SSAP
SMART SHIP APPLICATION PLATFORM

Introduction of

ISO/FDIS 19848

Standard data for shipboard machinery and equipment

TERASAKI
寺崎電気産業株式会社
森本 峰行
TERASAKI ELECTRIC CO., LTD.
Mineyuki Morimoto

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目次/Agenda

- 背景-データを活用する上での課題
- ISO/FDIS 19848 のアイデア
- ISO/FDIS 19848のご紹介
- IoS Open Platform対応Data Loggerのご紹介
- 本日のまとめ

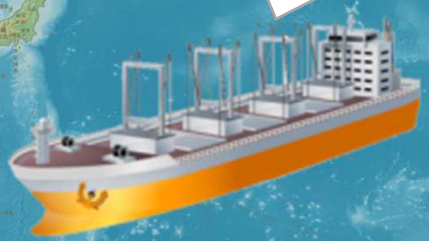
- Background-problems to be solved for the IoS.
- Idea of ISO/FDIS 19848
- Introduction of ISO/FDIS 19848
- IoS Open Platform
- Summary

Background

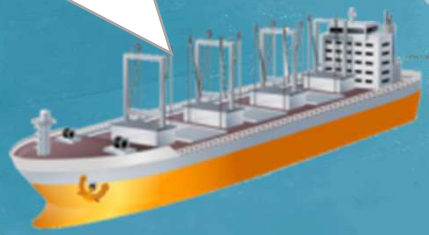
背景/Background - navigational data -

I want to KNOW
"**S**peed **O**ver **G**round"

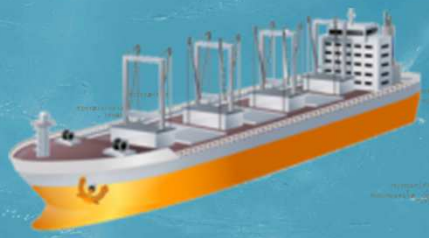
SOG: *15 knot*



SOG: *13 knot*



SOG: *8 knot*

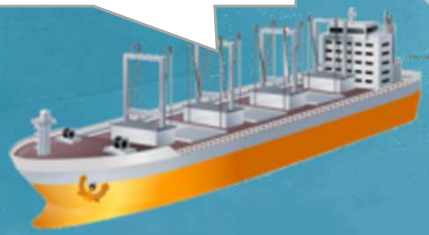


背景/Background - machinery data : NOW -

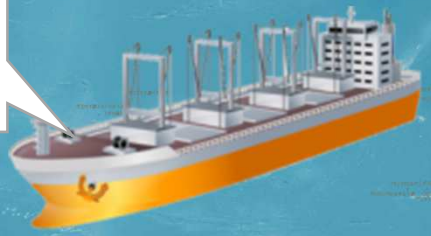
I want to KNOW
"**Main Engine Revolution**"

M/E Shaft Revolution: *100rpm*

主機回転数: 九十回転



Main Shaft REV: *55rpm*



M/E Shaft Revolution
: *100rpm*

This is “**Main Engine Revolution**”

Mapping Table

主機回転数
: 九十回転

This is “**Main Engine Revolution**, too”

Mapping Table

Main Shaft REV
: *55rpm*

Mapping Table

This is also “**Main Engine Revolution**”

Main Engine Revolution

M/E Shaft Revolution
: *100rpm*

This is “主機回転数”

Mapping Table

Main Engin
Revolution

主機回転数

rpm

t

主機回転数
: 九十回転

Mapping Table

This is “主機回転数, too”

Main Shaft REV
: *55rpm*

Mapping Table

This is also “主機回転数”

Problems to be solved

データソース

- データの名称が船舶毎に異なる。
- データのフォーマットが装置毎に異なる。

データの利用者（アプリケーション）

- 理解可能なデータの名称がアプリケーション毎に異なる。
- 利用可能なデータのフォーマットがアプリケーション毎に異なる。

Data Sources（sensors）

- Data channel have different names for each vessel.
- Data format is different for each vessel.

Data Consumers（applications）

- Available data name is different for each vessel.
- Available data format is different for each vessel.

Idea of ISO19848

Idea of ISO19848

Data Channel ID

http://IMO1234567/MainEngine/Cylinder2/ExhaustGas/Temp

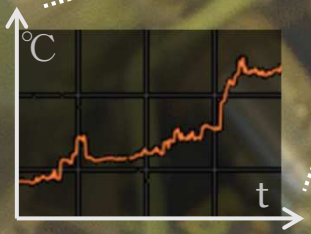
DataChannel

Properties

Unit:℃

Range:0-700

• • •



jsmea_mac

ID Structure

Dictionaries

DataChannel List

TimeSeries Data

ISO19848
NamingRule

M/E Shaft Revolution
: 100rpm

DataChannel
List

TimeSeries
Data

ISO19848
NamingRule

M/E Shaft Revolution
: 90rpm

DataChannel
List

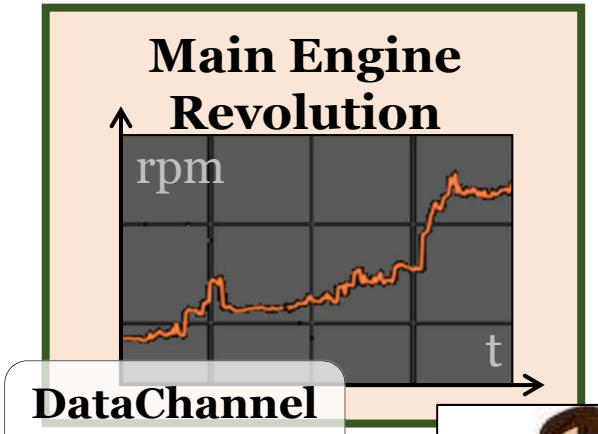
TimeSeries
Data

ISO19848
NamingRule

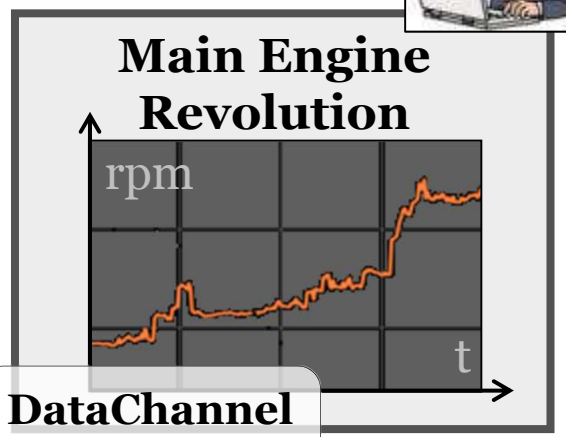
M/E Shaft Revolution
: 55rpm

DataChannel
List

TimeSeries
Data



DataChannel
List



DataChannel
List

ISO19848 overview

ISO19848: Naming Rule - jsmea_mac -

Name Object	Description	Example	Entries
System	Discrete equipment, systems, and units.	***MainEngine,*** DieselGeneratorSet	39
Component	Part of the System above or detail description of the system.	***Cylinder*** TurboCharger	34
Content	Contents that flow through pipelines or parts in the avobe component.	***CoolingFreshWater*** HeavyFuelOil	tbd
Position	Position that indicates relative positions in System and Components.	***Inlet*** Outlet	33
Item	Indicates temperatures, pressures and other measurement objects.	***Temp*** Press	58
Suffix (Option)	Only if Data Channels cannot be specified with the Elements shown above (from “System” to “Item”), suffix may be added after Local ID to identify the Data Channels. Suffix may consists of and DataChannelType as shown below. Suffix: ../<modifier>/<DataChannelType>	Modifier is typically used to describe correction parameter such as temperature for fuel oil viscosity, like "at15degC" .	

LocalID = /jsmea_mac/MainEngine/Cylinder/CoolingFreshWater/Inlet/Temp

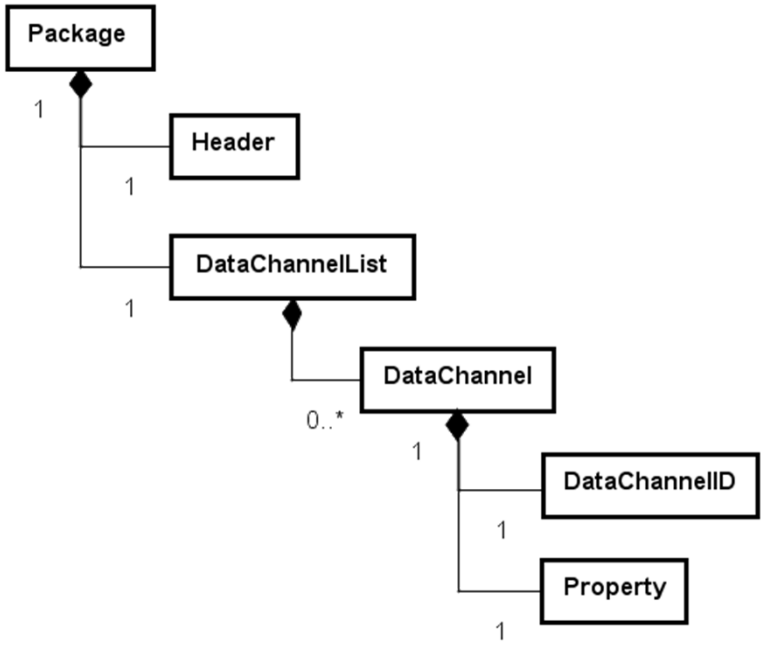
ISO19848: Properties

- Data Channel Type:計測値の種別（瞬時値、平均値等）。
- Format:計測値のフォーマット（数値、文字等）。
- Range:計測値の範囲。
- Unit:計測値の単位、ISO80000準拠。
- ***QualityCoding*** *new!:*データ品質を判定するための枠組みの名称。
- Name:データチャンネルのデータソースにおける名称。
- Remarks:備考
- ***Custom properties*** :ユーザーが追加したproperty

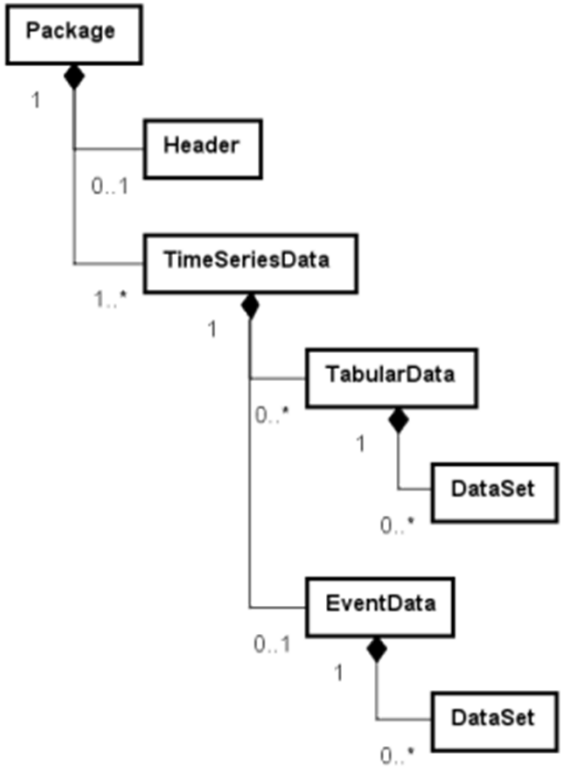
- **Data Channel Type**: Type of the data channel（Inst, Average, etc.）
- **Format**:format of the data channel value numeric value, string, etc.）
- **Range**:range of measurement value
- **Unit**:unit of measurement value, based on ISO80000
- ***QualityCoding*** *new!* :name of quality assessment scheme
- **Name**:name of data channel on the data source
- **Remarks**
- ***Custom properties*** :user defined properties

ISO19848: Data structure

Data Channel List



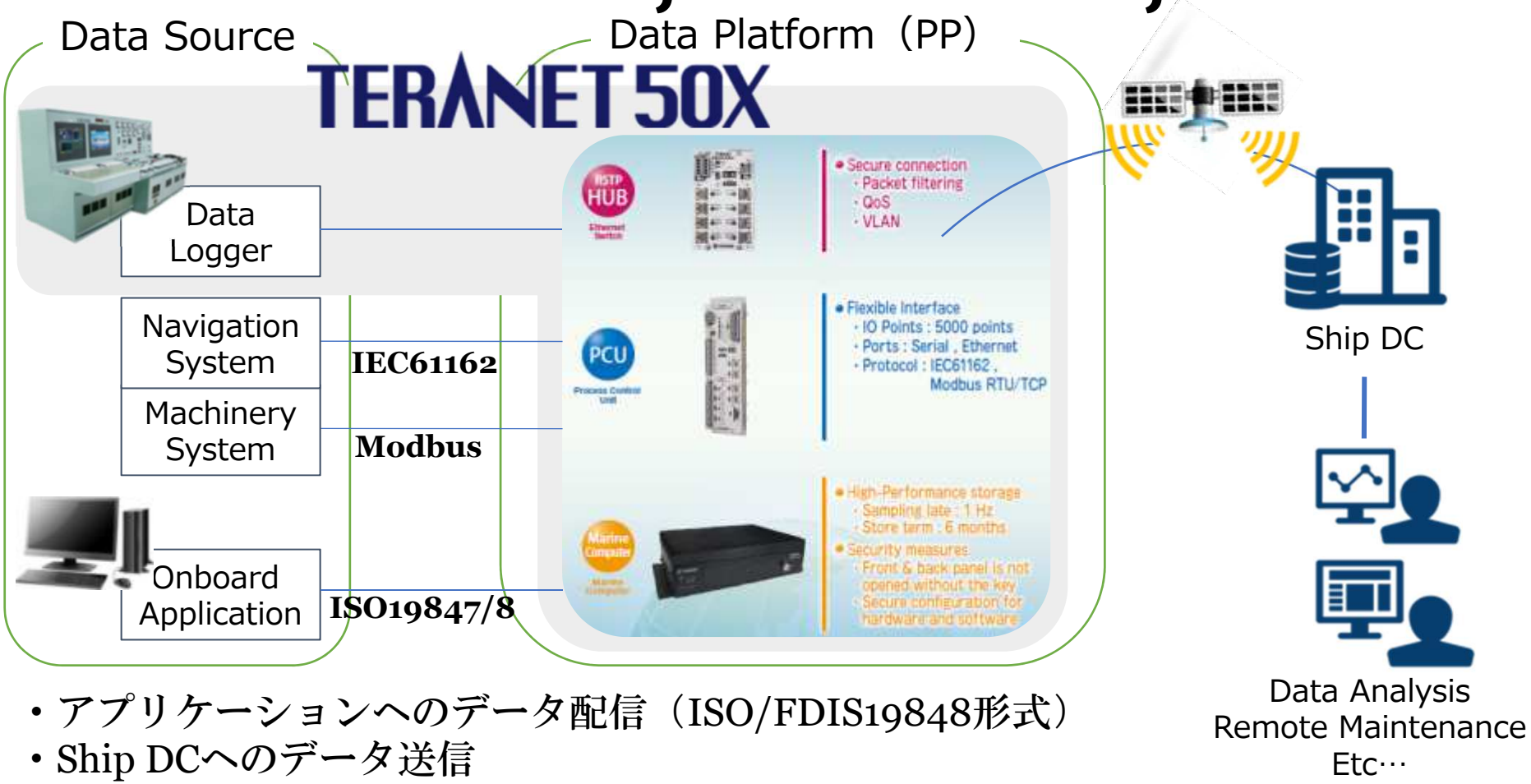
Time Series Data



- Data Channel List / Time Series Data の2つのフォーマットを定義
- UMLで記載された共通の構造を元に，XML/JSON/CSVへと派生

- ISO19848 defines Two data structure: Data Channel List and Time Series Data
- Common data structures written in UML derives XML/JSON/CSV implementation.

TERASAKI Marine Information Platform



- アプリケーションへのデータ配信（ISO/FDIS19848形式）
- Ship DCへのデータ送信
- 船級取得済み船舶用コンピューター

- Data delivery for onboard application （ISO/FDIS19848 protocol）
- Ship-Shore data sharing via Ship DC
- Type-approved computer for onboard application

Trial / Record

System Kind	Flow	Target Equipment	Protocol	Format
T50X (full) Data Storage	◀◀◀	AMS	Serial/Hardwire	--
	◀◀◀	*[ECDIS]*	Serial	IEC61162-1
	◀◀◀	*[AIS]*	Serial	IEC61162-1
T50X (minimum) Data Storage & Gateway	◀◀◀	*[PLC]*	Serial/Hardwire	--
	◀◀◀	AMS(WE22)	Serial	--
	▶▶▶	*[Server]*	FTP	CSV
T50X (full) Sensor	◀◀◀	AMS(T50X)	Serial/Hardwire	--
	▶▶▶	*[Server]*	**HTTP**	**ISO XML**
T50X (minimum) Gateway	◀◀◀	AMS(WE22/500)	Serial/Hardwire	--
	▶▶▶	*[Server]*	**HTTP**	**ISO JSON**
T50X (minimum) Trial	◀◀◀	*[AMS]*	Serial/Hardwire	--
	◀◀◀	*[VDR]*	UDP/IP	IEC61162-1
	◀◀◀	*[ME RCS]*	**HTTP**	**ISO XML**
	◀◀◀	*[ME RCS]*	**FTP**	**Binary**
	▶▶▶	*[ShipDC]*	**E-Mail**	**Ship DC CSV**

Summary

- ISO19848では，以下を定めています。
  - データを命名するための枠組み
  - データの属性
  - データ構造及びフォーマット
- ISO19847/8対応機器が増えると…
  - 船内でのデータ利用がより容易に！
  - 陸上でのデータ利用も容易に！

- ISO19848 defines:
  - Naming scheme of Data Channel
  - Data Channel Properties
  - Data Structure and format
- As the number of ISO19847/8 compatible devices increases…
  - Data usage becomes easier on the vessel.
  - Data usage becomes easier on shore.

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SMART SHIP APPLICATION PLATFORM

ご静聴ありがとうございました。
Thank you for your kind attention.

お問い合わせはこちらまでお願いいたします。

E-mail : ssap@jsmea.or.jp
URL : http://www.jsmea.or.jp/ssap/jp