
# Neighbourhood Statistics Web Services User Guide

## Beta Version

# 1. Neighbourhood Statistics Data Exchange (Beta): User Guide

## 1.1 Background

Over recent years, there has been a significant growth in the number of Local Information Systems. Many of these systems want to incorporate data from Neighbourhood Statistics (NeSS) into their own system, to use alongside other data. Some may want to physically hold that data, others may be offering a service where they want to enable real-time access to NeSS data through their system.

This User Guide, provides information you will need to incorporate NeSS Web Services into your system, enabling seamless access to NeSS data.

This service allows Machine 2 Machine interaction between NeSS and other Information Systems over the internet, enabling an external system to query and retrieve NeSS data. The system can then manipulate, display and save (if required) this data on their machine.

The service offers two functions, these are Discovery Services and Delivery Services.

These services are XML based, using a combination of a bespoke NeSS XML format (called NeSS-ML) and the format developed in partnership with the Department for Communities and Local Government (CLG) called LGDX (Local Government Data eXchange). LGDX is the XML standard being used by the CLG's Data Interchange Hub, for the exchange of information relating to Performance Indicators.

It should be noted that this is currently a Beta version, and we are particularly interested in any comments or feedback you may have.

## 1.2 Discovery Services

These enable external system users to find the NeSS information they are looking for by providing a number of services to identify the information that is available on NeSS.

Services offered will include;

- Searching for an Area. The user will be able to search for a geographic Area of interest. There will be supporting services that can filter by Hierarchy, only retrieve those areas that are Local Authorities etc.
- The retrieval of a layer of child areas under a Parent area is supported. For example, the user may like to see information about all (or some) Wards under a Local Authority.
- Retrieving the NeSS topic structure. This will give a user the full structure of topics, datasets, and the time periods relevant to the dataset. If the user only requires certain Variables to be returned, they have the option to select only those required.

The Web Service also supports simultaneous multiple areas and multiple topics searches.

A full technical manual on how to use and implement these Discovery Services is contained in Annex A.

## 1.3 Delivery Services

Once the user has identified what information they require. Delivery Services enable the NeSS system to be interrogated using the user's criteria. All data that matches the criteria will then be sent to the user. The output will be in the LGDX format of XML.

For an external system to utilise these services, changes will be required to your system to enable the functionality offered. Further guidance in the form of technical specifications and examples to assist in the incorporation of the Delivery services into your system are contained in Annex B.

## 1.4 Registering to use this service

All service users must be registered with the Neighbourhood Statistics team to be allowed to use the Web Service. There are also strong security measures provided by SSL in place to protect all data transfers.

To use the service, we will also ensure that users have a HMSO click-use licence for the re-use of the information provided through NeSS.

To register to use the service you should contact:

Email: better.info@ons.gov.uk

## 1.5 Awareness and feedback

The ESD Toolkit will provide a forum for LIS users to discuss issues, swap experiences and talk about new functionality that the service could provide in the future. This is seen as an important way to communicate future development of the services NeSS will offer.

We will also be seeking additional feedback through other methods, and holding workshops to get feedback on these developments.

We hope you are able to take advantage of these new services

Callum Foster

Neighbourhood Statistics Service and Development Manager

Office for National Statistics

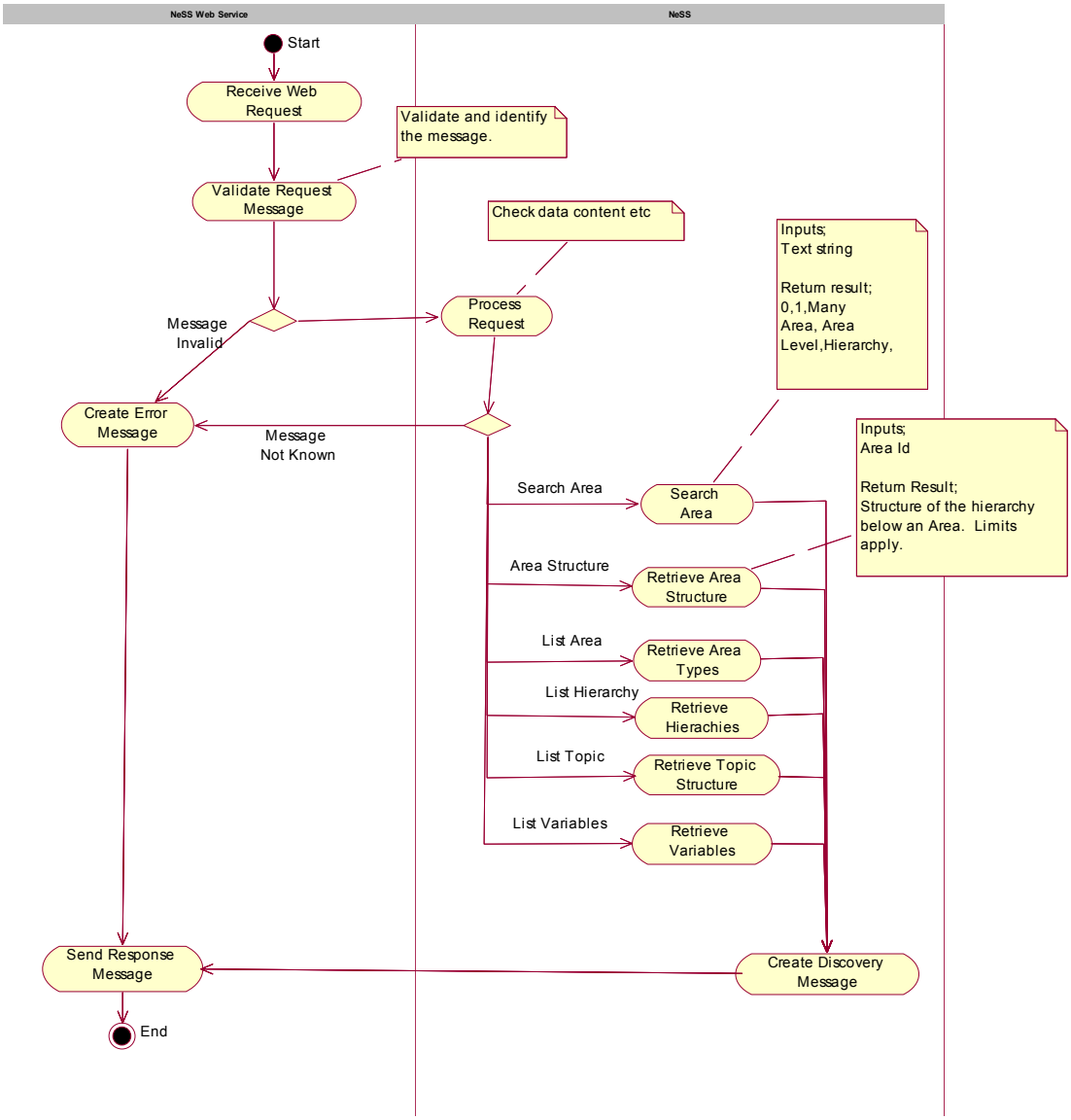
## 1.6 Contact Information

| For general enquiries | For technical enquiries |
|---|---|
| Better.info@ons.gov.uk | Better.info@ons.gov.uk (same email address for the time being, will be redirected to technical support) |

# 2. Annex A – Discovery Service

The discovery service is new (not part of the original pilot). It presents the user with a wide variety of operations with which to query the NeSS database to get areas, variables, datasets, times, etc. These requests are normally the precursor to the delivery request which yields the actual data.

System Diagram



## 2.1 Getting Started

### 2.1.1 Userid

You need a userid on the NeSS PRODLIVE database. Your userid requires the web service user role to be enabled.

### 2.1.2 End Point

The following URL should be used

https://www.neighbourhood.statistics.gov.uk/interop/NeSSDiscoveryBindingPort

The delivery WSDL needs to point to the correct end point URL for the application server being connected to

**PRODLIVE**

```
<wsdl:service name="NeSSDiscoveryService">
   <wsdl:port name="NeSSDiscoveryBindingPort" binding="tns:NeSSDiscoveryBinding">
<soap:address
location="https://www.neighbourhood.statistics.gov.uk/interop/NeSSDiscoveryBindingPo
rt"/>
  </wsdl:port>
</wsdl:service>
```

## 2.2 Discovery Operations

### 2.2.1 GetAreaAtLevel

Description:

This operation gives you child areas for a known area id. This AreaId is internal to the NeSS database and must have been previously obtained via other discovery calls. Your application needs a list of level types (see GetLevelTypes). In the example below, the start areaid 276704 is West Midlands region (in the NeSS Geography hierarchy), and we are asking for type 12 children. Type 12 is County. So in effect we are asking "Give me all the counties in West Midlands". Use getAreaDetail to get more information on these areas (if required).

Note that the areas are not explicitly output in any order, though they may appear ordered.

WSDL Definition:

```
<operation name="GetAreaAtLevel">
    <input name="AreaAtLevelRequest" message="tns:AreaAtLevelRequest"/>
    <output name="AreaAtLevelResponse" message="tns:AreaAtLevelResponse"/>
    <fault name="NeSSProcessingProblem"  message="tns:NeSSProcessingProblem"/>
</operation>
```

Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:AreaAtLevelElement>
            <AreaIdWithLevelType>
                <AreaId>276704</AreaId>
                <LevelTypeId>12</LevelTypeId>
            </AreaIdWithLevelType>
        </ns2:AreaAtLevelElement>
    </soap:Body>
</soap:Envelope>
```

Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:AreaAtLevelResponseElement>
            <Areas>
                <Area>
                    <AreaId>276734</AreaId>
                    <Name>Shropshire</Name>
                    <HierarchyId>2</HierarchyId>
                    <LevelTypeId>12</LevelTypeId>
                </Area>
                <Area>
                    <AreaId>276736</AreaId>
                    <Name>Staffordshire</Name>
                    <HierarchyId>2</HierarchyId>
                    <LevelTypeId>12</LevelTypeId>
                </Area>
                <Area>
                    <AreaId>276739</AreaId>
                    <Name>Warwickshire</Name>
                    <HierarchyId>2</HierarchyId>
                    <LevelTypeId>12</LevelTypeId>
                </Area>
                <Area>
                    <AreaId>276742</AreaId>
                    <Name>Worcestershire</Name>
                    <HierarchyId>2</HierarchyId>
                    <LevelTypeId>12</LevelTypeId>
                </Area>
            </Areas>
        </ns0:AreaAtLevelResponseElement>
    </env:Body>
</env:Envelope>
```

### 2.2.2 **GetAreaDetail**

Description:

This is a simple operation which gives you extra information about an area, by supplying its AreaId. This AreaId is internal to the NeSS database and must have been previously obtained via other discovery calls.

In the returned information, the Envelope can be used in a GIS system – it is the four corners of the map of the area MinX:MinY:MaxX:MaxY - these numbers being OS eastings and norhtings. The ExtCode is the standard SNAC code for the area. There may be metadata for the area or nil elements.

WDSL Entry:

```
<operation name="GetAreaDetail">
    <input name="AreaDetailRequest" message="tns:AreaDetailRequest"/>
    <output name="AreaDetailResponse" message="tns:AreaDetailResponse"/>
    <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
</operation>
```

Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:AreaDetailElement>
            <AreaId>276699</AreaId>
        </ns2:AreaDetailElement>
    </soap:Body>
</soap:Envelope>
```

Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:AreaDetailResponseElement>
            <AreaDetail>
                <AreaId>276699</AreaId>
                <Name>United Kingdom</Name>
                <HierarchyId>2</HierarchyId>
                <LevelTypeId>7</LevelTypeId>
                <Envelope>-72:5003:655605:1218558</Envelope>
                <ExtCode>213</ExtCode>
                <MandatoryMetaData xsi:nil="1"/>
                <OptionalMetaData xsi:nil="1"/>
            </AreaDetail>
        </ns0:AreaDetailResponseElement>
    </env:Body>
</env:Envelope>
```

### 2.2.3 GetHierarchies

Description:

This operation is called without parameters and yields a list of all the Geographic Hierarchies in the NeSS database. This list is not static, new hierarchies are added from time to time. For an explanation of UK geographic hierarchies go to http://www.statistics.gov.uk/geography/beginners_guide.asp

## WSDL Definition:

```
<operation name="GetHierarchies">
    <input name="HierarchiesRequest" message="tns:HierarchiesRequest"/>
    <output name="HierarchiesResponse" message="tns:HierarchiesResponse"/>
    <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
</operation>
```

## Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:HierarchiesElement/>
    </soap:Body>
</soap:Envelope>
```

## Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:HierarchiesResponseElement>
            <Hierarchies>
                <Hierarchy>
                    <HierarchyId>2</HierarchyId>
                    <Name>NeSS Geography Hierarchy</Name>
                </Hierarchy>
                <Hierarchy>
                    <HierarchyId>4</HierarchyId>
                    <Name>2003 Administrative Hierarchy</Name>
                </Hierarchy>
                <Hierarchy>
                    <HierarchyId>13</HierarchyId>
                    <Name>Provisional Parliamentary Constituencies 2007</Name>
                </Hierarchy>
                <Hierarchy>
                    <HierarchyId>8</HierarchyId>
                    <Name>2003 Health Hierarchy</Name>
                </Hierarchy>
                <Hierarchy>
                    <HierarchyId>9</HierarchyId>
                    <Name>2003 Parish Hierarchy</Name>
                </Hierarchy>
                <Hierarchy>
                    <HierarchyId>11</HierarchyId>
                    <Name>2004 Administrative Hierarchy</Name>
```

```
            </Hierarchy>
            <Hierarchy>
                <HierarchyId>3</HierarchyId>
                <Name>1998 Administrative Hierarchy</Name>
            </Hierarchy>
            <Hierarchy>
                <HierarchyId>7</HierarchyId>
                <Name>2003 Electoral Hierarchy</Name>
            </Hierarchy>
            <Hierarchy>
                <HierarchyId>10</HierarchyId>
                <Name>2003 Education Hierarchy</Name>
            </Hierarchy>
            <Hierarchy>
                <HierarchyId>12</HierarchyId>
                <Name>New Deal for Communities (Best fit)</Name>
            </Hierarchy>
        </Hierarchies>
    </ns0:HierarchiesResponseElement>
  </env:Body>
</env:Envelope>
```

### 2.2.4 **GetLevelTypes**

Description

This operation is called without parameters and returns a list of current level types on the NeSS database. So what is a level type? It is a general type of area about which data is held, for example a Local Authority (LA) – a level type can exist in more than one hierarchy, but there is only one level type per level in each hierarchy.

In the sample response below, a comment has been added to tell you what the letters stand for, and those types for which large amounts of data are held are shown in bold type.

WSDL Definition

```
<operation name="GetLevelTypes">
    <input name="LevelTypesRequest" message="tns:LevelTypesRequest"/>
    <output name="LevelTypesResponse" message="tns:LevelTypesResponse"/>
    <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
</operation>
```

Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-
token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
        <ns2:LevelTypesElement/>
    </soap:Body>
</soap:Envelope>
```

Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:LevelTypesResponseElement>
            <LevelTypes>
                <LevelType>
                    <LevelTypeId>164</LevelTypeId>
                    <Name>COM</Name> <!--Community-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>10</LevelTypeId>
                    <Name>CTRY</Name> <!--Country-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>12</LevelTypeId>
                    <Name>CTY</Name> <!--County-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>180</LevelTypeId>
                    <Name>EA</Name> <!--Education Area-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>9</LevelTypeId>
                    <Name>EW</Name> <!--England and Wales-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>96</LevelTypeId>
                    <Name>FCTY</Name> <!--Former County-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>21</LevelTypeId>
                    <Name>GAZ</Name><!--Gazetteer / placename entry-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>8</LevelTypeId>
                    <Name>GB</Name> <!--Great Britain->
                </LevelType>
                <LevelType>
                    <LevelTypeId>11</LevelTypeId>
                    <Name>GOR</Name> <!--(Government Office) Region-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>19</LevelTypeId>
                    <Name>HA</Name> <!--Health Authority-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>13</LevelTypeId>
                    <Name>LA</Name> <!--Local Authority-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>141</LevelTypeId>
                    <Name>LSOA</Name><!--Super Output Area Lower Layer-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>140</LevelTypeId>
                    <Name>MSOA</Name> <!--Super Output Area Middle Layer-->
                </LevelType>
                <LevelType>
                    <LevelTypeId>201</LevelTypeId>
```

```
    <Name>NDC</Name> <!--New Deal for Community-->
</LevelType>
<LevelType>
    <LevelTypeId>17</LevelTypeId>
    <Name>NP</Name> <!-- National Park-->
</LevelType>
<LevelType>
    <LevelTypeId>15</LevelTypeId>
    <Name>OA</Name> <!--Output Area-->
</LevelType>
<LevelType>
    <LevelTypeId>16</LevelTypeId>
    <Name>P</Name> <!--Parish -->
</LevelType>
<LevelType>
    <LevelTypeId>25</LevelTypeId>
    <Name>PA</Name> <!--Postcode Area-->
</LevelType>
<LevelType>
    <LevelTypeId>22</LevelTypeId>
    <Name>PCD</Name> <!--Postcode-->
</LevelType>
<LevelType>
    <LevelTypeId>20</LevelTypeId>
    <Name>PCO</Name><!--Primary Care Organisation-->
</LevelType>
<LevelType>
    <LevelTypeId>24</LevelTypeId>
    <Name>PD</Name> <!--Postcode District-->
</LevelType>
<LevelType>
    <LevelTypeId>23</LevelTypeId>
    <Name>PS</Name> <!--Postcode Sector-->
</LevelType>
<LevelType>
    <LevelTypeId>97</LevelTypeId>
    <Name>RO</Name> <!--Regional Office-->
</LevelType>
<LevelType>
    <LevelTypeId>81</LevelTypeId>
    <Name>SHA</Name> <!--Strategic Health Authority-->
</LevelType>
<LevelType>
    <LevelTypeId>143</LevelTypeId>
    <Name>SN</Name> <!--Statistical Neighbourhood-->
</LevelType>
<LevelType>
    <LevelTypeId>144</LevelTypeId>
    <Name>SPR</Name> <!--Scottish Parliamentary Region-->
</LevelType>
<LevelType>
    <LevelTypeId>28</LevelTypeId>
    <Name>U</Name> <!--Urban Area-->
</LevelType>
<LevelType>
    <LevelTypeId>7</LevelTypeId>
    <Name>UK</Name> <!--England Scotland Wales Northern Ireland->
</LevelType>
<LevelType>
    <LevelTypeId>29</LevelTypeId>
    <Name>USD</Name> <!--Urban Subdivisions-->
</LevelType>
<LevelType>
    <LevelTypeId>153</LevelTypeId>
    <Name>USOA</Name> <!--Super Ouput Area Upper Layer-->
</LevelType>
<LevelType>
    <LevelTypeId>14</LevelTypeId>
    <Name>WARD</Name> <!--Ward-->
```

```
            </LevelType>
            <LevelType>
               <LevelTypeId>27</LevelTypeId>
               <Name>WPC</Name> <!--Westminster Parliamentary Constituency-->
            </LevelType>
         </LevelTypes>
      </ns0:LevelTypesResponseElement>
   </env:Body>
</env:Envelope>
```

### 2.2.5 GetLevelTypesByHierarchy

Description

This operation is called with one parameter, the hierarchyId (the operation getHierarchies gives you a list of these). It returns a list of current level types on the NeSS database belonging to the specified hierarchy. The list is ordered from largest to smallest area.

So what is a level type? It is a general type of area about which data is held, for example a Local Authority (LA) – a level type can exist in more than one hierarchy, but there is only one level type per level in each hierarchy.

WSDL Definition

```
<operation name="GetLevelTypesByHierarchy">
   <input name="LevelTypesByHierarchyRequest" message="tns:LevelTypesByHierarchyRequest"/>
   <output name="LevelTypesByHierarchyResponse" message="tns:LevelTypesByHierarchyResponse"/>
   <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
</operation>
```

Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
   <soap:Header>
      <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
         <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd">
            <wsse:Username>gimme.data@stats.com</wsse:Username>
            <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-
token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
         </wsse:UsernameToken>
      </wsse:Security>
   </soap:Header>
   <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
      <ns2:LevelTypesByHierarchyElement>
         <HierarchyId>9</HierarchyId>
      </ns2:LevelTypesByHierarchyElement>
   </soap:Body>
</soap:Envelope>
```

Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:LevelTypesByHierarchyResponseElement>
            <LevelTypes>
                <LevelType>
                    <LevelTypeId>9</LevelTypeId>
                    <Name>EW</Name>
                </LevelType>
                <LevelType>
                    <LevelTypeId>10</LevelTypeId>
                    <Name>CTRY</Name>
                </LevelType>
                <LevelType>
                    <LevelTypeId>11</LevelTypeId>
                    <Name>GOR</Name>
                </LevelType>
                <LevelType>
                    <LevelTypeId>13</LevelTypeId>
                    <Name>LA</Name>
                </LevelType>
                <LevelType>
                    <LevelTypeId>16</LevelTypeId>
                    <Name>P</Name>
                </LevelType>
            </LevelTypes>
        </ns0:LevelTypesByHierarchyResponseElement>
    </env:Body>
</env:Envelope>
```

### 2.2.6 GetSubjectTree

Description

This operation has no parameters and returns a nested tree of subjects by datasets with supported data ranges for each dataset.

The datasets listed are datasetfamilies each of which has one or more datasetinstances, (see getVariableFamilies for a fuller description of families and instances) each one of these being shown by a DateRange element. Often the DateRange is a single day on which the data was collected.

There was some debate about whether or not a tree is the best way to supply this information, or if lower level calls (e.g. getSubjects, getDatasetsForSubject) would be better.

WSDL Definition

```
<operation name="GetSubjectTree">
    <input name="SubjectTreeRequest" message="tns:SubjectTreeRequest"/>
    <output name="SubjectTreeResponse" message="tns:SubjectTreeResponse"/>
    <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
</operation>
```

## Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:SubjectTreeElement/>
    </soap:Body>
</soap:Envelope>
```

## Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:SubjectTreeResponseElement>
            <SubjectTree>
                <Branch>
                    <Subject>
                        <SubjectId>16</SubjectId>
                        <Name>2001 Census: Census Area Statistics</Name>
                    </Subject>
                    <DSFamilies>
                        <DSFamily>
                            <DSFamilyId>149</DSFamilyId>
                            <Name>Accommodation Type - Household Spaces (UV56)</Name>
                            <DateRange>
                                <startDate>2001-04-29</startDate>
                                <endDate>2001-04-29</endDate>
                            </DateRange>
                        </DSFamily>
                        <DSFamily>
                            <DSFamilyId>129</DSFamilyId>
                            <Name>Accommodation Type - People (UV42)</Name>
                            <DateRange>
                                <startDate>2001-04-29</startDate>
                                <endDate>2001-04-29</endDate>
                            </DateRange>
                        </DSFamily>

                        ……..

                        <DSFamily>
                            <DSFamilyId>1073</DSFamilyId>
                            <Name>VAT Based Local Units: Urban/Rural</Name>
                            <DateRange>
                                <startDate>2005-03-18</startDate>
```

```
                        <endDate>2005-03-18</endDate>
                    </DateRange>
                    <DateRange>
                        <startDate>2006-03-17</startDate>
                        <endDate>2006-03-17</endDate>
                    </DateRange>
                    <DateRange>
                        <startDate>2007-03-16</startDate>
                        <endDate>2007-03-16</endDate>
                    </DateRange>
                </DSFamily>
                <DSFamily>
                    <DSFamilyId>253</DSFamilyId>
                    <Name>VAT Registered Enterprises by Employment Sizeband</Name>
                    <DateRange>
                        <startDate>2000-03-31</startDate>
                        <endDate>2000-03-31</endDate>
                    </DateRange>
                </DSFamily>
                <DSFamily>
                    <DSFamilyId>251</DSFamilyId>
                    <Name>VAT Registered Enterprises by Industry Group</Name>
                    <DateRange>
                        <startDate>2000-03-31</startDate>
                        <endDate>2000-03-31</endDate>
                    </DateRange>
                </DSFamily>
            </DSFamilies>
        </Branch>
    </SubjectTree>
</ns0:SubjectTreeResponseElement>
</env:Body>
</env:Envelope>
```


### 2.2.7 GetVariableFamilies

Description

This operation gives you the variable family ids for a dataset.

In the NeSS Database, we use the concept of families and instances. A dataset that is collected annually would have an instance for each year. So an example of a family would be “Unempolyment Stats” and its instances “Unemployment Stats 2000”, “Unemployment Stats 2001” etc.

Within each dataset, we call the constituent items “variables” (= TOPIC in LGDX). In our example the variable families might be “Unemployed females”, “Unemployed males” and “Unemployed IT developers”. These families would have corresponding variable instances under all of the datestet instances, except where a variable is added or removed over time. For example in 2005 ONS decided to no longer count unemployed IT developers.

For each variable we return its id, name, measurement unit and statistical unit. A measurement unit is a count, rate, percentage etc. and a statistical unit is a person, household etc. So “percentage of households with broadband” would have measurement unit = percentage, statistical unit = household.

Note that we return MUId and SUId even though they appear to be no use as metadata calls such as getMeasurementUnitDetail and getStatisticalUnitDetail might be added in a future release.

## WSDL Definition

```
<operation name="GetVariableFamilies">
    <input name="VariableFamiliesRequest" message="tns:VariableFamiliesRequest"/>
    <output name="VariableFamiliesResponse" message="tns:VariableFamiliesResponse"/>
    <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
</operation>
```

## Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:VariableFamiliesElement>
            <DSFamilyId>149</DSFamilyId>
        </ns2:VariableFamiliesElement>
    </soap:Body>
</soap:Envelope>
```

## Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:VariableFamiliesResponseElement>
            <VarFamilies>
                <VarFamily>
                    <VarFamilyId>2317</VarFamilyId>
                    <Name>All Household Spaces</Name>
                    <MeasurementUnit>
                        <MUId>1</MUId>
                        <Name>Count</Name>
                    </MeasurementUnit>
                    <StatisticalUnit>
                        <SUId>2</SUId>
                        <Name>Households</Name>
                    </StatisticalUnit>
                </VarFamily>
                <VarFamily>
                    <VarFamilyId>2318</VarFamilyId>
                    <Name>In an Unshared Dwelling</Name>
                    <MeasurementUnit>
                        <MUId>1</MUId>
                        <Name>Count</Name>
                    </MeasurementUnit>
                    <StatisticalUnit>
```

```
                <SUId>2</SUId>
                <Name>Households</Name>
            </StatisticalUnit>
        </VarFamily>
        <VarFamily>
            <VarFamilyId>2319</VarFamilyId>
            <Name>In an Unshared Dwelling: House or Bungalow</Name>
            <MeasurementUnit>
                <MUId>1</MUId>
                <Name>Count</Name>
            </MeasurementUnit>
            <StatisticalUnit>
                <SUId>2</SUId>
                <Name>Households</Name>
            </StatisticalUnit>
        </VarFamily>
        <VarFamily>
            <VarFamilyId>2320</VarFamilyId>
            <Name>In an Unshared Dwelling: House or Bungalow: Detached</Name>
            <MeasurementUnit>
                <MUId>1</MUId>
                <Name>Count</Name>
            </MeasurementUnit>
            <StatisticalUnit>
                <SUId>2</SUId>
                <Name>Households</Name>
            </StatisticalUnit>
        </VarFamily>
        <VarFamily>
            <VarFamilyId>2321</VarFamilyId>
            <Name>In an Unshared Dwelling: House or Bungalow: Semi-detached</Name>
            <MeasurementUnit>
                <MUId>1</MUId>
                <Name>Count</Name>
            </MeasurementUnit>
            <StatisticalUnit>
                <SUId>2</SUId>
                <Name>Households</Name>
            </StatisticalUnit>
        </VarFamily>
        <VarFamily>
            <VarFamilyId>2322</VarFamilyId>
            <Name>In an Unshared Dwelling: House or Bungalow: Terraced (including end-
terrace)</Name>
            <MeasurementUnit>
                <MUId>1</MUId>
                <Name>Count</Name>
            </MeasurementUnit>
            <StatisticalUnit>
                <SUId>2</SUId>
                <Name>Households</Name>
            </StatisticalUnit>
        </VarFamily>
        <VarFamily>
            <VarFamilyId>2323</VarFamilyId>
            <Name>In an Unshared Dwelling: Flat, Maisonette or Apartment</Name>
            <MeasurementUnit>
                <MUId>1</MUId>
                <Name>Count</Name>
            </MeasurementUnit>
            <StatisticalUnit>
                <SUId>2</SUId>
                <Name>Households</Name>
            </StatisticalUnit>
        </VarFamily>
        <VarFamily>
            <VarFamilyId>2324</VarFamilyId>
            <Name>In an Unshared Dwelling: Flat, Maisonette or Apartment: In a Purpose-Built Block of
Flats</Name>
```

```
                <MeasurementUnit>
                    <MUId>1</MUId>
                    <Name>Count</Name>
                </MeasurementUnit>
                <StatisticalUnit>
                    <SUId>2</SUId>
                    <Name>Households</Name>
                </StatisticalUnit>
            </VarFamily>
            <VarFamily>
                <VarFamilyId>2325</VarFamilyId>
                <Name>In an Unshared Dwelling: Flat, Maisonette or Apartment: Part of a Converted or
Shared House</Name>
                <MeasurementUnit>
                    <MUId>1</MUId>
                    <Name>Count</Name>
                </MeasurementUnit>
                <StatisticalUnit>
                    <SUId>2</SUId>
                    <Name>Households</Name>
                </StatisticalUnit>
            </VarFamily>
            <VarFamily>
                <VarFamilyId>2326</VarFamilyId>
                <Name>In an Unshared Dwelling: Flat, Maisonette or Apartment: In a Commercial
Building</Name>
                <MeasurementUnit>
                    <MUId>1</MUId>
                    <Name>Count</Name>
                </MeasurementUnit>
                <StatisticalUnit>
                    <SUId>2</SUId>
                    <Name>Households</Name>
                </StatisticalUnit>
            </VarFamily>
            <VarFamily>
                <VarFamilyId>2327</VarFamilyId>
                <Name>In an Unshared Dwelling: Caravan or Other Mobile or Temporary Structure</Name>
                <MeasurementUnit>
                    <MUId>1</MUId>
                    <Name>Count</Name>
                </MeasurementUnit>
                <StatisticalUnit>
                    <SUId>2</SUId>
                    <Name>Households</Name>
                </StatisticalUnit>
            </VarFamily>
            <VarFamily>
                <VarFamilyId>2328</VarFamilyId>
                <Name>In a Shared Dwelling</Name>
                <MeasurementUnit>
                    <MUId>1</MUId>
                    <Name>Count</Name>
                </MeasurementUnit>
                <StatisticalUnit>
                    <SUId>2</SUId>
                    <Name>Households</Name>
                </StatisticalUnit>
            </VarFamily>
        </VarFamilies>
    </ns0:VariableFamiliesResponseElement>
  </env:Body>
</env:Envelope>
```

### 2.2.8 SearchSByAByName

Description

The two SByA operations simulate the behaviour of the Statistics By Area facility on the NeSS web site. In order to speed up and simplify the area selection process, a number of potential user choices are automated. A table of rules is used to make these choices.

One principal choice is that for each potentially matching area, a selection is made of the 'most appropriate' Hierarchy (taking into account time and boundary/name changes). This saves selecting between e.g. 1998, 2003, 2004 Fareham Ward as the system chooses the 2004 Fareham Ward as 'most appropriate'.

This operation allows you to supply a name (or part of a name) and all matching areas with the specified level type are returned. In the example below we are searching for LAs (type 13) with the characters "york" as part of the name. If no match is found for a valid area string, an empty response is returned.

The area is sent with a "falls within" area attached. This is the area that the rules table thinks is the most suitable parent or grandparent area, and will not necessarily be in the same hierarchy. The falls within area can be nil.

WSDL Definition

```
<operation name="SearchSByAByName">
   <input name="SearchSByAByNameRequest" message="tns:SearchSByAByNameRequest"/>
   <output name="SearchSByAByNameResponse" message="tns:SearchSByAByNameResponse"/>
   <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
</operation>
```

Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:SearchSByAByNameElement>
            <AreaNamePartWithLevelType>
                <AreaNamePart>York</AreaNamePart>
                <LevelTypeId>13</LevelTypeId>
            </AreaNamePartWithLevelType>
        </ns2:SearchSByAByNameElement>
    </soap:Body>
</soap:Envelope>
```

Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:SearchSByAByNameResponseElement>
            <AreaFallsWithins>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>276822</AreaId>
                        <Name>East Riding of Yorkshire</Name>
                        <HierarchyId>2</HierarchyId>
                        <LevelTypeId>13</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>276825</AreaId>
                        <Name>York</Name>
                        <HierarchyId>2</HierarchyId>
                        <LevelTypeId>13</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
            </AreaFallsWithins>
        </ns0:SearchSByAByNameResponseElement>
    </env:Body>
</env:Envelope>
```

### 2.2.9 SearchAreaByNameHierarchy

Description

This operation allows you to search for an area in a particular hierarchy. The parameters are a string which is all or part of the each matching area's name, and the hierarchy id (obtained from getHierarchies). Some strings such as "West" could give a large number of results. Large results sets can also be obtained from the NeSS Geography Hierarchy as LSOAs are named Fareham 001A, Fareham 001B etc. If no match is found for a valid area string, an empty response is returned.

The area is sent with a "falls within" area attached. This is the area that the rules table thinks is the most suitable parent or grandparent area, and will not necessarily be in the same hierarchy. The falls within area can be nil.

WSDL Definition

```
<operation name="SearchAreaByNameHierarchy">
    <input name="SearchAreaByNameHierarchyRequest"
            message="tns:SearchAreaByNameHierarchyRequest"/>
    <output name="SearchAreaByNameHierarchyResponse"
            message="tns:SearchAreaByNameHierarchyResponse"/>
    <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
 </operation>
```

## Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:SearchAreaByNameHierarchyElement>
            <AreaNamePartWithOptHierarchy>
                <AreaNamePart>Waltham</AreaNamePart>
                <HierarchyId>14</HierarchyId>
            </AreaNamePartWithOptHierarchy>
        </ns2:SearchAreaByNameHierarchyElement>
    </soap:Body>
</soap:Envelope>
```

## Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:SearchAreaByNameHierarchyResponseElement>
            <AreaFallsWithins>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>6021674</AreaId>
                        <Name>Walthamstow</Name>
                        <HierarchyId>14</HierarchyId>
                        <LevelTypeId>27</LevelTypeId>
                    </Area>
                    <FallsWithin>
                        <Area>
                            <AreaId>276773</AreaId>
                            <Name>Waltham Forest</Name>
                            <HierarchyId>2</HierarchyId>
                            <LevelTypeId>13</LevelTypeId>
                        </Area>
                    </FallsWithin>
                </AreaFallsWithin>
            </AreaFallsWithins>
        </ns0:SearchAreaByNameHierarchyResponseElement>
    </env:Body>
</env:Envelope>
```

### 2.2.10 SearchAreaByNameLevelType

Description

This operation allows you to search for an area with a particular level type. You can get similar areas from multiple hierarchies (e.g. 2003 and 2004 version of the Admin hierarchy). The parameters the level type id (from getLevelTypes) and a string which is all or part of the each matching area's name. Some strings such as "South" could give a large number of results. If no match is found for a valid area string, an empty response is returned.

The area is sent with a "falls within" area attached. This is the area that the rules table thinks is the most suitable parent or grandparent area, and will not necessarily be in the same hierarchy. The falls within area can be nil.

WSDL Definition

```
<operation name="SearchAreaByNameLevelType">
    <input name="SearchAreaByNameLevelTypeRequest"
                message="tns:SearchAreaByNameLevelTypeRequest"/>
    <output name="SearchAreaByNameLevelTypeResponse"
                message="tns:SearchAreaByNameLevelTypeResponse"/>
    <fault name="NeSSProcessingProblem" message="tns:NeSSProcessingProblem"/>
</operation>
```

Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:SearchAreaByNameLevelTypeElement>
            <AreaNamePartWithLevelType>
                <AreaNamePart>Wickham</AreaNamePart>
                <LevelTypeId>14</LevelTypeId>
            </AreaNamePartWithLevelType>
        </ns2:SearchAreaByNameLevelTypeElement>
    </soap:Body>
</soap:Envelope>
```

Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:SearchAreaByNameLevelTypeResponseElement>
            <AreaFallsWithins>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>552301</AreaId>
                        <Name>Wickham Market</Name>
                        <HierarchyId>3</HierarchyId>
                        <LevelTypeId>14</LevelTypeId>
                    </Area>
                    <FallsWithin>
                        <Area>
                            <AreaId>277116</AreaId>
                            <Name>Suffolk Coastal</Name>
                            <HierarchyId>2</HierarchyId>
                            <LevelTypeId>13</LevelTypeId>
                        </Area>
                    </FallsWithin>
                </AreaFallsWithin>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>553043</AreaId>
                        <Name>Wickhamford</Name>
                        <HierarchyId>3</HierarchyId>
                        <LevelTypeId>14</LevelTypeId>
                    </Area>
                    <FallsWithin>
                        <Area>
                            <AreaId>277149</AreaId>
                            <Name>Wychavon</Name>
                            <HierarchyId>2</HierarchyId>
                            <LevelTypeId>13</LevelTypeId>
                        </Area>
                    </FallsWithin>
                </AreaFallsWithin>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>549119</AreaId>
                        <Name>Wickham Bishops</Name>
                        <HierarchyId>3</HierarchyId>
                        <LevelTypeId>14</LevelTypeId>
                    </Area>
                    <FallsWithin>
                        <Area>
                            <AreaId>276964</AreaId>
                            <Name>Maldon</Name>
                            <HierarchyId>2</HierarchyId>
                            <LevelTypeId>13</LevelTypeId>
                        </Area>
                    </FallsWithin>
                </AreaFallsWithin>

                ……

                <AreaFallsWithin>
                    <Area>
                        <AreaId>5943100</AreaId>
                        <Name>Wickhambrook</Name>
```

```
                <HierarchyId>11</HierarchyId>
                <LevelTypeId>14</LevelTypeId>
            </Area>
            <FallsWithin>
                <Area>
                    <AreaId>277115</AreaId>
                    <Name>St Edmundsbury</Name>
                    <HierarchyId>2</HierarchyId>
                    <LevelTypeId>13</LevelTypeId>
                </Area>
            </FallsWithin>
        </AreaFallsWithin>
        <AreaFallsWithin>
            <Area>
                <AreaId>5942271</AreaId>
                <Name>East Wickham</Name>
                <HierarchyId>11</HierarchyId>
                <LevelTypeId>14</LevelTypeId>
            </Area>
            <FallsWithin>
                <Area>
                    <AreaId>276746</AreaId>
                    <Name>Bexley</Name>
                    <HierarchyId>2</HierarchyId>
                    <LevelTypeId>13</LevelTypeId>
                </Area>
            </FallsWithin>
        </AreaFallsWithin>
    </AreaFallsWithins>
</ns0:SearchAreaByNameLevelTypeResponseElement>
</env:Body>
</env:Envelope>
```

### 2.2.11 **SearchSByAByPostcode**

Description

The two SByA operations simulate the behaviour of the Statistics By Area facility on the NeSS web site. In order to speed up and simplify the area selection process, a number of potential user choices are automated. A table of rules is used to make these choices. A selection is made of the 'most appropriate' Hierarchy (taking into account time and boundary/name changes).

This operation allows you to supply a postcode and a single area with the specified level type is returned. In the example below we are asking which LA (type 13) with postcode PO175JE is in. If no match is found for a valid postcode string, an empty response is returned.

The area is sent with a “falls within” area attached. This is the area that the rules table thinks is the most suitable parent or grandparent area, and will not necessarily be in the same hierarchy. The falls within area can be nil.

WSDL Definition

```
<operation name="SearchSByAByPostcode">
<input name="SearchSByAByPostcodeRequest" message="tns:SearchSByAByPostcodeRequest"/>
<output name="SearchSByAByPostcodeResponse"
            message="tns:SearchSByAByPostcodeResponse"/>
<fault name="NeSSProcessingProblem"  message="tns:NeSSProcessingProblem"/>
</operation>
```

## Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:SearchSByAByPostcodeElement>
            <AreaPostcodeWithLevelType>
                <Postcode>PO175JE</Postcode>
                <LevelTypeId>13</LevelTypeId>
            </AreaPostcodeWithLevelType>
        </ns2:SearchSByAByPostcodeElement>
    </soap:Body>
</soap:Envelope>
```

## Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:SearchSByAByPostcodeResponseElement>
            <AreaFallsWithins>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>276987</AreaId>
                        <Name>Winchester</Name>
                        <HierarchyId>2</HierarchyId>
                        <LevelTypeId>13</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
            </AreaFallsWithins>
        </ns0:SearchSByAByPostcodeResponseElement>
    </env:Body>
</env:Envelope>
```

### 2.2.12 SearchAreaByPostcodeHierarchy

Description

This operation allows you to search for an area in a particular hierarchy. The parameters are a full postocde, and the hierarchy id (obtained from getHierarchies). The result is a "vertical stack" of areas each one being the parent of the previous one.

If no match is found for a valid postcode string, an empty response is returned.

The area is sent with a "falls within" area attached. This is the area that the rules table thinks is the most suitable parent or grandparent area, and will not necessarily be in the same hierarchy. The falls within area can be nil.

WSDL Definition

```
<operation name="SearchAreaByPostcodeHierarchy">
    <input name="SearchAreaByPostcodeHierarchyRequest"
              message="tns:SearchAreaByPostcodeHierarchyRequest"/>
    <output name="SearchAreaByPostcodeHierarchyResponse"
               message="tns:SearchAreaByPostcodeHierarchyResponse"/>
    <fault name="NeSSProcessingProblem"
              message="tns:NeSSProcessingProblem"/>
</operation>
```

Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:SearchAreaByPostcodeHierarchyElement>
            <AreaPostcodeWithOptHierarchy>
                <Postcode>DN55 1PT</Postcode>
                <HierarchyId>10</HierarchyId>
            </AreaPostcodeWithOptHierarchy>
        </ns2:SearchAreaByPostcodeHierarchyElement>
    </soap:Body>
</soap:Envelope>
```

Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:SearchAreaByPostcodeHierarchyResponseElement>
            <AreaFallsWithins>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>3567733</AreaId>
                        <Name>Doncaster</Name>
                        <HierarchyId>10</HierarchyId>
                        <LevelTypeId>180</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>3567612</AreaId>
                        <Name>Yorkshire and The Humber</Name>
                        <HierarchyId>10</HierarchyId>
                        <LevelTypeId>11</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>3567601</AreaId>
                        <Name>England</Name>
                        <HierarchyId>10</HierarchyId>
                        <LevelTypeId>10</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>3567607</AreaId>
                        <Name>England and Wales</Name>
                        <HierarchyId>10</HierarchyId>
                        <LevelTypeId>9</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>3567608</AreaId>
                        <Name>Great Britain</Name>
                        <HierarchyId>10</HierarchyId>
                        <LevelTypeId>8</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>3567790</AreaId>
                        <Name>United Kingdom</Name>
                        <HierarchyId>10</HierarchyId>
                        <LevelTypeId>7</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
            </AreaFallsWithins>
```

```
        </ns0:SearchAreaByPostcodeHierarchyResponseElement>
    </env:Body>
</env:Envelope>
```

### 2.2.13 SearchAreaByPostcodeLevelType

Description

This operation allows you to search for an area with a particular level type. You can get similar areas from multiple hierarchies (e.g. 2003 and 2004 version of the Admin hierarchy). The parameters the level type id (from getLevelTypes) and a postcode (complete).

If no match is found for a valid postcode string, an empty response is returned.

The area is sent with a "falls within" area attached. This is the area that the rules table thinks is the most suitable parent or grandparent area, and will not necessarily be in the same hierarchy. The falls within area can be nil.

Note that hierarchies with incomplete coverage, such as parishes, do affect the results.

Search by Name for Fareham (LevelType LA) and you get a match in hierarchies 2,3,4,9 and 11. Search by Postcode for PO155RR (LevelType LA) and you get a match in hierarchies 2,3,4 and 11.

The reason is that although Fareham exists as an LA in the Parish Hierarchy (9), there are no parishes in Fareham so this "breaks the chain":
Search by Postcode is implemented as
1) Find Postcode
2) Go from Postcode to its Output Area in the NeSS Georgaphy Hierarchy
3) Link from this OA to the smallest area in the Parish Hierarchy (parish)
4) Work up the Parish Hierarchy until you find an object at leveltype LA.

The result is that the LA can only be found if the postcode is within a real parish.

WSDL Definition

```
<operation name="SearchAreaByPostcodeLevelType">
<input name="SearchAreaByPostcodeLevelTypeRequest"
            message="tns:SearchAreaByPostcodeLevelTypeRequest"/>
<output name="SearchAreaByPostcodeLevelTypeResponse"
             message="tns:SearchAreaByPostcodeLevelTypeResponse"/>
<fault name="NeSSProcessingProblem"
            message="tns:NeSSProcessingProblem"/>
</operation>
```

## Sample Query:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Ima5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns2="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
        <ns2:SearchAreaByPostcodeLevelTypeElement>
            <AreaPostcodeWithLevelType>
                <Postcode>CR2 6XH</Postcode>
                <LevelTypeId>81</LevelTypeId>
            </AreaPostcodeWithLevelType>
        </ns2:SearchAreaByPostcodeLevelTypeElement>
    </soap:Body>
</soap:Envelope>
```

## Sample Response:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-1/discoverystructs">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:SearchAreaByPostcodeLevelTypeResponseElement>
            <AreaFallsWithins>
                <AreaFallsWithin>
                    <Area>
                        <AreaId>789827</AreaId>
                        <Name>South West London</Name>
                        <HierarchyId>8</HierarchyId>
                        <LevelTypeId>81</LevelTypeId>
                    </Area>
                    <FallsWithin xsi:nil="1"/>
                </AreaFallsWithin>
            </AreaFallsWithins>
        </ns0:SearchAreaByPostcodeLevelTypeResponseElement>
    </env:Body>
</env:Envelope>
```

## 2.3 Error Messages

Each operation returns a SOAP Fault message containing a NeSSProcessingProblemElement if it fails. Each NeSSProcessingProblemElement consists of message, code and detail subelements. Note that if the XML is invalid against the XSD, an SOAP Client fault will be returned without a NeSSProcessingProblemElement.

### 2.3.1 Sample Message

Server Fault

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
    <env:Body>
        <env:Fault xsi:type="env:Fault">
            <faultcode>env:Server</faultcode>
            <faultstring>validationFailure</faultstring>
            <detail>
                <ns0:NeSSProcessingProblemElement>
                    <message>validationFailure</message>
                    <code>typehelpers:DSFamilyId:validate:ERROR_DATASET</code>
                    <detail>Dataset not found</detail>
                </ns0:NeSSProcessingProblemElement>
            </detail>
        </env:Fault>
    </env:Body>
</env:Envelope>
```

Client Fault

XSD Validation Failure

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/v0-
1/discoverystructs">
    <env:Body>
        <env:Fault>
            <faultcode>env:Client</faultcode>
            <faultstring>Caught exception while handling request: unexpected element name:
expected=Postcode, actual=Postcoode</faultstring>
        </env:Fault>
    </env:Body>
</env:Envelope>
```

Invalid XML

```
<HTML>
    <HEAD>
        <TITLE>Web Service</TITLE>
    </HEAD>
    <BODY>
        <H1>Bad Request</H1>
        <PRE>Error parsing envelope: (3, 205) End tag does not match start tag
'ns2:SearchAreaByNameHierarchyElementipoos'.</PRE>
    </BODY>
</HTML>
```

### 2.3.2 Message Element

There are three message types:

AuthorizationFailure

These errors only occur when the username and password are correct, but the username has not been granted the web services role by the NeSS support team.

ValidationFailure

Validation of the XML against the XSD occurs outside of the web service. Validation errors are thrown when the parameters supplied are incorrect. In the example above, a non-existent dataset id is supplied.

SystemFailure

This is where an unexpected error has occurred when processing the request. The user has submitted valid parameters but the request has failed for some reason.

### 2.3.3 Code Element

This is a four-section delimited code for the benefit of ONS in tracking down errors.
Project Name : Class Name : Method Name : Short Error Description.
The names do not exactly match the real classes and methods for security reasons.

The final Short Error Description may be of use to clients as it contains further detail as to the nature of the failure that may be shared across several different methods.
E.G. ValidationFailure can have Short Error Descriptions including ERROR_AREA (Area Not Found) or ERROR_HIER (Hierarchy Not Found) or ERROR_DATASET (Dataset not found).

### 2.3.4 Detail Element

This is the most useful part for the user as it describes the reason for the failure in English.

## 2.4 Notes

### 2.4.1 Empty Lists

For some operations, an empty list of matches is a valid response. For example if you search for an area name matching 'ooagadoogoo' you will get no matches and this is of course correct.

### 2.4.2 Download Only Datasets

Some datasets on NeSS cannot be queried by the web service as they only exist as precanned files for download. Currently NeSS Data Exchange does not output these via getSubjectTree. If named in getVariableFamilies they yield no results.

### 2.4.3 Order of Output

None of the discovery responses is sorted prior to output, with the exception of getLevelTypesByHierarchy and getAreaByName/PostcodeHierarchy. For other responses the order of presentation is just how the database holds it. Due to the way the data is loaded it may appear ordered but it isn't explicitly so.

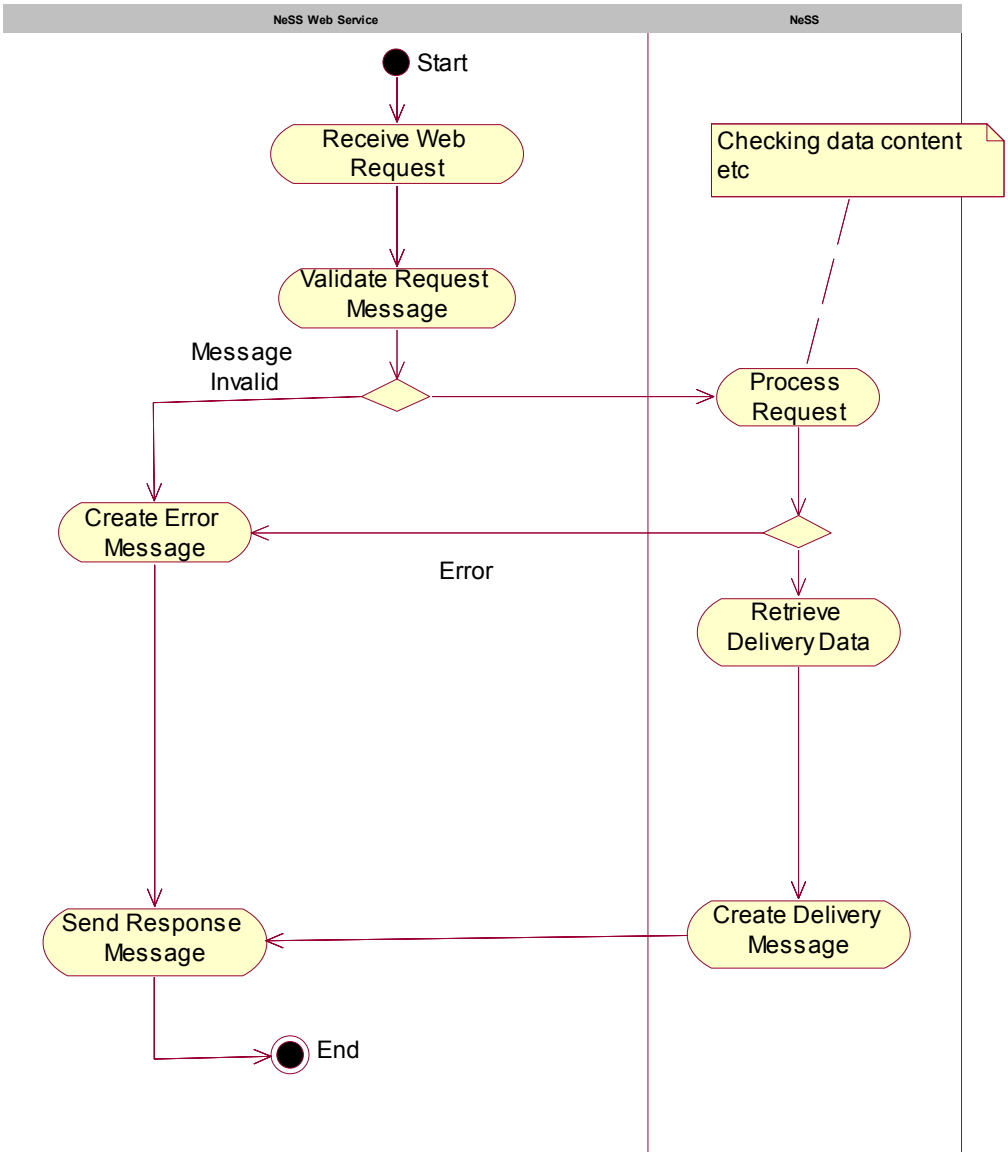
### 2.4.4 Provisional Hierarchies

Some hierarchies, such as Parliamentary Constituencies appear on the database in provisional status (e.g. if there is no election, the boundaries may not be used). The beta version does not filter these out in any way, though this is under consideration for a later release.

# 3. Annex B – Delivery Service

The NeSS Data Exchange Delivery Service is a modified version of the "Cafeteria" pilot system from 2006. The main differences are that it is now expected to be run after a number of discovery requests, and the final payload is delivered in the new LGDX format (0.2e). The old NeSS-ML format is used internally then transformed to LGDX, so in future we could support multiple output formats such as SDMX and NESS-ML itself.

System Diagram



## 3.1 Getting Started

### 3.1.1 Userid

You need a userid for NeSS PRODLIVE database. Your userid requires the web service user role to be enabled. This has to be done by NeSS support.

### 3.1.2 End Point

The endpoint URL to use is
https://www.neighbourhood.statistics.gov.uk/interop/NeSSDeliveryBindingPort

The delivery WSDL needs to point to the correct end point URL for the application server being connected to

**PRODLIVE**

```
<wsdl:service name="NeSSDeliveryService">
  <wsdl:port name="NeSSDeliveryBindingPort" binding="tns:NeSSDeliveryBinding">
    <soap:address
location="https://www.neighbourhood.statistics.gov.uk/interop/NeSSDeliveryBindingPort
"/>
  </wsdl:port>
</wsdl:service>
```

## 3.2 Delivery Query Examples

Below are a number of examples of delivery queries, supported by the service.

### 3.2.1 Single Dataset All Variables:

This is a common query where all the variables in a single dataset (over a range of years) are required for a small number of areas. The preceding discovery requests will have obtained the NeSS DatesetId for the dataset, and the NeSS AreaIds for the areas. The available periods could have been obtained via discovery, or a range of interest could be chosen independently.

Query example 1

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Iam5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns1="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
        <ns1:getDataCubeElement>
            <DataCubeQueryMessage xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubequery" xsi:schemaLocation="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubequery NeSSDataCubeQueryMessage-v0-4.xsd" version="0.5">
                <Query repository="NeSS" type="custom">
                    <Dimension name="dataset">
                        <Item code="1354"/>
                    </Dimension>
                    <Dimension name="variablefamily" isMeasuredDimension="true">
                        <Group dimension="dataset" code="1354" type="all"/>
                    </Dimension>
                    <Dimension name="area" isSpatialDimension="true">
                        <Item>
                            <HierarchyArea>
                                <AreaId>276980</AreaId>
                            </HierarchyArea>
                        </Item>
                        <Item>
                            <HierarchyArea>
                                <AreaId>276722</AreaId>
                            </HierarchyArea>
                        </Item>
                    </Dimension>
                    <Dimension name="time" isTimeDimension="true">
                        <Item>
                            <Period>
                                <Start>1998-01-01</Start>
                                <End>2006-01-21</End>
                            </Period>
                        </Item>
                    </Dimension>
                    <SeriesGrouping>
                        <SeriesGroup dimension="dataset"/>
                    </SeriesGrouping>
                </Query>
            </DataCubeQueryMessage>
        </ns1:getDataCubeElement>
    </soap:Body>
</soap:Envelope>
```

Explanations:

| Element/attribute | Explanation |
|---|---|
| version="0.5" | The version attribute tells the web-service how to process the query XML and which version of the *response* XML schema to return. This response is intermediate – gets transformed to LGDX. We currently support version 0.5, and for backward-compatibility for existing Cafeteria request, versions 0.2, 0.3 and 0.4 should work. Note that, regardless of the setting for the version attribute, the query ".xsd" file remains as NeSSDataCubeQueryMessage-v0-4.xsd, as the version attribute controls the format of the response not the query. |
| repository = "NeSS" | Currently only *NeSS* is supported (although others have been prototyped within ONS). This allows the same schema to be used for other data sources in future, for example from NS Online (www.statistics.gov.uk). |
| type = "custom" | Currently only *custom* is supported. This refers to the type of query to be run, and influences which query parameters are required. *Custom* means that the query can mix-and-match individual areas, variables, and time ranges, from any number of datasets. Other options may be added later. |
| Dimension | NeSS queries support "*variablefamily*", "*area*", "*dataset*" and "*time*" dimensions. The first two are mandatory. The *dataset* dimension can be used for grouping the data in the response (see later). If the *time* dimension is not specified, only the very latest data is returned. |
| name="variablefamily" | NeSS refers to statistical topics as "*variables*". A dataset (subject) consists of a number of variables. A dataset collected at a particular time point is referred to as a *dataset instance*, and contains *variable instances.* To refer to a dataset without being specific about a particular date we speak of *dataset families* and *variable families*. Each variable family and variable instance has a numeric identifier which is unique across the entire NeSS database. This is how the NeSS web-site allows variables from any number of datasets to be combined together in a single custom table. |
| Item code="1354" | This is instructing the service to retrieve data for the dataset with this NeSS id. |
| isSpatialDimension/ isMeasuredDimension/ isTimeDimension | These attributes are used to identify special dimension types and therefore dictate how the dimension items should be specified. For example, spatial dimension items are specified using the HierarchyArea structure, and time dimension items are specified using the Period structure. |
| Dimension name="dataset" | It is necessary to add *dataset* to the list of dimensions to make the XML consistent. The dataset dimension is referred to both within the Group element in the variable family dimension, and within the SeriesGrouping element. |
| Group dimension="dataset" code="67" type="all" | This is a short-hand way of asking NeSS to return all the variables within a dataset. |
| Dimension name="time" | If no time range is specified you will get given the latest data only. If the time dimension is specified all time instances falling between the start and end times will be returned. |
| SeriesGrouping | This instructs, as discussed above, the data instances returned to be grouped by dataset. This will also slightly reduce the overall size of the intermediate NESS-ML, and see pick and mix. |

Response XML for query example 1


```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:getDataCubeResponseElement>
            <lgdx:DataRoot xmlns:lgdx="http://www.esd.org.uk/LGDX">
                <lgdx:DataSource DataSourceName="NESS">
                    <lgdx:DataSet>
                        <lgdx:Metadata>
                            <lgdx:ArtefactDescription> This dataset provides a count of Income Support
Claimants, by 4 bands of age (16-24, 25-49, 50-59 and 60 and over), gender, five categories of duration on
benefit, two family types and some benefit specific information. </lgdx:ArtefactDescription>
                        </lgdx:Metadata>
                        <lgdx:ArtefactTitle>Income Support Claimants</lgdx:ArtefactTitle>
                        <lgdx:HostReference>1354</lgdx:HostReference>
                        <lgdx:Boundaries>
                            <lgdx:Boundary Code="24UE" Name="Fareham" BoundaryId="1">
                                <lgdx:SpatialData>
                                    <lgdx:Polygon>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                                        </lgdx:Point>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>448760</lgdx:XCoordinate>
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                                        </lgdx:Point>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                                        </lgdx:Point>
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                                            <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                                        </lgdx:Point>
                                    </lgdx:Polygon>
                                </lgdx:SpatialData>
                            </lgdx:Boundary>
                            <lgdx:Boundary Code="24" Name="Hampshire" BoundaryId="2">
                                <lgdx:SpatialData>
                                    <lgdx:Polygon>
                                        <lgdx:Point>
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                                            <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                                        </lgdx:Point>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                                        </lgdx:Point>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                                        </lgdx:Point>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                                        </lgdx:Point>
                                    </lgdx:Polygon>
                                </lgdx:SpatialData>
                            </lgdx:Boundary>
                        </lgdx:Boundaries>
                        <lgdx:Topics>
```

```
                    <lgdx:Topic Commentary="" Unit="Count" Title="Working Age Statistical Group; Lone
Parent" TopicId="1"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Working Age Statistical Group;
Carers and Others" TopicId="2"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Claimants Aged 16-24"
TopicId="3"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Claimants Aged 25-49"
TopicId="4"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Claimants Aged 50-59"
TopicId="5"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Claimants Aged 60 and Over"
TopicId="6"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Male" TopicId="7"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Female" TopicId="8"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Single" TopicId="9"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Working Age Statistical Group;
Incapacity Benefits" TopicId="10"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Working Age Statistical Group;
Lone Parent" TopicId="11"/>
                    <lgdx:Topic Commentary="" Unit="Percentage" Title="Working Age Statistical Group;
Carers and Others" TopicId="12"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Male" TopicId="13"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Female" TopicId="14"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Total" TopicId="15"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Single" TopicId="16"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claimants Aged 16-24"
TopicId="17"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claimants Aged 25-49"
TopicId="18"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claimants Aged 50-59"
TopicId="19"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claimants Aged 60 and Over"
TopicId="20"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claim Duration Less Than 6 Months"
TopicId="21"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claim Duration 6 Months-1 Year"
TopicId="22"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claim Duration 1-2 Years"
TopicId="23"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claim Duration 2-5 Years"
TopicId="24"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Claim Duration 5 Years and Over"
TopicId="25"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Couple" TopicId="26"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="Working Age Statistical Group;
Incapacity Benefits" TopicId="27"/>
                </lgdx:Topics>
                <lgdx:Periods>
                    <lgdx:Period To_Date="2001-08-01" From_Date="2001-08-01" PeriodId="1"/>
                    <lgdx:Period To_Date="2002-08-01" From_Date="2002-08-01" PeriodId="2"/>
                    <lgdx:Period To_Date="2003-08-01" From_Date="2003-08-01" PeriodId="3"/>
                    <lgdx:Period To_Date="2004-08-01" From_Date="2004-08-01" PeriodId="4"/>
                    <lgdx:Period To_Date="2005-08-01" From_Date="2005-08-01" PeriodId="5"/>
                </lgdx:Periods>
                <lgdx:DatasetItems>
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                    <lgdx:DataItem Value="650" PeriodId="3" TopicId="1" BoundaryId="1"/>
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```

```
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```

```
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                        <lgdx:DataItem Value="370" PeriodId="4" TopicId="24" BoundaryId="1"/>
                        <lgdx:DataItem Value="330" PeriodId="5" TopicId="24" BoundaryId="1"/>
                        <lgdx:DataItem Value="1400" PeriodId="1" TopicId="25" BoundaryId="1"/>
                        <lgdx:DataItem Value="1370" PeriodId="2" TopicId="25" BoundaryId="1"/>
                        <lgdx:DataItem Value="1350" PeriodId="3" TopicId="25" BoundaryId="1"/>
                        <lgdx:DataItem Value="510" PeriodId="4" TopicId="25" BoundaryId="1"/>
                        <lgdx:DataItem Value="540" PeriodId="5" TopicId="25" BoundaryId="1"/>
                        <lgdx:DataItem Value="400" PeriodId="1" TopicId="26" BoundaryId="1"/>
                        <lgdx:DataItem Value="420" PeriodId="2" TopicId="26" BoundaryId="1"/>
                        <lgdx:DataItem Value="430" PeriodId="3" TopicId="26" BoundaryId="1"/>
                        <lgdx:DataItem Value="140" PeriodId="4" TopicId="26" BoundaryId="1"/>
                        <lgdx:DataItem Value="150" PeriodId="5" TopicId="26" BoundaryId="1"/>
                        <lgdx:DataItem Value="860" PeriodId="1" TopicId="27" BoundaryId="1"/>
                        <lgdx:DataItem Value="870" PeriodId="2" TopicId="27" BoundaryId="1"/>
                        <lgdx:DataItem Value="890" PeriodId="3" TopicId="27" BoundaryId="1"/>
                        <lgdx:DataItem Value="770" PeriodId="4" TopicId="27" BoundaryId="1"/>
                        <lgdx:DataItem Value="780" PeriodId="5" TopicId="27" BoundaryId="1"/>
                    </lgdx:DatasetItems>
                </lgdx:DataSet>
            </lgdx:DataSource>
        </lgdx:DataRoot>
    </ns0:getDataCubeResponseElement>
  </env:Body>
</env:Envelope>
```

Note that for this dataset there are no data for Hampshire (BoundaryId = 2).

Explanations:

| Element/attribute | Explanation |
|---|---|
| DataSourceName | This is always NESS rather than our original supplier. Had we used the original supplier it would have bloated the response for multiple datasets. |
| ArtefactTitle | This is the dataset title from the NeSS database. |
| ArtefactDescription | Any metadata held for the dataset on the NeSS database. |
| Boundary | The code is the SNAC code for the area. The four points are the area's envelope. This is held as a string "Minx:MinY:MaXX:MaxY" (OS easting / northing) on the NeSS database but there is no attribute in LGDX for it so a polygon has to be created. Note that there may be metadata for areas in the intermediate NeSS-ML output but there is no slot for it in the final LGDX output. |
| Topic | NeSS variables become Topics in LGDX. Any mandatory metadata held for the variable on the NeSS database is passed through to the Commentary attribute. |
| Period | Each time instance for which data is held gives rise to a separate period element with its own start and end date. |
| DataItem | Each of these is the equivalent of a table cell, referenced by the internal identifiers for period, topic and boundary. |

### 3.2.2 Multiple Datasets, Grouped

Example Query 2

In this example, the query is requesting all the variables from dataset 67 and just two of the variables from dataset 41. It is also requesting two variables from an unnamed dataset (very flexible).

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Iam5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns1="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
        <ns1:getDataCubeElement>
            <DataCubeQueryMessage xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubequery" xsi:schemaLocation="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubequery NeSSDataCubeQueryMessage-v0-4.xsd" version="0.5">
                <Query repository="NeSS" type="custom">
                    <Dimension name="dataset">
                        <Item code="67"/>
                        <Item code="41"/>
                    </Dimension>
                    <Dimension name="variablefamily" isMeasuredDimension="true">
                        <Group dimension="dataset" code="41" type="selection">
                            <Item code="314"/>
                            <Item code="325"/>
                        </Group>
                        <Group dimension="dataset" code="67" type="all"/>
                        <Item code="124"/>
                        <Item code="125"/>
                    </Dimension>
                    <Dimension name="area" isSpatialDimension="true">
                        <Item>
                            <HierarchyArea>
                                <AreaId>276980</AreaId>
                            </HierarchyArea>
                        </Item>
                        <Item>
                            <HierarchyArea>
                                <AreaId>276722</AreaId>
                            </HierarchyArea>
                        </Item>
                    </Dimension>
                    <Dimension name="time" isTimeDimension="true">
                        <Item>
                            <Period>
                                <Start>2001-04-29</Start>
                                <End>2001-04-29</End>
                            </Period>
                        </Item>
                    </Dimension>
                    <SeriesGrouping>
                        <SeriesGroup dimension="dataset"/>
```

```
                </SeriesGrouping>
            </Query>
        </DataCubeQueryMessage>
    </ns1:getDataCubeElement>
</soap:Body>
</soap:Envelope>
```

Explanations:

See example 1, plus the following:

Item code = "125" – note that this is a child of the variablefamily dimension, not under one of the datasets. The response will show the dataset name and id.

Response XML for query example 2

This is a large response containing all the variables in two datasets..

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
    <env:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
    </env:Header>
    <env:Body>
        <ns0:getDataCubeResponseElement>
            <lgdx:DataRoot xmlns:lgdx="http://www.esd.org.uk/LGDX">
                <lgdx:DataSource DataSourceName="NESS">
                    <lgdx:DataSet>
                        <lgdx:Metadata>
                            <lgdx:ArtefactDescription> This dataset is about Usual Resident Population. In the
2001 Census information was collected for usual residents. A usual resident was generally defined as someone
who spent most of their time at a specific address. This dataset shows both the 2001 population, the 1991
population, along with the rate of change, the split of the population between those living in households and
those living in communal establishments, the size of the area in hectares, population density and the number of
students away from home in the area</lgdx:ArtefactDescription>
                        </lgdx:Metadata>
                        <lgdx:ArtefactTitle>Usual Resident Population (KS01)</lgdx:ArtefactTitle>
                        <lgdx:HostReference>67</lgdx:HostReference>
                        <lgdx:Boundaries>
                            <lgdx:Boundary Code="24UE" Name="Fareham" BoundaryId="1">
                                <lgdx:SpatialData>
                                    <lgdx:Polygon>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                                        </lgdx:Point>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                                        </lgdx:Point>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                                        </lgdx:Point>
                                        <lgdx:Point>
                                            <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                            <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                                        </lgdx:Point>
                                    </lgdx:Polygon>
                                </lgdx:SpatialData>
                            </lgdx:Boundary>
```

```
                        <lgdx:Boundary Code="24" Name="Hampshire" BoundaryId="2">
                            <lgdx:SpatialData>
                                <lgdx:Polygon>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                                    </lgdx:Point>
                                </lgdx:Polygon>
                            </lgdx:SpatialData>
                        </lgdx:Boundary>
                    </lgdx:Boundaries>
                    <lgdx:Topics>
                        <lgdx:Topic Commentary="" Unit="Count" Title="2001 Population: All people"
TopicId="3"/>
                        <lgdx:Topic Commentary="" Unit="Count" Title="2001 Population: Males"
TopicId="4"/>
                        <lgdx:Topic Commentary="" Unit="Count" Title="2001 Population: Females"
TopicId="5"/>
                        <lgdx:Topic Commentary="" Unit="Count" Title="People living in households"
TopicId="6"/>
                        <lgdx:Topic Commentary="" Unit="Count" Title="People living in communal
establishments" TopicId="7"/>
                        <lgdx:Topic Commentary="" Unit="Count" Title="Number of students away from
home" TopicId="8"/>
                        <lgdx:Topic Commentary="" Unit="Percentage" Title="People living in households"
TopicId="9"/>
                        <lgdx:Topic Commentary="" Unit="Percentage" Title="People living in communal
establishments" TopicId="10"/>
                        <lgdx:Topic Commentary="" Unit="Count" Title="Area (hectares)" TopicId="11"/>
                        <lgdx:Topic Commentary="" Unit="Rate" Title="2001 Density (number of people per
hectare)" TopicId="12"/>
                    </lgdx:Topics>
                    <lgdx:Periods>
                        <lgdx:Period To_Date="2001-04-29" From_Date="2001-04-29" PeriodId="1"/>
                    </lgdx:Periods>
                    <lgdx:DatasetItems>
                        <lgdx:DataItem Value="107977" PeriodId="1" TopicId="3" BoundaryId="1"/>
                        <lgdx:DataItem Value="1240103" PeriodId="1" TopicId="3" BoundaryId="2"/>
                        <lgdx:DataItem Value="52882" PeriodId="1" TopicId="4" BoundaryId="1"/>
                        <lgdx:DataItem Value="608043" PeriodId="1" TopicId="4" BoundaryId="2"/>
                        <lgdx:DataItem Value="55095" PeriodId="1" TopicId="5" BoundaryId="1"/>
                        <lgdx:DataItem Value="632060" PeriodId="1" TopicId="5" BoundaryId="2"/>
                        <lgdx:DataItem Value="105700" PeriodId="1" TopicId="6" BoundaryId="1"/>
                        <lgdx:DataItem Value="1214514" PeriodId="1" TopicId="6" BoundaryId="2"/>
                        <lgdx:DataItem Value="2277" PeriodId="1" TopicId="7" BoundaryId="1"/>
                        <lgdx:DataItem Value="25589" PeriodId="1" TopicId="7" BoundaryId="2"/>
                        <lgdx:DataItem Value="1210" PeriodId="1" TopicId="8" BoundaryId="1"/>
                        <lgdx:DataItem Value="16301" PeriodId="1" TopicId="8" BoundaryId="2"/>
                        <lgdx:DataItem Value="97.89" PeriodId="1" TopicId="9" BoundaryId="1"/>
                        <lgdx:DataItem Value="97.94" PeriodId="1" TopicId="9" BoundaryId="2"/>
                        <lgdx:DataItem Value="2.11" PeriodId="1" TopicId="10" BoundaryId="1"/>
                        <lgdx:DataItem Value="2.06" PeriodId="1" TopicId="10" BoundaryId="2"/>
                        <lgdx:DataItem Value="7424" PeriodId="1" TopicId="11" BoundaryId="1"/>
                        <lgdx:DataItem Value="14.54" PeriodId="1" TopicId="12" BoundaryId="1"/>
                    </lgdx:DatasetItems>
                </lgdx:DataSet>
                <lgdx:DataSet>
```

```
                    <lgdx:Metadata>
                        <lgdx:ArtefactDescription> This dataset is about Socio-economic classification. It
shows the usual resident population aged 16 to 74 by their socio-economic classification. The National Statistics
Socio-economic Classification (NS-SeC) was introduced by the Government to replace Social Class based on
Occupation and Socio-Economic Groups (SEG). The NS-SeC is an occupationally based classification but has
rules to provide coverage of the whole adult population.  The population of this dataset is all people aged 16 to
74. There are separate tables available giving the same information separately for Males and
Females.</lgdx:ArtefactDescription>
                    </lgdx:Metadata>
                    <lgdx:ArtefactTitle>National Statistics Socio-economic Classification - All People
(KS14A)</lgdx:ArtefactTitle>
                    <lgdx:HostReference>41</lgdx:HostReference>
                    <lgdx:Boundaries>
                        <lgdx:Boundary Code="24UE" Name="Fareham" BoundaryId="1">
                            <lgdx:SpatialData>
                                <lgdx:Polygon>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                                    </lgdx:Point>
                                </lgdx:Polygon>
                            </lgdx:SpatialData>
                        </lgdx:Boundary>
                        <lgdx:Boundary Code="24" Name="Hampshire" BoundaryId="2">
                            <lgdx:SpatialData>
                                <lgdx:Polygon>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                                    </lgdx:Point>
                                    <lgdx:Point>
                                        <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                        <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                                    </lgdx:Point>
                                </lgdx:Polygon>
                            </lgdx:SpatialData>
                        </lgdx:Boundary>
                    </lgdx:Boundaries>
                    <lgdx:Topics>
                        <lgdx:Topic Commentary="" Unit="Count" Title="All people aged 16-74"
TopicId="1"/>
                        <lgdx:Topic Commentary="" Unit="Count" Title="People aged 16-74: Full-time
students" TopicId="2"/>
                    </lgdx:Topics>
                    <lgdx:Periods>
                        <lgdx:Period To_Date="2001-04-29" From_Date="2001-04-29" PeriodId="1"/>
                    </lgdx:Periods>
                    <lgdx:DatasetItems>
                        <lgdx:DataItem Value="78202" PeriodId="1" TopicId="1" BoundaryId="1"/>
```

```
                    <lgdx:DataItem Value="895199" PeriodId="1" TopicId="1" BoundaryId="2"/>
                    <lgdx:DataItem Value="3817" PeriodId="1" TopicId="2" BoundaryId="1"/>
                    <lgdx:DataItem Value="46828" PeriodId="1" TopicId="2" BoundaryId="2"/>
                </lgdx:DatasetItems>
            </lgdx:DataSet>
            <lgdx:DataSet>
                <lgdx:Metadata>
                    <lgdx:ArtefactDescription> This dataset is about Hours Worked. It covers all people
aged 16 to 74 in employment, giving information split by males and females. </lgdx:ArtefactDescription>
                </lgdx:Metadata>
                <lgdx:ArtefactTitle>Hours Worked (KS10)</lgdx:ArtefactTitle>
                <lgdx:HostReference>287</lgdx:HostReference>
                <lgdx:Boundaries>
                    <lgdx:Boundary Code="24UE" Name="Fareham" BoundaryId="1">
                        <lgdx:SpatialData>
                            <lgdx:Polygon>
                                <lgdx:Point>
                                    <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                    <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                                </lgdx:Point>
                                <lgdx:Point>
                                    <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                    <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                                </lgdx:Point>
                                <lgdx:Point>
                                    <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                    <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                                </lgdx:Point>
                                <lgdx:Point>
                                    <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                    <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                                </lgdx:Point>
                            </lgdx:Polygon>
                        </lgdx:SpatialData>
                    </lgdx:Boundary>
                    <lgdx:Boundary Code="24" Name="Hampshire" BoundaryId="2">
                        <lgdx:SpatialData>
                            <lgdx:Polygon>
                                <lgdx:Point>
                                    <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                    <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                                </lgdx:Point>
                                <lgdx:Point>
                                    <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                    <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                                </lgdx:Point>
                                <lgdx:Point>
                                    <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                    <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                                </lgdx:Point>
                                <lgdx:Point>
                                    <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                    <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                                </lgdx:Point>
                            </lgdx:Polygon>
                        </lgdx:SpatialData>
                    </lgdx:Boundary>
                </lgdx:Boundaries>
                <lgdx:Topics>
                    <lgdx:Topic Commentary="" Unit="Hours" Title="Average (mean) hours worked:
Male" TopicId="13"/>
                    <lgdx:Topic Commentary="" Unit="Hours" Title="Average (mean) hours worked:
Female" TopicId="14"/>
                </lgdx:Topics>
                <lgdx:Periods>
                    <lgdx:Period To_Date="2001-04-29" From_Date="2001-04-29" PeriodId="1"/>
                </lgdx:Periods>
                <lgdx:DatasetItems>
                    <lgdx:DataItem Value="42.7" PeriodId="1" TopicId="13" BoundaryId="1"/>
```

```
                        <lgdx:DataItem Value="42.77" PeriodId="1" TopicId="13" BoundaryId="2"/>
                        <lgdx:DataItem Value="30.53" PeriodId="1" TopicId="14" BoundaryId="1"/>
                        <lgdx:DataItem Value="30.86" PeriodId="1" TopicId="14" BoundaryId="2"/>
                    </lgdx:DatasetItems>
                </lgdx:DataSet>
            </lgdx:DataSource>
        </lgdx:DataRoot>
    </ns0:getDataCubeResponseElement>
  </env:Body>
</env:Envelope>
```

Explanations:

As example 1, but note that as we have multiple datasets, the areas and times are repeated.

### 3.2.3 **Latest Data**

Example Query 3

This example simply shows that you don't need to give a time. It will yield just the latest version of the data. Note that if a new version is released between two calls you will get different results.

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Iam5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns1="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
        <ns1:getDataCubeElement>
            <DataCubeQueryMessage xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubequery" xsi:schemaLocation="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubequery NeSSDataCubeQueryMessage-v0-4.xsd" version="0.5">
                <Query repository="NeSS" type="custom">
                    <Dimension name="dataset">
                        <Item code="724"/>
                    </Dimension>
                    <Dimension name="variablefamily" isMeasuredDimension="true">
                        <Group dimension="dataset" code="724" type="all"/>
                    </Dimension>
                    <Dimension name="area" isSpatialDimension="true">
                        <Item>
                            <HierarchyArea>
                                <AreaId>276980</AreaId>
                            </HierarchyArea>
                        </Item>
                        <Item>
                            <HierarchyArea>
                                <AreaId>276722</AreaId>
                            </HierarchyArea>
                        </Item>
                    </Dimension>
                    <SeriesGrouping>
                        <SeriesGroup dimension="dataset"/>
                    </SeriesGrouping>
                </Query>
            </DataCubeQueryMessage>
        </ns1:getDataCubeElement>
    </soap:Body>
</soap:Envelope>
```

Explanations:

There is no need to show the response to this example as there are no significant differences to the previous two.

### 3.2.4 Pick and Mix

Example Query 4

This final example shows an alternative approach, for when cherry-picking from a lot of datasets. Instead of outputting multiple datasets with one or two variables each (and lots of repetition), we define a dummy dataset to which all the variables belong.

To make this happen, your query must

a) Have no datasets referenced

b) Have no Series Grouping element.

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" soap:mustUnderstand="1">
            <wsse:UsernameToken xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                <wsse:Username>gimme.data@stats.com</wsse:Username>
                <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">Iam5tatto</wsse:Password>
            </wsse:UsernameToken>
        </wsse:Security>
    </soap:Header>
    <soap:Body xmlns:ns1="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
        <ns1:getDataCubeElement>
            <DataCubeQueryMessage xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubequery" xsi:schemaLocation="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubequery NeSSDataCubeQueryMessage-v0-4.xsd" version="0.5">
                <Query repository="NeSS" type="custom">
                    <Dimension name="variablefamily" isMeasuredDimension="true">
                        <Item code="314"/>
                        <Item code="325"/>
                        <Item code="124"/>
                        <Item code="125"/>
                    </Dimension>
                    <Dimension name="area" isSpatialDimension="true">
                        <Item>
                            <HierarchyArea>
                                <AreaId>276980</AreaId>
                            </HierarchyArea>
                        </Item>
                        <Item>
                            <HierarchyArea>
                                <AreaId>276722</AreaId>
                            </HierarchyArea>
                        </Item>
                    </Dimension>
                    <Dimension name="time" isTimeDimension="true">
                        <Item>
                            <Period>
                                <Start>2001-04-29</Start>
                                <End>2001-04-29</End>
                            </Period>
                        </Item>
                    </Dimension>
```

```
            </Query>
         </DataCubeQueryMessage>
      </ns1:getDataCubeElement>
   </soap:Body>
</soap:Envelope>
```

## Response XML for query example 4

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
   <env:Header>
      <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd" xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" env:mustUnderstand="1"/>
   </env:Header>
   <env:Body>
      <ns0:getDataCubeResponseElement>
         <lgdx:DataRoot xmlns:lgdx="http://www.esd.org.uk/LGDX">
            <lgdx:DataSource DataSourceName="NESS">
               <lgdx:DataSet>
                  <lgdx:Metadata>
                     <lgdx:ArtefactDescription>Pick and Mix</lgdx:ArtefactDescription>
                  </lgdx:Metadata>
                  <lgdx:ArtefactTitle>Custom</lgdx:ArtefactTitle>
                  <lgdx:HostReference>0</lgdx:HostReference>
                  <lgdx:Boundaries>
                     <lgdx:Boundary Code="24UE" Name="Fareham" BoundaryId="1">
                        <lgdx:SpatialData>
                           <lgdx:Polygon>
                              <lgdx:Point>
                                 <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                 <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                              </lgdx:Point>
                              <lgdx:Point>
                                 <lgdx:XCoordinate>448760</lgdx:XCoordinate>
                                 <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                              </lgdx:Point>
                              <lgdx:Point>
                                 <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                 <lgdx:YCoordinate>101385</lgdx:YCoordinate>
                              </lgdx:Point>
                              <lgdx:Point>
                                 <lgdx:XCoordinate>462605</lgdx:XCoordinate>
                                 <lgdx:YCoordinate>111270</lgdx:YCoordinate>
                              </lgdx:Point>
                           </lgdx:Polygon>
                        </lgdx:SpatialData>
                     </lgdx:Boundary>
                     <lgdx:Boundary Code="24" Name="Hampshire" BoundaryId="2">
                        <lgdx:SpatialData>
                           <lgdx:Polygon>
                              <lgdx:Point>
                                 <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                 <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                              </lgdx:Point>
                              <lgdx:Point>
                                 <lgdx:XCoordinate>403095</lgdx:XCoordinate>
                                 <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                              </lgdx:Point>
                              <lgdx:Point>
                                 <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                 <lgdx:YCoordinate>89692</lgdx:YCoordinate>
                              </lgdx:Point>
                              <lgdx:Point>
                                 <lgdx:XCoordinate>488767</lgdx:XCoordinate>
                                 <lgdx:YCoordinate>165381</lgdx:YCoordinate>
                              </lgdx:Point>
                           </lgdx:Polygon>
```

```
                        </lgdx:SpatialData>
                    </lgdx:Boundary>
                </lgdx:Boundaries>
                <lgdx:Topics>
                    <lgdx:Topic Commentary="" Unit="Count" Title="All people aged 16-74"
TopicId="1"/>
                    <lgdx:Topic Commentary="" Unit="Count" Title="People aged 16-74: Full-time
students" TopicId="2"/>
                    <lgdx:Topic Commentary="" Unit="Hours" Title="Average (mean) hours worked:
Male" TopicId="3"/>
                    <lgdx:Topic Commentary="" Unit="Hours" Title="Average (mean) hours worked:
Female" TopicId="4"/>
                </lgdx:Topics>
                <lgdx:Periods>
                    <lgdx:Period To_Date="2001-04-29" From_Date="2001-04-29" PeriodId="1"/>
                </lgdx:Periods>
                <lgdx:DatasetItems>
                    <lgdx:DataItem Value="895199" PeriodId="1" TopicId="1" BoundaryId="2"/>
                    <lgdx:DataItem Value="42.7" PeriodId="1" TopicId="3" BoundaryId="1"/>
                    <lgdx:DataItem Value="46828" PeriodId="1" TopicId="2" BoundaryId="2"/>
                    <lgdx:DataItem Value="42.77" PeriodId="1" TopicId="3" BoundaryId="2"/>
                    <lgdx:DataItem Value="3817" PeriodId="1" TopicId="2" BoundaryId="1"/>
                    <lgdx:DataItem Value="78202" PeriodId="1" TopicId="1" BoundaryId="1"/>
                    <lgdx:DataItem Value="30.53" PeriodId="1" TopicId="4" BoundaryId="1"/>
                    <lgdx:DataItem Value="30.86" PeriodId="1" TopicId="4" BoundaryId="2"/>
                </lgdx:DatasetItems>
            </lgdx:DataSet>
        </lgdx:DataSource>
    </lgdx:DataRoot>
</ns0:getDataCubeResponseElement>
</env:Body>
</env:Envelope>
```

## 3.3 Error Messages

Each operation returns a SOAP Fault message containing a NeSSProcessingProblemElement if it fails. Each NeSSProcessingProblemElement consists of message, code and detail subelements. There are some minor differences between delivery and discovery – for delivery, there is an addition NeSSDataCubeFault element (hangover from the Cafeteria pilot). Also the XSD validation is done internally so you get a Server fault instead of a Client fault. These differences will be ironed out in the full version.

### 3.3.1 Sample Message

Server Fault

Validation:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
    <env:Body>
        <env:Fault xsi:type="env:Fault">
            <faultcode>env:Server</faultcode>
            <faultstring xsi:nil="1"/>
            <detail>
                <ns0:NeSSProcessingProblemElement>
                    <ndcf:NeSSDataCubeFault
xmlns:ndcf="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubefault">
                        <message>validationFailure</message>
                        <code>Datarender:XMLQueryManager:ProcessXMLQuery:QueryFailedValidation</code>
                        <detail>XML Document has Error:true &amp;lt;Line 1, Column 1045&amp;gt;: XML-24534: (Error)
Element 'SeriesGroping' not expected.</detail>
                    </ndcf:NeSSDataCubeFault>
                </ns0:NeSSProcessingProblemElement>
            </detail>
        </env:Fault>
    </env:Body>
</env:Envelope>
```

Processing

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:ns0="http://neighbourhood.statistics.gov.uk/dissemination/resources/wsdl/deliveryservice">
    <env:Body>
        <env:Fault xsi:type="env:Fault">
            <faultcode>env:Server</faultcode>
            <faultstring xsi:nil="1"/>
            <detail>
                <ns0:NeSSProcessingProblemElement>
                    <NeSSDataCubeFault
xmlns="http://neighbourhood.statistics.gov.uk/dissemination/resources/schemas/datacubefault">
                        <message>systemFailure</message>
                        <code>Datarender:XMLQueryFactory:GetResponse:InvalidRequest</code>
                        <detail>NESS: Dataset Not Found With Id: 333367</detail>
                    </NeSSDataCubeFault>
                </ns0:NeSSProcessingProblemElement>
            </detail>
        </env:Fault>
    </env:Body>
</env:Envelope>
```

Client Fault

Invalid XML

```
<HTML>
    <HEAD>
        <TITLE>Web Service</TITLE>
    </HEAD>
    <BODY>
        <H1>Bad Request</H1>
        <PRE>Error parsing envelope: (4, 1119) End tag does not match start tag
'DataCubeQueryMassage'.</PRE>
    </BODY>
</HTML>
```

### 3.3.2 Message Element

There are three message types:

AuthorizationFailure

These errors only occur when the username and password are correct, but the username has not been granted the web services role by the NeSS support team.

ValidationFailure

Validation of the XML against the XSD occurs inside the web service, whereas the basic XML validity is checked outside.

SystemFailure

This is where an unexpected error has occurred when processing the request. The user has submitted valid parameters but the request has failed for some reason.

### 3.3.3 Code Element

This is a four-section delimited code for the benefit of ONS in tracking down errors.
Project Name : Class Name : Method Name : Short Error Description.
The names do not exactly match the real classes and methods for security reasons.

The final Short Error Description may be of use to clients as it contains further detail as to the nature of the failure that may be shared across several different methods.
E.G. ValidationFailure can have Short Error Descriptions including ERROR_AREA (Area Not Found) or ERROR_HIER (Hierarchy Not Found) or ERROR_DATASET (Dataset not found).

### 3.3.4 Detail Element

This is the most useful part for the user as it describes the reason for the failure in English.

## 3.4 Notes

### 3.4.1 Warning About Latest Data Queries

At the time of writing a problem which affects some latest data queries (i.e. where no time range is specified) has not yet been resolved. This should be rectified shortly after launch with a database update.