# Pinpoint Reports Core Administration Manual
## Version 2.0.0

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WHANGANUI
DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

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WHANGANUI
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Te Kaunihera a Rohe o Whanganui

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## Introduction

Pinpoint Reports is a web application that provides end users with a powerful yet easy to use tool for creating a geographically rich PDF Report containing a series of predefined pages relating to a location of interest.

An administrator pre-defines one or more Pinpoint Reports config files, each defining how a single PDF Report will be constructed.

A single Pinpoint Reports config file contains all the logic required to produce a PDF Report on almost any subject matter.

Examples of subject matter suitable for a Pinpoint Reports config file:
- LIM (Land Information Memorandum)
- Property Report
- Hazards Report

Each page can contain combinations of maps and/or data derived from local data sources or via web services.

One or more Templates referenced by the config file define the page layouts required throughout the PDF Report.

Foreign PDF documents can be inserted at any point either as defined pages, page ranges or an entire PDF document.
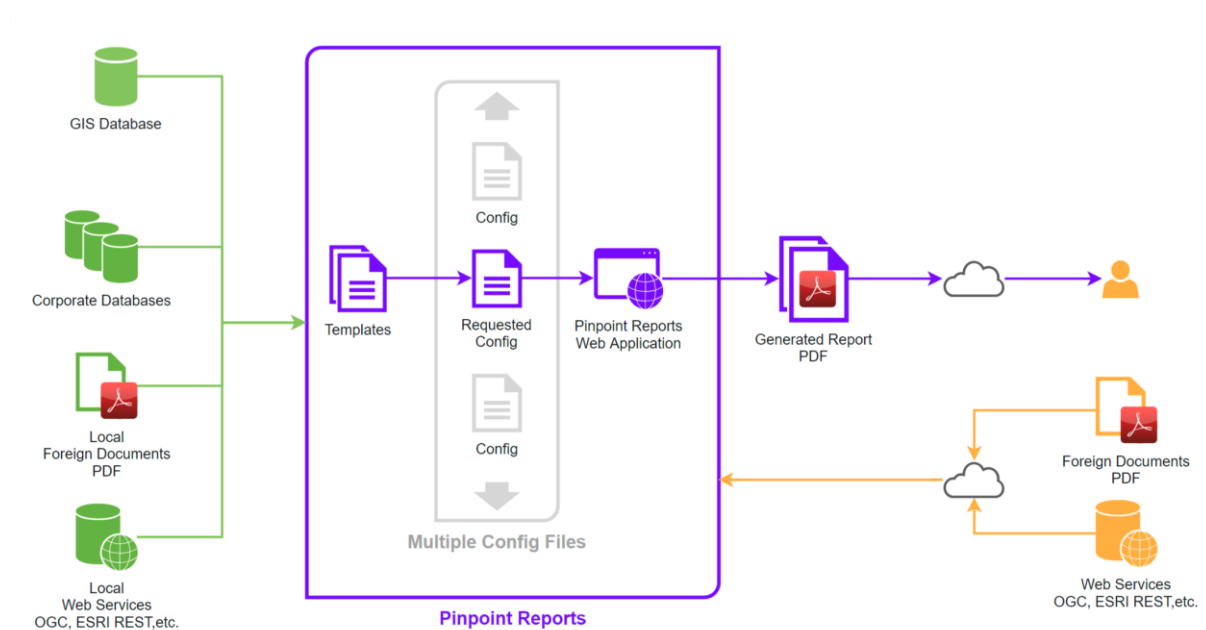
## Report Page Components

Each PDF Report page is constructed sequentially using the following components defined in a page template:

- Page Footer text
- Map Image Scale
  - PostgreSQL
  - SQL Server
  - OGC WFS
  - ESRI REST GeoJson
- Map Image
  - OGC WMS
  - ESRI REST Map Image Export
  - IntraMaps GetMap Request
- Map Features
  - PostgreSQL
  - SQL Server
  - OGC WFS
  - ESRI REST GeoJson
- Multiple Maps Scale Labels (for multiple maps on a page)
- Data Tables Title
- Data Tables Description
- Data Table(s)
  - PostgreSQL
  - SQL Server
  - Simple JSON Web Service
- Page Borders
- Page Images (Static)
- Page Images (Dynamic via SQL)
  - PostgreSQL
  - SQL Server
- Single Map Scale Label (for single map on page)
- Page Original Sheet Size Label
- Page Printed Date Label
- Page Labels (Static)
- Page Labels (Dynamic via SQL)
  - PostgreSQL
  - SQL Server
- Page Title Label

# Installation

Installation can be undertaken on either Windows or Linux servers.

## Minimum Requirements

The minimum requirements to run Pinpoint Reports are as follows:

Windows
- 2x Logical CPU
- 8Gb RAM
- Windows Server 2016+
- IIS 7+
- GDAL 3.0.4
- Microsoft .Net Framework 4+ / ASP.Net 4+

Linux
- 2x Logical CPU
- 8Gb RAM
- Ubuntu 20.04
- GDAL 3.0.4
- Microsoft
  - dotnet-sdk-3.1
  - aspnetcore-runtime-3.1

## Web Server Configuration – Windows IIS

The majority of web server configuration is undertaken during installation, however, some configuration settings can be modified or added to post installation.

These settings are defined in the Pinpoint Reports web applications **web.config** file located in the folder **C:\WDC\www\PinpointReports** on the server.

## Web.config

## Connection Strings

The web.config file contains connection string information to allow Pinpoint Reports to connect to local ODBC Datasources such as PostgreSQL and SQL Server databases.

```
<connectionStrings>
    <add connectionString="Driver={SQL Server Native Client 11.0};server=localhost;UID=username;PWD=userpassword;database=LINZ;"
name="LINZ" />
    <add connectionString="Driver={SQL Server Native Client 11.0};server=localhost;UID=username;PWD=userpassword;" name="SQLLabels" />
    <add connectionString="Driver={SQL Server Native Client 11.0};server=localhost;UID=username;PWD=userpassword;" name="SQLImages" />
    <add connectionString="Driver={PostgreSQL Unicode(x64)};Server=localhost;Port=5432;Database=linz;Uid=username;Pwd=userpassword;"
name="pgLINZodbc" />
    <add connectionString="host=localhost port=5432 dbname=linz user=username password='userpassword'" name="pgLINZogr" />
</connectionStrings>
```

ODBC Connection String Formats
- http://www.connectionstrings.com

OGR Connection String Formats
- PostgreSQL https://www.gdal.org/drv_pg.html
- SQL Server https://www.gdal.org/drv_mssqlspatial.html

### *SQL Connection Timeout*

This timeout configuration is the time in seconds to wait for an ODBC connection to open.  Use "Timeout=100" in the connection string and set the value to an appropriate time if required.

Example:

```
<connectionStrings>
    <add connectionString="Driver={SQL Server Native Client
11.0};server=localhost;UID=username;PWD=userpassword;database=LINZ;timeout=100;" name="LINZ" />
</connectionStrings>
```

## Timeout settings

The **web.config** file has various timeout settings you can configure:
- SQL Command Timeout
- Web Request Timeout

- Web Application Timeout

## SQL Command Timeout
This timeout configuration is the time in seconds to wait for the SQL Command to execute.

Example:

```
<appSettings>
   <add key="SQLCommandTimeOut" value="100"/>
</appSettings>
```

## Web Request Timeout
This timeout configuration is the time in milliseconds to wait for a web request to return a response (e.g. images, data, etc.) over http or https.

Example:

```
<appSettings>
   <add key="WebRequestTimeOut" value="60000"/>
</appSettings>
```

Note
This setting is optional and if it is missing a default of 5000 milliseconds is applied.

## Web Application Timeout
This timeout configuration is the maximum time in seconds that a web application request can execute before being automatically shut down by ASP.NET.

Example:

```
<system.web>
   <compilation debug="true"/>
   <httpRuntime executionTimeout="120" maxRequestLength="2000000" />
</system.web>
```

Note
This setting doesn't apply if the web page is in debug mode.

# Config Files

An administrator pre-defines one or more Pinpoint Reports config files, each defining how a single PDF Report will be constructed.

A single config file contains all the logic required to produce a PDF Report on almost any subject matter.
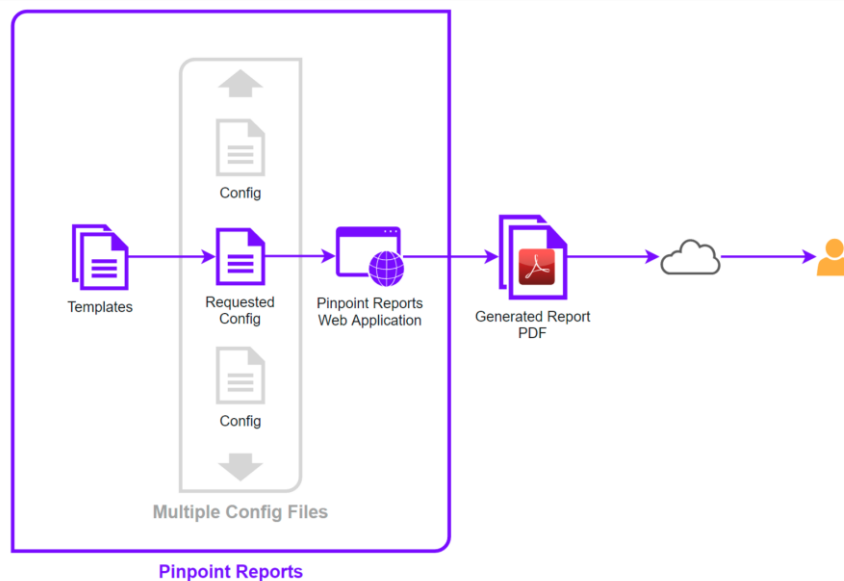


The configuration file is an XML based configuration file to allow administrator configuration and has a file extension of .config (rather than .xml) as this is a protected file extension in IIS.

Each config file comprises the following major sections
- **Settings** – All settings related to producing the final output
- **Pages** – A sequential listing of all page definitions required

## Config Files – Settings

The **<Settings>** section of the config file contains settings that relate to the whole PDF Report rather than settings for an individual page in the report.

### <Settings>

| | |
|---|---|
| XML Tag: | <Settings> |
| Occurrence: | Once only, Required |
| Parent: | <configuration> |
| Description: | Container for report settings |

## GDAL Settings

GDAL is a translator library for raster and vector geospatial data formats that is released under an X/MIT style Open Source license by the Open Source Geospatial Foundation. As a library, it presents a single raster abstract data model and single vector abstract data model to the calling application for all supported formats.

The GDAL Library is used to XXXX

### <GDAL>

| | |
|---|---|
| XML Tag: | <GDAL> |
| Occurrence: | Once only, Required |
| Parent: | <Settings> |
| Description: | Container for GDAL settings |

### <GDAL_Home>

| | |
|---|---|
| XML Tag: | <GDAL_Home> |
| Occurrence: | Once only, Required |
| Parent: | <GDAL> |
| Description: | File location of GDAL installation |
| Usage: | |

<GDAL_Home>C:\Program Files\GDAL</GDAL_Home>

## QGIS Settings

QGIS Layout templates (.qpt files) are used to XXXXX

## <QGIS>

XML Tag:        <QGIS>
Occurrence:     Once only, Optional
Parent:         <Settings>
Description:    Container for QGIS related settings

## <QPTLayout>

XML Tag:        <QPTLayout>, Optional
Occurrence:     Once only
Parent:         <QGIS>
Description:    Container for QGIS QPT Layout related settings

## <SQLConnections>

XML Tag:        <SQLConnections>
Occurrence:     Once only, Optional
Parent:         <QPTLayout>
Description:    Container for QGIS QPT Layout SQL Connection related settings

## <Labels>

XML Tag:        <Labels>
Occurrence:     Once only, Optional (Defaults to "Labels" if not present)
Parent:         <SQLConnections>
Description:    Name of the SQL Connection to use for SQL Generated Labels
Usage:

<Labels>SQLLabels</Labels>

## <Images>

XML Tag:        <Images>
Occurrence:     Once only, Optional (Defaults to "Images" if not present)
Parent:         <SQLConnections>
Description:    Name of the SQL Connection to use for SQL Generated Images

<Images>SQLImages</Images>

# Page Generation Settings

## <PageGeneration>

XML Tag:          <PageGeneration>
Occurrence:       Once only, Required
Parent:           <Settings>
Description:       Sets id for individual page generation via URL param "generateid"
Usage:

<PageGeneration id="2be0390d-3af7-4145-82ba-aab2262f0a1e"></PageGeneration>

Attributes:
**id**              unique GUID value https://www.uuidgenerator.net/guid

# Output Settings

## <Output>

XML Tag:          <Output>
Occurrence:       Once only, Required
Parent:           <Settings>
Description:  Container for Output settings

## <PDF>

XML Tag:          <PDF>
Occurrence:       Once only, Required
Parent:           <Output>
Description:  Container for PDF settings
Usage:

<PDF compression="Best">

Attributes:
**compression**     value as described below…

PDF compression attribute options:
**None** - Packs without compression
**BestSpeed** - Performs high speed compression; reduction of data size is lesser
**BelowNormal** - Performs compression that is rated between Normal and BestSpeed compressions
**Normal** - Performs compression at normal speed; normal reduction of data size
**AboveNormal** - Performs enhanced compression compared to the normal compression; time consumption exceeds the normal compression
**Best** - Performs the best compression; time consuming

## \<Metadata>

| | |
|---|---|
| XML Tag: | \<Metadata> |
| Occurrence: | Once only, Required |
| Parent: | \<PDF> |
| Description: | Container for PDF Metadata settings |

## \<Title>

| | |
|---|---|
| XML Tag: | \<Title> |
| Occurrence: | Once only, Required |
| Parent: | \<Metadata> |
| Description: | Title Metadata for the PDF document produced |

\<Title>Default Report\</Title>

| | | |
|---|---|---|
| Parameters: | @featurekey | Replaced with Feature key value from launch URL |
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

## \<Author>

| | |
|---|---|
| XML Tag: | \<Author> |
| Occurrence: | Once only, Required |
| Parent: | \<Metadata> |
| Description: | Author Metadata for the PDF document produced |

\<Author>Whanganui District Council\</Author>

## \<Subject>

| | |
|---|---|
| XML Tag: | \<Subject> |
| Occurrence: | Once only, Required |
| Parent: | \<Metadata> |
| Description: | Subject Metadata for the PDF document produced |

\<Subject>Pinpoint Reports PDF Document\</Subject>

| | | |
|---|---|---|
| Parameters: | @featurekey | Replaced with Feature key value from launch URL |
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

# <Keywords>

| | |
|---|---|
| XML Tag: | <Keywords> |
| Occurrence: | Once only, Required |
| Parent: | <Metadata> |
| Description: | Keywords Metadata for the PDF document produced |

<Keywords>Map, Property, @featurekey, @databasekey, @referencekey</Keywords>

| Parameters: | @featurekey | Replaced with Feature key value from launch URL |
|---|---|---|
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

# <Security>

| | |
|---|---|
| XML Tag: | <Security> |
| Occurrence: | Once only, Optional |
| Parent: | <PDF> |
| Description: | Container for PDF Security settings |

# <OwnerPassword>

| | |
|---|---|
| XML Tag: | <OwnerPassword> |
| Occurrence: | Once only, Optional |
| Parent: | <PDF> |
| Description: | Document owners password |

# <UserPassword>

| | |
|---|---|
| XML Tag: | <UserPassword> |
| Occurrence: | Once only, Optional |
| Parent: | <PDF> |
| Description: | Document users password |

# Config Files – Pages

The **<Pages>** section of the config file contains a sequential listing of all page definitions required.

## <Pages>

| | |
|---|---|
| XML Tag: | <Pages> |
| Occurrence: | Once only, Required |
| Parent: | <configuration> |
| Description: | Container for pages |

## Footer Template

## <FooterTemplate>

| | |
|---|---|
| XML Tag: | <FooterTemplate> |
| Occurrence: | Once only, Optional |
| Parent: | <Pages> |
| Description: | |
| Usage: | |

<FooterTemplate bottom="11" width="210">

Attributes:

**bottom**   Value in millimetres from the bottom of the page.
**width**   Value in millimetres for the width of the page.

## <FooterText>

| | |
|---|---|
| XML Tag: | <FooterText> |
| Occurrence: | Once only, Optional |
| Parent: | <FooterTemplate> |
| Description: | |
| Usage: | |

<FooterText left="10" include="True"></FooterText>

Attributes:

**left**   Value in millimetres from the left of the page.
**include**   True to display or False to hide. Default is True if not present.

## <FooterPageNumbers>

XML Tag:        <FooterPageNumbers>
Occurrence:     Once only, Optional
Parent:         <FooterTemplate>
Description:
Usage:

<FooterPageNumbers right="27" include="True"></FooterPageNumbers>

Attributes:
**right**          Value in millimetres from the right of the page.
**include**        True to display or False to hide. Default is True if not present.

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# Page > Title Page

## \<Page>

| | |
|---|---|
| XML Tag: | \<Page> |
| Occurrence: | Once only, Optional |
| Parent: | \<Pages> |
| Description: | Produce a title page by importing from another PDF. |
| Usage: | |

```
<Page type="Title">
```

Attributes:

**type**          the type of page to produce, "Title".

## \<PageGeneration>

| | |
|---|---|
| XML Tag: | \<PageGeneration> |
| Occurrence: | Once only, Optional (default is true if not present) |
| Parent: | \<Page> |
| Description: | Whether to include this page in generation of the PDF report. |
| Usage: | |

```
<PageGeneration include="true" />
```

Attributes:

**include**       true/false to include this page in generation of the PDF report

## \<TitlePage>

| | |
|---|---|
| XML Tag: | \<TitlePage> |
| Occurrence: | Once only, Required |
| Parent: | \<Page> |
| Description: | Selects which page to import from a PDF document. |
| Usage: | |

```
<TitlePage importpage="1">docs\test.pdf</TitlePage>
```

Attributes:

**importpage**    page number to import

## Page > Foreign Pages

### <Page>

| | |
|---|---|
| XML Tag: | <Page> |
| Occurrence: | Multiple allowed, Optional |
| Parent: | <Pages> |
| Description: | Imports one or more pages from another PDF. |
| Usage: | |

```
<Page type="Foreign">
```

Attributes:
**type**          The type of page to produce, "Foreign".

### <PageGeneration>

| | |
|---|---|
| XML Tag: | <PageGeneration> |
| Occurrence: | Once only, Optional (default is true if not present) |
| Parent: | <Page> |
| Description: | Whether to include this page in generation of the PDF report. |
| Usage: | |

```
<PageGeneration include="true" />
```

Attributes:
**include**          true/false to include this page in generation of the PDF report

### <ForeignPages>

| | |
|---|---|
| XML Tag: | <ForeignPages> |
| Occurrence: | Once only, Optional |
| Parent: | <Page> |
| Description: | Container for Foreign Pages |
| Usage: | |

```
<ForeignPages>
```

### <ForeignPage>

| | |
|---|---|
| XML Tag: | <ForeignPage> |
| Occurrence: | Multiple allowed, Optional |

Parent:          <ForeignPages>
Description:      Selects which page or pages to import from a PDF document.
Usage:

<ForeignPage importpage="1" type="local">docs\test.pdf</ForeignPage>

Attributes:

**importpage**      page number to import. Format: **1,2,6,8-9**
**type**            optional, either **local** or **web** (local is default if not present)

## <ForeignSQLPages>

XML Tag:         <ForeignSQLPages>
Occurrence:      Once only, Optional
Parent:          <Page>
Description:      Container for Foreign Pages derived by SQL Statement
Usage:

<ForeignSQLPages>

## <ForeignSQLPage>

XML Tag:         <ForeignSQLPage>
Occurrence:      Multiple allowed, Optional
Parent:          <ForeignSQLPages>
Description:      Selects which page or pages to import from a PDF document.
Usage:

<ForeignSQLPage>

## <SQL>

XML Tag:         <SQL>
Occurrence:      Once only
Parent:          <ForeignSQLPage>
Description:      SQL statement returning document, importpage, type.
Usage:

<SQL connection="connname"><![CDATA[select 'documentname','1,2,6-8','web' FROM tablename
WHERE id=@featurekey]]></SQL>

Attributes:

**connection**      Name of the SQL Connection to use (as defined in web.config)

| Parameters: | @featurekey | Replaced with Feature key value from launch URL |
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

# Page > Report Pages

## <Page>

| | |
|---|---|
| XML Tag: | <Page> |
| Occurrence: | Multiple allowed, Optional |
| Parent: | <Pages> |
| Description: | Pages containing map images and/or data tables |
| Usage: | |

```
<Page type="Report" title="PostGIS Test" name="Property Map"
template="Templates\qgis3_A4PortraitMapX2DataTables.qpt">
```

Attributes:

| | |
|---|---|
| **type** | the type of page to produce, "Report". |
| **title** | text displayed as a title label on the page |
| **name** | name of the page |
| **template** | file path and filename of QGIS template |

## <PageGeneration>

| | |
|---|---|
| XML Tag: | <PageGeneration> |
| Occurrence: | Once only, Optional (default is true if not present) |
| Parent: | <Page> |
| Description: | Whether to include this page in generation of the PDF report. |
| Usage: | |

```
<PageGeneration include="true" />
```

Attributes:

| | |
|---|---|
| **include** | true/false to include this page in generation of the PDF report |

# Page > Report Pages > Map Images

## <MapImage>

| | |
|---|---|
| XML Tag: | <MapImage> |
| Occurrence: | Multiple Allowed, Optional |
| Parent: | <Page> |
| Description: | Include a map image on the page. |
| Usage: | |

```
<MapImage imageScale="2" type="OGCWMS">
```

Attributes:

**imageScale** value to scale the image size by

**type** one of **OGCWMS** or **ESRIREST** or **Intramaps** or **URLPARAMS**

**URLPARAMS** requires reports to be launched with the following **URL parameters**:

| | | |
|---|---|---|
| Required: | featkey | Feature key |
| | scale | Scale value or auto |
| Optional: | | |
| | x | X coordinate to centre on |
| | y | Y coordinate to centre on |
| | s_epsg | Source EPSG code |
| | t_epsg | Target EPSG code |

Usage:

```
http://...?report=myReportName&featkey=123&scale=1000
```

```
http://...?report=myReportName&featkey=123&scale=1000&x=175.0489103&y=-39.9335088&s_epsg=4326&t_epsg=2193
```

## <URI>

| | |
|---|---|
| XML Tag: | <URI> |
| Occurrence: | Once only, Required |
| Parent: | <MapImage> |
| Description: | URI to the web service supplying the map image. |
| Usage: | |

**OGCWMS**

```
<URI useProxy="False"><![CDATA[https://data.linz.govt.nz/services;key=dd4308b96a1743a195b4e9044fb7
```

0313/wms?service=WMS&version=1.1.1&request=GetMap&layers=layer-50767&format=image/png&srs=EPSG:2193]]></URI>

Exclude these parameters from the URI:

&bbox
&width
&height

Usage:

**ESRIREST**

<URI useProxy="False"><![CDATA[https://hbmaps.hbrc.govt.nz/arcgis/rest/services/Imagery/Hastings_Urban_Imagery_20142015/ImageServer/exportImage?bboxSR=2193&imageSR=&time=&format=jpgpng&pixelType=U8&noData=&noDataInterpretation=esriNoDataMatchAny&interpolation=+RSP_BilinearInterpolation&compression=&compressionQuality=&bandIds=&mosaicRule=&renderingRule=&f=image]]></URI>

Exclude these parameters from the URI:

&bbox
&size

Usage:

**Intramaps**

<URI useProxy="False"><![CDATA[https://mapping.hdc.govt.nz/IntraMaps80/SpatialEngineWSEmbeddedMaps/getmap.ashx?Project=PropertyMaps&Module=Property&layer=Property%20Data&includeData=false&mapkeys=@datbasekey]]></URI>

Exclude these parameters from the URI:

&width
&height
&zoom
&x
&y

Attributes:

**useProxy**          not implemented yet.

Parameters:
| | |
|---|---|
| @featurekey | Replaced with Feature key value from launch URL |
| @databasekey | Replaced with Database key value from launch URL |
| @referencekey | Replaced with Reference key value from launch URL |

# Page > Report Pages > Map Images > Scales

## <ScaleFeature>

| | |
|---|---|
| XML Tag: | <ScaleFeature> |
| Occurrence: | Once only, Required |
| Parent: | <MapImage> |
| Description: | Identify feature to base scale on. |
| Usage: | |

```
<ScaleFeature type="OGCWFS" multiplier="2">
```

Attributes:

**multiplier**     value to allow for adjusting feature scale

**type**     one of **OGCWFS** or **ESRIREST** or **SQL** or **URLPARAMS**

**URLPARAMS** requires reports to be launched with the following **URL parameters**:

| | | |
|---|---|---|
| Required: | featkey | Feature key |
| | scale | Scale value or auto |
| Optional: | | |
| | x | X coordinate to centre on |
| | y | Y coordinate to centre on |
| | s_epsg | Source EPSG code |
| | t_epsg | Target EPSG code |

Usage:

```
http://...?report=myReportName&featkey=123&scale=1000
```

```
http://...?report=myReportName&featkey=123&scale=1000&x=175.0489103&y=-
39.9335088&s_epsg=4326&t_epsg=2193
```

## <URI>

| | |
|---|---|
| XML Tag: | <URI> |
| Occurrence: | Once only, Required |
| Parent: | <ScaleFeature> |
| Description: | URI to the web service to identify feature to base scale on. |
| Usage: | |

**OGCWFS**

```
<URI
useProxy="False"><![CDATA[https://data.linz.govt.nz/services;key=dd4308b96a1743a195b4e9044fb7
```

```
0313/wfs?service=WFS&version=2.0.0&request=GetFeature&typeNames=layer-
50823&srsName=EPSG:2193&cql_filter=id=@featurekey]]></URI>
```

Usage:
**ESRIREST**

```
<URI
useProxy="False"><![CDATA[https://hbmaps.hbrc.govt.nz/arcgis/rest/services/WebMaps/PropertySpe
cial/MapServer/2/query?where=ParcelId%3D@featurekey&text=&objectIds=&time=&geometry=&ge
ometryType=esriGeometryEnvelope&inSR=2193&spatialRel=esriSpatialRelIntersects&relationParam=
&outFields=*&returnGeometry=true&returnTrueCurves=false&maxAllowableOffset=&geometryPreci
sion=&outSR=2193&returnIdsOnly=false&returnCountOnly=false&orderByFields=&groupByFieldsFor
Statistics=&outStatistics=&returnZ=false&returnM=false&gdbVersion=&returnDistinctValues=false&
resultOffset=&resultRecordCount=&queryByDistance=&returnExtentsOnly=false&datumTransformati
on=&parameterValues=&rangeValues=&f=geojson]]></URI>
```

Usage:
**URLPARAMS**   (same as OGCWFS)

```
<URI
useProxy="False"><![CDATA[https://data.linz.govt.nz/services;key=dd4308b96a1743a195b4e9044fb7
0313/wfs?service=WFS&version=2.0.0&request=GetFeature&typeNames=layer-
50823&srsName=EPSG:2193&cql_filter=id=@featurekey]]></URI>
```

Attributes:
**useProxy**        not implemented yet.

Parameters:    @featurekey      Replaced with Feature key value from launch URL
               @databasekey     Replaced with Database key value from launch URL
               @referencekey    Replaced with Reference key value from launch URL

## <SQL>

XML Tag:        <SQL>
Occurrence:     Once only, Required
Parent:         <ScaleFeature>
Description:     SQL to identify feature to base scale on.
Usage:

```
<SQL connection="LINZ" ogrDriver="MSSQL:" table="Tables=dbo.nz_primary_land_parcels"
dialect="SQLITE"><![CDATA[SELECT id,ogr_geometry as 'GEOMETRY' FROM nz_primary_land_parcels
WHERE id=@featurekey]]></SQL>
```

Attributes:

| | |
|---|---|
| **connection** | Name of the SQL Connection to use (as defined in web.config) |
| **ogrDriver** | GDAL OGR Driver prefix to use (e.g. "**MSSQL:**" or "**PG:**") |
| **table** | Database table to connect to (e.g. "**tables=schema.tablename**") |
| **dialect** | SQL dialect to use (leave blank for native database SQL dialect) |

| Parameters: | | |
|---|---|---|
| | @featurekey | Replaced with Feature key value from launch URL |
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

## \<ScaleRanges\>

| | |
|---|---|
| XML Tag: | \<ScaleRanges\> |
| Occurrence: | Once only, Required |
| Parent: | \<MapImage\> |
| Description: | Container for ScaleRange values. |
| Usage: | |

```
<ScaleRanges>
```

## \<ScaleRange\>

| | |
|---|---|
| XML Tag: | \<ScaleRange\> |
| Occurrence: | Multiple allowed, Required |
| Parent: | \<ScaleRanges\> |
| Description: | Scale range values defined by min and max values. |
| Usage: | |

```
<ScaleRange min="0" max="2500">2500</ScaleRange>
<ScaleRange min="2500" max="3000">3000</ScaleRange>
<ScaleRange min="3000" max="5000">5000</ScaleRange>
```

| Attributes: | |
|---|---|
| **min** | minimum feature scale value for this scale range |
| **max** | maximum feature scale value for this scale range |

# Page > Report Pages > Map Images > Map Features

## <MapFeatures>

| | |
|---|---|
| XML Tag: | <MapFeatures> |
| Occurrence: | Once only, Optional |
| Parent: | <MapImage> |
| Description: | Container for Map Features. |
| Usage: | |

<MapFeatures>

## <MapFeature>

| | |
|---|---|
| XML Tag: | <MapFeature> |
| Occurrence: | Multiple allowed, Optional |
| Parent: | <MapFeatures> |
| Description: | Identify feature to draw on top of map image. |
| Usage: | |

<MapFeature type="OGCWFS">

Attributes:

**type**  one of **OGCWFS** or **ESRIREST** or **SQL**

## <URI>

| | |
|---|---|
| XML Tag: | <URI> |
| Occurrence: | Once only, Required |
| Parent: | <MapFeature> |
| Description: | URI to the web service to identify feature to draw. |
| Usage: | |

**OGCWFS**

<URI useProxy="False"><![CDATA[https://data.linz.govt.nz/services;key=dd4308b96a1743a195b4e9044fb70313/wfs?service=WFS&version=2.0.0&request=GetFeature&typeNames=layer-50823&srsName=EPSG:2193&cql_filter=id=@featurekey]]></URI>

Usage:
**ESRIREST**

<URI useProxy="False"><![CDATA[https://hbmaps.hbrc.govt.nz/arcgis/rest/services/WebMaps/PropertySpecial/MapServer/2/query?where=ParcelId%3D@featurekey&text=&objectIds=&time=&geometry=&geometryType=esriGeometryEnvelope&inSR=2193&spatialRel=esriSpatialRelIntersects&relationParam=

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```
&outFields=*&returnGeometry=true&returnTrueCurves=false&maxAllowableOffset=&geometryPreci
sion=&outSR=2193&returnIdsOnly=false&returnCountOnly=false&orderByFields=&groupByFieldsFor
Statistics=&outStatistics=&returnZ=false&returnM=false&gdbVersion=&returnDistinctValues=false&
resultOffset=&resultRecordCount=&queryByDistance=&returnExtentsOnly=false&datumTransformati
on=&parameterValues=&rangeValues=&f=geojson]]></URI>
```

Attributes:

**useProxy**      not implemented yet.

Parameters:

| | | |
|---|---|---|
| | @featurekey | Replaced with Feature key value from launch URL |
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

## <SQL>

| | |
|---|---|
| XML Tag: | <SQL> |
| Occurrence: | Once only, Required |
| Parent: | <MapFeature> |
| Description: | SQL to identify feature to draw. |
| Usage: | |

```
<SQL connection="LINZ" ogrDriver="MSSQL:" table="Tables=dbo.nz_primary_land_parcels"
dialect="SQLITE"><![CDATA[SELECT id,ogr_geometry as 'GEOMETRY' FROM nz_primary_land_parcels
WHERE id=@featurekey]]></SQL>
```

Attributes:

| | |
|---|---|
| **connection** | Name of the SQL Connection to use (as defined in web.config) |
| **ogrDriver** | GDAL OGR Driver prefix to use (e.g. "**MSSQL:**" or "**PG:**") |
| **table** | Database table to connect to (e.g. "**tables=schema.tablename**") |
| **dialect** | SQL dialect to use (leave blank for native database SQL dialect) |

Parameters:

| | | |
|---|---|---|
| | @featurekey | Replaced with Feature key value from launch URL |
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

## <Brush>

| | |
|---|---|
| XML Tag: | <Brush> |
| Occurrence: | Once only, Optional |
| Parent: | <MapFeature> |
| Description: | default colours for brush. |

Usage:

```
<Brush alpha="200" red="0" green="100" blue="255"/>
```

Attributes:

| | |
|---|---|
| **alpha** | Value 1 to 255 for colour alpha channel |
| **red** | Value 1 to 255 for colour red channel |
| **green** | Value 1 to 255 for colour green channel |
| **blue** | Value 1 to 255 for colour blue channel |

## <Pen>

| | |
|---|---|
| XML Tag: | <Pen> |
| Occurrence: | Once only, Optional |
| Parent: | <MapFeature> |
| Description: | default colours for pen. |
| Usage: | |

```
<Pen alpha="255" red="0" green="255" blue="0" width="2"/>
```

Attributes:

| | |
|---|---|
| **alpha** | Value 1 to 255 for colour alpha channel |
| **red** | Value 1 to 255 for colour red channel |
| **green** | Value 1 to 255 for colour green channel |
| **blue** | Value 1 to 255 for colour blue channel |
| **width** | Value for pen width |

## <Draw>

| | |
|---|---|
| XML Tag: | <Draw> |
| Occurrence: | Multiple allowed, Optional |
| Parent: | <MapFeature> |
| Description: | Settings to draw a feature on top of the map image. |

Usage:

**Ellipse**

```
<Draw type="Ellipse" width="10" height="10" offsetX="0" offsetY="0">
```

Ellipse attributes:

| | |
|---|---|
| **type** | Ellipse (draws a simple ellipse or circle) |
| **width** | width value in mm |
| **height** | height value in mm |
| **offsetX** | offset along x in mm (negative values allowed) |
| **offsetY** | offset along y in mm (negative values allowed) |

Usage:

**Rectangle**

```
<Draw type="Rectangle" width="40" height="20" offsetX="10" offsetY="-15">
```

Rectangle attributes:

| | |
|---|---|
| **type** | Rectangle (draws a simple rectangle or square) |
| **width** | width value in mm |
| **height** | height value in mm |
| **offsetX** | offset along x in mm (negative values allowed) |
| **offsetY** | offset along y in mm (negative values allowed) |

Usage:

**Image**

```
<Draw type="Image" image="C:\WDC\www\PinpointReports\images\House-04.png" width="10" height="10" alpha="255" offsetX="0" offsetY="0"/>
```

Image attributes:

| | |
|---|---|
| **type** | Image (draws an image) |
| **image** | filename and path to image (local system only) |
| **width** | width value in mm |
| **height** | height value in mm |
| **alpha** | Value 1 to 255 for colour alpha channel of the image |
| **offsetX** | offset along x in mm (negative values allowed) |
| **offsetY** | offset along y in mm (negative values allowed) |

Usage:

**String**

```
<Draw type="String" text="Static Text&#xA;@0&#xA;@1&#xA;@featurekey" width="40" height="40" fontFamily="Arial" fontSize="12" fontStyle="Bold" red="0" green="0" blue="255" alignment="Center" offsetX="10" offsetY="-5"/>
```

String attributes:

| | |
|---|---|
| **type** | String (draws text string) |
| **text** | text string to draw (See *parameters* below for possible replacements) |
| **width** | width value in mm |
| **height** | height value in mm |
| **fontFamily** | name of the font to be used (must exist on server) |
| **fontSize** | font size in pts |
| **fontStyle** | one of **Regular** (default), **Bold**, **Italic**, **Strikeout**, or **Underline** |
| **red** | Value 1 to 255 for colour red channel |
| **green** | Value 1 to 255 for colour green channel |
| **blue** | Value 1 to 255 for colour blue channel |
| **alignment** | one of **Center** (default), **Justify**, **Left**, or **Right** |
| **offsetX** | offset along x in mm (negative values allowed) |
| **offsetY** | offset along y in mm (negative values allowed) |

Parameters:

| | |
|---|---|
| @featurekey | Replaced with Feature key value from launch URL |
| @databasekey | Replaced with Database key value from launch URL |
| @referencekey | Replaced with Reference key value from launch URL |
| &#xA; | Replaced with a Line Feed hex entity (other hex entities can be used as well) |
| @0, @1… @n | Replaced with column value by index (0 indexed) |

# Page > Report Pages > Floating Images

## <FloatingImages>

| | |
|---|---|
| XML Tag: | <FloatingImages> |
| Occurrence: | Once only, Optional |
| Parent: | <Page> |
| Description: | Container for Floating Images. |

Usage:

```
<FloatingImages>
```

## <FloatingImage>

| | |
|---|---|
| XML Tag: | <FloatingImage> |
| Occurrence: | Multiple Allowed, Optional |
| Parent: | <FloatingImages> |
| Description: | Include an image on the page determined by type, position and multiplier to scale image |

Usage (URI):

```
<FloatingImage x="10" y="50" multiplier="0.5" type="URI">
```

Usage (FILE):

```
<FloatingImage x="10" y="50" multiplier="0.5" type="FILE" file="/path/filename.ext">
```

Attributes:

| | |
|---|---|
| **x** | Position in mm across the page from the left-hand edge. |
| **y** | Position in mm down the page from the top edge. |
| **multiplier** | value to scale the image size by |
| **type** | one of **FILE** or **URI** |
| **file** | If **type="FILE"**, the local path and filename to the image |

## <URI>

| | |
|---|---|
| XML Tag: | <URI> |
| Occurrence: | Once only, Required |
| Parent: | <FloatingImage> |
| Description: | URI to the web service supplying the floating image. |

Usage:

```
<URI useProxy="False"><![CDATA[https://domain/path/image.png]]></URI>
```

## Page > Report Pages > Data Tables

### \<DataTables\>

XML Tag:          \<DataTables\>
Occurrence:      Once only, Optional
Parent:            \<Page\>
Description:      Container for Data Tables.
Usage:

```
<DataTables>
```

### \<SQLDataTable\>

XML Tag:          \<SQLDataTable\>
Occurrence:      Multiple allowed, Optional
Parent:            \<DataTables\>
Description:      Data table defined by SQL Statement.
Usage:

```
<SQLDataTable caption="LINZ Primary Land Parcel Information" nodata="No Information available"
description="PostGIS Test">
```

Attributes:

| | |
|---|---|
| **caption** | Caption text for the data table |
| **nodata** | Text to display if no data returned |
| **description** | Description text for the data table |

### \<SQL\>

XML Tag:          \<SQL\>
Occurrence:      Once only
Parent:            \<SQLDataTable\>
Description:      SQL statement returning data.
Usage:

```
<SQL connection="pgLINZodbc" colwidths="20,80">
<![CDATA[
SELECT id,appellation FROM lds.nz_primary_land_parcels WHERE id=@featurekey
]]>
</SQL>
```

Attributes:

| | |
|---|---|
| **connection** | Name of the SQL Connection to use (as defined in web.config) |
| **colwidths** | comma delimited list of percentage values for column widths |

| Parameters: | @featurekey | Replaced with Feature key value from launch URL |
|---|---|---|
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

## \<JSONDataTable\>

| | |
|---|---|
| XML Tag: | \<JSONDataTable\> |
| Occurrence: | Multiple allowed, Optional |
| Parent: | \<DataTables\> |
| Description: | Data table defined by response from JSON Web Service. |
| Usage: | |

<JSONDataTable caption="LINZ Primary Land Parcel Information" nodata="No Information available" description="PostGIS Test">

Attributes:

| | |
|---|---|
| **caption** | Caption text for the data table |
| **nodata** | Text to display if no data returned |
| **description** | Description text for the data table |

## \<JSON\>

| | |
|---|---|
| XML Tag: | \<JSON\> |
| Occurrence: | Once only |
| Parent: | \<JSONDataTable\> |
| Description: | JSON Web Request parameters. |
| Usage: | |

<JSON url="xxxxxx" colwidths="20,80"></JSON>

Attributes:

| | |
|---|---|
| **url** | URL to use to connect to JSON Web Service |
| **username** | Username to access web service (Optional) |
| **password** | Password to access web service (Optional) |
| **colwidths** | comma delimited list of percentage values for column widths |

| Parameters: | @featurekey | Replaced with Feature key value from launch URL |
|---|---|---|
| | @databasekey | Replaced with Database key value from launch URL |
| | @referencekey | Replaced with Reference key value from launch URL |

# Page Templates

Page templates for Pinpoint Reports are created using QGIS version 3+.

QGIS is a professional GIS application that is built on top of and proud to be itself Free and Open Source Software (FOSS).

http://qgis.org

The QGIS Print Layout functionality allows saving of templates as an XML file format (.qpt) which are then read and used by Pinpoint Reports to layout a report page.

Page Templates are stored in the "Templates" folder within the Pinpoint Reports application folder…

C:\WDC\www\PinpointReports\templates

# Running QGIS

Depending on your operating system, there are many ways to open a QGIS session.

For Windows 10…

With your mouse, **left mouse click** the **Windows start** button (bottom left hand corner)

<div align="center">Type <strong>QGIS</strong></div>
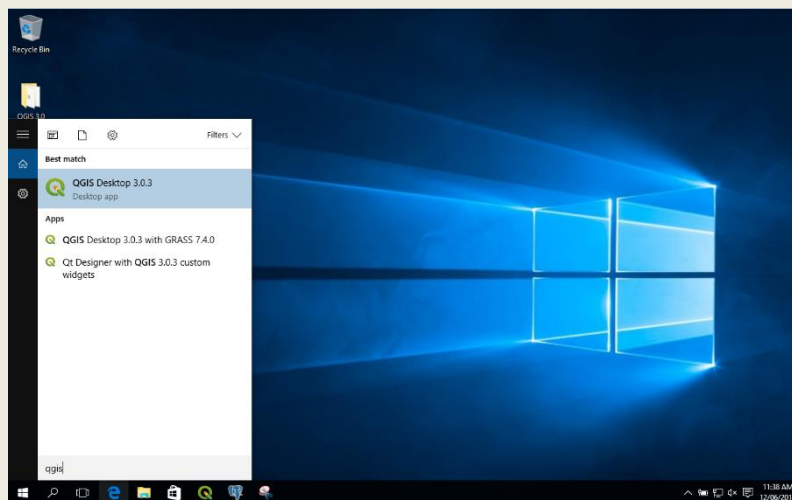


Choose **QGIS Desktop**
(note the version number may differ)

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# Creating a QGIS Layout Template

Create a new Map Layout as an A4 Portrait page…

Launch the **Layout Manager** from the toolbar using the [tool icon] tool
Click the **Create** button
Give the Layout a Title (optional)

Create print layout Title

Enter a unique print layout title
(a title will be automatically generated if left empty)

A4Portrait

OK          Cancel
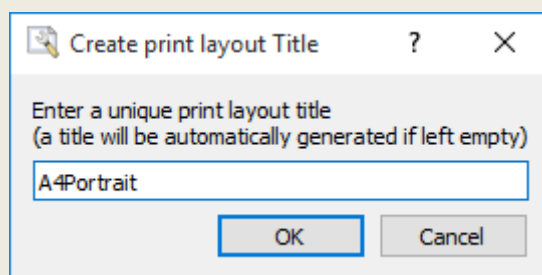
Click the **OK** button.  The Layout window will open with a blank page.
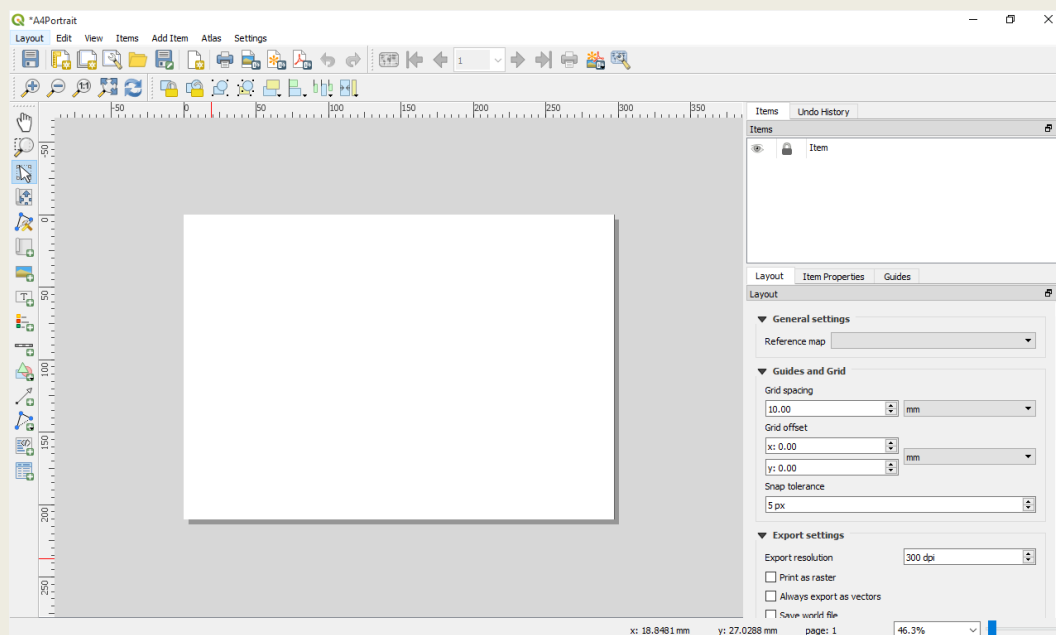
**Right** click the blank page and choose **Page Properties…**
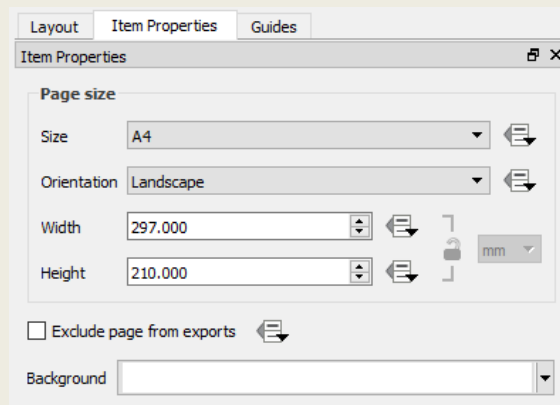
Set the **Size** to **A4**
Set the **Orientation** to **Portrait**

Let's also setup a grid to help us place items on the page

Enable grids through the menu **View ▸ Show Grid**
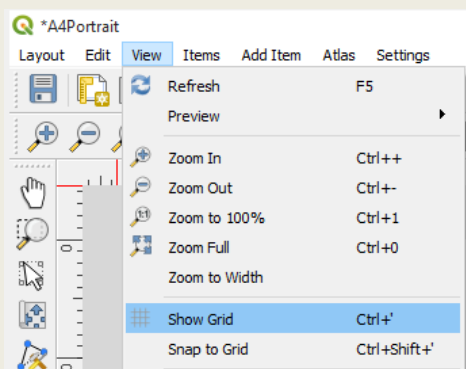


Enable snap to grids through the menu **View ▸ Snap to Grid**

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## Adding QGIS Layout Template Components

### Map Image Placeholder

Use the  **Add Map** tool to add a new Map item to the page by drawing a rectangle on the layout canvas.
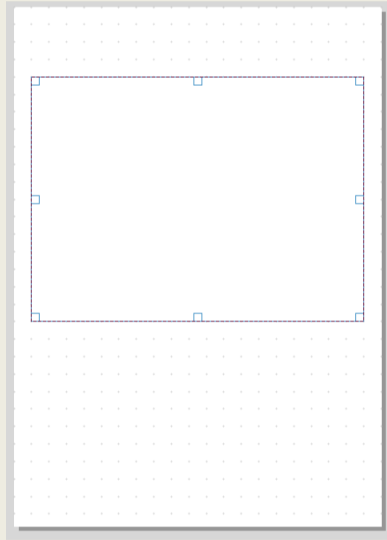


In the **Item Properties** for the Map, set the **Item ID** to

## ppMap
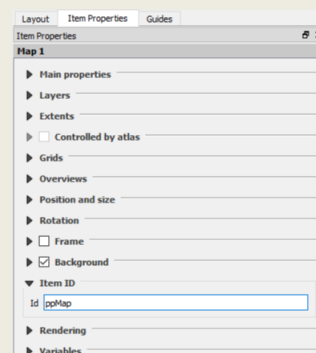
## Data Tables Placeholder

Use the **T** **Add Label** tool to add a label to the Layout

In the **Item Properties** for the Label, set the **Item ID** to

**ppData**

## Data Table Styles

Title

**LINZ Primary Land Parcel Information**

Description

PostGIS Test

| id | appellation |
|---|---|
| 6806559 | Lot 3 DP 354941 |
| 6980646 | Lot 3 DP 381206 |
| 7004672 | Lot 37 DP 362557 |
| 7826456 | Lot 2 DP 516118 |
| 6980645 | Lot 2 DP 381206 |

Default Row

Alternate Row

Heading
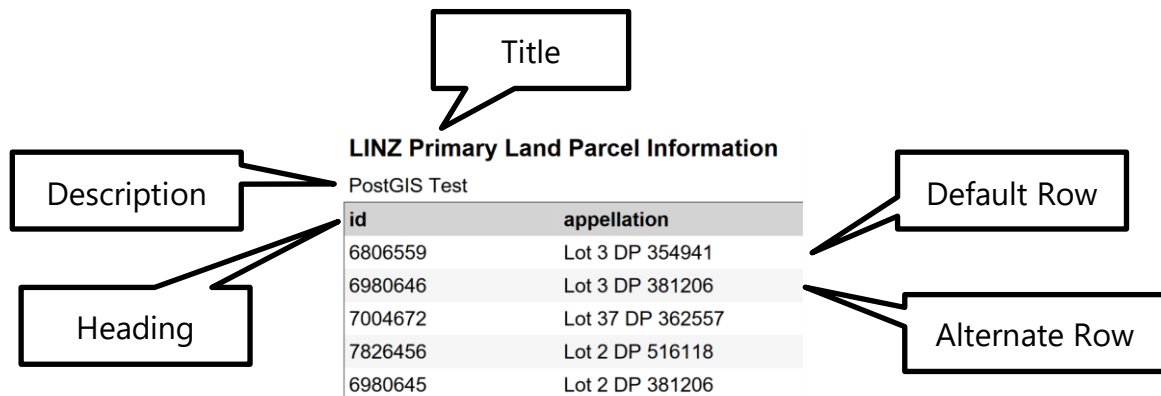
### *Data Table Title Style Placeholder*

Use the [T] **Add Label** tool to add a label to the Layout

In the **Item Properties** for the Label, set the **Item ID** to

**ppDataTableTitleStyle**

### *Data Table Description Style Placeholder*

Use the [T] **Add Label** tool to add a label to the Layout

In the **Item Properties** for the Label, set the **Item ID** to

**ppDataTableDescriptionStyle**

### *Data Table Heading Style Placeholder*

Use the [T] **Add Label** tool to add a label to the Layout

In the **Item Properties** for the Label, set the **Item ID** to

**ppDataTableHeadingStyle**

### *Data Table Row Default Style Placeholder*

Use the [T] **Add Label** tool to add a label to the Layout

In the **Item Properties** for the Label, set the **Item ID** to

**ppDataTableRowDefaultStyle**

### *Data Table Row Alternate Style Placeholder*

Use the  **Add Label** tool to add a label to the Layout

In the **Item Properties** for the Label, set the **Item ID** to

<div style="border:1px solid black">

**ppDataTableRowAlternateStyle**

</div>

### *Label properties used by Style Placeholders*

**Font**
**Font Style (Regular, Bold and Italic)**
**Font Size**
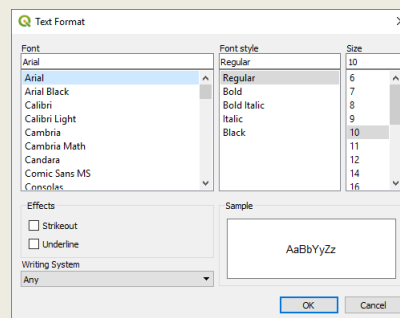


**Font Color**



**Background Color**



**Frame color**
**Frame Thickness**

**49**

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## Page Borders

Use the **Add Shape** tool and choose **Add Rectangle** then draw a rectangle on the layout canvas.

No **Item ID** is required.

## Page Images (Static)

Use the **Add Picture** tool to add a new picture to the Layout by drawing a rectangle

Browse for the image in the **Main Properties** section, **Image source**
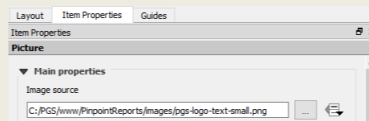
To control the size of the image, use the **Frame thickness** value (Pinpoint Reports multiplies the image width and height by this value)
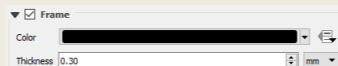
In the **Item Properties** for the Image, set the **Item ID** to

**pplImage**

## Page Images (Dynamic via SQL)

Use the **Add Label** tool to add a label to the Layout

In the **Item Properties** tab for the label, change the text for the label to the **SQL statement** required to define the URL for the image...

SELECT imagename FROM schema.table WHERE id=@featurekey

Parameters:    @featurekey    Replaced with Feature key value from launch URL
               @databasekey   Replaced with Database key value from launch URL
               @referencekey  Replaced with Reference key value from launch URL

Only the first column of the first record is returned as the image.

For the SQL Statement to be executed, a named connection string must be defined in the **web.config** file located in the Pinpoint Reports application folder named "**SQLImages**".

To control the size of the image, use the **Frame thickness** value (Pinpoint Reports multiplies the image width and height by this value)
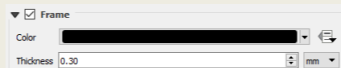


In the **Item Properties** for the Image, set the **Item ID** to

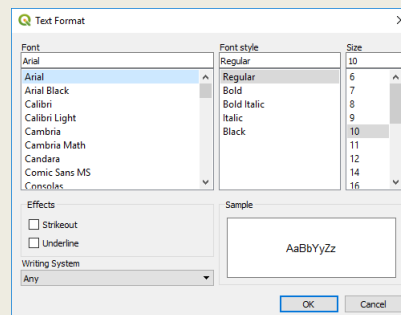ppImageSQL

## Single Map Scale Label (for single map on page)

Use the  **Add Label** tool to add a label to the Layout

Modify the Appearance properties:
**Font**
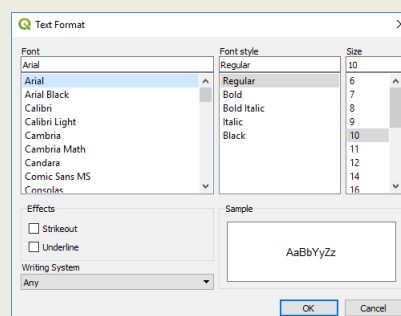**Font Style (Regular or Bold)**
**Font Size**



**Font Color**



**Horizontal Alignment**



**Vertical Alignment**



In the **Item Properties** for the Image, set the **Item ID** to

ppScaleText

# Page Original Sheet Size Label

Use the [T] **Add Label** tool to add a label to the Layout

Modify the Appearance properties:
**Font**
**Font Style (Regular or Bold)**
**Font Size**
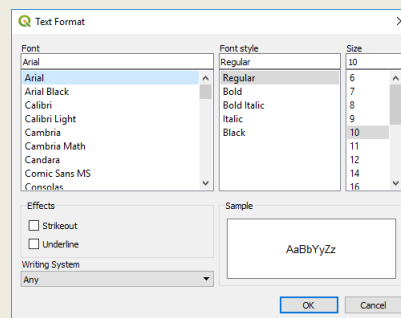


**Font Color**



**Horizontal Alignment**



**Vertical Alignment**



In the **Item Properties** for the Image, set the **Item ID** to

**ppPageSize**

# Page Printed Date Label

Use the [T] **Add Label** tool to add a label to the Layout
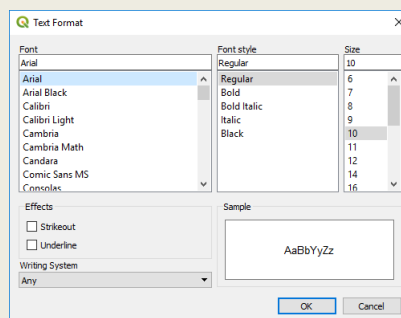
Modify the Appearance properties:
**Font**
**Font Style (Regular or Bold)**
**Font Size**

**52**

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DISTRICT COUNCIL**
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**Font Color**

Font color ▮

**Horizontal Alignment**

Horizontal alignment
○ Left ○ Center ○ Right ● Justify

**Vertical Alignment**

Vertical alignment
● Top ○ Middle ○ Bottom

In the **Item Properties** for the Image, set the **Item ID** to

<div style="text-align:center">**ppCurrentDate**</div>

## Page Labels (Static)

Use the [T] **Add Label** tool to add a label to the Layout

In the **Item Properties** tab for the label, change the text for the label to the text to be returned...

This is some static text

Modify the Appearance properties:
**Font**
**Font Style (Regular or Bold)**
**Font Size**

Text Format

Font: Arial
Font style: Regular
Size: 10

Font
Arial
Arial Black
Calibri
Calibri Light
Cambria
Cambria Math
Candara
Comic Sans MS
Consolas

Font style
Regular
Bold
Bold Italic
Italic
Black

Size
6
7
8
9
10
11
12
14
16

Effects
☐ Strikeout
☐ Underline
Writing System
Any

Sample
AaBbYyZz

OK   Cancel

**Font Color**

Font color ▮

**Horizontal Alignment**

Horizontal alignment
○ Left ○ Center ○ Right ● Justify

**Vertical Alignment**

Vertical alignment
● Top ○ Middle ○ Bottom

In the **Item Properties** for the Image, set the **Item ID** to

<div style="text-align:center">**ppLabel**</div>

## Page Labels (Dynamic via SQL)

Use the T⊕ **Add Label** tool to add a label to the Layout

In the **Item Properties** tab for the label, change the text for the label to the **SQL statement** required to define the text to be returned…

SELECT text FROM schema.table WHERE id=@featurekey

Parameters:     @featurekey     Replaced with Feature key value from launch URL
                @databasekey    Replaced with Database key value from launch URL
                @referencekey   Replaced with Reference key value from launch URL

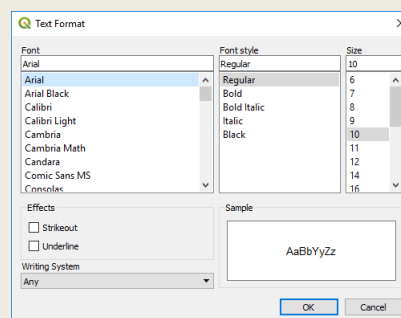Only the first column of the first record is returned as the text.

For the SQL Statement to be executed, a named connection string must be defined in the **web.config** file located in the Pinpoint Reports application folder named "**SQLLabels**".

Modify the Appearance properties:
**Font**
**Font Style (Regular or Bold)**
**Font Size**



**Font Color**



**Horizontal Alignment**



**Vertical Alignment**



In the **Item Properties** for the Image, set the **Item ID** to

**ppLabelSQL**

WHANGANUI
DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

## Page Title Label

Use the  **Add Label** tool to add a label to the Layout

Modify the Appearance properties:
**Font**
**Font Style (Regular or Bold)**
**Font Size**
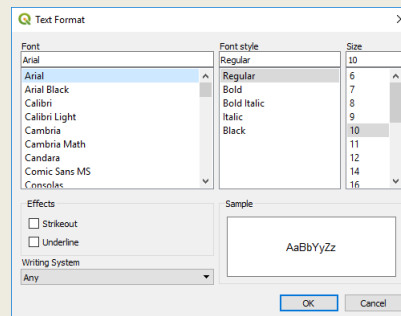


**Font Color**



**Horizontal Alignment**



**Vertical Alignment**



In the **Item Properties** for the Image, set the **Item ID** to

**ppTitle**

## Application Launch Parameters

Once installed correctly Pinpoint Reports can be launched from a simple URL.

http://domain/PinpointReports/PinpointReports.aspx?featkey=6980646

## Parameters

There are several URL parameters that can be utilised

| | |
|---|---|
| **report** | if not present defaults to the default report configuration file PinpointReport.config |
| | if present the value is used to construct the report configuration file name according to |
| | "PinpointReport" + QueryString["report"] + ".config" |
| | |
| **featkey** | feature key to use for spatial queries |
| **datakey** | database key to use for queries |
| **refkey** | reference key to use for queries |
| **footer** | true or false to show the footer text on the pages of the output PDF |
| **file** | user supplied filename for the output PDF |

If using **ScaleFeature** type **URLPARAMS** then reports are required to be launched with the following **URL parameters**:

| Required: | **featkey** | Feature key |
|---|---|---|
| | **scale** | Scale value or auto |
| Optional: | | |
| | **x** | X coordinate to centre on |
| | **y** | Y coordinate to centre on |
| | **s_epsg** | Source EPSG code |
| | **t_epsg** | Target EPSG code |

Usage:

http://...?report=myReportName&featkey=123&scale=1000

http://...?report=myReportName&featkey=123&scale=1000&x=175.0489103&y=-39.9335088&s_epsg=4326&t_epsg=2193