



# Updating Hydro Raster Data and

# Preparing for LDS

New Zealand Hydrographic Authority

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Version 2.0

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# Version History

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Author** | **Description** |
| 2014-05-27 | 1.0 | James O’Brien | First version |
| 2020-07-13 | 2.0 | Anja Boehme | Second version |
|  |  |  |  |

# Relating Documents

|  |  |
| --- | --- |
| **Objective ID** | **Description** |
| fA318437 | NtM Calendar/dates (folder) |
| fA358526 | Data Import Emails (folder) |

# Necessary Files

|  |  |
| --- | --- |
| **Location** | **Description** |
| N:\Chart Products\BSB\updates (\\ad\dfs\Hydro\Data\RNC\_archive\BSB\updates) | BSB files |
| N:\LINZ Data Services\Scripts\Raster Scripts\Scripts | Scripts to create raster images of paper charts |

# Software needed

* OSGeo4W
* Notepad++
* Perl
* Python compiler
* QGIS

# 1 Before You Begin the Updates

Prior to the updates, you need to inform the LINZ Data Service Manager and the LDS Planning and Support Advisor that you are starting the process. You need to inform them of:

1. Any changes taking place (for example new layers, updates to metadata or schema changes);
2. Whether we need to inform customers of those changes;
3. How long you are planning on spending on the updates and;
4. When you think you will be done.

They will let you know their opinions on public consultation/notification as well. It is good practice to keep them in the loop during the process at each production milestone. This includes:

1. When you begin;
2. When you are preparing to load the data;
3. When you are waiting on error resolution (if any) and;
4. When you are done.

Please note that they do not need to know the specifics of the process, i.e. the code being used etc. They are concerned with the data release and quality, more than anything else.

Throughout the process you will read about code that you may not understand. You can find full explanations and breakdowns of how to use command line code here:

For command line: <https://confluence.linz.govt.nz/display/Hydro/Command+Line>

For OSGeo4W: <https://confluence.linz.govt.nz/display/Hydro/OsGeo4W>

If you are working remotely via internet connection, it is recommended to do the processing on your C: Drive, otherwise your local G: Drive on your laptop is fine.

# 2 Identifying Charts for Update

Only some charts will be updated on LDS, so we don’t want to run this process on every image. As we use the BSB files created during the NtM editions for the raster update process, the BSB updates will help us to identify any charts that have undergone change throughout the year.

Note: BSB files are only created for charts with a permanent correction. For charts with T or P notices no BSBs are created. We don’t include T or P corrected charts into the update anyways.

(If there are no BSB/KAP files separately stored for identifying the charts which need to be included into the update, refer to the instructions in Chapter Appendix.)

1. If you do the raster process for the first time, continue with point 2. If you have done the raster process before, continue with point 3.
2. If you do the raster update for the first time and don’t know which charts have been included in the latest biannual update, you can refer to the latest LDS update from ***N:\LINZ Data Services*\*raster\_<DATE>*** to get a list of all the BSBs updated since the last LDS update.

Copy-paste them in the folder from where you will be running the raster update process, e.g. your local drive ***G:\Anja\LDS\_raster\_update\ 00\_last\_update***.

1. If you know the latest NtM edition of which BSBs have been included in the latest raster update, then go directly to the BSB files, **N:\Chart Products\BSB\kap\_files\2020\Monthly Updates**.
2. For your information:

For the December raster update you might need the BSB Root file**[[1]](#footnote-1)** and the BSB Update files**[[2]](#footnote-2)**; for the June raster update you will only need the BSB Update files.

For example: The June 2019 update included BSBs of NtM edition 12; so in preparation for the December 2019 update, grab all BSB files from NtM edition 13 onwards.

It gets a bit trickier to identify the charts if you don’t have the monthly BSB Update file because it was included in the annual BSB Root file. In this case you can refer to the NtM edition PDF on the LINZ website to identify the charts (<https://www.linz.govt.nz/sea/maritime-safety/notices-mariners/previous-ntm-editions?edition_year=2020>).**[[3]](#footnote-3)**

Refer to the “NtM & RNC Year Planner” for the dates when the monthly BSB Update files (RNC files) and/or the NtM editions were released – Objective folder fA318437 – to help identify the charts/edition for your raster update.

1. It is up to you how you organise and name your working folders but if you have to redo a step, it is handy to have the different stages of files still available in different folders.
2. Go to folder **N:\Chart Products\BSB\kap\_files\2020\Monthly Updates** Note that usually the charts from two editions are included in one month’s folder. If the edition from which you want to include the charts into your update falls in the middle of the month, you might want to refer to the calendar to identify which charts of that month are actually part of your update.
3. Copy paste the BSB and KAP files, that will be part of your update, starting from the earliest month into your working folder, e.g. ***0\_identified\_charts***. Do this for the remaining months in ascending order, e.g. June to December for the December update.

This is important as you might be asked if you want to overwrite the same chart files in your working folder with the latest updates. Say yes to all if asked to only keep the latest version of the same chart.

1. For every raster update make a note of the NtM edition number.

For example: The December 2019 update includes NtM edition 25; and in total 71 \*.KAP files.

1. Make a note of any charts that have macrons in the titles. These will need to be assessed later to ensure that the macrons are represented in LDS.

Charts containing macrons (status Dec 2019):

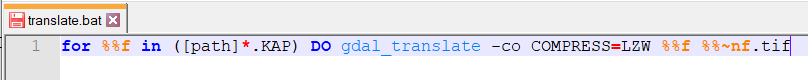
NZ 53, NZ 521, NZ 522, NZ 861, NZ 4111, NZ 5227, NZ 6151 (panel 4), NZ 6153, NZ 6321, NZ 6912 (panel 1)

Once the charts are identified we are ready to start preparing the files for LDS. This will involve cropping the chart marginalia, and re-projecting the images.

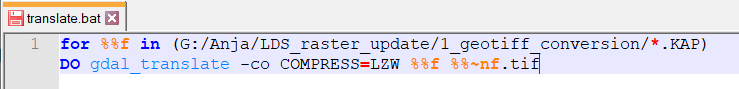
# 3 Creating the Geotiffs

1. Create a folder within your working folder, e.g. ***1\_geotiff\_conversion,*** and copy all the .KAP files identified in Chapter 2 from the BSB root file and/or the BSB update files.
2. Remove anything that isn’t on your list of BSBs to update.
3. Copy the ***translate.bat*** batch file from ***N:\LINZ Data Services\Scripts\Raster Scripts\Scripts\1 Creating the GeoTiffs\1 gdal\_translate script*** to the folder you have your .KAP files in.
4. Open the script in Notepad++ and change the line [path] to your folder.

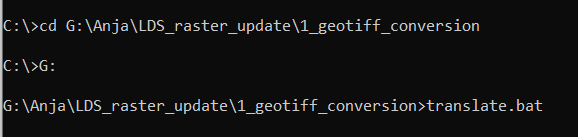
For example:



Becomes:



1. Open the OSGeo4W cmd to that location, and type ***translate.bat***. It will convert all the .KAP files from kap to tif and compress them to LZW.



1. Move the output files into a new folder, e.g. ***2\_RGBA\_conversion***.

# 4 Preparing for LDS

### 4.1 RGBA 4 Channel Images

We now need to change the charts into a format that works within LDS. This means translating the colour palate from RGB to RGBA (adding an Alpha Channel to the images).

1. Make sure that the charts you want to upload are all in their own folder, e.g. ***2\_RGBA\_conversion***. Put the code into this folder that will allow us to make the appropriate changes to the files.
2. Navigate to ***N:\LINZ Data Services\Scripts\Raster Scripts\Scripts\2 Preparing for LDS\1 Convert to RGBA*** and copy/paste the ***convert\_rgba\_nodata\_v4.py*** and ***script\_all.bat*** to the RGBA\_conversion folder.

The convert\_rgba\_nodata\_V4.py script is a script that takes an input file type and modifies it from 3 channels (red, green, blue) to 4 channels (red, green, blue, alpha). The script\_all.bat script tells the python script to “loop” and apply to every file in the folder, not just the first one.

This next bit requires the installation of Python and Perl. If you don’t have Perl available on your PC, you will need to open OPA and work through there. delete?

1. Open the OSGeo4W command prompt and change the directory to point to the RGBA\_conversion folder.
2. Type ***script\_all.bat*** and hit enter. We used to run into memory allocation error but with a more powerful computer this hasn’t happened for a while. If it happens again, just click ok each time. It hasn’t crashed, just temporarily stopped.

You will now have a folder filled with two sets of tiffs. The first, original you had (labelled NZ\*\*\*.tif) and its rgba equivalent (labelled NZ\*\*\*\_RGBA.tif).

1. Now we need to separate out the files we want. Create a new folder in your working folder, e.g. **3\_converted\_tiffs**, and paste all the new tiffs (NZ\*\*\*\_RGBA.tif) in there.

Next we will be cropping the images and creating no data values.

### 4.2 Generating Shapefiles from \*.kap Files

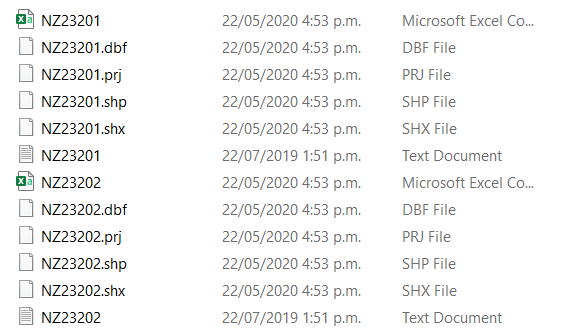
We now have the list of images that we will be uploading to LDS. Before we do this, we need to clip the edges of each geotiff so that they are suitable for use. To do this, we will be using a python script to extract coordinates from KAP header files and using Quantum GIS to create shapefiles that ultimately will crop images in bulk.

1. Copy paste the .KAP files that we used to generate the geotiffs from 1\_geotiff\_conversion into a new folder, e.g. ***4\_bsb\_kap\_files***.
2. From the ***N:\LINZ Data Services\Scripts\Raster Scripts\Scripts\2 Preparing for LDS\2 Create shapefiles from KAP*** copy across the ***shp\_from\_kap.py*** python script and the ***script\_all.bat*** batch file to your new folder.
3. You need to change the extension from .kap to .txt. Open the OSGeo4W command prompt and run the following command:

***ren \*.KAP \*.txt***

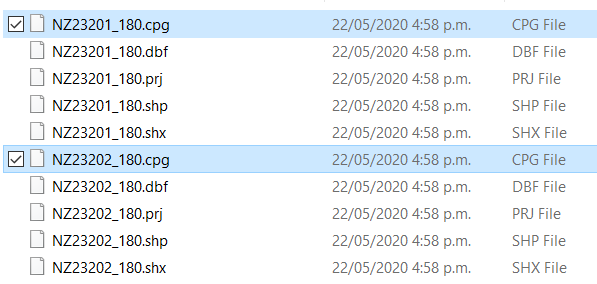
This will turn all .KAP files into .txt files.

1. Type ***script\_all.bat*** into OSGeo4W. The output should look something like this:

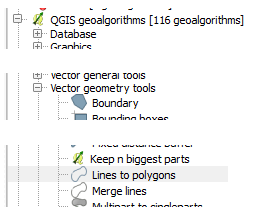


Delete all the .csv and .txt files now, plus the python and batch file.

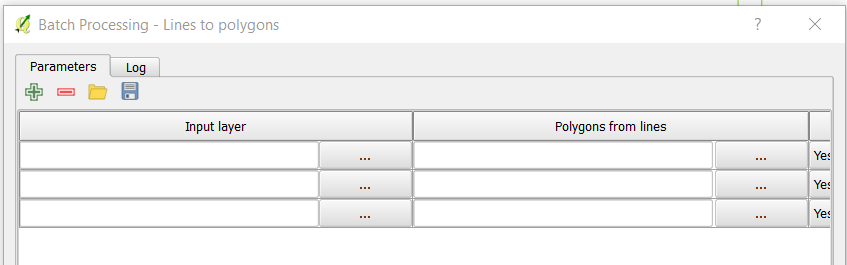
1. Next you need to clear up any 180 meridian issues that crop up. From the ***N:\LINZ Data Services\Scripts\Raster Scripts\Scripts\2 Preparing for LDS\3 180\_Conversion (shapefile polygons)*** folder, copy paste the ***script\_all.bat*** and ***translate\_geo\_shapefile.py*** files to your folder (4\_bsb\_kap\_files).
2. Type ***script\_all.bat*** into OSGeo4W. This will create new shapefiles with “\_180” appended to the files.
3. Move these “\_180” files into a new folder, e.g. ***5\_polygons\_from\_lines***.



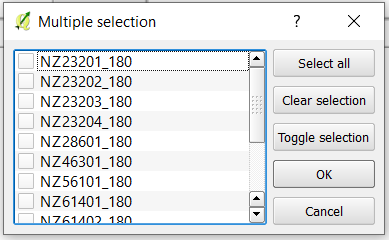
1. The next step is to convert the lines to polygons.
   1. In QGIS, load in all the \*.SHP files you wish to modify.
   2. Turn on the Processing Toolbox (appears to the right by default).
   3. Navigate to the tool “Lines to polygons” (QGIS 2.18.12):



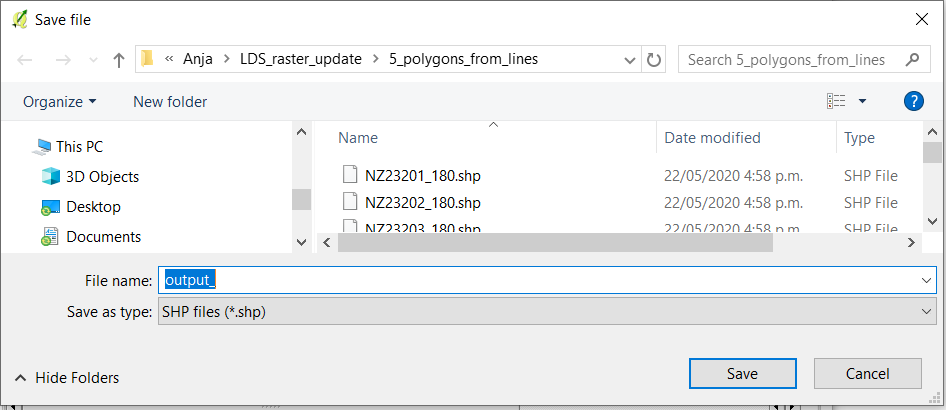
* 1. Right click on the ***Lines to polygons*** option and select ***Execute as batch process***.
  2. Under ***Input layer***, select the three small dots and select ***select from open layers***.



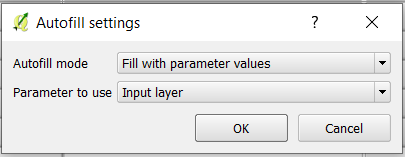
* 1. Click ***Select all*** and click ok. Give it a moment, and the full list should appear on the left.



* 1. Next, select the three dots under the column ***Polygons from lines*** and navigate to your folder 5\_polygons\_from\_lines. Enter “output\_”

 and hit Save.

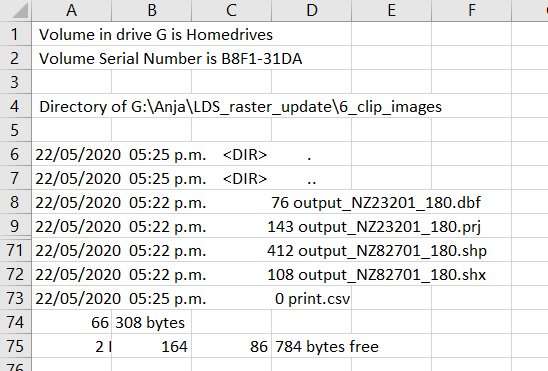
* 1. A new box appears. For Autofill mode, use ***Fill with parameter values*** and parameter to use ***Input layer***. Hit ok, and these will fill in the blanks.



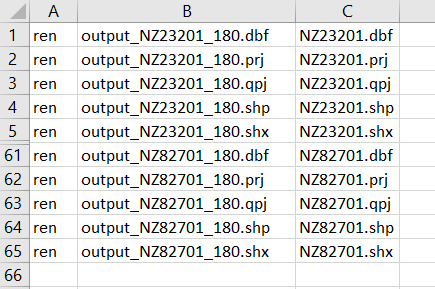
* 1. Finally, hit ***Run****.* Once processing has finished, remove all files in QGIS.

1. Move the just created files into a new folder, e.g. ***6\_clip\_images***. You will need to remove the text ‘output\_’ and ‘\_180’ from the files. I’d suggest using ***ren [input file] [output file]***. Use excel to build it so you can take advantage of the ***dir > print.csv***, and find and replace.
   1. Navigate to your folder in OSGeo4W and type ***dir > print.csv***
   2. Modify this file in excel by using:
      1. Data > Text to Columns > Delimited
      2. =concatenate(text1,text2,…)
      3. Copy – Past values

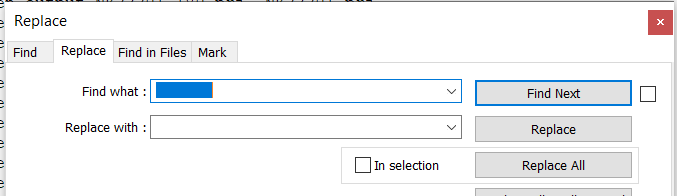
For example:



Becomes:



1. You can then copy it to Notepad++; find multiple spaces and replace it with one space; and save as a batch file (rename.bat).

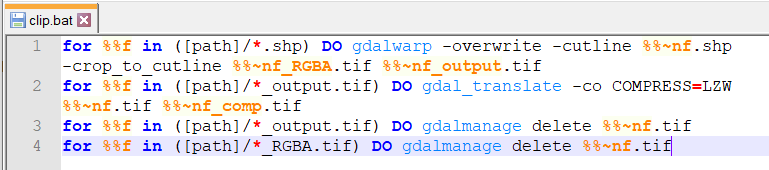


1. Run the .bat file in OSGeo4W.
2. Copy the NZ\*\*\*\_RGBA.tif files from folder 3\_converted\_tiffs into your folder 6\_clip\_images.

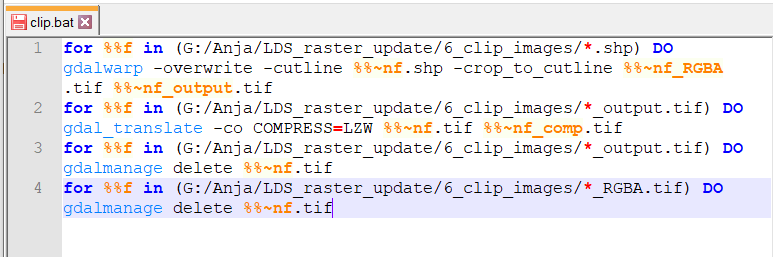
### 4.3 Clipping the Image Files

Now it’s time to clip the \_RGBA geotiffs with the shapefiles we just generated. This will act as a cookie cutter, effectively ‘stamping’ out the chart marginalia.

1. Copy the batch file ***clip.bat*** from ***N:\LINZ Data Services\Scripts\Raster Scripts\Scripts\2 Preparing for LDS\4 clip by polygon*.**
2. Open it from your folder in Notepad++ and change the text ***‘[path]’*** with the folder location you specified earlier. For example, it should change from this:



To something like this (make sure that the dashes are sloping forwards.):

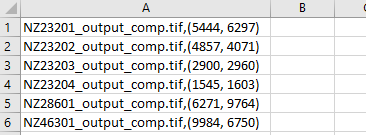


1. Point the OSGeo4W cmd to that folder location, and type ***clip.bat***. The cmd will run over all files with matching names and execute the commands. Please note that the temporary files can get very large, so if you are doing more than 50 charts at a time or you are working remotely via internet connection, it is recommended to do this on your C: Drive.

### 4.4 Projecting the Data

First, we will be using the newly created geotiffs to generate a report with all the pixel dimensions for each file. Then, we will run the actual conversion. Finally, we will compress the images, and delete the temporary files created.

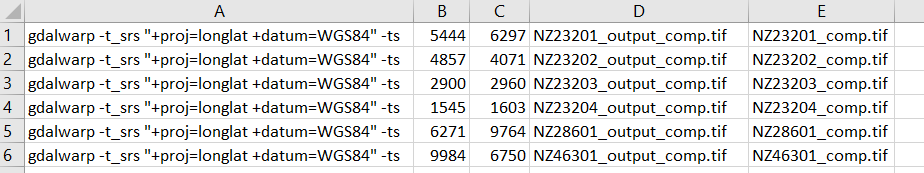
1. Copy paste the just created files into a new folder, e.g. ***7\_Conversion***. Don’t move these files (NZ\*\*\*\_output\_comp.tif) as we will need them again later in the process (Chapter 4.5 for images that cross the 180 meridian).
2. Head over to ***N:\LINZ Data Services\Scripts\Raster Scripts\Scripts\2 Preparing for LDS\5 Projection Conversion*** and copy across ***pixel\_extraction.py*** and ***script\_all.bat*** into this folder with your geotiffs (NZ\*\*\*\_output\_comp.tif).
3. In OSGeo4W navigate to this folder and type ***script\_all.bat***. This will generate a text file with all the pixel dimensions inside. Change the extension of that file from .txt to .csv and open it up. It should look like this:



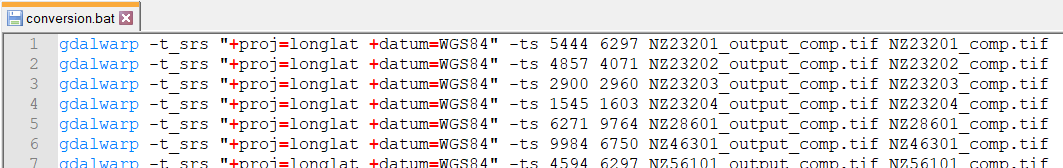
1. Again, make use of ***dir > print.csv*** and build the file in excel with the following code:

***gdalwarp -t\_srs "+proj=longlat +datum=WGS84" -ts xvalue yvalue NZ\*\*\*\_output\_comp.tif NZ\*\*\*\_comp.tif***

1. Fill in the blanks using your csv file as a guide. Once you are done, your file should look like this:



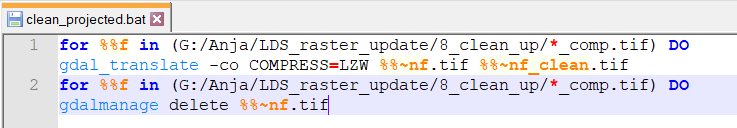
Copy/paste that content from Excel into a Notepad++, remove multiple spaces, and save as a batch file, e.g. “conversion.bat”. Run the bat file in OSGeo4W.



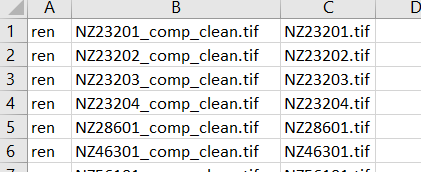
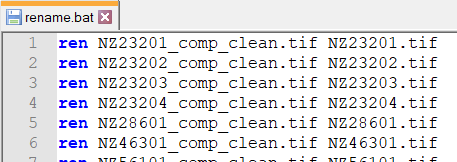
1. Next, move your output files into a new folder, e.g. ***8\_clean\_up***, and copy paste the compression script ***clean\_projected.bat*** from ***N:\LINZ Data Services\Scripts\Raster Scripts\Scripts\2 Preparing for LDS\7 Clean\_up\_projected***.

Ensure the correct folder location is used, then run the batch file on these converted files to compress and remove the temporary files.

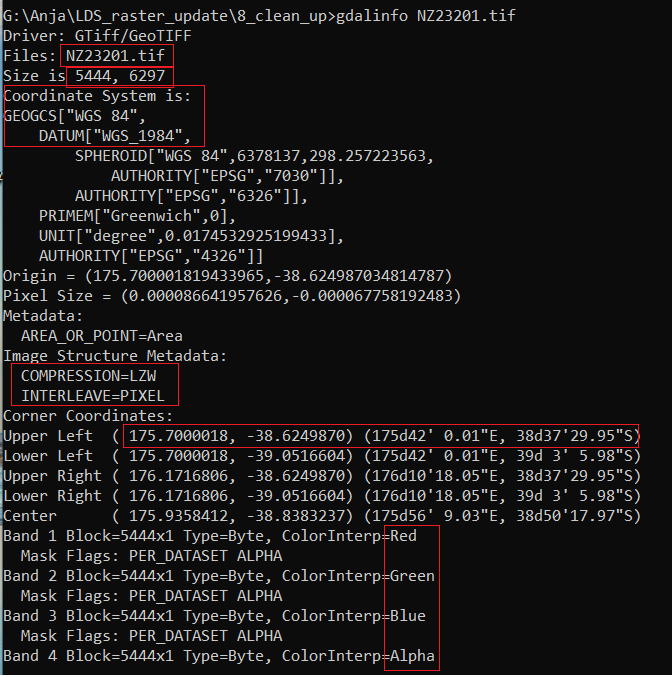
Example:



1. The input files (NZ\*\*\*\_comp.tif) are deleted as part of the running the batch file. Again, use ***dir > print.csv*** and excel to rename the output files created to remove ***‘\_comp\_clean’*** that was appended on the end by creating a bat file using **ren [input file] [output file]**:

1. Now you will need to check that the referencing has properly been applied. Firstly, pick all files, or roughly every fifth file, and check the header file in the OSGeo4W command prompt. To do this, type ***gdalinfo NZ\*\*\*.tif*** and the info will display on the screen:



You are checking the following things:

1. That the GEOGCS is WGS84;
2. That the Datum is WGS\_1984;
3. That the compression is LZW;
4. That the Interleave is Pixel;
5. That the corner coordinates have first a lat/long Cartesian Coordinate, followed by a Degree/Minute coordinate, and;
6. That there are 4 Bands, Red, Green, Blue and Alpha. The Alpha channel is what will give the image it’s no data, transparent values.

Next you need to check that the georeferencing is correct for each image. Check that the image matches up with the original BSB Kap file that we used to generate the geotiffs. It should not deviate from that by a significant amount. QC in QGIS (e.g. load NZ coast as reference; does geo-referencing look ok?)

If any images are incorrectly referenced, you will need to start the process from scratch for those charts. If it does, there may be something wrong with the BSB itself, so check that it is fine before starting the process again.

If you find an image that looks like it’s been chopped in half, with a large black area in between, this is a problem with images crossing the 180 Meridian – instructions on how to deal with that are below under chapter 4.5.

### 4.5 Images That Cross the 180 Meridian

Certain charts will cause complications due to the way the system reads coordinates. The computer will read the coordinates in a 360 degree sphere, whereas the coordinates used for georeferencing are laid out in a +180 to -180 degree arc. This has the effect of splitting the image in half, then filling the large gap with a large black area. We are going to run a quick command to sort the problem.

1. Create a new folder, e.g. ***9\_180\_line***. Identify the charts with the 180-issue and which are east of the 180 line. Copy paste the according images you created when you clipped the images, before doing the conversion step; they should be in folder 6\_clip\_images.

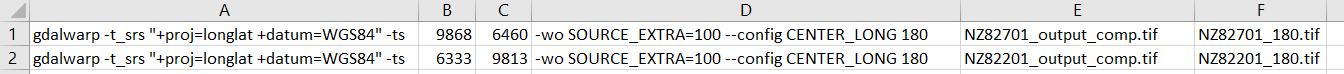
You will also need the pixel x and y values we generated in the last section for those charts (7\_conversion).

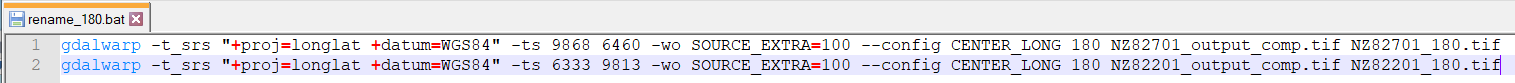
1. If one chart is affected, navigate in OSGeo4W to your folder and type in the code below. If you have multiple charts affected, you could build a batch file in excel and Notepad++ again.

Remember to use the x and y values generated earlier in the -ts section.

***gdalwarp -t\_srs "+proj=longlat +datum=WGS84" -ts xvalue yvalue -wo SOURCE\_EXTRA=1000 --config CENTER\_LONG 180 input.tif output.tif***

Example batch file:



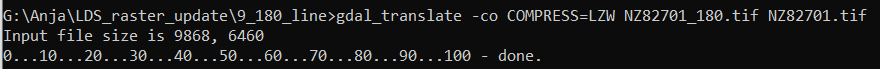


1. Once the image is complete you need to recompress the images: ***gdal\_translate -co COMPRESS=LZW input.tif output.tif***

Make sure that the output looks correct.

Move the 180-corrected images into the same folder as the other correct images to have them all in one place, e.g. 8\_clean\_up.

Example in OSGeo4:



### 4.6 Copy to Folder

Create a new folder with the date you took the bsb data as the file name in the folder ***N:\LINZ Data Services***. The name should read like *‘raster\_20191208’.* Copy/paste all the final files you’ve created into there. These are files that will be loaded up to LDS.

# 5 Metadata

We used to create an index of all charts and had to update the index as part of this raster update process. This process has been superseded by the Online Chart Catalogue.

### 5.1 Prepare chart list for updating date stamp in metadata files

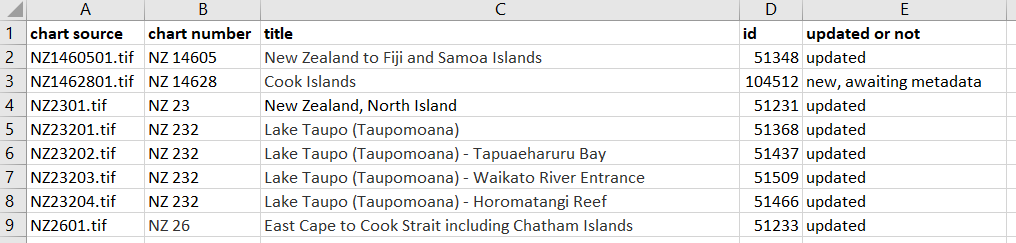
We also used to create separate metadata files for each updated chart image, to include the date when the image has been updated. This process has been superseded at the end of 2019.

Instead, we prepare a list of the updated chart images and supply them to the LDS Team, like Ian Harrison. Ian will run a script, that identifies the metadata file based on the LDS layer ID, and replaces the date stamp in the metadata files with the date of when you took the BSB data.

1. In OSGeo4W navigate to your folder where you keep your final images and type **dir > updated\_charts.csv**. Tidy up the file if necessary.
2. You can reuse the list from the last update (N:\LINZ Data Services\raster\_\*\*\*) to populate your list with the information you need to provide to Ian. Remove not updated charts from the list and add charts from the current update to it.

Populate these information: chart number, chart source, chart title, LDS layer ID. You can use the OCC paper chart index (<https://data.linz.govt.nz/layer/51362-nz-paper-nautical-chart-index/>) and/or LDS chart links (<https://data.linz.govt.nz/layer/51231-chart-nz-23-new-zealand-north-island/>) to gather the required information.

As you can see in the example, NZ 232 consists out of four panels which all have its different chart source and title.



As we populate this list with every raster update, eventually we will end up with a full list of all chart images and the necessary information. Again, make sure you only provide Ian with the charts that have been updated and NOT with the full chart list.

1. As we don’t update all charts every six months, there will be a lot of different date stamps from previous raster updates that are required to run the date-stamp-script successfully.

These are the dates from previous raster updates:

|  |  |  |  |
| --- | --- | --- | --- |
| 2012-06-11 | 2013-07-31 | 2014-05-05 | 2014-11-12 |
| 2015-05-04 | 2015-12-22 | 2016-06-20 | 2016-12-07 |
| 2017-06-29 | 2017-11-30 | 2018-07-13 | 2018-12-11 |
| 2019-06-24 | 2020-01-30 | 2020-06-05 | 2021-01-05 |
|  |  |  |  |

Update and continue this list with every raster update.

1. Provide all this information to Ian: list of charts from the raster update, date when you took the BSB data, list of previous date stamps.

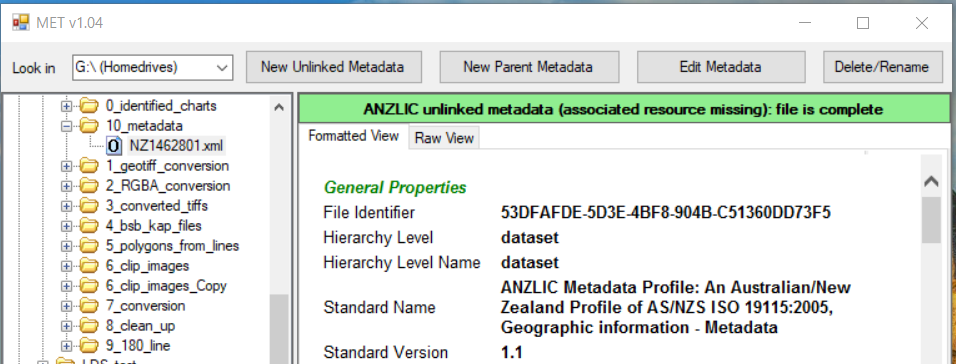
Note: If you have a brand-new chart with new metadata (chapter 5.2), include this information in your list that you send to Ian.

1. He will let you know of any errors that you might have to investigate and fix.

### 5.2 Metadata file for brand-new charts

Now and then, we release brand-new paper charts. We have to create a new metadata file for those charts.

1. Create a new folder, e.g. ***10\_new\_metadata***, and copy paste an existing metadata file from one of the latest new charts, e.g. NZ 14628, which can be found here: N:\LINZ Data Services\raster\_20200130\new\_metadata
2. Rename the file with the new chart number. Open ANZMet Lite and navigate to your \*.xml file, then click on ‘Edit Metadata’.

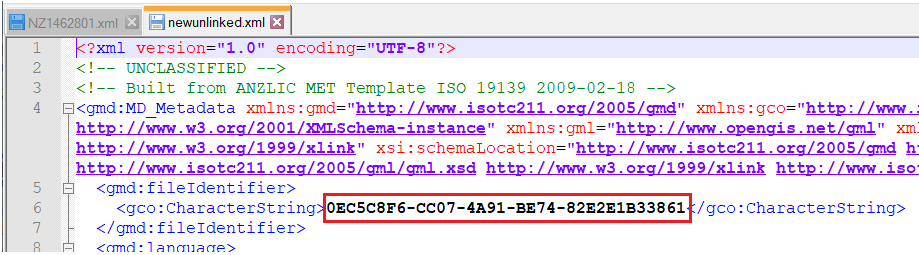


1. Go through the single steps and update the information appropriately to match the brand-new chart, such as: Title, When was it published?, Abstract.

Ask the LDS Team, like Vicki Lindsay, for additional information and instructions if you are unsure. Some information can be found here: <https://confluence.linz.govt.nz/display/GEOD/LDS+Metadata>

Because we have reused an existing metadata \*.xml file, the file ID is no longer unique. We’ll generate a unique ID and replace the ID in the new metadata file with it.

1. Open ANZMet Lite and click ‘New Unlinked Metadata’. Navigate to your **10\_new\_metadata** folder and save the new \*.xml file.
2. Open both \*.xml files in Notepad++, copy paste the unique ID from the ‘newunlinked.xml’ file into your new metadata file and save it. You can delete the newunlinked.xml file.



1. Send the new metadata file to Vicki (LDS Team) for QC and approval.

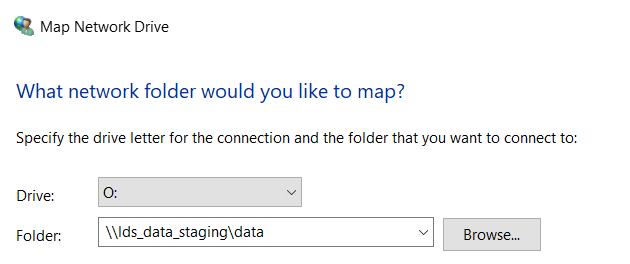
# 6 Uploading to LDS

Once we have all the final Geotiffs and the metadata information, we will start the process of updating LDS.

### 6.1 Loading data to LDS Data Staging Drive

We will upload the latest Geotiffs to the LDS Data Staging network drive, commonly called the O: drive. Contact Service Desk to gain access if you don’t already have it.

1. If necessary, map the LDS Data Staging drive.



1. Navigate to the folder (O:)hydro\raster and copy all your Geotiffs in there. When asked if you would like to overwrite the existing files, select **OK, do this for all**.

If you had created new metadata \*.xml files for brand-new charts, copy them in there, too.

1. Do nothing else. LDS will update overnight.

Once the crawl has completed overnight we will begin the process of either updating the existing layers (Chapter 6.2) or creating new LDS layers for brand-new charts (Chapter 6.4 Uploading New Data in LDS).

### 6.2 Adding Metadata to updated Geotiffs

By now Ian should have provided you example files of the updated metadata files after he has run the Metadata script to update the date stamp. Open a few of these files in ANZMet Lite to QA, especially check that the update date has been changed to, e.g. 05-06-2020.

Now, that you have loaded all Geotiffs to LDS, inform Ian that he can run the metadata script for the updated files in production LDS. It’s recommended to update the metadata once all files have been uploaded.

### 6.3 Update Existing Data on LDS

The process for updating preexisting data is much more straightforward.

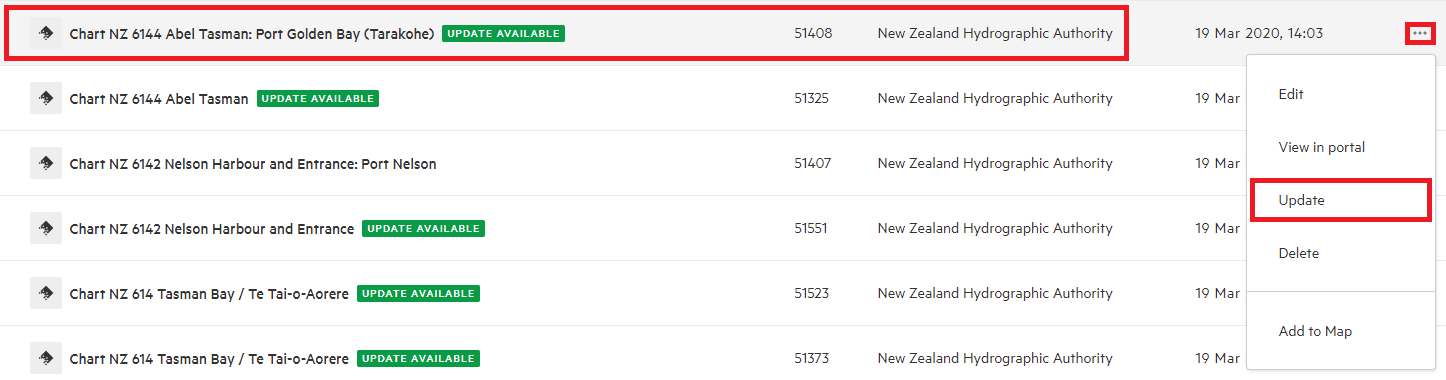
1. Login into [LDS](https://id.koordinates.com/login/?next=/o/authorize/%3Fstate%3DeyJjc3JmdG9rZW4iOiJnN0xrN0xiS3lBRzRIM1ZDZlI2Tzk3Y3Q3Z1RhM2pMeG1tSGpVTXdJYXFxTjZYWjZqR1NxaHN4Y01hbnJqT051Iiwid2FyZWhvdXNlX2lkIjoyMDAxLCJoYXNoZWRfc2Vzc2lvbl9rZXkiOiJjNWI1Y2E2NGNiODJiZjUxMTUyZjBjN2VjYzkxMDExMDM5OThkNDA5MTlkNmY5M2UyMjQ5NDBjM2EzOWVkNTY2IiwibmV4dCI6Ii8ifQ%253A1jnYEx%253AVyv0Pww5TAvAr5XpQx_JfjpzuOE%26redirect_uri%3Dhttps%253A%252F%252Fdata.linz.govt.nz%252Flogin%252Foauth%252Fcallback%252F%26response_type%3Dcode%26client_id%3Dt1RwFgXlDfvmPvqGaAoqj1GnULvYOGTOh81AuiS5). If you don’t have admin rights, you need to talk to the LDS Team to hav yourself setup as an admin user.

In the menu on the left side click on **Manage Data** and for the All Groups filter select ‘New Zealand Hydrographic Authority’.

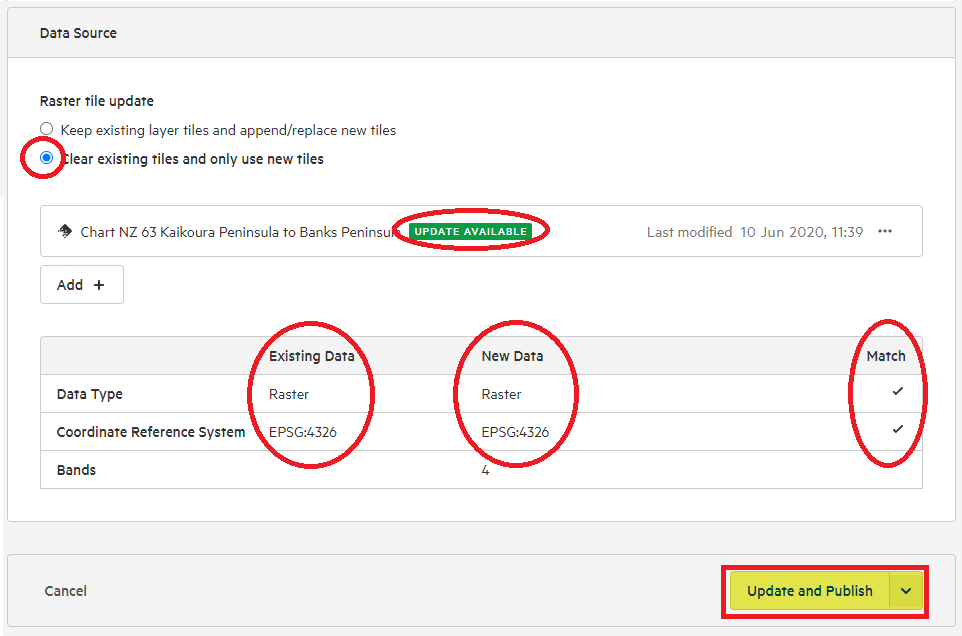
Most of the charts that are included in your update will have ‘Update Available’ in green next to them. It can happen ‘Update Available’ isn’t there, this is a glitch with the User Interface. To ensure you update all the charts use the spreadsheet you prepared earlier to record the status, e.g. updated, update failed, etc.

1. As below, click on the ellipsis icon and select **Update**.

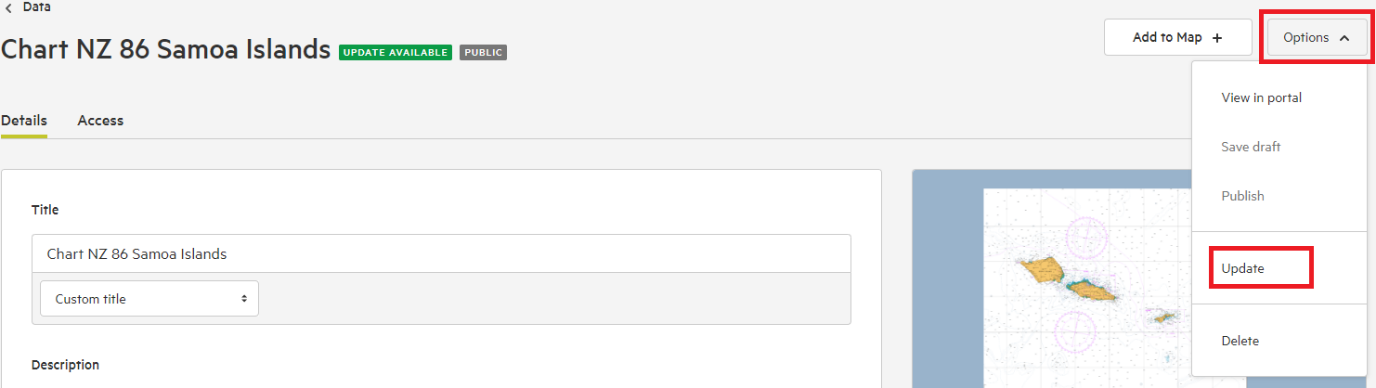
**Hint**: If you open each layer in a separate tap (right click on ‘Update’, then ‘Open link in new tab’ or click with mouse wheel on ‘Update’), you can easily refer back to the tab with the Manage Data page and don’t need to navigate every single time to the location where you started the latest update.



1. If you have opened the Chart details in a new tab, click **Clear existing titles and only use new titles**, ensure existing data and new data match, then click **Update and Publish**.



1. If you have not opened the Chart details page in a new tab, then a different screen opens first. Select **Options** and **Update.** At the bottom of the screen click on **Update and Publish.**



Then the same screen appears as under point 3 (see screenshot above). click **Clear existing titles and only use new titles**, ensure existing data and new data match, then click **Update and Publish**.

1. You can have multiple tabs open per charts which upload. I’d recommend to keep it at about 10 open tabs.
2. Once the file has completed uploading, you will receive an email from Koordinates support stating whether the upload was successful or not. If the upload was successful , you can close this tab now.

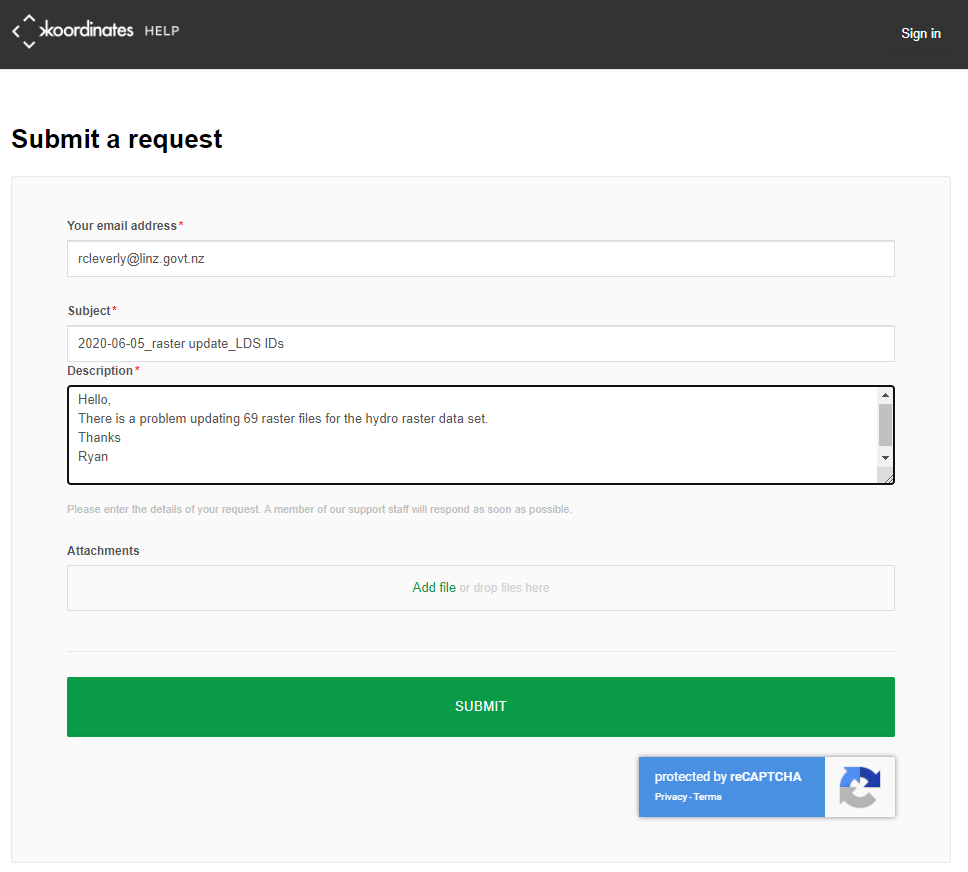
If you get a message stating the update or upload was unsuccessful, do not do anything. Koordinates will receive an error message and start working on the problem automatically. The should notify you when they have fixed the problem. Do not try to reupload.

Also refer to Chapter 6.4 Inform Koordinats and LINZ’s LDS Team.

### 6.4 Inform Koordinates and LDS Team

If you have problems with uploading Geotiffs and the upload failed, you would have received an error email from Koordianates which was also sent to them. If you continue experiencing problems with uploading data, stop your process.

Log in to the Koordinates Support page and submit a Support Request (<https://support.koordinates.com/hc/en-us>). You might want to mention open tickets referring to your raster update.



Keep the LDS Team in the loop of where you are at in your raster process. If Koordinates don’t come back to you within the next few days, the LDS Team will escalate your ticket.

### 6.5 Upload New Data on LDS

As mentioned before, now and then we release brand-new charts which are not available on LDS yet. We need to follow a slightly different process and attach the metadata file to the chart image.

Information on how to publish layers on LDS can be found here:

* <https://confluence.linz.govt.nz/display/GEOD/LDS+New+Dataset+Process>
* <https://confluence.linz.govt.nz/display/GEOD/LDS+Publishing+Process>

Ask the LDS Team for advice. They are happy to take you through the process.

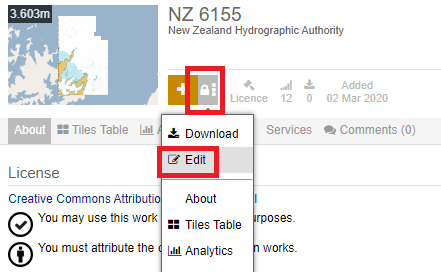
Add steps on how to add a new layer to LDS and how to set the layer to ‘private’ (ask Ian to take you through the process).

These instructions are overlapping with the vector update - Objective ID: A1861065, Chapters 1.6 Release new layer on LDS and 1.7 Create new metadata file and set layer to ‘public’.

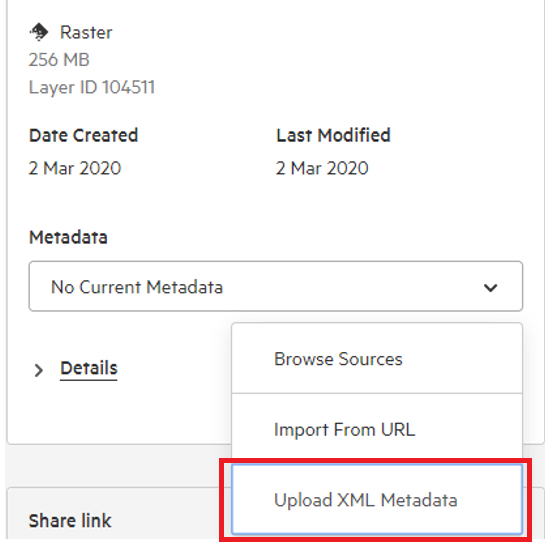
1. …
2. …
3. …

Now that the new chart image is uploaded to LDS, we will add the metadata file to the layer, e.g. NZ 6155.

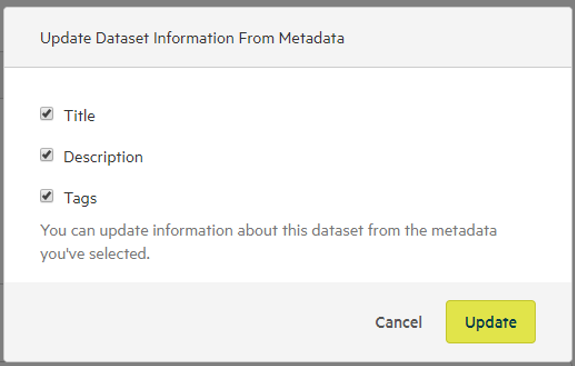
1. Go to your new chart image that you want to publish on LDS. It still is set to ‘private’ as it doesn’t have the metadata attached to it yet.
2. Click on the lock symbol, then on ‘Edit’.



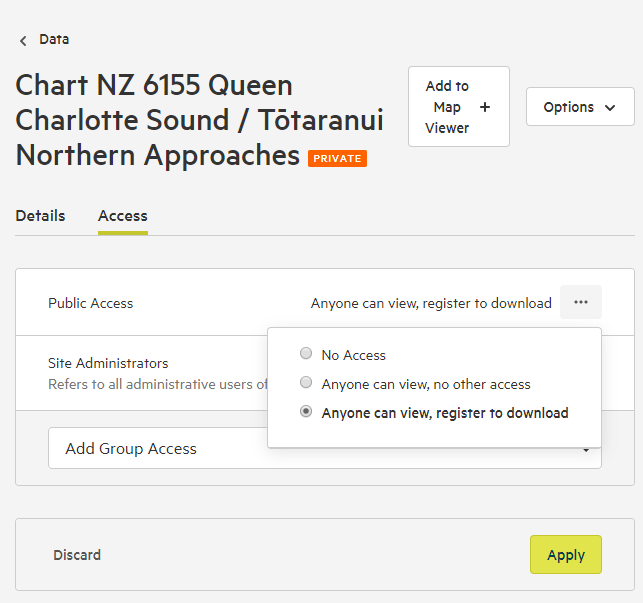
1. Select ‘Upload XML Metadata’.



1. A new window opens. Drag and drop your new metadata xml file in there.



1. Leave all settings as they are and hit ‘Publish’.



1. Make sure you set the layer to ‘Public’.

### 6.6 Final QC in LDS

All Geotiffs and metadata files should be updated now. Make sure you check that all your files are in the correct place and have the metadata tables populated. You may also wish to check a couple to make sure that they download correctly and have no odd bits and bobs happening.

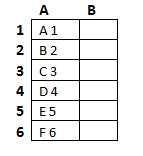
### 6.7 File LDS emails in Objective

Once you have updated and uploaded all the Geotiff, and all errors have been fixed, then zip up all LDS emails that you received for a successful data import of a chart image. Save the file into Objective, folder ID: fA358526 “Data Import Emails”. Inlcude the date of when you took the BSB data into the file name, e.g. *20200605\_raster\_import\_emails*.

# Appendix

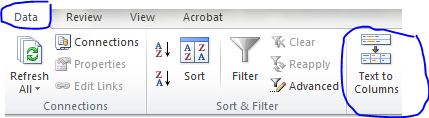
### 1 Text to Columns

In Excel, you can parse any string by setting certain split conditions (a common point to break at, like a coma or space) automatically. This is greatly useful when removing unwanted data from your cells. Say we have the following table:



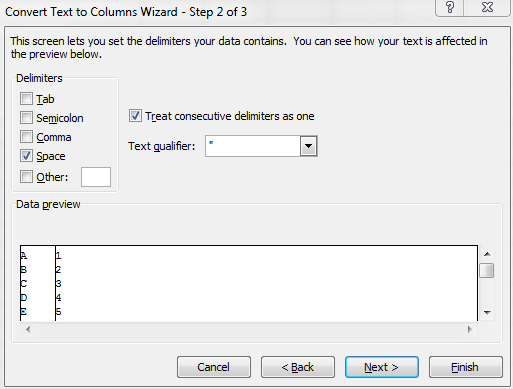
If you wanted to separate out the digits from the letters into column B, traditionally you would either rewrite the list, cut and paste, or something similar. An easier method is to use the text to colums feature, delimited by a space.

Highlight the column you want to split in two and open the Data tab. Select Text to Colums:



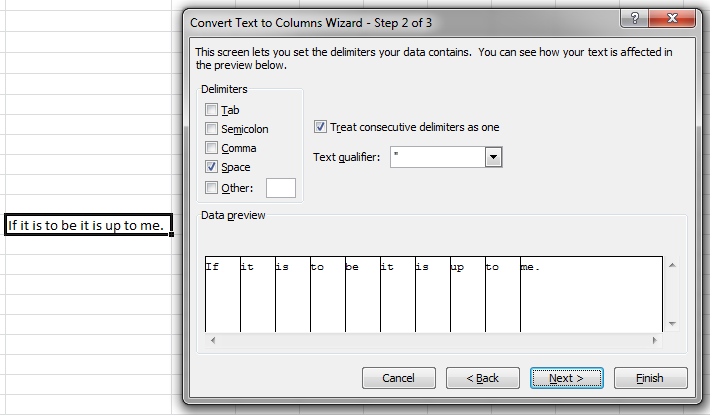
A conversion wizard will appear with the option to choose either “Delimited” or “Fixed width”. Most of the time Delimited is the more appropriate option to select. When you are ready, click next.

You will get a dialogue box that looks a bit like this, although some of the default options will be different depending on what you last did with it:



As you can see in the data preview, when space is selected, it automatically seperates any text with a space before it into an adjacent column. The common delimiters are Tab, Semicolon, Comma and Space, but you can use the Other option to set a custom delimiter as well. Once you’ve finished, hit finish. Next will let you format the content of the destination cell if you desire, but generally it’s not necessary.

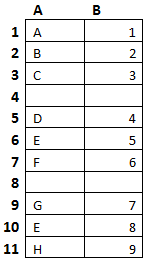
The input doesn’t have to binary – we’ve used a letter and a digit, seperated by a space, but you could split an entire sentence if you wished:



Fun fact: that’s the longest grammatically correct sentence in the English language made entirely of 2 letter words.

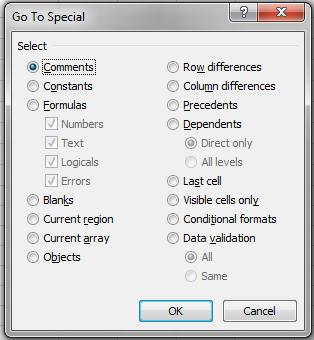
### 2 Select Blanks

Select by blanks is one of the hidden gems of Excel. Let’s say you have the following table:



If you wanted to close all the gaps, the common method would be to delete the cells with a right click > delete cell command and specify the remaining cells to move up to fill the gap. For a spreadsheet with 22 cells, this is straightforward. But what if you had a table with 20 000 cells? It would be extremely time consuming to manually search out the blanks. This is where F5 comes in.

Select the entire column(s) affected and press F5. A dialog box should appear with a few options. Click on Special - you should see:



This box allows a quick filter for objects with certain parametres in cells. For our purposes, select the Blanks option and hit OK. All the blank cells in your column will now be selected. Simply delete en-masse as you normally would, and shunt all the leftover cells into the empty space.

### 3 Identifying Charts for Update

If there are no BSB/KAP files separately stored for identifying the charts which need to be included into the update, refer to these instructions:

Only some charts will be updated on LDS, so we don’t want to run this process on every image. As we use the BSB files created during the NtM editions for the raster update process, the BSB updates will help us to identify any charts that have undergone change throughout the year.

Note: BSB files are only created for charts with a permanent correction. For charts with T or P notices no BSBs are created.

1. If you do the raster process for the first time, continue with point 2. If you have done the raster process before, continue with point 3.
2. If you do the raster update for the first time and don’t know which charts have been included in the latest biannual update, you can refer to the latest LDS update from ***N:\LINZ Data Services***\***raster\_<DATE>*** to get a list of all the BSBs updated since the last LDS update.

Copy-paste them in the folder from where you will be running the raster update process, e.g. your local drive ***G:\Anja\LDS\_raster\_update\ 0\_last\_update***.

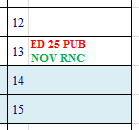
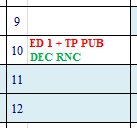
1. If you know the latest NtM edition of which BSBs have been included in the latest raster update, then go directly to the BSB files. For the December raster update you might need the BSB Root file**[[4]](#footnote-4)** and the BSB Update files**[[5]](#footnote-5)**; for the June raster update you will only need the BSB Update files.

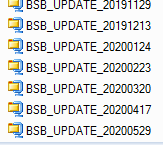
For example: The June 2019 update included BSBs of NtM edition 12; so in preparation for the December 2019 update, grab all BSB files from NtM edition 13 onwards.

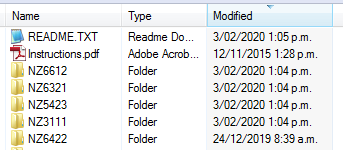
It gets a bit trickier to identify the charts if you don’t have the monthly BSB Update file because it was included in the annual BSB Root file. In this case you can refer to the NtM edition PDF on the LINZ website to identify the charts (<https://www.linz.govt.nz/sea/maritime-safety/notices-mariners/previous-ntm-editions?edition_year=2020>).**[[6]](#footnote-6)**

Refer to the “NtM & RNC Year Planner” for the dates when the monthly BSB Update files (RNC files) and/or the NtM editions were released – Objective folder fA318437 – to help identify the charts for your raster update.

1. Example:

* Update in January 2020 (we were running late for the December update and did the update in January 2020 instead) included charts from NtM edition 25/2019.
* Looking at the calendars from 2019 and 2020, I get the following dates:
  + NtM edition 25/2019 was released on 13/12/2019.
  + November RNC file was released on 13/12/2019 but it included charts of November editions 23 and 24. So, this is not relevant to us.
  + There was no NtM edition 26/2019.
  + NtM edition 1/2020 was released on 10/01/2020.
  + December RNC file was released on 10/01/2020 but it would have included charts of December edition 25 which was already included in the June 2019 raster update. So, this is not relevant to us.

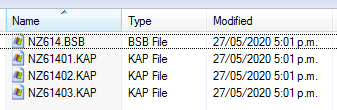


* Looking at the BSB Update files:
  + BSB Update file from 13/12/2019 is the November RNC file and includes charts until NtM edition 25; and is not relevant to us.
  + The next BSB Update file from 24/01/2020 is the January RNC file which was released on 07/02/2020.
  + To identify which NtM edition was included, open the README.TXT file in the BSB Update zip file; it says: NtM ed 2/2020 (24/01/2020).
  + NZ 6422 was already part of the December RNC (BSB\_UPDATE\_ 20191213) which means we grab all charts which were created afterwards: NZ3111, NZ5423, etc.
  + Because the BSB Update files are accumulating, we can go to the latest BSB Update file from 29/05/2020. According to the README.TXT file, it includes charts from NtM edition 11, released on 29/05/2020.

1. It is up to you how you organise and name your working folders but if you have to redo a step it is handy to have the different stages of files still available in different folders.
2. Go to **N:\Chart Products\BSB\updates** (or to the RNC archive where all BSB update files are stored, **Y:\Data\RNC\_archive\BSB\updates**) and copy paste the identified BSB Update file into your working folder (e.g. G:\Anja\LDS\_raster\_update\***0\_identified\_charts***).
3. Unzip the BSB Update file.

Now it can get confusing if the date of the chart folder doesn’t match the file date of the \*.KAP file within the folder, e.g. NZ 614:

* If looked at the folder date in the BSB Update zip file, it says 06/12/2019 and I would have assumed this chart was part of the previous update. 
* If double clicked on the NZ614 folder, the file dates are from 27/05/2020 and part of the latest NtM edition that I want to include.



It’s highly likely that NZ 614 was updated in December (date on folder) and again in May (date of \*.BSB/\*.KAP files).

* It is also possible that a previously released BSB had to be re-created due to an error in the \*.KAP file. This chart wouldn’t appear in any NtM edition.

To get around these issues, we take the date stamp on the \*.BSB and \*.KAP files as the source of truth.

1. Once the BSB Update file is unzipped, extract all \*.BSB and \*.KAP files from the single chart folders and copy paste them into its own folder.
2. Sort this full list after the date and copy paste only the identified charts into its own folder, e.g. ***0\_identified\_charts***. Refer to the NtM calendar or the updated chart list for permanent corrections in the NtM edition PDF if you need to.
3. If you have to use the annual BSB Root file in your December raster update (because the last BSB Update is part of it), ensure you grab only BSBs you have identified to be included in your raster update that you are preparing.

You might need to unzip the BSB Update files in ascending order and overwrite older files with newer files of the same chart (when it asks you if you want to copy and replace, click *“Do this for all*” and click ok). If a chart has been updated multiple times during the last half year this ensures you have the latest and most up-to-date BSB files.

1. For every raster update make a note of the NtM edition number.

For example: The December 2019 update includes NtM edition 25; and in total 71 \*.KAP files.

1. Make a note of any charts that have macrons in the titles. These will need to be assessed later to ensure that the macrons are represented in LDS.

Charts containing macrons (status Dec 2019):

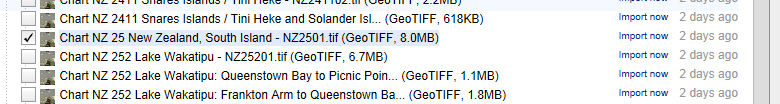
NZ 53, NZ 521, NZ 522, NZ 861, NZ 4111, NZ 5227, NZ 6151 (panel 4), NZ 6153, NZ 6321, NZ 6912 (panel 1)

Once the charts are identified we are ready to start preparing the files for LDS. This will involve cropping the chart marginalia, and reprojecting the images.

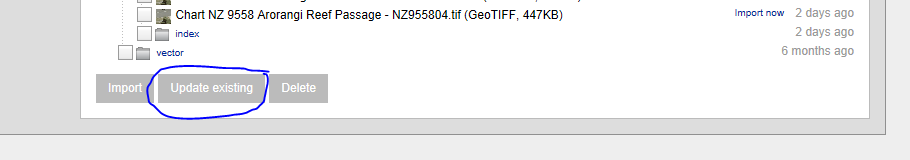
### 4 Old process on how to Update Existing Data on LDS

Occasionally you will find that there is a need to manually update the image files and connect the history tabs between the two. This could be due to a change in naming convention meaning that the files don’t automatically find each other, or perhaps an error you make necessitates more fine control. Fortunately, this is a very straightforward process.

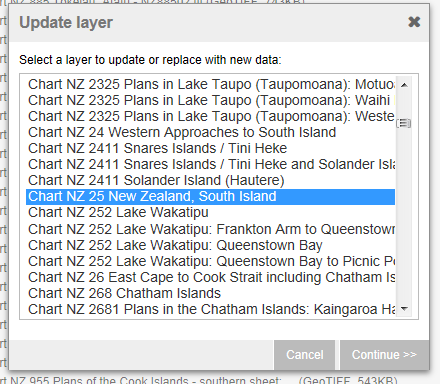
Firstly, select the file you wish to update:



Scroll down to the bottom of the page and select the “Update existing” option:

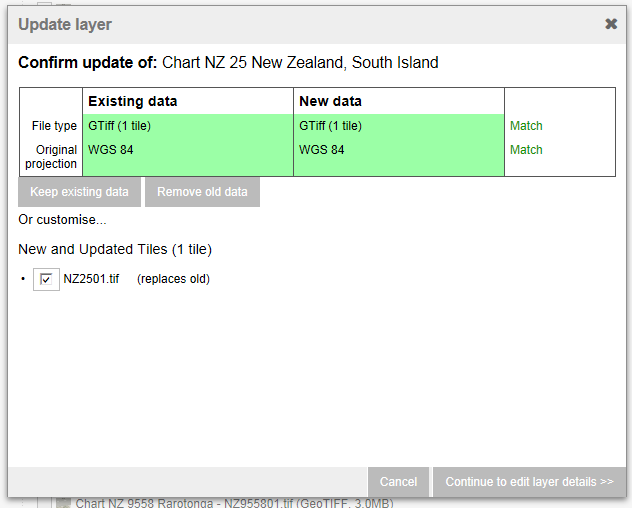


In the dialogue box that appears, scroll down to the chart you wish to update and select it. Hit the continue button.



In the next box, make sure there is a match between the file type and the original projection. If these don’t match you are probably uploading incorrect data.

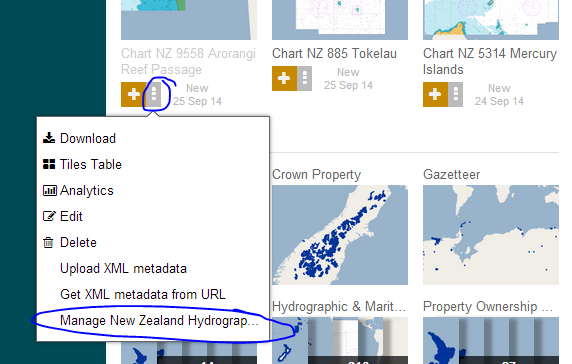
Ensure that under the “New and Updated Tiles” section, your chart image is selected and has the words “replaces old” in brackets. Once you are ready, hit “Continue to edit layer details”:



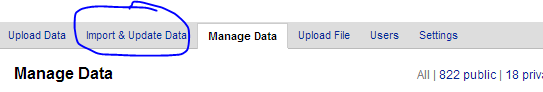
The next box is the same as the one in section 5, pages 26 and 27. Make sure everything is appropriate and hit “Save and Update”.

### 5 Old process on how to Update New Data on LDS

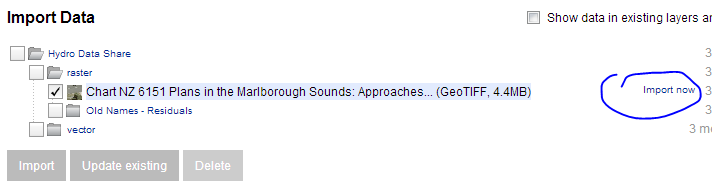
1. Log in to LDS. If you don’t have administration rights, you need to talk to the LDS Team to have yourself setup as an admin user. Navigation to the hydro management page. You can get there by clicking on the following icon next to any hydro layer and selecting the ***Manage*** pen:



1. You will be taken to a Dashboard page with the Manage Data tab selected. Select the ***Import & Update Data*** Tab:



1. In this tab, you will see a list of any files that deviate internally from the data that exists on LDS. Once you upload the files, they will slowly disappear from the upload tab. While it is possible to upload multiple files at once, here, it doesn’t do what you would expect. Instead of updating each associated layer, it will bundle them together into a single layer, merging all the files together. You don’t want this! So make sure that each file is done individually. Select the file you are after, then to the right of the page press the ***import now***option:



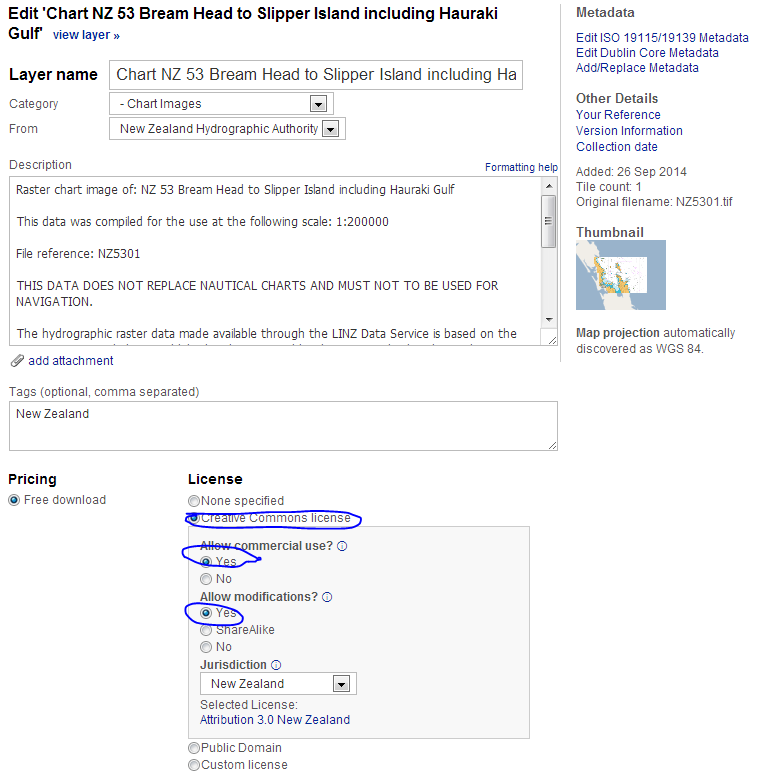
This will start the import of the new layer to LDS. If the file already exists in LDS, this will read ***Update******now*** instead, so this is a good indication that Chart NZ 6151 (in my case, is a new chart for import). Once you’ve selected this, it will begin loading a private version to LDS. Head across the the ***Manage*** tab now.

In this tab you watch the progress of any files currently being uploaded, and modify their meta information as appropriate. As you can see below, I have begun the upload of my chart, and the status bar has begun ticking up toward 100%:

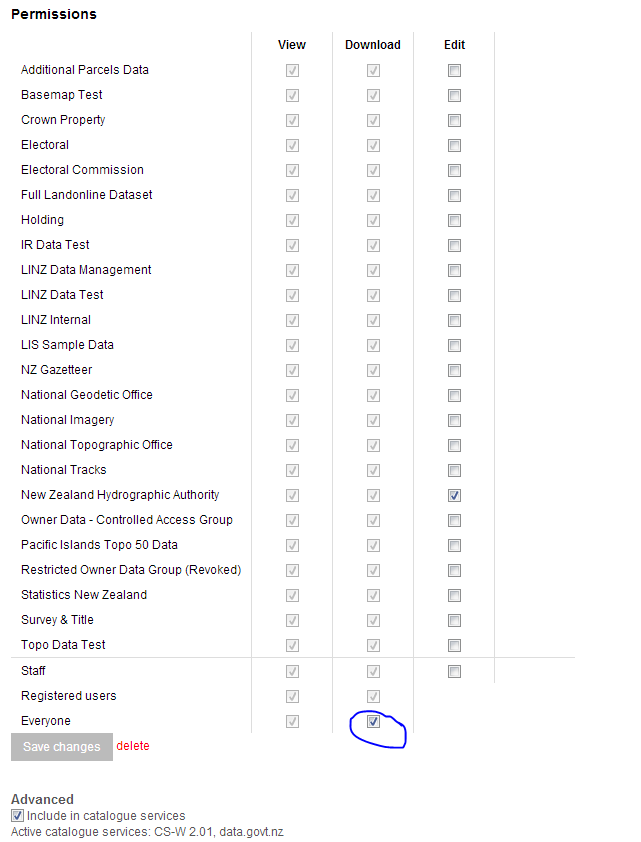


Once the file has completed uploading, you will receive an email from Koordinates support stating whether the upload was successful or not. If you get a message stating the upload or update was unsuccessful, do not do anything. Koordinates will start working on the problem automatically and notify you when they have fixed the problem. In the event that this happens, the file will not dissapear from the Import & Update Data list. Do not try to reupload, this will disapear over night when the crawl takes place.

1. Once your data successfully uploads, you need to select all the appropriate attribution and permissions for staff and members of the public. Click on the little pencil edit button next to the status option. The file will automatically pull all the chart names and descriptions from the xml metadata file, so your page should look a bit like the following. Select the creative commons licence and make sure that ***Allow commercial use?*** and ***Allow******modifications?*** are set to yes. If the Category is blank, set it to ***Chart******Images***:



1. Further down the page you will find the Permissions settings. Make sure that every box in ***View***, and every box under ***Download*** is checked (Tip: you can select them all at once by checking the very last box at the bottom of the Download collumn) and that under Edit, the New Zealand Hydrographic Authority box is checked:



Hit Save changes, the file is now available for anyone to see and download in LDS. Next we will cover updating preexisting data.

1. The **BSB Root file** is released once a year in June. This file contains the latest version of all BSBs of the last 12 months. For example, if the same chart is updated in January, March and April, only the BSB files from April will be part of the BSB Root file. The 12th BSB Update file is included in the BSB Root file. [↑](#footnote-ref-1)
2. The **BSB Update files** are created every month, 11 times a year. The 12th update is incorporated in the BSB Root file. The monthly BSB Update files are accumulating and contain only the latest version of a chart. The BSB Update file is also called **RNC file**, e.g. November RNC file. [↑](#footnote-ref-2)
3. BSB files are only created for charts with a permanent correction. For charts with T or P notices no BSBs are created. [↑](#footnote-ref-3)
4. The **BSB Root file** is released once a year in June. This file contains the latest version of all BSBs of the last 12 months. For example, if the same chart is updated in January, March and April, only the BSB files from April will be part of the BSB Root file. The 12th BSB Update file is included in the BSB Root file. [↑](#footnote-ref-4)
5. The **BSB Update files** are created every month, 11 times a year. The 12th update is incorporated in the BSB Root file. The monthly BSB Update files are accumulating and contain only the latest version of a chart. The BSB Update file is also called **RNC file**, e.g. November RNC file. [↑](#footnote-ref-5)
6. BSB files are only created for charts with a permanent correction. For charts with T or P notices no BSBs are created. [↑](#footnote-ref-6)