Download Package Read-Me File

Package Overview	The latest publication of Energistics domain standards (WITSML, PRODML, RESQML) are available in two package structures: • The traditional "ML-specific" package, where each of the domain standards is published separately with the appropriate version of Energistics *common* (which is v2.3 for each of domain standard). These zip files are available: ○ WITSML_v2.1.zip ○ RESQML_v2.2.zip ○ PRODML_v2.2.zip • ALL domain standards bundled together with the same version of Energistics *common*, v2.3, in one download package. (NOTE: This is how the standards were package for the public review that ran from Dec 2021 to March 2022.) The download package is a zip file named *energyML_YYYYMM.zip*. The term "energyML" is used to refer to the Energistics family of standards—WITSML, RESQML, PRODML and EML (Energistics *common*).
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Prepared by	Energistics
Abstract	This document explains the structure and content of the standards download files (both the energyML and individual ML packages).
Document type	Readme file.
Language	U.S. English

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1 Options, Structure, and Content of the Download Packages

Each of the Energistics domain standards—RESQML, WITSML, PRODML—is a set of XML schemas (XSD files) and other resources freely available to download and use from the Energistics website. Energistics *common* (namespace EML) is a set of data objects shared by the domain standards.

To download the standards, go to https://www.energistics.org/download-standards/.

1.1 Two Options for Downloading the Standards

With the final publication of these versions of the Energistics standards, you can choose from these options on how you want to download the standards:

- **The "traditional" ML-specific, where you download either WITSML, PRODML or RESQML with its appropriate version of Energistics *common*.** The current releases of the domain standards all use Energistics *common* v2.3. The download packages available are:
  - WITSML_v2.1.zip
  - PRODML_v2.2.zip
  - RESQML_v2.2.zip
- **All Energistics domain standards bundled together into a single download package, with the shared version of Energistics *common* v2.3.** (**NOTE:** This is how the standards were package for the public review that ran from Dec 2021 to March 2022.)
  - The download package is energyML_YYYYMM.zip.

If you're reading this document, someone in your organization has successfully downloaded one of these zip files.

1.2 File Structure

As described in Section 1.1 above, you can either download a single ML package or the energyML package, which includes all 3 domain standards.

The figures below show what the energyML package looks like. A domain-specific package has a folder for the domain standard you downloaded (EXAMPLE: If you downloaded WITSML_v2.1.zip, it would have only the WITSML folder) and Energistics *common*.

When you unzip and drill down on the energyML download package, the data folder contains the 4 folders shown in **Figure 1-1** and this read-me file.

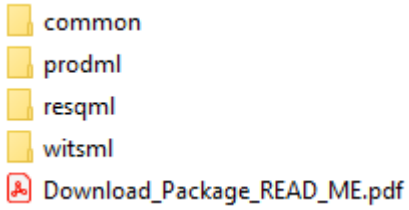

Figure 1-1. The latest version of each Energistics domain standard are bundled together and share the same version of Energistics *common* (v2.3).

Each of the folders has the same structure shown in **Figure 1-2** (which is the structure for Energistics common, version 2.3), which is explained below the figure.

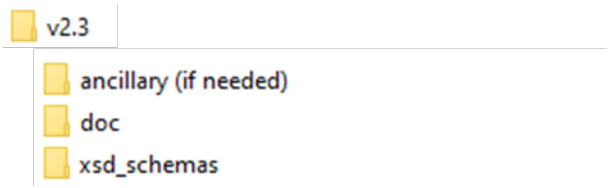

Figure 1-2. Each of the folders in Figure 1-1 contains a version folder, which contains doc and xsd_schemas folders and may contain an ancillary folder.

- The ancillary folder contains any files that may be delivered with the standard. For example, for Energistics *common*, the ancillary folder contains the Property Kind Dictionary.
- The doc folder contains all documents relevant for the main folder (i.e., common→v2.3→doc contains Energistics Common Technical Architecture (CTA) documents, the prodml folder contains documents for PRODML, etc.) published to date. This folder includes relevant available documentation. For more information, see Section 1.2.
- The xsd_schemas folder contains the relevant schemas, in this example those for Energistics *common* (namespace EML).

1.3 Package Content

This section lists the content of the download package. It provides a detailed listing of the resources for the Energistics Common Technical Architecture and a general list for each ML domain standard.

1.3.1 CTA Resources

This table lists CTA resources for use with Energistics domain standards. These resources are included in the standards download package, unless otherwise specified in the table. IMPORTANT! This is the only detailed listing of these resources; we suggest you keep it handy for reference.

All Energistics standards are freely available for download at: https://www.energistics.org/download-standards/

	Resource/Document	Description
1.	Energistics *common* XSD files	Schemas (XSD files) for Energistics CTA data objects, which is the set of data objects shared across all Energistics domain standards. Some common data objects are mandatory (for example, AbstractObject, ObjectReference, objects related to units of measure (UOM), etc.). Other data objects are optional, available for use if wanted, for example, the Data Assurance and Activity Model data objects. NOTE: For past domain standard releases, the correct version of the *common* folder was included as part of the package when you downloaded a particular domain standard. (EXAMPLE: RESQML v2.0.1 uses common v2.0; WITSML v2.0 uses common v2.1.) Implementers of these standards need who may be dealing with implementations of previous versions, should be aware of different versions of *common*. Energistics common v2.3 is considered a "breaking change". For more information see the *Energistics Common v2.3 Technical Architecture Overview Guide.* For more information on how the schemas are developed and produced, see row 3 below in this table.
2.	Property Kind Dictionary	Property kinds are defined by the Practical Well Log Standard (PWLS) and implemented in Energistics *common* as property kinds (PropertyKind, in the CommonTypes package). PropertyKindDictionary.xls is an XML file that serves as a container for all the property kinds. It is delivered in the download package in the ancillary folder. For more information about PWLS, see row 11 below in this table.
3.	*Energistics Common Technical Architecture Overview Guide v2.3*	Provides an overview of the components that comprise the Energistics CTA, which is crucial to understanding how each of the domain standards works. RECOMMENDATION: Read it. Start here.
4.	*Energistics common Technical Reference Guide v2.3*	Lists and defines packages, data objects, elements, and relationships for the objects in the CTA *common* folder. Produced from the common UML model from which Energistics *common* XSDs are produced (however, only this document contains the definitions for the data objects, elements, and attributes).
5.	*Energistics Packaging Conventions (EPC) Specification v1.1*	Specifies the Energistics Packaging Conventions (EPC), which is the set of practices to store multiple files as a single entity for data transfer; this single entity is referred to as an “EPC file” (or sometimes, an “Energistics package”). EPC is an

	Resource/Document	Description
		implementation of the Open Packaging Conventions (OPC), a container-file technology standard. For file transfers, RESQML requires use of EPC files. PRODML-DAS also uses EPC files. For more information, consult the relevant technical usage guides.
6.	*Energy Industry Profile of ISO 19115-1 (EIP)* (Must be downloaded separately from the Standards Download link listed above.)	An open, non-proprietary exchange standard for metadata used to document information resources, and in particular resources referenced to a geographic location, e.g., geospatial datasets and web services, physical resources with associated location, or mapping, interpretation, and modeling datasets. The EIP is an ISO Conformance Level 1 profile of the widely adopted international standards ISO 19115-1:2014 which provides XML implementation guidance with reference to ISO Technical Specification 19115-3:2016. Key aspects of this EIP have been implemented in Energistics *common* (EXAMPLE: The Citation element on AbstractObject). In general, implementers have no real need to view this document.
7.	*Energistics Identifier Specification v5.0*	Describes the syntax and semantics of data object identifiers used in Energistics data-transfer standards, which include UUIDs and Energistics URIs, object reference, and object component reference. Important for any implementation.
8.	*Energistics Unit of Measure Standard* (Must be downloaded separately from the Standards Download link listed above.)	A dictionary, grammar specification, and related documentation, which provide a consistent way to define, exchange, and convert between different units of measure. All Energistics standards (PRODML, WITSML, PRODML, etc.) must use this dictionary; other industry groups are also using it. Key data objects and components of the UOM spec are implemented in Energistics *common*. In general, implementers have no real need to view this document.
9.	*Energistics Transfer Protocol (ETP) Specification v1.2* (Must be downloaded separately from the Standards Download link listed above.)	A data-transfer specification that enables the efficient transfer of real-time data between applications. Specifically envisioned and designed to meet the unique needs of the upstream oil and gas industry and, more specifically, to facilitate the transfer of data for Energistics domain data standards (RESQML, WITSML, and PRODML). This is the API for the application-to-application data transfers using any of the domain standards. Not required for file-based transfers.
10.	*Practical Well Log Standard (PWLS) v3.0* (Must be downloaded separately from the Standards Download link listed above.)	PWLS lists properties, tools, codes, and mappings of relationships among them. It categorizes the obscure mnemonics used for oilfield data and relates them to the marketing names for logging tools that make those measurements using plain English. PWLS provides an industry-agreed list of logging tool classes and a hierarchy of measurement properties and applies all known mnemonics to them. The properties list of PWLS v3 is integrated into Energistics domain data transfer standards WITSML, RESQML and PRODML, through Energistics *common*, as the property kinds (PropertyKind). See row 2 above in this table.

	Resource/Document	Description
		PWLS v3 is also available for download so that organizations can implement it into stores and applications

1.3.2 ML Resources

The download of an Energistics domain standard includes these ML-specific resources. The domain-specific technical usage guide lists the specific deliverables included for that domain. NOTE: Over time, documents may be updated and/or new documents added as they become available.

	Resource/Document	Description
1.	XSD files	Schemas (XSD files) for the domain data objects, which are contained in the folder with the domain name (per the example in Error! Reference source not found. (right)). NOTE: The correct version of the Energistics *common* folder is included as part of the package when you download any of the Energistics domain standards.
2.	UML Data Model (XMI file)	Energistics uses a UML data modeling tool to specify the data models for its domain standards and Energistics *common*. Scripts in the UML tool are then used to produce the set of XSD files (schemas), which are a core component of the Energistics data-transfer standards. In many cases, UML diagrams are used in the documentation. Additionally, the UML data model itself is included in the download package (in the relevant doc folder). Energistics saves each UML model (one for each of the domain standards and Energistics *common*) as an XMI file, a format that can be imported by any UML data modeling tool.
3.	*<ML> Technical Usage Guide vx.y*	Describes the data model, related key concepts, and other details to help developers understand and implement the standard.
4.	*<ML> Technical Reference Guide vx.y*	Lists and defines packages, data objects, elements, and relationships for the objects in the data model. Produced from the UML model package from which the XSD files are produced (however, only this document contains the definitions for the data objects, elements and attributes).
5.	Any additional ML-specific documentation that may be available.	EXAMPLE: PRODML has a couple of other supporting documents and worked examples (in PowerPoint) that are included with the download.

1.4 Where to Start?

The answer to the question "Where to start?" depends somewhat on the domain standard(s) and particular data objects you want to implement.

However, all domain standards use components of Energistics *common* and the CTA. So the *Energistics Common Technical Architecture Overview Guide v2.3* (see Section 1.2.1, row 4) is a good place to start. Then look at the documentation for the ML and data objects that are your highest priority.