NW-NM DMA Service Instance v0.1

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Document status

Authors

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Document History

Version	Date	Initials	Description
0.1	03.05.2016	POP	Initial version

Review

Name	Organisation

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Contents

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1 Introduction

1.1 Caveat

This service instance document has been written at an early stage of the EfficienSea 2 project, where the NW-NM model, API and implementation (project *Niord*) is nowhere near completion. The main purpose of the document is to serve as a discussion paper at an upcoming E2 conference.

1.2 Purpose of the document

This document covers a DMA instance of the REST-based technical design [3] of the MW-NM service specification [1], according to the guidelines given in the Service Description Guidelines [2].

1.3 Intended readership

This service instance document is intended to be read by service architects, system engineers and developers in charge of designing and developing client services consuming NW-NM messages from the Danish Maritime Waters.

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2 Service Instance Identification

Name	DMA NW-NM T&P Maritime Cloud REST Service
ID	urn:mrnx:mcl:service:instance:dma:nw-nm
Version	0.1
Description	A DMA instance of the NW-NM REST Service
Keywords	NW, NM, Navigational Warnings, Notices to Mariners, MSI, Maritime Cloud Service. REST. Danish Maritime Authority, DMA
Architect(s)	e-Navigation Team Danish Maritime Authority Carl Jacobsens Vej 31 DK-2500 København K Telephone: +45 40 72 61 08 Email: mcb@dma.dk
Status	Identified.

2.1 Service Technical Design

This service instance is a concrete instance of the REST service technical design [3], referenced below:

Name	NW-NM T&P Maritime Cloud REST Service
ID	urn:mrnx:mcl:service:dma:nw-nm:rest
Version	0.1

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3 Service Endpoint

This chapter will define the absolute URL of DMA's NW-NM REST service.

3.1 NW-NM REST Service URL

The DMA NW-NM REST service is located at:

- http://niord.e-navigation.net/rest

3.2 Service Endpoint /public/v1/messages

The NW-NM REST Service Specification only specifies a single service interface and operation (i.e. REST endpoint via HTTP GET): /public/v1/messages

The full URL of the service endpoint thus becomes:

- http://niord.e-navigation.net/rest/public/v1/messages

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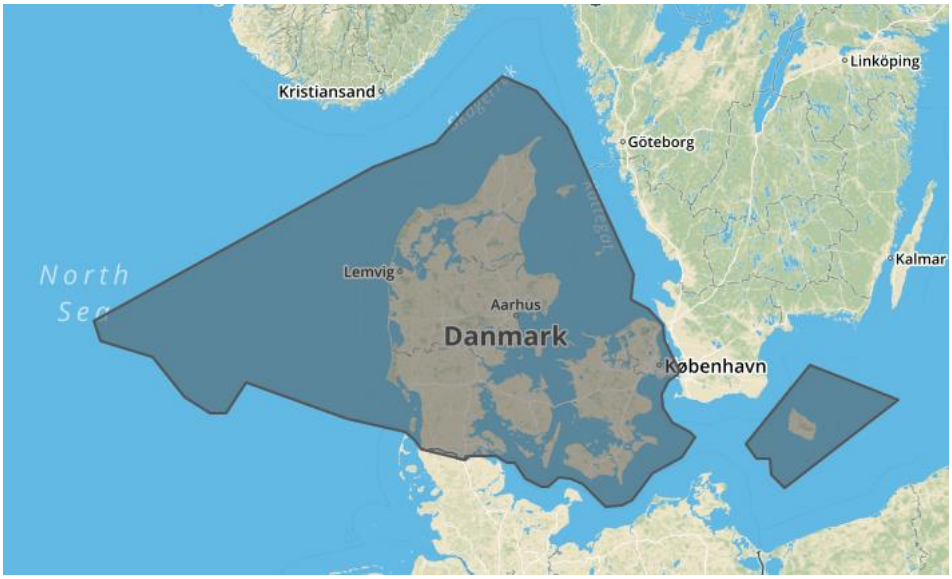
4 Coverage Area

The coverage area of DMA's NW-NM service is the Danish Maritime Waters, which is approximately given by:



The actual WKT definition is part of the service instance XML in Appendix A.

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5 Service Level

This service implementation is under active development, so, 0% availability is guaranteed.

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6 Commercial Information

DMA's NW-NM REST service is publicly available and can be used for free.

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7 Service Installation and Configuration

Caveat: The inclusion of this chapter may stem from a misunderstanding of the Service Documentation Guidelines, where it mandates the inclusion of the following information:

- *deployed service provider software implementation: all the software and configuration artefacts needed for providing the service;*

7.1 Artefacts

The DMA NW-NM Service is running as an instance of the Niord project, which is an open source project found at https://github.com/niordorg

The actual service is packaged and run via the following docker images:

Docker Image	version	Description
dmadk/niord-mysql	1.0.0	A MySQL database docker image based on the official MySQL image, but with added support for running on Mac OS X with mapped volumes
dmadk/niord-appsrv	1.0.0	A docker image that contains the niord-dk-web web application and Keycloak web application running in Wildfly 10.

7.2 Configuration

When starting up the docker images, they should be pointed to a Niord home directory, where all runtime data (such as the MySQL data files, Niord configuration files, and data generated by Niord) is placed.

In the root of the Niord home directory, there may be a niord.json configuration file with non-default and sensitive (e.g. passwords) settings for the Niord web application.

Example niord.json configuration file is found in Appendix B.

7.3 Service start-up

First, the latest docker images must be fetched using:

```
docker pull dmadk/niord-mysql:1.0.0
docker pull dmadk/niord-appsrv:1.0.0
```

The Niord service is started by launching four docker containers, described next, where passwords are XXXX'ed out and the Niord home directory is defined via the NIORD_HOME environment variable.

7.3.1 Keycloak Database

The Keycloak database is started using:

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```
docker run \
  --name niordkc-mysql \
  -p 13306:3306 \
  -e MYSQL_ROOT_PASSWORD=XXXXX \
  -e MYSQL_DATABASE=niordkc \
  -e MYSQL_USER=XXXXX \
  -e MYSQL_PASSWORD=XXXXX \
  -v $NIORD_HOME/mysql/niordkc:/var/lib/mysql \
  -d dmadk/niord-mysql:1.0.0
```

7.3.2 Niord Database

The Niord database is started using:

```
docker run \
  --name niord-mysql \
  -p 13307:3306 \
  -e MYSQL_ROOT_PASSWORD=XXXXX \
  -e MYSQL_DATABASE=niord \
  -e MYSQL_USER=XXXXX \
  -e MYSQL_PASSWORD=XXXXX \
  -v $NIORD_HOME/mysql/niord:/var/lib/mysql \
  -d dmadk/niord-mysql:1.0.0
```

7.3.3 Legacy MSI Database

The legacy MSI database (used when importing Danish legacy MSI messages into Niord) is started using:

```
docker run \
  --name msi-mysql \
  -p 13308:3306 \
  -e MYSQL_ROOT_PASSWORD=XXXXX \
  -e MYSQL_DATABASE=oldmsi \
  -e MYSQL_USER=XXXXX \
  -e MYSQL_PASSWORD=XXXXX \
  -v $NIORD_HOME/mysql/oldmsi:/var/lib/mysql \
  -d dmadk/niord-mysql:1.0.0
```

7.3.4 Niord Web Application

The Niord Web Application, which also contains the DMA NW-NM REST service endpoint described in this document, is started using:

```
docker run \
  --name niord-appsrv \
  -p 8080:8080 \
  --link niord-mysql:niorddb \
  --link niordkc-mysql:kcdb \
  --link msi-mysql:msidb \
  -e NIORD_HOME=/opt/niord \
  -v $NIORD_HOME:/opt/niord \
  -d dmadk/niord-appsrv:1.0.0
```


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8 References

Nr.	Reference
[1] NW-NM Service Specification	E2 - NW-NM Service Specification version 0.1
[2] Service Description Guidelines	E2_Deliverable D3.4 – Service Specification Template, version 1.0
[3] NW-NM REST Service Technical Design.	E2 - NW-NM REST Service Technical Design version 0.1

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9 Acronyms and Terminology

9.1 Acronyms

Term	Definition
API	Application Programming Interface
DMA	Danish Maritime Authority
MC	Maritime Cloud
MEP	Message Exchange Pattern
MRN	Maritime Resource Name
NM	Notices to Mariners
NW	Navigational Warning
REST	Representational State Transfer
WKT	Well-Known Text
XML	Extendible Mark-up Language
XSD	XML Schema Definition

9.2 Terminology

Term	Definition
Docker	Docker containers wrap up a piece of software in a complete filesystem that contains everything it needs to run: code, runtime, system tools, system libraries.
Navigational Warnings	Navigational Warnings (NW) are part of the Maritime Safety Information (MSI) system. Currently, NW's are promulgated in text via SafetyNET, NAVTEX, and is in some countries accessible on the WWW or as voice broadcasts via coastal radio stations.
Keycloak	JBoss Keycloak is an integrated single-sign-on and identity management system for browser apps and RESTful web services.
Niord	Anglified name of the Norse God Njord, associated with the sea and seafaring. Also the name of the EfficienSea 2 sub-project implementation of the NW-NM service and authoring system. See http://niord.org
Notices to Mariners	Notices to Mariners (NM) are promulgated weekly in order to keep nautical charts and publications, as far as possible, up to date. Temporary (T) and Preliminary (P) NMs advise mariners of important matters affecting navigational safety, including new hydrographic information (in advance of new editions or chart updates), changes to routing measures and aids to navigation, and other important categories of data. NM T&P's are today promulgated on paper weekly, fortnightly or monthly and are often accessible on the WWW in PDF format. Not all ENCs include T&P information currently.

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Appendix A Service Instance XML

This appendix contains the formal XML definition of the service instance.

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceInstanceSchema:serviceInstance
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:ServiceInstanceSchema="http://efficiensea2.org/maritime-cloud/ServiceInstanceSchema.xsd"
      xsi:schemaLocation="http://efficiensea2.org/maritime-cloud/ServiceInstanceSchema.xsd">
   <name>DMA NW-NM T&amp;amp;P Maritime Cloud REST Service</name>
   <id>urn:mrnx:mcl:service:instance:dma:nw-nm</id>
   <version>0.1.0</version>
   <description>
      A DMA instance of the NW-NM REST Service.
   </description>
   <keywords>
     NW, NM, Navigational Warnings, Notices to Mariners, MSI,
     Maritime Cloud Service. REST. Danish Maritime Authority, DMA
   </keywords>
   <URL>http://niord.e-navigation.net/rest</URL>
   <requiresAuthorization>false</requiresAuthorization>
   <implementsServiceDesign>
     <ServiceDesignReference>
        <id>urn:mrnx:mcl:service:nw-nm:rest</id>
        <version>0.1.0</version>
     </ServiceDesignReference>
   </implementsServiceDesign>
   <offersServiceLevels>
      <ServiceLevel>
         <availability>0</availability>
         <name>DMA NW-NM Service Level</name>
         <description>
           No pay => no availability is guaranteed.
         </description>
      </ServiceLevel>
   </offersServiceLevels>
   <coversAreas>
      <coversArea>
         <name>Danish Maritime Waters</name>
         <description>
           Loosely defined region in the western part of the North Atlantic Ocean.
         </description>
         <geometryAsWKT>MULTIPOLYGON (((9.624023437500002 54.838663612975125,
         9.448242187500002 54.84498993218759, 9.382324218750002 54.807017138462555,
         9.206542968750002 54.832336301970344, 8.6572265625 54.90819859298938,
         8.536376953125 54.990221720048936, 8.382568359375002 55.065786886591724,
         7.415771484375 55.19768334019969, 5.778808593749998 55.528630522571916,
         5.44921875 55.24781504467555, 5.185546875 55.24155203565252,
         4.757080078125 55.391592107033404, 4.229736328125 55.76421316483771,
         3.3837890624999996 55.91227293006361, 3.2739257812499996 56.09042714399155,
         7.8662109375 57.48040333923342, 8.887939453125 57.692405535264584,
         9.404296875 57.99063188288076, 9.99755859375 58.269065573473284,
         10.535888671875 58.14751859907358, 11.041259765625002 57.83305491291088,
         12.15087890625 56.5231395643722, 12.10693359375 56.29825315291387,
         12.384338378906248 56.20975914792473, 12.634277343749996 56.058235955596075,
         12.664489746093746 56.015272531542365, 12.656249999999998 55.91996893509676,
         12.711181640624998 55.82134464477079, 12.892456054687496 55.64659898563684,
         12.878723144531248 55.60783270038269, 12.716674804687498 55.541064956111,
         12.7056884765625 55.48819145580225, 12.617797851562498 55.41654360858007,
         12.6397705078125 55.285372382493534, 12.7935791015625 55.15376626853558,
         13.062744140624998 55.06893234377864, 13.1561279296875 55.01542594056298,
         12.930908203124998 54.82917227452137, 12.7276611328125 54.76267040025496,
         12.453002929687498 54.680183097099984, 12.117919921875 54.41573362292809,
         11.942138671874996 54.36455818952146, 11.678466796874998 54.35815677227373,
         11.321411132812498 54.56569261911193, 11.118164062499996 54.62933821655574,
         10.925903320312498 54.63569730606386, 10.739135742187498 54.54339315407256,
         10.623779296874998 54.54339315407256, 10.360107421874998 54.62933821655574,
         10.184326171874998 54.77534585936445, 10.057983398437496 54.77534585936445,
         9.876708984374998 54.8386636129751, 9.624023437500002 54.838663612975125)),
         ((14.0020751953125 54.95869417101662, 15.0457763671875 55.6930679264579,
         16.5069580078125 55.363502833950776, 14.633789062500002 54.53383250794428,
         14.414062499999998 54.65794628989232, 14.3975830078125 54.81334841741929,
         14.161376953124998 54.81334841741929, 14.0020751953125 54.95869417101662)))
         </geometryAsWKT>
      </coversArea>
   </coversAreas>
   <producedBy>
     <VendorInfo>
       <id>urn:mrn:mcl:user:dma:mcb</id>
```


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```
      <name>Mads Bentzen Billesø</name>
      <description>
        Responsible for producing the DMA NW-NM REST service
      </description>
      <contactInfo>mcb@dma.dk</contactInfo>
      <isCommercial>false</isCommercial>
    </VendorInfo>
  </producedBy>
  <providedBy>
    <VendorInfo>
      <id>urn:mrn:mcl:user:dma:mcb</id>
      <name>Mads Bentzen Billesø</name>
      <description>Responsible for providing the DMA NW-NM REST service</description>
      <contactInfo>mcb@dma.dk</contactInfo>
      <isCommercial>false</isCommercial>
    </VendorInfo>
  </providedBy>
</ServiceInstanceSchema:serviceInstance>
```


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Appendix B – Sample niord.json Configuration

In there root of the Niord home directory, there may be a niord.json configuration file that can be used to bootstrap Niord with non-default or sensitive settings.

```
[
  {
    "key"         : "baseUri",
    "description" : "The base application server URI",
    "value"       : "https://niord.mydomain.com",
    "web"         : false,
    "editable"    : true
  },
  {
    "key"         : "wmsLogin",
    "description" : "The WMS login",
    "value"       : "YOUR-SECRET-WMS-LOGIN",
    "web"         : false,
    "editable"    : true
  },
  {
    "key"         : "wmsPassword",
    "description" : "The WMS password",
    "value"       : "YOUR-SECRET-WMS-PASSWORD",
    "type"        : "Password",
    "web"         : false,
    "editable"    : true
  }
]
```


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