



Caster™ Lite XML Format (nproj) Specification Document

Software Dev Center

Revision History

[illegible]

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1. About this document

This document contains detailed specification information about the nproj (XML) document created by the Caster™ Lite version and is intended for developers.

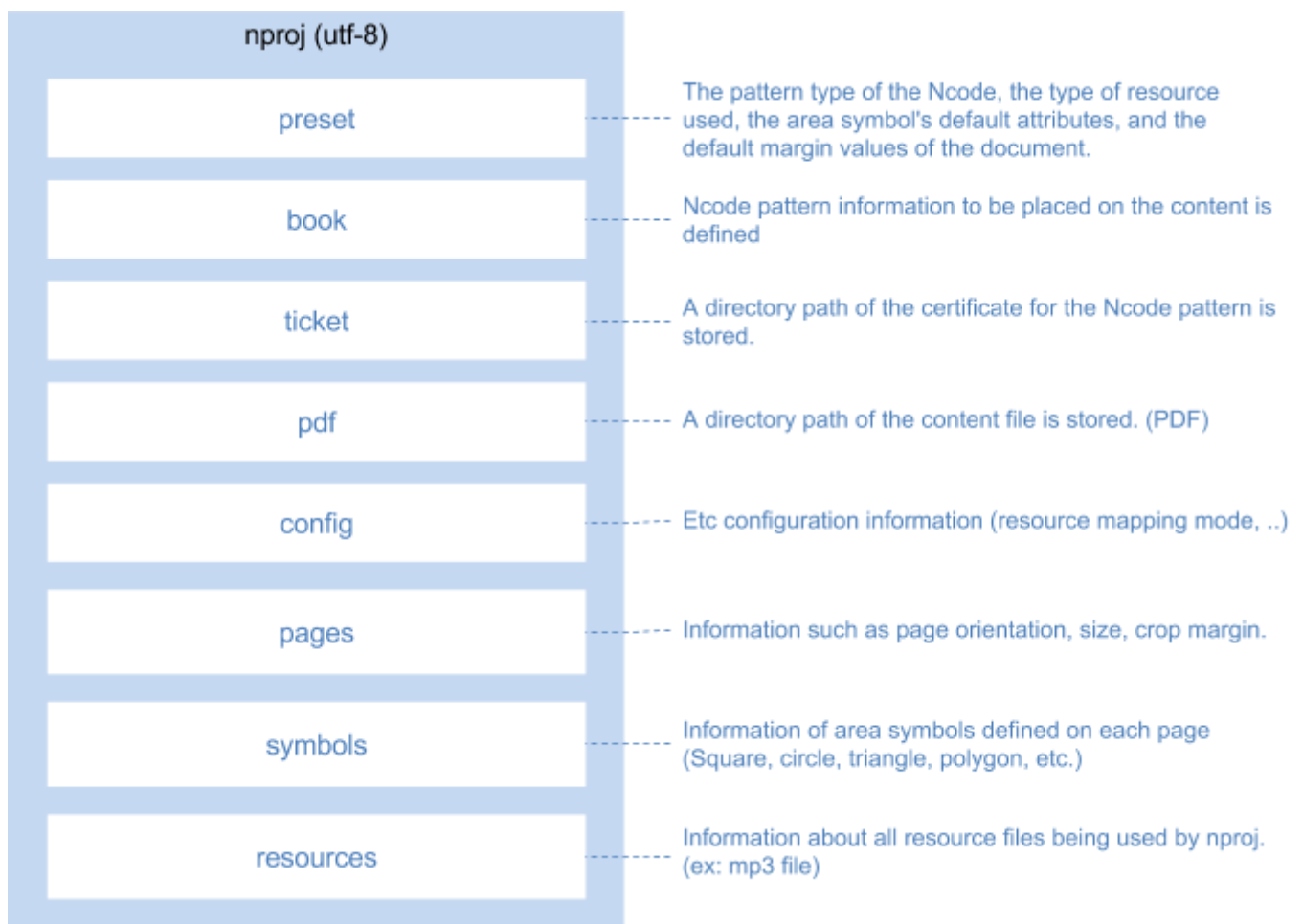
Application should use nproj version = "2.31", category = "simple".

(This corresponds to the version exported as "Export Package for App" in Caster-Lite.)

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE nproj>
<nproj version="2.31" category="simple">
...
</nproj>
```

2. nproj overall structure

The overall structure of the nproj file is shown below.



3. Description of each XML Element

This document only describes the values required by the Application.

We didn't explained the gray parts because that is not needed for application, that is used only by the Caster. Please skip if your app read it.

Notice:

- If your app encounters an element that is not defined in this document, skip it.
- All of the ID values in nproj are unique only within document, so please take notice of this in your development.

3.1. preset

The Ncode pattern type, the resource type used, the area symbol's default attributes, and the document's default margin values are listed.

```
<preset>
  <pattern>PDS3</pattern>
  <sound set="true" filter="*.mp3"/>
  <video set="true" filter="*.avi"/>
  <image set="true" filter="*.png, *.jpg, *.bmp"/>
  <res_count>4</res_count>
  <default_res_lang>Korean</default_res_lang>
  <export_script>pds</export_script>
  <ncp>true</ncp>
  <relation_link>true</relation_link>
  <dummy>true</dummy>
  <manual_action>false</manual_action>
  <symbol_setting align="4" bgcolor="#00ff00" bgamma="70" textcolor="#000000" textsize="9" texton="1"/>
  <margin left="9.875" top="10.58" right="9.875" bottom="10.58"/>
</preset>
```

Element Description

element	description
pattern	Pattern type, That is fixed with PDS3.

3.2. book

Ncode information to apply to the PDF content is listed.

For the predefined Ncode value, please refer the document below.

"Ncode™ Service Development Guide for 3rd Party Developers"

```
<book>
  <title></title>
  <author></author>
```

```

<section>3</section>
<owner>27</owner>
<code>551</code>
<revision>36</revision>
<scale>0.001</scale>
<start_page>1</start_page>
<dot_is_line_segment>true</dot_is_line_segment>
<line_segment_length>5</line_segment_length>
<target_dpi>1200</target_dpi>
<dotsize>1</dotsize>
<segment_info sub_code="" total_size="8" size="8" current_sequence="0" ncode_start_page="1"
ncode_end_page="8"/>
  <extra_info></extra_info>
  <kind>0</kind>
</book>

```

Element Description

element	description
section	It will be 0, 3, 5, 10, 14 depending on the size and usage of the content.
owner	Owner code for the this Ncode value. (ex: section 3, book code 551) Number 27 is reserved for NeoLAB.
code	book code of Ncode to be given to this content.
revision	Version of content (incremented by 1 each time you update content)
start_page	Set the start code value of the first page of content. (0 for 0, 1 for 1, ...)
segment_info	<p>If nproj has splitted, this element indicates fragment information.</p> <ul style="list-style-type: none"> • Sub_code: Fragment ID (it assigned by the developer separately) • Total_size: Total number of pages before split • Size: the number of pages contains in this nproj • Current_sequence: indicates fragment sequence number of current nproj • Ncode_start_page, ncode_end_page: page start value, end value

Ncode pattern image is created using above defined value, is will be added on the specified pdf file as bitmask image. And for more information about section / owner / code definition values, see below.

- Chapter "5. Ncode definition table " of "Ncode ™ Service Development Guide for 3rd Party Developers"

3.3. ticket

A directory path of the certificate for Ncode is listed.

The certificates are used for "Ncode PDF Export" or "Export Package for App".

```

<ticket>
  <path>Ticket_NeoLAB_20150101_00.nkey</path>
</ticket>

```

Element Description

element	description
path	A directory path of the certificate

3.4. Pdf

A directory path to the content PDF file.

```
<pdf>
  <path>Chrome Cast IoT Platform1.pdf</path>
  <path>Chrome Cast IoT Platform2.pdf</path>
  <path>Chrome Cast IoT PlatformN.pdf</path>
  ...
</pdf>
```

Element Description

element	description
path	A path information for PDF files used by nproj is listed. If you have multiple PDFs, up to 10 paths will be listed. Each pdf is loaded and displayed in sequentially in the Caster.

3.5. config

Etc configuration information (resource mapping mode, etc.)

```
<config>
  <resource_mapping_mode>NORMAL</resource_mapping_mode>
</config>
```

Element Description

element	description
resource_mapping_mode	<p>Up to 4 sound sources can be mapped to individual area symbols,</p> <ul style="list-style-type: none"> - NORMAL: Each mapped sound source corresponds to Korean, English, Chinese, Japanese, and when you touch a symbol with the pen, the sound source that matches the current language setting is played. - COMPOUND: Each time you touch with the pen, the sound sources 1 ~ 4 are circulated and played back, Or let it played randomly. <p>* This information is only used for voice pens and is not used in Caster-Lite.</p>

3.6. pages

Information listed such as page orientation, size, crop margin.

```
<pages count="8">
  <!--crop_margin="left, right, top, bottom"-->
  <page_item number="0" rotate_angle="0" x1="0" y1="0" x2="476" y2="655" crop_margin="30,26,30,30"
bg_disabled="false" page_type="0"/>
  <page_item number="1" rotate_angle="0" x1="0" y1="0" x2="476" y2="655" crop_margin="30,26,30,30"
bg_disabled="false" page_type="0"/>
  <page_item number="2" rotate_angle="0" x1="0" y1="0" x2="476" y2="655" crop_margin="30,26,30,30"
bg_disabled="false" page_type="0"/>
  <page_item number="3" rotate_angle="0" x1="0" y1="0" x2="476" y2="655" crop_margin="30,26,30,30"
bg_disabled="false" page_type="0"/>
  <page_item number="4" rotate_angle="0" x1="0" y1="0" x2="493.22" y2="668.97"
crop_margin="36.84,36.84,36.85,36.85" bg_disabled="false" page_type="0"/>
  <page_item number="5" rotate_angle="0" x1="0" y1="0" x2="493.22" y2="668.97"
crop_margin="36.84,36.84,36.85,36.85" bg_disabled="false" page_type="0"/>
  <page_item number="6" rotate_angle="0" x1="0" y1="0" x2="493.22" y2="668.97"
crop_margin="36.84,36.84,36.85,36.85" bg_disabled="false" page_type="0"/>
  <page_item number="7" rotate_angle="0" x1="0" y1="0" x2="493.22" y2="668.97"
crop_margin="36.84,36.84,36.85,36.85" bg_disabled="false" page_type="0"/>
  ...
</pages>
```

Element Description

element	description
pages count	Number of pages in current nproj
page_item	<p>Detailed information for each page.</p> <ul style="list-style-type: none"> • number: page number (0 based index) • rotate_angle: the page orientation angle (0,90,180,270) • x1, y1, x2, y2: page size information (pixel value, 72 DPI) • crop_margin: information of the crop area to be deleted when rendering a page or creating it as an image, in the order of left, right, top, bottom (pixel value, 72 DPI)

3.7. symbols

Information of area symbols defined on each page. (Square, circle, triangle, polygon, etc.)

```
<symbols>
  <symbol ...> ... </symbol>
  ...
</symbols>
```


3.7.1. symbol - rectangle type

This type of symbol checks whether the coordinates of the pen are in the rectangle area, and if it is in the area, perform a predefined action. (Play a sound source, send an e-mail, collect coordinates, render a user's stroke, display an image, etc.)

```
<symbol page="0" page_name="000" type="Rectangle" x="29" y="40" width="130" height="111" lock="0"
resource_type="Sound" resource_id="{e39dc04c-7293-4c15-8b80-b996cb166ab9}">
  <name>0551_000_001</name>
  <id>{600356fa-6c66-4231-ba79-102b82a72335}</id>
  <command action="" param=""/>
  <language_resources>
    <language resource_country="english" resource_type="Sound"
resource_id="{33ddff36-5576-48e4-8918-f57f35c014b8}" />
    <language resource_country="chinese" resource_type="Sound"
resource_id="{63bbf47d-d389-4043-96a6-65fcf2049bdd}" />
    <language resource_country="japanese" resource_type="Sound"
resource_id="{6ca0165f-17c9-4274-ae7b-da70f2e3109e}" />
  </language_resources>
  <matching_symbols previous="" next="" />
</symbol>
```

Element Description

element	description
symbol	<p>information about a specific area on a page is defined.</p> <ul style="list-style-type: none"> • page: The page number to which this symbol belongs • page_name: The name of the page to which this symbol belongs. • type: Shape type of the symbol • x, y, width, height: the coordinates and size of the symbol on the page (in pixels, 72 DPI) • resource_type: The mapped resource type. it is fixed with "Sound" type. • resource_id: unique id of the mapped resource (unique within the document) <p>* config.resource_mapping_mode is</p> <ul style="list-style-type: none"> - If "NORMAL", it corresponds to "korean" language sound, - If "COMPOUND" corresponds to the 0th sound source
name	Symbol name (it can be duplicate)
id	Symbol's unique ID (unique within the nproj document)
command	<p>Define a action and parameter value for required execution when a pen touch or handwriting on this area.</p> <ul style="list-style-type: none"> • action - the string value to be executed by app (defined by the developer) • param - the value required for the action to be performed. (defined by the developer)
language_resources	Since Korean resources are listed as an attribute in the symbol, only resources corresponding to english, chinese, japanese are listed here.

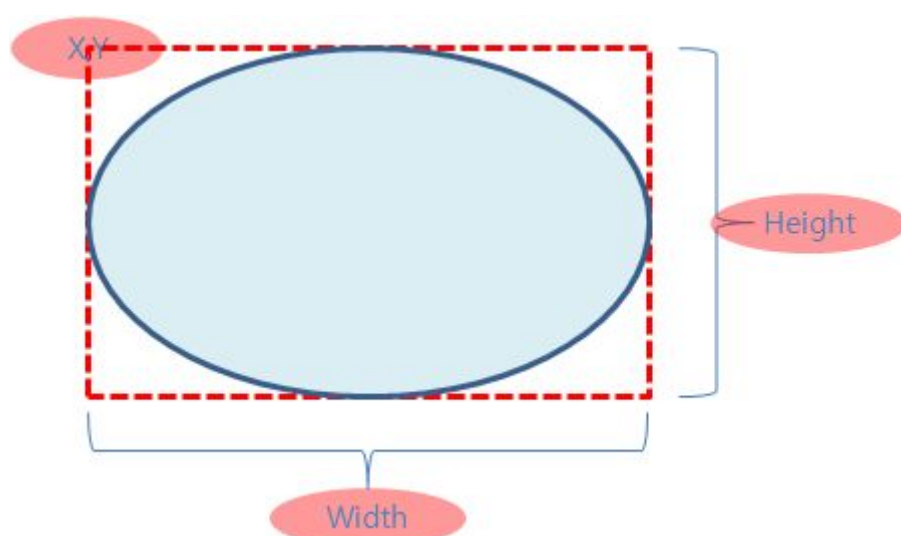
	<ul style="list-style-type: none"> • resource_type: The mapped resource type. it is fixed with "Sound" type. • resource_id: unique id of the mapped resource (unique within the document) • If config.resource_mapping_mode is "COMPOUND", each sound source resource corresponds to 0~3 sound sources (include korean language sound resource). Thus, when the symbol is continuously touched by the pen, the sound source between 0~3 is rotated and played.
matching_symbols	ID of previous and next symbols associated with this symbol are listed. The processing of the linked symbol can be implemented by defining the specific scenario required by the application.

3.7.2. symbol - ellipse type

This type of symbol checks whether the coordinates of the pen are in the ellipse area, and if it is in the area, perform a predefined action.

```
<symbol page="0" page_name="000" type="Ellipse" x="168" y="168" width="113" height="108" lock="0"
resource_type="" resource_id="">
  <name>0551_000_002</name>
  <id>{848830e4-35cf-44a7-8924-4f43e894fa37}</id>
  <command action="" param=""/>
  <language_resources>
    <language resource_country="english" resource_type="" resource_id=""/>
    <language resource_country="chinese" resource_type="" resource_id=""/>
    <language resource_country="japanese" resource_type="" resource_id=""/>
  </language_resources>
  <matching_symbols previous="" next=""/>
</symbol>
```

The details are the same as rectangle, and the given coordinates apply to the Ellipse as shown below.

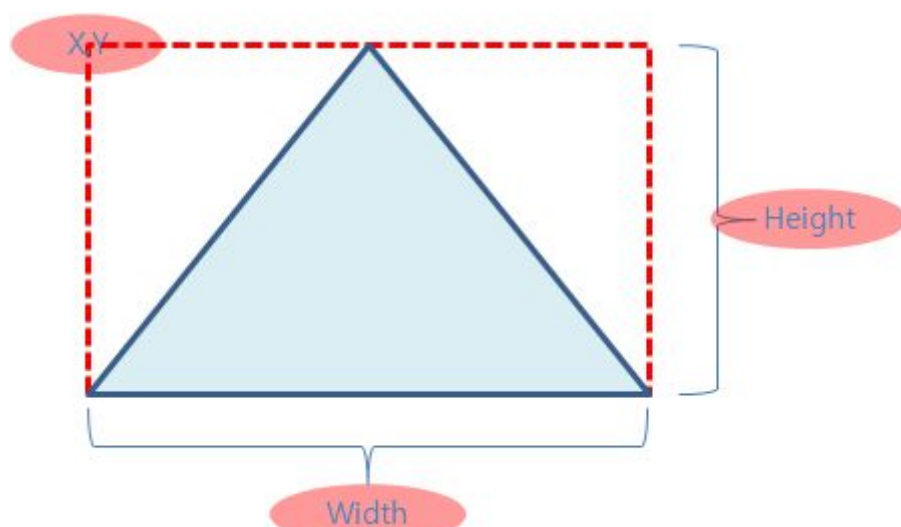


3.7.3. symbol - triangle type

This type of symbol checks whether the coordinates of the pen are in the triangle area, and if it is in the area, perform a predefined action.

```
<symbol page="0" page_name="000" type="Triangle" x="288" y="263" width="119" height="119" lock="0"
resource_type="" resource_id="">
  <name>0551_000_003</name>
  <id>{bdda6ea7-433c-4285-80e9-8c177514b22e}</id>
  <command action="" param=""/>
  <language_resources>
    <language resource_country="english" resource_type="" resource_id=""/>
    <language resource_country="chinese" resource_type="" resource_id=""/>
    <language resource_country="japanese" resource_type="" resource_id=""/>
  </language_resources>
  <matching_symbols previous="" next=""/>
</symbol>
```

The details are the same as rectangle, and the given coordinates apply to the triangle as shown below.



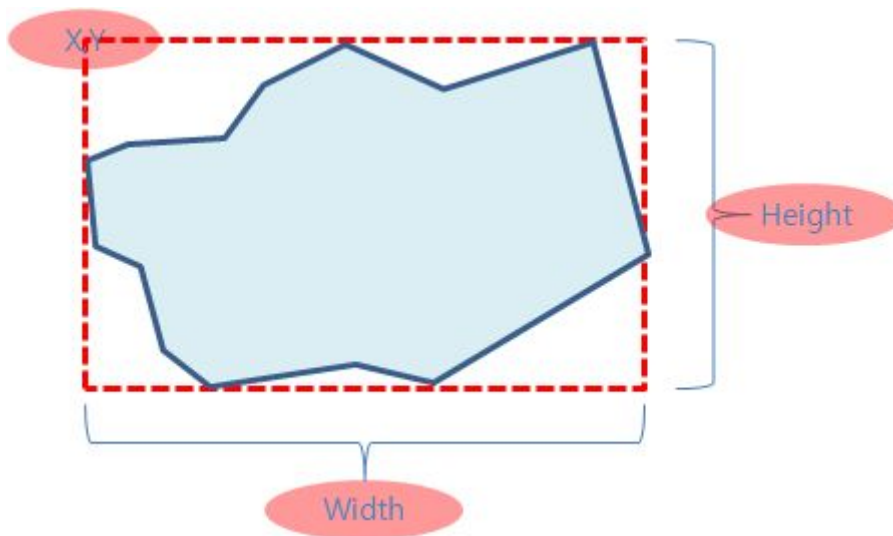
3.7.3. symbol - polygon type

This type of symbol checks if the coordinates of the pen are inside the polygon, and if it is in the area, perform a predefined action.

```
<symbol page="0" page_name="000" type="Custom" x="139" y="456" width="359" height="273" lock="0"
resource_type="" resource_id="">
  <name>0551_000_005</name>
  <id>{c9898789-d11c-4892-9fa1-923ab0031c2d}</id>
  <customshape>
    <points>
      0.0779944,0.014652, 0.0584958,0.267399, 0.100279,0.311355, 0.086351,0.498168,
      0.0529248,0.692308, 0.0807799,0.783883, 0.0334262,0.89011, 0,0.952381, 0.24234,1,
      0.682451,0.989011, 1,0.996337, 0.89415,0.85348, 0.880223,0.578755, 0.682451,0.593407,
      0.612813,0.355311, 0.674095,0.29304, 0.855153,0.531136, 0.855153,0.432234, 0.83844,0.29304,
      0.880223,0.153846, 0.916435,0.00732601, 0.607242,0.032967, 0.292479,0
    </points>
  </customshape>
```

```
<command action="" param=""/>
<language_resources>
  <language resource_country="english" resource_type="" resource_id=""/>
  <language resource_country="chinese" resource_type="" resource_id=""/>
  <language resource_country="japanese" resource_type="" resource_id=""/>
</language_resources>
<matching_symbols previous="" next=""/>
</symbol>
```

The details are the same as rectangle, and the given coordinates apply to the Polygon as shown below.



belows are some differences from the rectangle type.

element	description
symbol	If type value is custom, it is a polygon type.
customshape	<p>The values in points are repeated in order x1, y1, x2, y2, Each x, y coordinate is a percentile within symbol (x, y, width, height). (Value between 0 and 1)</p> <p>equations that convert each point to real coordinates</p> <ul style="list-style-type: none"> • $\text{real_coord_x}(\text{point.x}) = \text{symbol.x} + \text{symbol.width} * \text{point.x}$ • $\text{real_coord_y}(\text{point.y}) = \text{symbol.y} + \text{symbol.height} * \text{point.y}$

3.8. resources

Information about all resource files being used by nproj. (ex: mp3 file)

```
<resources>
  <resource type="Root" editable="yes" removable="yes" ref_count="0">
    <name>Root</name>
    <id></id>
    <path type="package"></path>
    <file></file>
    <resource type="Folder" editable="yes" removable="yes" ref_count="0">
```

```

<name>Resources</name>
<id></id>
<path type="package"></path>
<file></file>
<resource type="Sound" editable="yes" removable="yes" ref_count="0">
  <name>01 - Holy Wars...The Punishment Due.mp3</name>
  <id>{e39dc04c-7293-4c15-8b80-b996cb166ab9}</id>
  <path>Resources/01 - Holy Wars...The Punishment Due.mp3</path>
  <file>01 - Holy Wars...The Punishment Due.mp3</file>
</resource>
<resource type="Sound" editable="yes" removable="yes" ref_count="0">
  <name>02 - In My Darkest Hour.mp3</name>
  <id>{9d32a765-5e39-498e-ac10-3dbd36823d24}</id>
  <path>Resources/02 - In My Darkest Hour.mp3</path>
  <file>02 - In My Darkest Hour.mp3</file>
</resource>
<resource type="Sound" editable="yes" removable="yes" ref_count="0">
  <name>02 - Symphony Of Destruction.mp3</name>
  <id>{faeaf91e-23c1-4897-bb1e-c5a1efc615a0}</id>
  <path>Resources/02 - Symphony Of Destruction.mp3</path>
  <file>02 - Symphony Of Destruction.mp3</file>
</resource>
<resource ...> ... </resource>
...
</resource>
</resource>
</resources>

```

Element Description

element	description
resource	<ul style="list-style-type: none"> type: it is fixed with "Sound" type. Id: The unique id of the resource file. (Unique within this document) path: A directory path where the resource file is stored. In the example, this is a relative path, It should be used properly when used.