LIGNE 2 </ram:LineTwo>
            <ram:LineThree><!-- BT-165, 0..1, Deliver to address line 3, Text --> LIGNE 3 </ram:LineThree>
            <ram:CityName><!-- BT-77, 0..1, Deliver to city, Text --> PARIS </ram:CityName>
            <ram:CountryID><!-- BT-80, 1..1, Deliver to country code, Code --> FR </ram:CountryID>
        <ram:CountrySubDivisionName><!-- BT-79, 0..1, Deliver to country subdivision, Text --> FR </ram:CountrySubDivisionName>
    </ram:PostalTradeAddress>
</ram:ShipToTradeParty>
<ram:ActualDeliverySupplyChainEvent><!-- BT-72, 0..1 Actual delivery date, Date -->
    <ram:OccurrenceDateTime><!-- BT-72, 0..1, Actual delivery date, Date -->

```

```

<udt:DateTimeString format="102"><!-- BT-72, 0..1, Actual delivery date, Date --> AAAMMJJ </udt:DateTimeString>
</ram:OccurrenceDateTime>
</ram:ActualDeliverySupplyChainEvent>
<ram:DespatchAdviceReferencedDocument><!-- BT-16, 0..1, Despatch advice reference-->
<ram:IssuerAssignedID><!-- BT-16, 0..1, Despatch advice reference --> AVIS EXP XXXX </ram:IssuerAssignedID>
</ram:DespatchAdviceReferencedDocument>
</ram:ApplicableHeaderTradeDelivery>

<ram:ApplicableHeaderTradeSettlement>
<ram:CreditorReferenceID><!-- BT-90, 0..1, Bank assigned creditor identifier --> ICS : IDENTIFIER MANDAT PREL </ram:CreditorReferenceID>
<ram:PaymentReference><!-- BT-83, 0..1 Remittance information, Text --> REF ENDTOEND PAIMENT </ram:PaymentReference>
<ram:InvoiceCurrencyCode><!-- BT-5, 1..1, Invoice currency code, Code --> EUR </ram:InvoiceCurrencyCode>
<ram:PayeeTradeParty><!-- BG-10, 0..1, PAYEE -->
<ram:ID schemeID = "Scheme ID"><!-- BT-60, 0..1, Payee identifier, Identifier --> 12378965400014 </ram:ID>
<ram:GlobalID schemeID = "GLN"><!-- BT-60-1, 0..1, Payee identifier --> MONGLN </ram:GlobalID>
<ram:Name><!-- BT-59, 1..1, Payee name, Text --> NOM BENEFICIAIRE </ram:Name>
<ram:SpecifiedLegalOrganization><!-- BT-61, 0..1, Payee legal registration identifier, Identifier -->
<ram:ID schemeID = "0002"><!-- BT-61, 0..1, Payee legal registration identifier, Identifier --> 123789654 </ram:ID>
</ram:SpecifiedLegalOrganization>
</ram:PayeeTradeParty>
<ram:SpecifiedTradeSettlementPaymentMeans><!-- BG-16, 0..1, PAYMENT INSTRUCTIONS -->
<ram>TypeCode><!-- BT-81, 1..1, Payment means type code, Code --> 30 </ram>TypeCode>
<ram:PayerPartyDebtorFinancialAccount><!-- BT-91, 0..1, Debited account identifier, Identifier -->
<ram:IBANID><!-- BT-91, 0..1, Debited account identifier, Identifier --> IBAN ACHETEUR </ram:IBANID>
</ram:PayerPartyDebtorFinancialAccount>
<ram:PayeePartyCreditorFinancialAccount><!-- BG-17, 0..n, VIREMENT
<ram:IBANID><!-- BT-84, 1..1, Payment account identifier, Identifier --> IBAN VENDEUR OU BENEF </ram:IBANID>

```

```

<ram:ProprietaryID><!-- BT-84-0, 1..1, --> NUM BANK ACCOUNT IF NOT IBAN </ram:ProprietaryID>
</ram:PayeePartyCreditorFinancialAccount>
</ram:SpecifiedTradeSettlementPaymentMeans>
<ram:ApplicableTradeTax><!-- BG-23, 1..n, VAT BREAKDOWN -->
    <ram:CalculatedAmount><!-- BT-117, 1..1, VAT category tax amount, Amount --> 20.00 </ram:CalculatedAmount>
    <ram:TypeCode><!-- BT-118-0, 1..1, VAT type code --> VAT </ram:TypeCode>
    <ram:ExemptionReason><!-- BT-120, 0..1, VAT exemption reason text, Text --> PAS DE MOTIF </ram:ExemptionReason>
    <ram:BasisAmount><!-- BT-116, 1..1, VAT category taxable amount, Amount --> 100.00 </ram:BasisAmount>
    <ram:CategoryCode><!-- BT-118, 1..1, VAT category code, Code --> S </ram:CategoryCode>
    <ram:ExemptionReasonCode><!-- BT-121, 0..1, VAT exemption reason code, Code --> NEANT </ram:ExemptionReasonCode>
    <ram:DueDateTypeCode><!-- BT-8, 0..1, Value added tax point date code, Code --> 5 (SUR DEBITS) </ram:DueDateTypeCode>
    <ram:RateApplicablePercent><!-- BT-119, 0..1 VAT category rate, Percentage --> 20.00 </ram:RateApplicablePercent>
</ram:ApplicableTradeTax>
<ram:BillingSpecifiedPeriod>
    <ram:StartDateTime>
        <udt:DateTimeString format="102">!-- BT-73, 0..1, Invoicing period start date, Date --> 20180101</udt:DateTimeString>
    </ram:StartDateTime>
    <ram:EndDateTime>
        <udt:DateTimeString format="102">BT-74, 0..1, Invoicing period end date, Date --> 20181231</udt:DateTimeString>
    </ram:EndDateTime>
</ram:BillingSpecifiedPeriod>
<ram:SpecifiedTradeAllowanceCharge>
    <!-- BG-20, 0..n, DOCUMENT LEVEL ALLOWANCES -->
    <ram:ChargeIndicator><!-- BG-20-0, 1..1, Charge indicator --> </ram:ChargeIndicator>
        <udt:Indicator><!-- BG-20-00, 1..1, Charge indicator Value --> false </udt:Indicator>
    </ram:ChargeIndicator>
    <ram:CalculationPercent><!-- BT-94, 0..1, Document level allowance percentage, Percentage --> 5.00 </ram:CalculationPercent>

```

```

<ram:BasisAmount> <!-- BT-93, 0..1, Document level allowance base amount, Amount --> 100.00 </ram:BasisAmount>
<ram:ActualAmount> <!-- BT-92, 1..1, Document level allowance amount, Amount --> 5.00 </ram:ActualAmount>
<ram:ReasonCode> <!-- BT-98, 0..1, Document level allowance reason code, Code --> CODE REMISE </ram:ReasonCode>
<ram:Reason> <!-- BT-97, 0..1, Document level allowance reason, Text --> MOTIF REMISE </ram:Reason>
<ram:CategoryTradeTax> <!-- BT-95-0, 1..1, VAT type code for document level allowances -->
    <ram:TypeCode> <!-- BT-95-0, 1..1, VAT type code for document level allowances --> VAT </ram:TypeCode>
    <ram:CategoryCode> <!-- BT-95, 1..1, Document level allowance VAT category code, Code --> S </ram:CategoryCode>
    <ram:RateApplicablePercent> <!-- BT-96, 0..1, Document level allowance VAT rate, Pourcentage --> 20.00 </ram:RateApplicablePercent>
</ram:CategoryTradeTax>
<!-- BG-21, 0..n, DOCUMENT LEVEL CHARGES --> <>
<ram:ChargeIndicator> <!-- BG-21-0, 1..1, Charges and Allowances Document level Indicator -->
    <udt:Indicator> <!-- BG-21-00, 1..1, Charge indicator Value --> true </udt:Indicator>
</ram:ChargeIndicator>
<ram:CalculationPercent> <!-- BT-101, 0..1, Document level charge percentage, Percentage --> 5.00 </ram:CalculationPercent>
<ram:BasisAmount> <!-- BT-100, 0..1, Document level charge base amount, Amount --> 100.00 </ram:BasisAmount>
<ram:ActualAmount> <!-- BT-99, 1..1, Document level charge amount, Amount --> 5.00 </ram:ActualAmount>
<ram:ReasonCode> <!-- BT-105, 0..1, Document level charge reason code, Code --> CODE CHARGE </ram:ReasonCode>
<ram:Reason> <!-- BT-104, 0..1, Document level charge reason, Text --> MOTIF CHARGE </ram:Reason>
<ram:CategoryTradeTax> <!-- BT-102-0, 1..1, VAT type code for document level charges-->
    <ram:TypeCode> <!-- BT-102-0, 1..1, VAT type code for document level charges--> VAT </ram:TypeCode>
    <ram:CategoryCode> <!-- BT-102, 1..1, Document level charge VAT category code, Code --> S </ram:CategoryCode>
    <ram:RateApplicablePercent> <!-- BT-103, 0..1, Document level charge VAT rate, Percentage --> 20.00 </ram:RateApplicablePercent>
</ram:CategoryTradeTax>
</ram:SpecifiedTradeAllowanceCharge>
<ram:SpecifiedTradePaymentTerms> <!-- BT-9, 0..1, Payment due date, Date -->
    <ram:DueDateDateTime> <!-- BT-9, 0..1, Payment due date, Date -->
        <udt:DateTimeString format="102"> <!-- BT-9, 0..1, Payment due date, Date --> AAAMMJJ </udt:DateTimeString>

```

```

        </ram:DueDateDateTime>
        <ram:DirectDebitMandateID> <!-- BT-89, 0..1, Mandate reference identifier, Identifier --> ICS XXXX </ram:DirectDebitMandateID>
    </ram:SpecifiedTradePaymentTerms>
    <ram:SpecifiedTradeSettlementHeaderMonetarySummation> <!-- BG-22, 1..1, DOCUMENT TOTALS-->
        <ram:LineTotalAmount> <!-- BT-106, 1..1, Sum of Invoice line net amount, Amount --> 100.00 </ram:LineTotalAmount>
        <ram:ChargeTotalAmount> <!-- BT-108, 0..1, Sum of charges on document level, Amount --> 5.00 </ram:ChargeTotalAmount>
        <ram:AllowanceTotalAmount> <!-- BT-107, 0..1, Sum of allowances on document level, Amount --> 5.00 </ram:AllowanceTotalAmount>
        <ram:TaxBasisTotalAmount> <!-- BT-109, 1..1, Invoice total amount without VAT, Amount --> 100.00 </ram:TaxBasisTotalAmount>
        <ram:TaxTotalAmount currencyID = "EUR"> <!-- BT-110, 0..1, Invoice total amount without VAT--> 20.00 </ram:TaxTotalAmount>
        <ram:GrandTotalAmount> <!-- BT-112, 1..1, Invoice total amount with VAT, Amount --> 120.00 </ram:GrandTotalAmount>
        <ram:TotalPrepaidAmount> <!-- BT-113, 0..1, Paid amount, Amount --> 0.00 </ram:TotalPrepaidAmount>
        <ram:DuePayableAmount> <!-- BT-115, 1..1, Amount due for payment, Amount --> 120.00 </ram:DuePayableAmount>
    </ram:SpecifiedTradeSettlementHeaderMonetarySummation>
    <ram:InvoiceReferencedDocument> <!-- BG-3, 0..n, PRECEDING INVOICE REFERENCE-->
        <ram:IssuerAssignedID> <!-- BT-25, 1..1, Preceding Invoice reference--> NA </ram:IssuerAssignedID>
        <ram:FormattedIssueDateTime> <!-- BT-26, 0..1, Preceding Invoice issue date, Date -->
            <qdt:DateTimeString format="102"> <!-- BT-26, 0..1, Preceding Invoice issue date, Date --> NA </qdt:DateTimeString>
        </ram:FormattedIssueDateTime>
    </ram:InvoiceReferencedDocument>
    <ram:ReceivableSpecifiedTradeAccountingAccount> <!-- BT-19, 0..1, Buyer accounting reference, Text -->
        <ram:ID> <!-- BT-19, 0..1, Buyer accounting reference, Text --> REF COMPTABLE ACHETEUR </ram:ID>
    </ram:ReceivableSpecifiedTradeAccountingAccount>
</ram:ApplicableHeaderTradeSettlement>
</rsm:SupplyChainTradeTransaction>
</rsm:CrossIndustryInvoice>

```

Example of invoice readable presentation

The purpose of this example is to show how to organize most data in an invoice readable presentation template:

- An example of extended presentation of invoice line data (to use if the single-page and restricted lines model is not appropriate)
- An example of a single-page invoice, with most header and footer data, and restricted line data. If the line block is too small, simply remove it and use the extended line model in addition. This shows all the possible data, each party managing the ones he wants or can provide.

The colour code for the single-page presentation template is:

Colour code and model for the data: - Colour: mandatory data, if... + Model: Profile
Mandatory fiscal information
Mandatory field under certain conditions
<i>Trade law mandatory information</i>
MINIMUM
BASIC / BASIC WL
EN 16931



Invoice / Credit Note N°
Date

BT-1 : Invoice Identifier
BT-2 : invoice date

Page x / xx

Invoice lines (details)

Line number BT-126	Order line number BT-132	References	Article ID	Invoicing period	Item name BT-153	Item description BT-154	Item Attributes	Unit Price details	Item Net price (EUROS) BT-146	Invoiced quantity unit of measure BT-129	Invoiced quantity BT-130	Line level allowances	Line level charges	Net Amount (EUROS) BT-131	VAT code	
		- Invoice line object ID (given by the seller) : BT-128 - Invoice line Buyer accounting reference : BT-133	- Item standard ID (BT-157) - Item Seller's ID (BT-155) - Item Buyer's ID (BT-156)	Start date (BT-134) End Date (BT-135)			- Item attribute name (BT-160) : attribute value (BT-161) - Item classification ID (unspsc,) : BT-158 - Item country of origin : BT-159	- Item price base quantity (BT-149) - Item gross price (BT-148) - Item price discount (BT-147)				- Montant de remise (BT-136) - Assiette de remise (BT-137) - Taux de remise (BT-138) - Code (BT-140) et Motif (BT-139) de remise	- Montant de charges et frais (BT-141) - Assiette de charges et frais (BT-142) - Taux de charges et frais (BT-143) - Code (BT-145) et Motif (BT-144) de charges et frais			
1	4			from 12.12.2017 to 12.12.2017	Produit 1	Produit 1 Livré le 12.12.2017	Taille : Moyen UNSPSC : 80543215	Boite de 10	4,00	PCE	10,00	5% on 40 € Allowance on volume -2,00	Packing costs	2,00	40,00	1
2	5			from 15.12.2017 to 15.12.2017	Product 2	Product 1 delivered on 12.12.2017	Color : red UNSPSC : 80543215	Box of 10	58,00	PCE	3,00		Packing costs	6,00	180,00	1
3	3	SUBSC Line 1		from 01.12.2017 to 31.12.2017	Service 1				80,00	PCE	2,00				160,00	1
4	1	ABO Line 2		du 01.12.2017 au 31.12.2017	Service 2				150,00	PCE	1,00				150,00	1

Total NET : 530,00

LOGO Seller

BT-28 : Commercial name of the Seller
BT-27 : registered name of the seller
BG-5 : Seller Address
BG-5 : Seller zip code, city, country
BG-6 : Seller contact : name, : (Q) +33 6 07 53 32 85, email
BT34 : Seller email : admin@macompagnie.fr
BT29 : Seller private ID (GLN, DUUNS, ...)
BT30 : Seller legal ID : SIRET 123 456 789 00015
BT31 : Seller VAT ID : FR 32 123 456 789
If Seller Tax Representative
BT-62 : Seller tax representative name
BG-12 : Seller Tax representative address
BG-12 : Seller Tax representative zip code, city, country
BT-63 : Seller tax representative VAT ID

Our References

BT-18 : Invoiced object identifier : customer number, electricity meter number, ...
BT-14 : Sales order reference

Yours References

BT-10 : BUYER Reference : Cost center, BU, "Service Exécutant"
BT-17 : Tender or lot reference
BT-11 : Project reference
BT-19 : Buyer accounting reference
BT-12 : Contract reference
BT-13 : Purchase order reference

Invoice References

BT-73 : Invoicing period start date
BT-74 : Invoicing period end date
BT-25 : Preceding Invoice reference: Credit note in invoice xxxx
BT-26 : Preceding Invoice date: Credit note on invoice from xxxx
BT-23 : Business process type (Optional)

Invoice / Credit Note N°	BT-1 : Invoice Identifier
Date	BT-2 : Invoice date
Client address	
BT-49 : email@ofthebuyer.com	BT-44 : Buyer name
BT-45 : Commercial name of the Buyer	
BT-8 : Buyer address	BT-8 : Buyer address
BT-8 : Buyer address	BT-8 : Buyer address
BT-8 : Buyer address	BT-8 : Buyer address
BT-8 : Buyer country	

BG-9 : Buyer contact: name, : (Q) +33 6 10 34 56 78, email

Your Identifiers

BT46 : private ID (GLN, DUNS, ...)
BT47 : legal ID (RCS / SIRET 987 654 321 00017)
BT48 : VAT ID : FR 32 123 456 789

Delivery information

BT-71 : Delivery location identifier
BT-70 : Deliver to party name
BG-15 : Delivery address
BG-15 : Delivery address
BG-15 : Delivery address
BG-15 : Delivery address country

BT-16 : Despatch advice reference
BT-72 : Delivery date
BT-15 : Receiving advice reference

Currency (BT-5) : EUROS

Article ID (Order Line Number, Item Code, ...)	DESIGNATION : BT153, BT 154	QUANTITY BT-129	U.P. HT (€) BT-146	TOTAL Net (€) BT-131	VAT
POLine 1	Product 1	1,00	40,00	40,00	1
POLine 2	Product 2	3,00	60,00	180,00	1
POLine 3	Service 1	2,00	80,00	160,00	2
POLine 4	Service 2	1,00	150,00	150,00	3
	BG-20 : Document level Allowances	10%	220,00	-22,00	1
	BG-21 : Document level charges	1,00	25,00	25,00	1

VAT breakdown (exemption reason text : BT-120 / BT-121)	VAT code	VAT rate (BT-119)	VAT base (BT-116)	VAT amount (BT-117)
	1	20,00%	223,00 €	44,60 €
	2	10,00%	160,00 €	16,00 €
<i>exempted because of ...</i>	3	0,00%	150,00 €	0,00 €

BT-8 : TVA acquittée sur les encaissements / débits
BT-20 : Payment terms : Tout retard de paiement engendre une pénalité exigible à compter de la date d'échéance, calculée sur la base de trois fois le taux d'intérêt légal. Indemnité forfaitaire pour frais de recouvrement en cas de retard de paiement : 40 €

TOTAL NET BT-109	TOTAL VAT BT-110	TOTAL GROSS BT-112
533,00 €	60,60 €	593,60 €

BT-113 : prepaid amount : 0,00 €

Date d'échéance :	BT-9 (date d'échéance)
Payee (if different from the seller)	
BT-59: Payee name	BT-81 / BT-82 : Mean of payment requested
BT-60: Payee private or global ID	BT-85 : Payment account name
BT-61: Payee legal ID: SIREN / SIRET	BT-84 : IBAN : FR76 1234 5678 9012 3456 7890 123 BT-86 : BIC : XXXXXXXX
	BT-83 : Remittance information (End to End), for Payee reconciliation

BT-81 / BT-82 : Mean of payment requested

BT-85 : Payment account name

BT-84 : IBAN : FR76 1234 5678 9012 3456 7890 123 | BT-86 : BIC : XXXXXXXX

BT-83 : Remittance information (End to End), for Payee reconciliation

Ma société. Société anonyme au capital de xx.xxxx EUROS - R.C.S. MAVILLE 123 456 789 - NAF ZZZZZ

136 ma rue a moi, code postal Ville Pays – contact@masociete.fr - www.masociete.fr – N° TVA : FR32 123 456 789

Page 1 / 1

Appendix 3: XML Description

3.a BASIC Profile

3.b EN 16931 Profile

3.c Business Rules