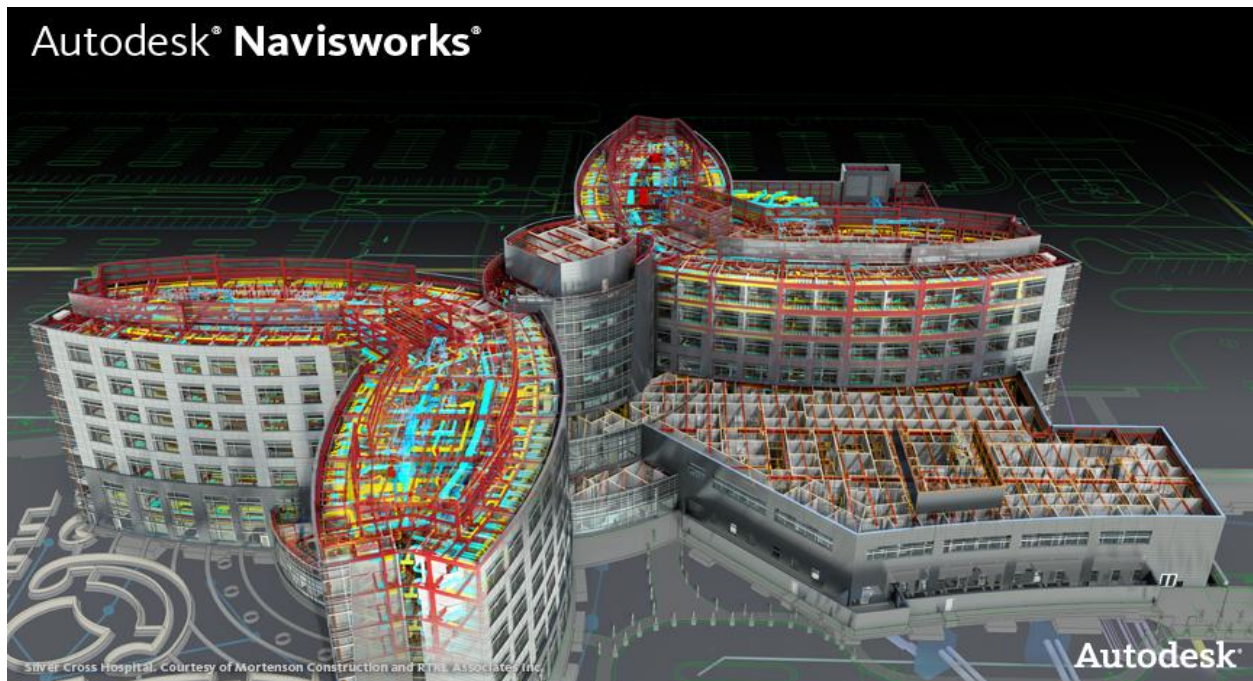


NAVISWORKS

Quantification

Customizing a property mapping file



Please send feedback on this guide to: navisworks.productmanager@autodesk.com

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Introduction

When using Quantification, you can modify the XML file which controls property mappings in your projects. This means that you can customize and create new object, file and properties definitions, which will be picked up automatically when you reopen Quantification in Navisworks.

The XML properties files are typically held in the Quantification folder in your Program Files for Navisworks, for example, C:\Program Files\Autodesk\Navisworks Manage 2014\Quantification\Takeoff_maps\TakeoffPropertyMap.xml. You can either modify this file or create a new file to contain your customized properties.

Within this file, there are three *nodes* which we can show you how to modify:

1. <TakeoffPropertyMap>
2. <TakeoffFileMap>
3. <TakeoffObjectMap>

In the context of the XML file, the <TakeoffObjectMap> (object node) may look something like this:

```
<TakeoffObjectMap Name="Wild Card Object Map">
  <conditions>
    <condition test="never" flags="32">
      <category>
        <name internal=""></name>
      </category>
      <property>
        <name internal=""></name>
      </property>
      <value>
        <data type="wstring"></data>
      </value>
    </condition>
  </conditions>
</TakeoffObjectMap>
```

This guide will show you how to use the Find Items feature in Navisworks to export and modify an XML property file, then either copy the customized nodes into the TakeoffPropertyMap.xml or create a new properties file.

XML Basics

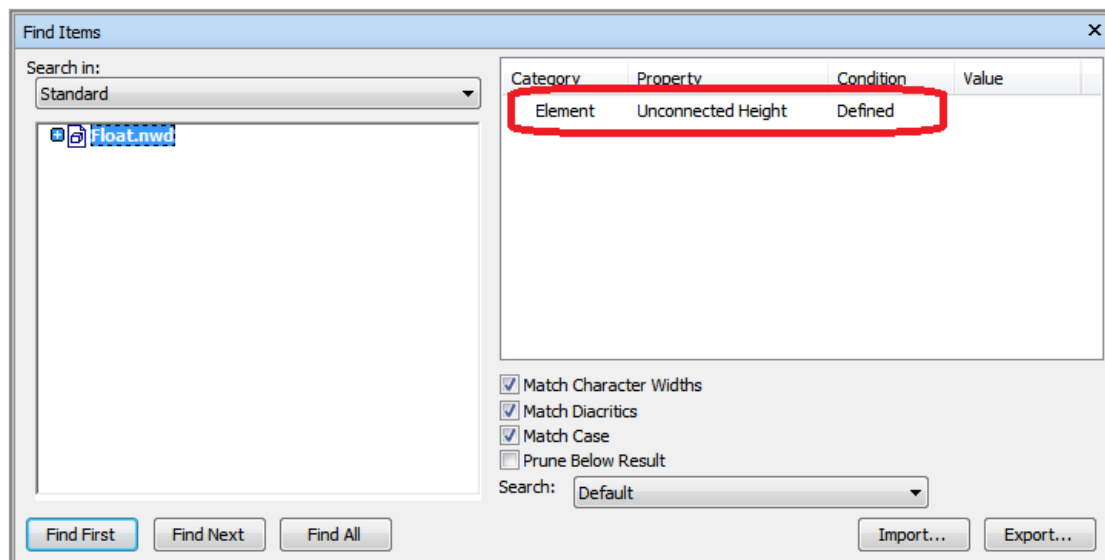
Since the mapping file is in XML format, you should have some basic knowledge of XML before you begin. There are several websites that can provide an overview, see [Wikipedia](#) as a starting point. Once you are up to speed on XML, you can use any XML tool to customize the property map file.

Case study 1

Create a new <TakeoffPropertyMap> node using Find Items

This tutorial will show you how to create a new <TakeoffPropertyMap> node using the *Find Items* feature in Navisworks. You will use the *Find Items* feature to export properties to an xml file, then modify the properties within it. In this example, we'll suppose that you want to map the model Property "Unconnected Height" to the takeoff property "Height".

1. Open your model in Navisworks, and on the Navisworks toolbar, click the Home tab ➤ Select & Search panel ➤ Find Items 
2. In the Find Selection Tree, ensure the model is selected (rather than individual objects)
3. Click the Category column, and select "Element" from the drop-down list
4. In the Property column, select "Unconnected Height"
5. In the Condition column, select "Defined"



6. Click Export... and save the xml file locally
7. Open the xml file, which should look something like this:

```
<?xml version="1.0" encoding="UTF-8" ?>

<exchange xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://download.autodesk.com/us/navisworks/schemas/n
w-exchange-11.0.xsd" units="ft" filename="Float.nwd"
filepath="C:\Users\wangang\Documents">
  <findspec mode="all" disjoint="0">
    <conditions>
      <condition test="prop" flags="10">
        <category>
          <name internal="LcRevitData">Element</name>
        </category>
        <property>
          <name internal="lcldevit_parameter_-1001105">Unconnected Height</name>
        </property>
        <value>
          <data type="linear">0.000000</data>
        </value>
      </condition>
    </conditions>
  </findspec>
</exchange>
```

```

    </value>
  </condition>
</conditions>
</locator></locator>
</findspec>
</exchange>

```

8. In your xml file, copy the lines of code that correspond to the section highlighted in **red** above (condition node).
9. Paste the copied **red** code into either:
 - a. An existing property mapping file (for example, C:\Program Files\Autodesk\Navisworks Manage 2014\Quantification\TakeoffPropertyMap.xml) **or**
 - b. The template shown below. Remember to replace the **red** text (condition node) shown below with the **red** text you just copied from your xml file

```

<?xml version="1.0" encoding="UTF-8" ?>
<TakeoffFileMap Name="Wild Card file map"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://download.autodesk.com/us/navisworks/schemas/n
w-TakeoffPropertyMap-10.0.xsd">
  <conditions>
    <condition test="never" flags="32">
      <category>
        <name internal=""></name>
      </category>
      <property>
        <name internal=""></name>
      </property>
      <value>
        <data type="wstring"></data>
      </value>
    </condition>
  </conditions>
  <TakeoffObjectMap Name="Wild Card Object Map">
    <conditions>
      <condition test="never" flags="32">
        <category>
          <name internal=""></name>
        </category>
        <property>
          <name internal=""></name>
        </property>
        <value>
          <data type="wstring"></data>
        </value>
      </condition>
    </conditions>
    <TakeoffPropertyMap Name="Object Map">
      <TakeoffPropertyName>Object</TakeoffPropertyName>
      <condition test="prop" flags="10">
        <category>
          <name internal="LcOaNode">Item</name>
        </category>
        <property>
          <name internal="LcDwfData">Name</name>
        </property>
        <value>
          <data type="wstring"></data>
        </value>
      </condition>
    </TakeoffPropertyMap>
  </TakeoffObjectMap>
</TakeoffFileMap>

```

```

        </value>
      </condition>
    </TakeoffPropertyMap>
    <TakeoffPropertyMap Name="Height Map">
      <TakeoffPropertyName>ModelHeight</TakeoffPropertyName>
      <condition test="prop" flags="10">
        <category>
          <name internal="LcRevitData">Element</name>
        </category>
        <property>
          <name internal="lcldrexit_parameter_-1001105">Unconnected
Height</name>
        </property>
        <value>
          <data type="linear">0.000000</data>
        </value>
      </condition>
    </TakeoffPropertyMap>
  </TakeoffObjectMap>
</TakeoffFileMap>

```

Note: The lines of green code shown above should be retained, and can be customized as follows:

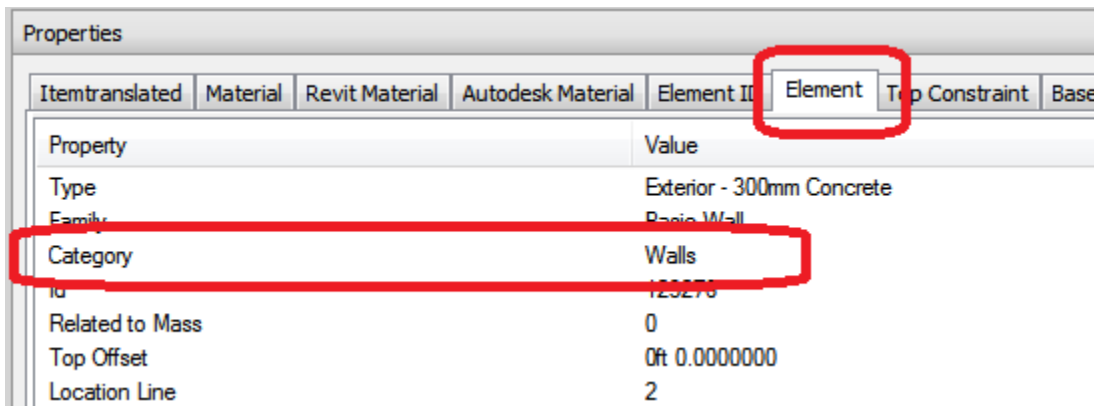
10. In the code line: `<TakeoffPropertyMap Name="Height Map">` , change the text **Height Map** to which ever name you wish to use.
11. In the code line: `<TakeoffPropertyName>ModelHeight</TakeoffPropertyName>` specify the takeoff property you want to customize, for example, ModelHeight
12. Save your file. The changes to your customized properties will be picked up automatically next time you open Quantification in Navisworks.

Case study 2

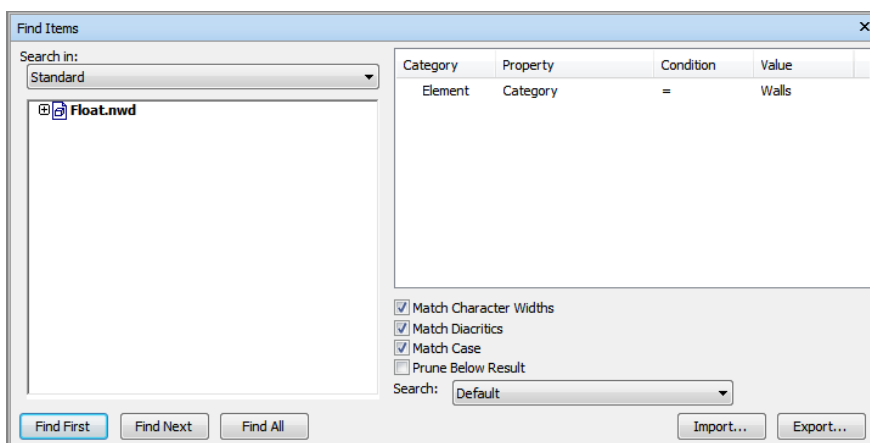
Create a new <TakeoffPropertyMap> node for specified elements

This tutorial will show you how to create a new <TakeoffPropertyMap> node for specified elements. Just as in the previous case study, you will use the *Find Items* feature to export properties to an xml file, then modify the properties within it.

In this example, you may want to have a separate control on mapping ModelHeight for Walls and for Doors. Before you begin, you must know how to recognize if a model object is a wall or a door within the original design file. Take a Revit file for example. You will know that all walls have the property of “Category” under “Element” tab with the value of “Walls”, as shown below:



1. Open your model in Navisworks, and on the Navisworks toolbar, click the Home tab ➤ Select & Search panel ➤ Find Items 
2. In the Find Selection Tree, ensure the model is selected (rather than individual objects)
3. Click the Category column, and select “Element” from the drop-down list
4. In the Property column, select “Category”
5. In the Condition column, select “=”
6. In the Value column, select “Walls”



7. Click Export... , Save and open the xml file, which will look something like the one shown below:

```
<?xml version="1.0" encoding="UTF-8" ?>

<exchange xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://download.autodesk.com/us/navisworks/schemas/n
w-exchange-11.0.xsd" units="ft" filename="Float.nwd"
filepath="C:\Users\wangang\Documents">
  <findspec mode="all" disjoint="0">
    <conditions>
      <condition test="equals" flags="10">
        <category>
          <name internal="LcRevitData">Element</name>
        </category>
        <property>
          <name internal="LcRevitPropertyElementCategory">Category</name>
        </property>
        <value>
          <data type="wstring">Walls</data>
        </value>
      </condition>
    </conditions>
  </locator></locator>
</findspec>
</exchange>
```

8. In your xml file, copy the lines of code in the condition node that correspond to the section highlighted in red above. These red lines of code define your wall object.
9. Paste the copied red code into either:
- An existing property mapping file (for example, C:\Program Files\Autodesk\Navisworks Manage 2014\Quantification\TakeoffPropertyMap.xml) **or**
 - The template shown below. Remember to replace the red text (condition node) shown below with the red text you just copied from your xml file

```
<?xml version="1.0" encoding="UTF-8" ?>
<TakeoffFileMap Name="Wild Card file map"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://download.autodesk.com/us/navisworks/schemas/n
w-TakeoffPropertyMap-10.0.xsd">
  <conditions>
    <condition test="never" flags="32">
      <category>
        <name internal=""></name>
      </category>
      <property>
        <name internal=""></name>
      </property>
      <value>
        <data type="wstring"></data>
      </value>
    </condition>
  </conditions>
  <TakeoffObjectMap Name="Wall Map">
    <conditions>
```

```

<condition test="equals" flags="10">
  <category>
    <name internal="LcRevitData">Element</name>
  </category>
  <property>
    <name internal="LcRevitPropertyElementCategory">Category</name>
  </property>
  <value>
    <data type="wstring">Walls</data>
  </value>
</condition>
</conditions>
<TakeoffPropertyMap Name="Object Map">
  <TakeoffPropertyName>Object</TakeoffPropertyName>
  <condition test="prop" flags="10">
    <category>
      <name internal="LcOaNode">Item</name>
    </category>
    <property>
      <name internal="LcDwfData">Name</name>
    </property>
    <value>
      <data type="wstring"></data>
    </value>
  </condition>
</TakeoffPropertyMap>
<TakeoffPropertyMap Name="Height Map">
  <TakeoffPropertyName>ModelHeight</TakeoffPropertyName>
  <condition test="prop" flags="10">
    <category>
      <name internal="LcRevitData">Element</name>
    </category>
    <property>
      <name internal="lcldrexit_parameter_-1001105">Unconnected
Height</name>
    </property>
    <value>
      <data type="linear">0.000000</data>
    </value>
  </condition>
</TakeoffPropertyMap>
</TakeoffObjectMap>
</TakeoffFileMap>

```

Note: The lines of green code shown above should be retained, and can be customized as follows:

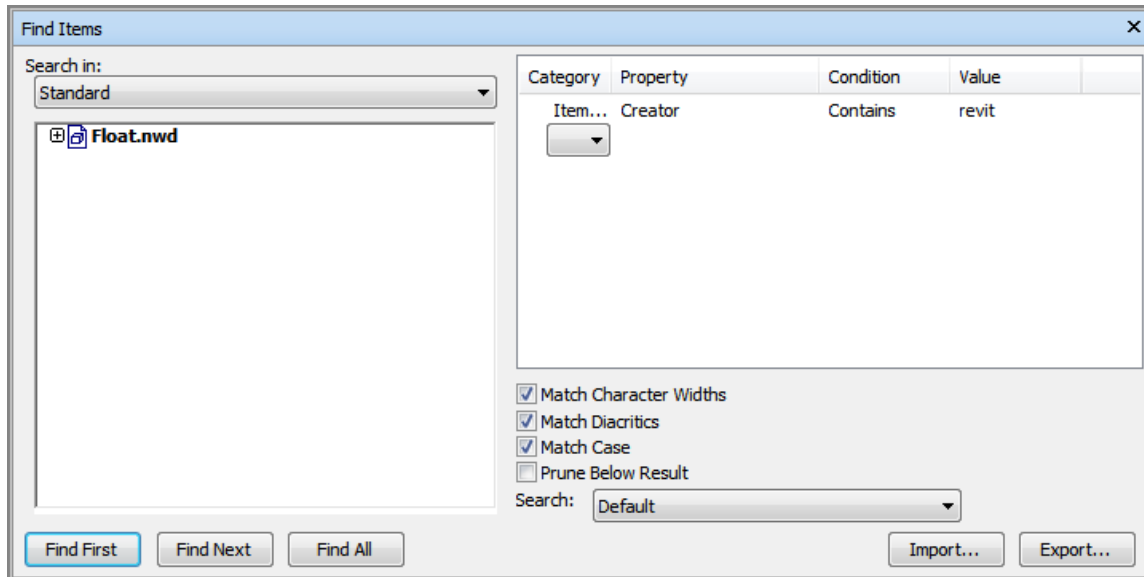
10. In the code line: <TakeoffObjectMap Name="Wall Map">, change the text **Wall Map** to which ever meaningful name you wish to use for the TakeoffObjectMap
11. Save your file. The changes to your customized properties will be picked up automatically next time you open Quantification in Navisworks.

Case study 3

Create a new <TakeoffFileMap> node for specified file types

This is a quick tutorial on how to create a new <TakeoffFileMap> node for specified file types, again using the *Find Items* feature to export properties to an xml file, then modify the properties within it. In this example, you may want to have a separate control on the mapping for Revit files, AutoCAD files and their derived DWF files.

Before you begin you must know how to recognize whether a design file is from Revit or AutoCAD or derived DWF files. In a Revit file, we know that a .rvt file opened in Navisworks has the property of “Creator” under “Item” tab with the value of “LcNwcLoaderPlugin:lclcrevit”.



1. Open your model in Navisworks, and on the Navisworks toolbar, click the Home tab ➤ Select & Search panel ➤ Find Items 
 2. In the Find Selection Tree, ensure the model is selected (rather than individual objects)
 3. Click the Category column, and select “Item” from the drop-down list
 4. In the Property column, select “Creator”
 5. In the Condition column, select “Contains”
 6. In the Value column, select “revit”
- Note:** this example uses “Contains” “revit” (instead of “Equals” “LcNwcLoaderPlugin:lclcrevit”) intentionally to have it applied for both .rvt file and Revit exported .nwc files, since Revit export .nwc has the property of value “nwexportrevit”.
12. Click Export... , Save and open the xml file, which will look something like the one shown below:

```
<?xml version="1.0" encoding="UTF-8" ?>

<exchange xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://download.autodesk.com/us/navisworks/schemas/nw-
exchange-11.0.xsd" units="ft" filename="Float.nwd"
filepath="C:\Users\wangang\Documents">
  <findspec mode="all" disjoint="0">
    <conditions>
      <condition test="contains" flags="10">
        <property>
          <name internal="LcOpItemPropCreator">Creator</name>
```

```

        </property>
        <value>
            <data type="wstring">revit</data>
        </value>
    </condition>
</conditions>
</locator>
</findspec>
</exchange>

```

1. In your xml file, copy the lines of code in the condition node that correspond to the section highlighted in red above. These red lines of code define a Revit file or Revit exported NWC file.
2. Paste the copied red code into either:
 - a. An existing property mapping file (for example, C:\Program Files\Autodesk\Navisworks Manage 2014\Quantification\TakeoffPropertyMap.xml) **or**
 - b. The template shown below. Remember to replace the red text (condition node) shown below with the red text you just copied from your xml file

```

<?xml version="1.0" encoding="UTF-8" ?>
<TakeoffFileMap Name="Revit file map" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"
xsi:noNamespaceSchemaLocation="http://download.autodesk.com/us/navisworks/schemas/n
w-TakeoffPropertyMap-10.0.xsd">
    <conditions>
        <condition test="contains" flags="10">
            <property>
                <name internal="LcOpItemPropCreator">Creator</name>
            </property>
            <value>
                <data type="wstring">revit</data>
            </value>
        </condition>
    </conditions>
    <TakeoffObjectMap Name="Wall Map">
        <conditions>
            <condition test="equals" flags="10">
                <category>
                    <name internal="LcRevitData">Element</name>
                </category>
                <property>
                    <name internal="LcRevitPropertyElementCategory">Category</name>
                </property>
                <value>
                    <data type="wstring">Walls</data>
                </value>
            </condition>
        </conditions>
        <TakeoffPropertyMap Name="Object Map">
            <TakeoffPropertyName>Object</TakeoffPropertyName>
            <condition test="prop" flags="10">
                <category>
                    <name internal="LcOaNode">Item</name>
                </category>
                <property>
                    <name internal="LcDwfData">Name</name>
                </property>
            </condition>
        </TakeoffPropertyMap>
    </TakeoffObjectMap>
</TakeoffFileMap>

```

```

        <value>
            <data type="wstring"></data>
        </value>
    </condition>
</TakeoffPropertyMap>
<TakeoffPropertyMap Name="Height Map">
    <TakeoffPropertyName>ModelHeight</TakeoffPropertyName>
    <condition test="prop" flags="10">
        <category>
            <name internal="LcRevitData">Element</name>
        </category>
        <property>
            <name internal="lcldrexit_parameter_-1001105">Unconnected
Height</name>
        </property>
        <value>
            <data type="linear">0.000000</data>
        </value>
    </condition>
</TakeoffPropertyMap>
</TakeoffObjectMap>
</TakeoffFileMap>

```

Note: The line of green code shown above should be retained, and can be customized as follows:

13. In the code line: <TakeoffFileMap Name="Revit file map", change the text **Revit file map** to which ever meaningful name you wish to use.

Now you know how to customize TakeoffFileMap node, TakeoffObjectMap node and TakeoffPropertyMap node, you can use the Find Items feature in Navisworks to customize your own property files.