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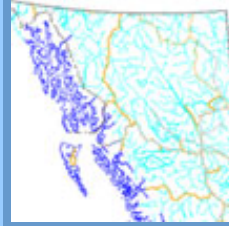HELP OPTIONS

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Internet Mapping Help and Tutorial System

Tutorial

Internet maps have much in common with traditional paper maps, with a few important differences.

This tutorial will show you how to use interactive Internet based maps. After this tutorial you should be able to understand and navigate Ministry maps successfully; even if you have no prior knowledge of GIS. The basic tutorial will probably take about fifteen minutes. However, in less than five minutes you can have the background required to successfully navigate a Ministry map view.

The tutorial is designed to be used two ways. For the beginners, we recommend you take the guided tour which will introduce you to basic GIS concepts first. Then we'll introduce you to the tools and methods that you'll use to navigate around the map and ask it questions. For the more advanced users, you can select a specific topic from the tutorial contents found below.

To begin the tutorial, click Start below.

Start

→ **Start the Tutorial**

- This tutorial will show you how to use interactive Internet based maps.

→ **Select a Specific Step in the Tutorial**

- Features Have Attributes
- Information is Separated into Layers
- The Map Window
- Navigating Around Maps
- Scale
- Layers
- Add/Remove Layers
- Order of Layers
- Layer Symbology
- Attribute Information
- The Legend
- Toolsets
- Find Location
- Printing a Map
- Specific Functions:
  - Identify Visible
  - Identify by Radius
  - Select
  - Buffer
  - Measuring Distances
  - Measuring Area
  - Markup Tools
  - Email Map
  - Save Session
  - Upload Shapefile
  - Extract to Excel
  - Spatial Overlay Engine

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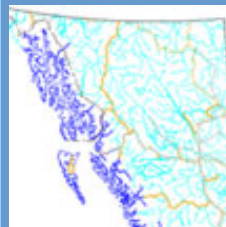**B.C. Home**

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Ministry of Sustainable Resource Management

Internet Mapping Help and Tutorial System

Welcome to the Ministry's Online Internet Mapping Help & Tutorial System.

This online help system is designed to show you how to navigate and use the Ministry's interactive maps. After going through this Help & Tutorial System, you should be able to use the interactive maps successfully; even if you have no prior knowledge of a Geographic Information System (GIS).

There are 3 sections to approach the Internet Mapping Help & Tutorial System:

1. **Tools & Functions:** This section gives you a quick overview and explanation needed to navigate the interactive maps.
2. **Tutorial:** This section discusses basic GIS concepts, general map instructions, and advanced functions. It is designed in a way that a beginner can follow the linear branch, which guides you through the tutorial from start to finish.
3. **Step-by-Step Instructions:** This section covers more advanced topics and is laid out in a nonlinear branch where specific topics can be selected from a list of contents.

Please send feedback and comments

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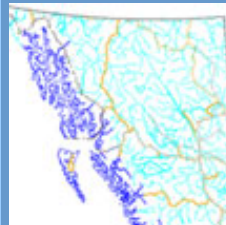
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Tools and Functions Help

The tools below is an example of the tools found on the Internet maps produced by the Ministry. Use the mouse to rollover an icon or tab below to learn about how to use the tool or function. Clicking on certain icons will redirect you to a section that talks more specifically about its use.

Default Toolset

View the Analytical Toolset or Markup Toolset.

| Layers | Legend | Toolsets | Select | Find Location | Refresh Map | Tutorial |

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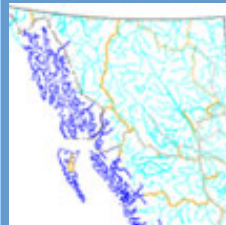
Step-by-step Instructions

Important GIS Concepts:

- Features Have Attributes
- Information Is Separated Into Layers

General Map Instructions:

We suggest opening another window of your Internet browser and loading an actual Ministry Application map. This way, as you go through the tutorial you can practice what is being explained.

- Become Familiar With The Map Window
- Navigating Around Maps
- Scale
- Turn Layers On And Off and Make A Layer Active
- Add/Remove a Layer, Changing Layer Order
- Changing the Layer Symbology
- View Attribute Information
- Display Or Remove A Legend
- Toolsets
- Find Locations and Bookmarks
- Print A Map

More Advanced Functions:

- Identify Visible
- Identify Radius
- Select Function
- Buffer
- Measuring Distances
- Measuring Area
- Markup Tools
- Email Map
- Save Session
- Upload Shapefile
- Extract to Excel
- Spatial Overlay Engine

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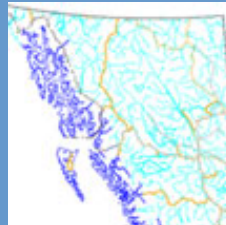
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iMAPBC Tutorial Videos

Download Instructions

These modules should be downloaded to the user's desktop computer before playback. Windows users should right click on the links listed to the right, then select "Save target as…". If the modules are played back by left clicking on the links directly from this website, decreased performance may result.

Playback Instructions

To play a module, double click on the module's .exe file. The module will launch and begin to play. The controls in the navigation bar will allow users to play, fast-forward, rewind and stop the module. Before viewing the next module, close the current module's window by clicking the "X" in the uppermost right-hand corner. Open the next module as described above.

NOTE: For optimum viewing quality, modules should not be viewed full-screen (whether by "maximizing" the window or by choosing "full-screen" from the Flash Player menu). Because modules are sound and graphics intensive, the user is also encouraged to close all unnecessary applications on their computer before playback.

Module Contents

- Module 1-1 - Overview - 1.4Mb
- Module 1-2 - Starting iMAPBC - 10.6Mb
- Module 2-1 - The Default Toolset - 11.5Mb
- Module 2-2 - Layer List and Add Layers - 14.0Mb
- Module 3-1 - The Markup Toolset - 10.7Mb
- Module 4-1 - Advance Query and Status Tools - 14.5Mb
- Module 4-2 - Selection Tools - 7.8Mb
- Module 4-3 - Advance Selection and Upload Tools - 9.5Mb
- Module 4-4 - Conclusion - 1.0Mb

→ **Start the Web-based Tutorial**

- This tutorial will show you how to use interactive Internet based maps.

→ **Select a Tutorial Video** (see download instructions first)

- Module 1-1 (1.4Mb)
- Module 1-2 (10.6Mb)
- Module 2-1 (11.5Mb)
- Module 2-2 (14.0Mb)
- Module 3-1 (10.7Mb)
- Module 4-1 (14.5Mb)
- Module 4-2 (7.8Mb)
- Module 4-3 (9.5Mb)
- Module 4-4 (1.0Mb)

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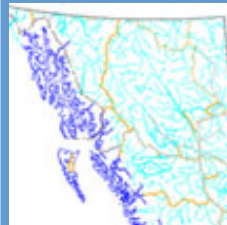
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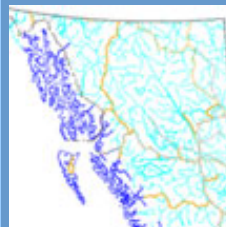
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Tools and Functions Help

The tools below is an example of the tools found on the Internet maps produced by the Ministry. Use the mouse to rollover an icon or tab below to learn about how to use the tool or function. Clicking on certain icons will redirect you to a section that talks more specifically about its use.

Analytical Toolset

View the Default Toolset or Markup Toolset.

	Layers	Legend	Toolsets	Select	Find Location	Refresh Map	Tutorial

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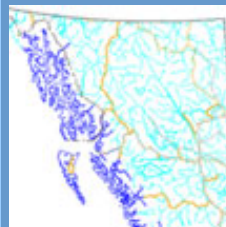
Tools and Functions Help

The tools below is an example of the tools found on the Internet maps produced by the Ministry. Use the mouse to rollover an icon or tab below to learn about how to use the tool or function. Clicking on certain icons will redirect you to a section that talks more specifically about its use.

Markup Toolset

View the Default Toolset or Analytical Toolset.

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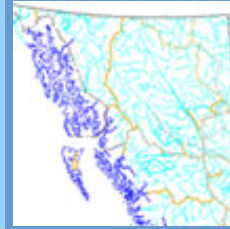Government of British Columbia

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General Map Instructions #3: Turning Layers On And Off, Make Layers Active

Hopefully you've had a chance to take a look at the introduction to GIS Concepts section where we discussed layers.

Because there are often many layers available for a map, map layers are organized into related folders. When you initially open the map, some folders may be open and some may be closed. Likewise, some layers may be turned on while others may be turned off by default.

To open a closed folder, click on it. A list of all layers contained within the folder will be shown. Similarly, you can click on an open folder to close it. Notice that opening and closing folders doesn't turn layers on or off; it simply helps you stay organized. Next to the folder icon you will see a small grey and white rectangle. Clicking on the grey and white rectangle turns off all layers in the folder. It doesn't matter if a folder is open or closed when you do this.

Map Layers   Feedback

[add] [remove] [change order]

☐ 📁 ☐ All Layers
— ☑   Annotation (6M)
— ☑ ⓘ 🔍 Provincial Boundary (6M) 🌈
— ☑ ⓘ 🔍 Transportation - Lines (6M) 🌈
— ☑ ⓘ 🔍 Water - Lines (6M) 🌈
— ☑ ⓘ 🔍 Forest Districts - Transparent ✱
— ☑ ⓘ 🔍 Forest Districts - Color Themed ✱
— ☑ ⓘ 🔍 Forest Districts - Outlined ✱
— ☑ ⓘ 🔍 Water Polygons - Color Themed (6M) 🌈

[Refresh Map]

☐ Automatically Refresh Map

You can turn an individual layer on or off by clicking on the adjacent checkbox and then clicking on the **Refresh Map** button. A layer is 'on' (displayed on the map) when there is a check in its checkbox. Some layers are only available at certain scales. Layers that are unavailable at a given scale are shown with a red asterisk next to the layer name. Clicking the red asterisk next to the name of an unavailable layer zooms you to the closest scale at which the layer is available.

ⓘ A layer is made 'Active' by clicking on the icon adjacent to a layer name. A black icon denotes the active layer, and its name is displayed in the area below the map window. You can only have one active layer.

What the does this mean? It means that the spotlight is on this layer. In other words, this is our way of telling the computer that this is the layer in which we are interested. How is this relevant, you ask?

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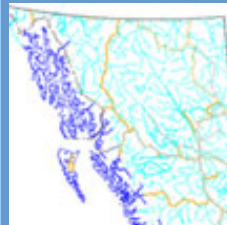Government of British Columbia

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General Map Instructions #7: Display Or Remove A Legend

Layers are most often displayed in the Layer list view, which allows you to make layers active and turn them on and off.

☑ ⓘ Major Cities (1:2M)

The **Legend** view explains map symbology. By choosing Legend from the function bar, the map legend will appear in the information panel. Clicking the layer tab will revert you back to the Layer list. To the right, the Rare Elements layer is shown symbolized by the different types of rare elements in the region.

Map Legend

Major Cities (1:2M)

⊚ City
⊚ District Municipality
▪ Town
▪ Village
▪ Village - Unincorporated

Man-Made Features - Lines (1:2M)

When you add or remove a layer the legend will update automatically to reflect the layers. As well, when you change a layers symbology the map legend will also be updated.

When you print a map, the legend is automatically added to the map.

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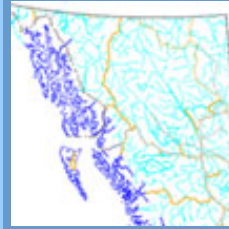
General Map Instructions #8: Toolsets

The new **Toolsets** tab found in the function bar organizes the tools in a logical manner that a user would interact with the map. The tools have been separated into 3 main categories: the default toolset, analytical toolset, and mark-up toolset. All the toolsets include the basic navigational tools required to interact with the map.

The **default toolset** includes the basic tools one would need to navigate the map and perform basic functions. It includes the zoom tools, pan, overview map, add layer, print to PDF, email, save sessions and identify tools. These tools are standard in most Ministry Map Service Applications.

To switch between the toolsets, click the *Toolsets* tab in the function bar. The list of available toolsets will be displayed in the information panel. Click on the name of a toolset you want to make active. The toolset you select will automatically load in the toobar of the map.

The **Markup toolset** includes a set of tools used for drawing shapes on the map. The toolset features tools to draw points, lines, rectangles, polygons, text, add a grid, mark an XY location, an erase tool, and a clear all tool. See the Markup tools section for further information.

The **Analytical toolset** is a set of tools used for making selections and displaying information about the map. This toolset includes the identify visible tool, identify radius, select, buffer, clear selection, measure tools, spatial overlay engine tools, and the upload and extract tools. See the Specific Functions section for more information about the individual tools.

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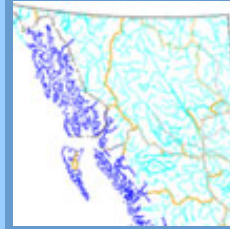Government of British Columbia

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Specific Functions #2: Select Function

The **select tab** is used to manage the selection function. In order to use the select tab you must make sure the select function is enabled. To enable it, first click on the Toolsets tab and choose the *Analytical Toolset* from the information panel.

All Layers
- ☑ Annotation (6M)
- ☑ ⓘ Provincial Boundary (6M)
- ☑ ⓘ Water Polygons - Color Themed (6M)
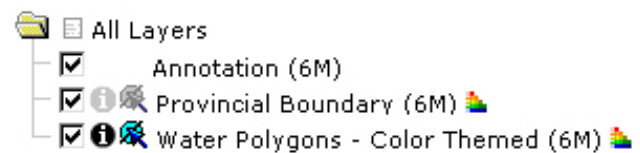
Among the new toolset you will see the blue selection tool appear in the toolbar. You will also notice a non-active (greyed out) select icon appears adjacent to the layers which are selectable in the layer list. To make a layer selectable, click on the non-active select icon next to the layer.

- Selected sets

- Select by buffer
- Select by layer
- Select by attribute
- Select by point
- Select by box
- Select by polygon

- Clear selections

Once you have picked a layer you would like to select features from, a *Selection Menu* similar to the one on the left will appear in the information panel. This menu gives you several options on how to go about executing your search. Click on a method you wish to use and the select criteria will appear.

The basic selection options include select by point, select by box, and select by polygon. These are straight forward selection tools that do exactly as their title suggests. The **Select by Point** option chooses a feature on the map by a single mouse click. The **Select by Box** option allows you to draw a box on the map which will select all features that fall within it. Click and hold the left mouse button and drag your mouse to draw a box. Release the mouse button once you have the features enclosed in the box to select them. Finally, the **Select by Polygon** option allows you to create a polygon around a feature in order to select it. Add points to the map by clicking the mouse. The polygon will be shown on the map. The select by polygon is a flexible way to select features.

The **Select by Layer** option lets you select features of one layer that intersect with another layer. A selection set must already exist in order to use this option. Pick the layer you want to select features on from the first pull-down menu. Next, choose the selection set that will intersect with the layer from the second pull-down menu. Click OK to begin the query.

Select features from:
Forest Districts - Color Themed

that intersect the selected features of:
Forest Districts - Transparent

The **Select by Buffer** option allows you to select features within a selection set that already exists. In other words, you first must make a selection before you can use the Select by Buffer option. Once you have a selection set, click the Select tab and choose select by buffer.

First, from the pull-down menu choose the layer you would like to select features from. Next, enter a distance and choose the units of measurement from the pull-down menu that you want your buffer to

be. Finally, choose the selection set you want to be buffered and click OK when you are done. If the query found any results they will appear in the information panel.

Layer Name
Water Polygons - Color Themed (5M)

Field
WHSE_BASEMAPPING.BC_WATER_POLYS_5KM.FCODE

Search Operator
=

Attribute Value

The **Select by Attribute** option allows you to select features from layer based on a specified field within that layer. It works like a query builder where you enter criteria using search string methodology. To make a selection by attribute, select the layer you would like to pick features from. Next, choose a field within that layer from the pull-down menu. Select a search operator (equal to, greater than, or less than) and enter an attribute value. Click the OK button when you are finished.

Once a selection has been made the selection set shows you information about your selection, including the layer, number of features just selected, number of features previously selected, and a set of options. The options allow you to *zoom to the extent* of the selection, *clear* the selection, *execute a report* for the selection, and extract the selection features to an *Excel* file.

*Remember the **Clear Selection** function*! This function, found in the toolbar of the Analytical Toolset, clears/unselects any selected features, text, etc. This option is the equivalent of a few good shakes of an etch-a-sketch. Unless you want to print a map with features selected (they usually appear shaded yellow) it is a good idea to hit this button before you create a print page.

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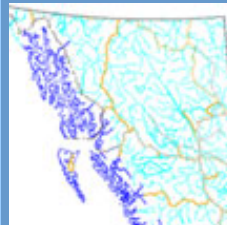Government of British Columbia

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General Map Instructions #9: Find Location and Bookmarks

The **Find Location** tab displays a list of preset map locations, which will zoom you to a location but not alter layer display. By clicking the Find Location tab on the function bar, available locations and bookmarks display in the information panel.

Find Location   ?HELP

Zoom To:

- Bookmark
- Airport
- Attribute
- BC Albers Coordinate
- BC Environment Region
- Forest District

Click on a location in the menu to open a query window for that layer. For example, say I want to locate Victoria International Airport on the map. The simple way to locate the airport is to first select the *Find Location* tab. Secondly, click the predefined *Airport* location from the list. A list of all the airports in British Columbia will appear in the information panel. Scroll down through the list until you find Victoria International and click on it. Finally, click the OK button at the below the list. The map will refresh with the airport selected in the centre of the map.

You can create your own **Personal Bookmarks** if your browser accepts cookies. To add a Personal Bookmark for a particular location click the Bookmarks link at the top of the Find Location list. Click the Add Bookmark button and then type a name for the new bookmark. Your extent will be stored for a year under whatever name you choose. To retrieve your personal bookmark at a later date, click on the Find Location tab and then click Bookmarks. A list of your personal bookmarks will be displayed. Click on the bookmark you want to view and the map will jump to that location.

Enter a name for your bookmark:

Greater Vancouver

To remove a bookmark, click the red ✗ beside the bookmark name.

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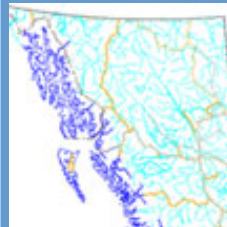
Internet Mapping Help and Tutorial System

General Map Instructions #1: Become Familiar With The Map Window

When you open the Ministry Application through your Internet Explorer browser, you will see a new window that looks similar to the example you see here.

Roll your cursor over the interface >>

The main window is the **Map Window**. This is where the map is displayed. Beside it is the **Information Panel**, which displays information about the map and lets you work with map layers. Specifically, the Information Panel displays the legend, visible and active layers, and provides information about the map.

At the top of the viewer you can see the **Function Bar** and the **Toolbar**. You will use the Function bar and the Toolbar to navigate around the map, ask questions of it, and otherwise interact with the information. Scale, active layer, and active tool information are all found below the map window.

Everything will be described in depth in the coming pages.

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General Map Instructions #2: Navigating Around Maps

🔍 🔍 The **Zoom** tools are unique to digital maps. They are very much like using an actual magnifying glass, as the icons imply. The magnifying glass with the little plus sign lets you **Zoom In**, while the one with the little minus sign lets you **Zoom Out**. There are a couple of ways to use these tools.

For example, click on one of them to select it, then go somewhere on the map and press the left mouse button. If it is the *Zoom In* tool the map zooms in. The center of the new map is wherever on the map you clicked the mouse button. The *Zoom Out* tool zooms out the same way.

Second, you can zoom in more precisely by pressing the mouse button somewhere on the map, holding it down, and dragging a box. When you let go of the mouse button the new map extent will be the area defined by the box. When zooming out, the area defined by the box becomes the new map extent.

Zoom to Scale
Click here for a relevant, but not essential, discussion on scale.

1: [100,000] [Go]

One possible method of zooming uses the scale displayed below the map window. Enter your desired map scale, press Go and the map automatically zooms to that scale.

Please note that the scale that appears on this viewer is for map navigation only, and is not necessarily accurate. Without information about the size of your monitor or display device, it is impossible for us to accurately provide a ratio scale.

Error is most pronounced if you are operating a large monitor (or a projection device) running at a very low resolution, or if you are running a small monitor at a very high resolution. A 17" monitor running at a resolution of 800x600 or 1024x768 is much better represented by the denoted ratio scale.

Some maps have limits on the scales at which you can view the data. As well, some layers and/or map labels may only appear at certain scales. For example, you listen to a stereo within a certain range. At a certain volume you can't hear the music any clearer if you make it louder, and at a certain quietness you can't hear it at all, no matter how much lower you turn the volume knob.

There are a few other functions that make navigating around maps easier.

The first is the **Zoom Previous** tool. It is available either as a button and jumps you back to the previous map extent.

Another operation from the function menu is **Zoom to BC**. It zooms you out to the maximum extent of the province.

You can look at a specific area of interest. You can move around the map using the pan tool. The **Pan** tool lets you slide around to different parts of the map with the Ministry Applications.

For example, suppose you want to go north (up the map). Take the Pan tool and grab (press and hold down the mouse button) onto the map pulling it down. Whatever part of the map you grab with the little hand will end up where you let go of the mouse button. Just like in real life. This works for moving any direction on the map.

A **Key Map** gives the main map context by showing where the map fits into the broader scheme of things. For instance, if we were making a map of the Burundi, it would probably be worthwhile to include a Key Map showing where in Africa Burundi is situated.

A Key Map may also cover the same area as the map itself when it first opens. In our example we are looking at a Key Map, which accompanies a map of British Columbia. The red rectangle reflects the current extent of the map viewer. As you zoom in and out, the Key Map can be a useful tool, as it helps you to stay oriented. The Key Map can also be used to centre your view over a given area of the province simply by clicking on the area you wish to view.

Next, you will find out how to make a layer active.

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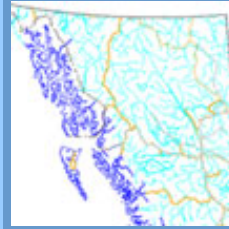Government of British Columbia

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General Map Instructions #4: Add/Remove a Layer, Changing Layer Order

As you just learned on the previous page about how folders can help organize layers, sometimes there are simply too many layers to include in the initial layer list. In order to prevent an overwhelming map with hundreds of layers, we have introduced the **Add Layers** feature.

✚ To add a layer, click the **Add Layer** button found in the toolbar or at the top of the map layers page. A new window will open with a list of folders and layers that are available to be added. To open a folder, click on the *folder icon*. A list of layers within the folder will be displayed. Click the folder again to close the folder. To open all the folders, click the top folder in the list.

Add Layers   Close window

☐ Click this folder to show all of the folders
☐ Administrative_Boundaries
☐ Assessment Areas - Tantalis
☑ Forest Districts
  ☑ Forest Districts - Outlined
  ☑ Forest Districts - Color Themed
  ☑ Forest Districts - Transparent

The list of available layers have a checkbox adjacent to the layer name. To add a layer, click the checkbox adjacent to the name. Once you have checked the box the layer will automatically appear in the map layers list in the information panel of the map. To remove the layer, simply uncheck the box by clicking once on it.

Remove Layers   Close window

This page is used to remove layers from the map. Select the layers to remove and press the OK button.

☐ Annotation (6M)
☐ Provincial Boundary (6M)
☐ Transportation - Lines (6M)
☐ Water - Lines (6M)
☐ Aquifer Vulnerability - Outline
☐ Water Polygons - Color Themed (6M)

[Check All] [Clear All] [OK]

▰ Layers that have a *multiple layer icon* adjacent to the layer name means the layer has several themes available to select from. Click the multiple layer icon to open the list of available variations for that layer. For example, in the image above you will notice that the Forest Districts layer has 3 available layer options: an outline coverage, a colour themed coverage, and a transparent coverage. In this case all the layers have been selected however, you may only want the outline layer to display on the map. Simply uncheck the other 2 layers by clicking once on the checkbox adjacent to their name. Click the single layer icon to close the layer theme list.

To delete a layer from the map layers list, click the **Remove** button found at the top of the map layers page in the information panel. A new window will open with a list of all the current layers on the map. If you want to remove all the layers click the *Check All* button and then select the *Clear All* button. If you want to remove individual layers simply check the layers you want to remove and click OK.

When you add a new layer to the map it is added to the layer list in a default position. This may cause some problems with viewing layers on the map. Remember back to the earlier discussion on General GIS Concepts of the importance of layer ordering. Polygon layers should be on the bottom, followed by line layers, with point layers on top.

Reorder Layers   Close window

When you are done, press the apply changes button to set this drawing order.

⊤↑↓⊥ Annotation (6M)
⊤↑↓⊥ Provincial Boundary (6M)
⊤↑↓⊥ Transportation - Lines (6M)
⊤↑↓⊥ Water - Lines (6M)
⊤↑↓⊥ Forest Districts - Transparent
⊤↑↓⊥ Forest Districts - Color Themed
⊤↑↓⊥ Forest Districts - Outlined
⊤↑↓⊥ Water Polygons - Color Themed (6M)

[Apply Changes]

To adjust the map layer list click the **Change Order** button at the top of the Layer page. A new window will open with a list of the layers in their current order. Beside each layer name you will see 4 arrows. These arrows are used to move the layers up and down the list. The first arrow that points up with the bar above it is used to move the layer to very top of the list. The second arrow that points up is used to move the layer up one level in the list. The third arrow is used to move the layer down one level in the list. Finally, the fourth arrow that points down with a bar underneath is used to move the layer to the very bottom of the layer list.

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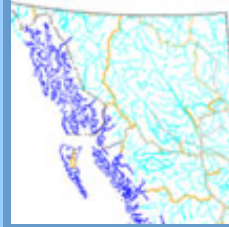
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General Map Instructions #10: Printing A Map

🖨 In order to print a map, choose **Print Map to PDF** (Portable Document Format) from the toolbar. You can create a map as a PDF document, which you can print or save.

The first step in creating your PDF is to specify your map title when prompted in the information panel. Next, select your paper size from the drop down menu. Choose 8.5" x 11" unless you have a larger format printer. Note: ensure you have a printer that will allow the chosen paper size. Finally, select the scale you would like your map printed at. If you like how your map looks on the screen then select Current Scale for the output. If you want the map to be printed at a precise scale, select the preset scale from the pull-down menu. See Scale section to review how scales work.

Create a PDF Map

Map Title:
Map created Fri Mar 12

Quality / Page Size:
Medium: Letter (8.5 x 11) ▾

Scale:
Current scale ▾

[OK]

The *Map Notes* panel allows you to add written details about the map that will be displayed below the map once printed.

To finish the process, click the *OK* button.

Please be patient while the application generates your map. Depending on the nature of your request, it could take anywhere from 10 seconds to a minute depending on the complexity and size of the map. Also, large high quality maps may be around 2MB, and so will take some time to download to your machine, depending upon the speed of your Internet connection.

Because the Ministry Applications print maps to Adobe PDF format you must have the free Adobe Acrobat Reader installed on your computer.

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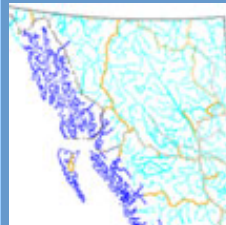
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Specific Functions #6: Email Map and Save Session

✉ Instead of creating a high quality PDF output map, saving the PDF document and emailing it to someone, you can quickly **email** just the map image to someone as a JPG image or PDF document. This is a useful tool to quickly send a map image or to output a stand-alone map image for a written report.

If you want a good quality output map, we strongly recommend you use the Print PDF tool in the toolbar, which includes a legend, title and numerous other features.

💾 Being able to email a map is a great feature, but sometimes you may want to actually save a mapping session and come back to it at a later time. For this reason, the **Save Session** tool was created and is very useful.

Your session has been saved. You can access your session again by using the following URL:

http://maps.bcgov/imf406/imf.jsp?session=6847

[Add to Favorites]

[E-mail this link]

For example, say you have a map with markup text and lines on it. If you click the save sessions tool, your session is automatically saved as a URL (or website address). You can write this address down, or you have the option of emailing the link to yourself or someone else. You can also add the link to your internet browsers favourite/bookmarks list by clicking on the *Add to Favourites* button. You can now recall your map with the same extent and markup that was there when you saved the map.

Note: your session information (or URL link) will be automatically deleted if the session becomes inactive for more than 90 days. However, as long as you keep using the saved mapping session, it will remain active indefinitely.

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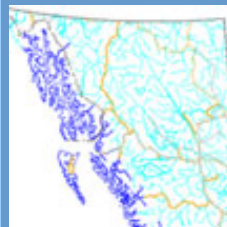
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General Map Instructions #6: View Attribute Information

The **Identify** tool allows you to get attribute information about a feature by clicking on it. You select the Identify tool to click on the feature whose attributes you want to examine.

The attributes for that feature are displayed in the information panel. If the information does not appear, make sure that the feature you are clicking on is part of the layer that is active.

☑ 🛈 Water
☑ 🛈 Water Bodies (filled polygons)

Suppose you are interested in the the length of a particular stream into which you have zoomed. First, you ensure that the layer with streams attributes is the active layer (see the previous lesson to do this). In this case, the 'Water' layer is made active.

The introduction to GIS Concepts section discussed layers and how features have attributes in a GIS

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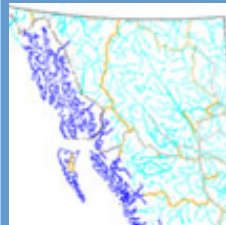
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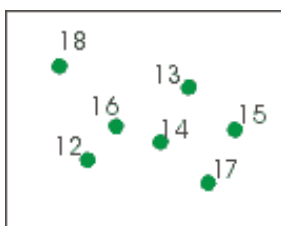### GIS Concept #1: Features Have Attributes

Imagine a tree. How would you keep track of and communicate information about this tree to other people who need to know all about it? You might use a database to keep track of what species it is, how old it is, how tall it is, how healthy it is, and any other attributes that are important. This tree is one record in a database. We call each category (i.e. tree height) a field.

ID	12
Type	Cedar
Age	110
Height	67

ID	Type	Age	Height
12	Cedar	110	67
13	Pine	135	80
14	Cedar	120	72
15	Cedar	120	70
16	Spruce	80	65
17	Spruce	75	60
18	Pine	125	73

Now imagine a grove of trees that you need to keep track of attributes for. Because we are now dealing with more than one tree, it becomes relevant where each tree is so we know what information relates to which tree.

We map the location of each tree and identify which attributes belong to which tree. This is the foundation of GIS. A GIS tells us where something is and what it is. Computers are synonymous with GIS, and using a computer we can have hundreds of fields (different attributes) for millions of records (trees).

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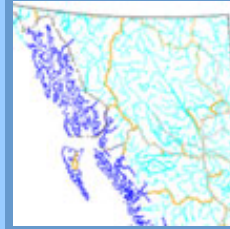
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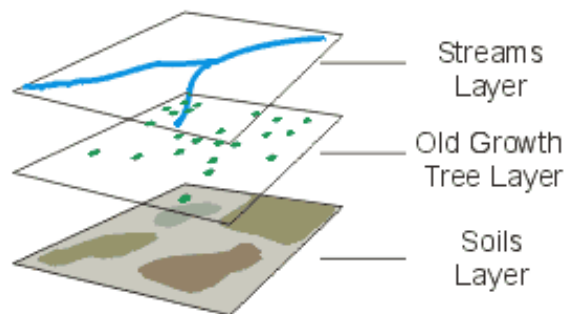➜ Step By Step Instructions
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GIS Concept #2: Information Is Separated Into Layers

We can also have other layers of information in our GIS. Our information on trees would constitute one layer of information. We could also have a layer with rivers and a layer with soil types. Any information can be represented as a layer.

A map represents the landscape in an artificial way. Vector layers represent features in one of several ways:

Points: A point is good for representing information in which it is necessary to show where a feature is, but its physical shape is not important (i.e. trees in the old growth tree layer).

Lines: A line is suitable to represent many real world features (i.e. the rivers in the river layer).

Polygons: Don't be intimidated by the name. It is really just a solid multi-sided shape. When you see a polygon, remember that everything inside the boundary has the attributes associated with the record. (i.e. soil types in the soils layer)

You might hear people talk about coverage's, themes, or shapefiles. All these terms are other names for layers of information.

With individual layers we can conduct analysis between layers and only display layers of interest.

As you work with the Ministry Map Service Applications you will be able to turn different layers on and off as you desire.

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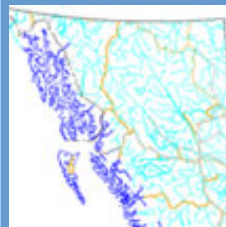
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Scale

When you zoom in, the scale of the map increases (it gets larger). A large-scale map covers a smaller land area than a small-scale map. A map that is zoomed in to a small town is large scale, while a map of Canada is small scale.

This is rather counterintuitive. In fact, it confuses many people.

Explanation: Scale is a ratio. 1:10 means that every unit on the map represents ten units in the real world. Or in this case the map is one-tenth the size of the real world. Because its a ratio it doesn't matter if the units are centimeters, miles… anything. If you have a 1: 100 000 map, the map is 1/100 000 the size of the actual place. 1/100 000 is a much smaller fraction, a.k.a. ratio, a.k.a. scale than 1:10.

Just remember this…

Larger scale equals greater detail. That's all you really need to know.

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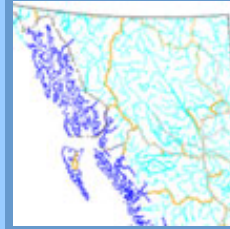
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General Map Instructions #5: Changing the Layer Symbology

🗺 Some layers allow you to change the symbology of the layer, including colour, transparency, scale dependencies, symbol type, symbol size, line type, line size, and label properties. Click on the rainbow coloured prism icon found at the end of the layer name; the **Symbolize Layer** icon. Depending on the layer type (point, line, or polygon) a menu will open in the information panel.

Color selector:

Click on the color selector to set the symbol's main color. To use the color selector to set the symbol's outline color, first click on the entry box or the named link for the color that you wish to change, then click the color selector.

Point Symbolization

Fill color: #00FF00

Fill transparency: 0% (opaque) ▾

Outline color: #000000

Symbol type: circle ▾

Symbol size: 8 points ▾

Label Symbolization

Label color: #000000

Label field: No labels ▾

Font size: 10 points ▾

Font type: regular ▾

Maximum scale:

For **Point layers** you can change the point symbolization and the label symbolization. The point symbolization includes the fill colour, fill transparency, outline colour, symbol type, and symbol size.

To change the *colour*, first click on the title or the current colour box that displays the colour and colour number. Next, click on the new colour in the colour selector at the top. Your new selection will appear in the textbox with the colour number.

Transparency ranges from 0% to 100%. The default setting is 0% meaning the point is a solid colour. If you set the transparency at 100%, the point will be invisible. Changing the transparency to a range in the middle simply means that features underneath the point layer will become more visible the closer you set it to 100%.

You can change the *symbol type* by clicking on the pull-down menu and selecting a new option. Choose between circle, cross, star, square, or triangle.

The *symbol size* ranges from 6 points to 16 points and is set by selecting the desired size from the

pull-down menu.

You can choose to have your point layer display *labels* by selecting the label field from the pull-down menu. Once you have selected the field to label the points with, adjust the colour, font size, and font type following the same methods as you did for setting the point symbolization.

The final feature that **Label Symbolization** allows you to set is the *maximum scale*. Labels are a useful way of contributing further information about a layer, however, used improperly they can have a negative effect by cluttering the map. For this reason, you should set the *maximum scale* of the labels to make sure you aren't inhibiting important information from the map view. To set the scale, enter the scale/extent at which you want the labels to be turned off. For example, if you want the labels to display no higher than 1:5000, enter 5000 in the textbox. If you do want the labels to display at all scales/extents, simply leave the textbox blank.

Once you are finished making your layer symbology changes, click the submit button. If you want to return the layer symbology to the original default settings, click the revert button.

For **Line Layers**, the symbolization works the same as the points layer with a few minor exceptions. Instead of symbol type you can set the line type to either solid, dash, dot, dash dot, or dash dot dot. As well, the line thickness can be set to a range between 1 pixel and 4 pixels.

For **Polygon Layers**, follow the same methods as points. A few differences with polygons is that you may set the fill type, which you can choose from a solid fill, backward diagonal, forward diagonal, cross, diagonal cross, horizontal, or vertical. You may also set different tranparencies for the fill and outline, as well as the outline thickness.

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Specific Functions #1: Identify Visible and Identify Radius

The *Identify* tool displays attributes for the active layer and is one of the most commonly used tools. However, if you were interested in finding out everything you can about a particular location on the map, it would be frustrating to have to make active and identify each individual layer.
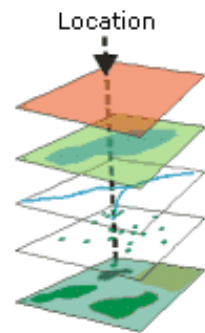
For this reason, we offer you the **Identify Visible** tool.

It is simple and powerful. When you click on a point on the map, it drills down through the data and gives you information for all the layers turned on at that location.

Some sites may have enabled the ability to status an area, or determine the overlap between a user input polygon and existing layers stored in Ministry's corporate warehouse.

ⓘ The **Identify Radius** tool allows users to get attribute information from a layer within a defined circle.

Select the *Identify Radius* tool and click on a location on the map to mark a central point. A menu will open in the information panel on the right. Select the layer from the pull down menu on which you want to identify features (available layers are those both visible and selectable). Next enter a distance and units and click OK. The results will be displayed in the information window, and a circle will mark the defined area on the map.

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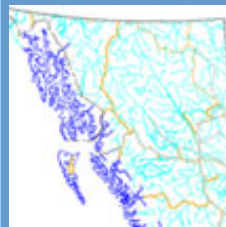Government of British Columbia

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Specific Functions #3: Buffer

⊞ Use the **Select by Buffer** tool to generate a listing of features based on a selection.

Before activating the Select by Buffer tool, ensure that you have a *feature set selected*. With a feature set selected click the Select by Buffer tool and choose from the drop-down menu from which layer set you would like to select features. Next specify the buffer distance. If you have multiple layers with selected features you will be required to choose which layers you would like to select features from in the drop-down menu. Click OK to execute your buffered selection.

Select features from

Water Polygons - Color Themed (6M) ▾

that are within

1   kilometers ▾

of the selected features of

Water Polygons - Color Themed (6M) ▾

The number of selected features will be returned to you in the information panel. There are a number of options that you can choose from if you so desire.
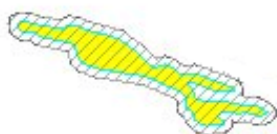
Click the **New** button to set this new selection as your selection set default. This means that if you do another buffer selection it will start from the selection you just made and not the previous selection. Click the **Add** button to add your new selection to the previous selection set. Basically this means you are joining your selections together to form a new one. Click the **Subtract** button to remove the new selected features from the previous selected features. Click the **Unchanged** button to leave the selection set as it was. In other words, the selection set will ignore the features you just selected. Click the **Clear** button to remove all the selected features in the layer.
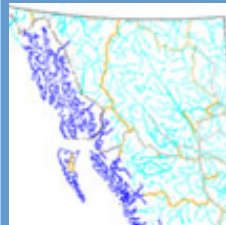
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Specific Functions #4: Measuring Distance, Measuring Area

Perhaps you want to measure the distance of a short kayak trip. You can measure distance on maps using the **Measure** tool.

Measure Tool

This document shows the positions of the points that you have clicked on the map using the measure tool, and reports the great circle distance between them.

Position	123°23' W 48°24' N
Position	123°20' W 48°25' N
Distance	4,135.6 m
True Course	67.0°

Clear Points

After you have made the tool active, click on the desired start location. The latitude and longitude coordinates of your starting point are automatically registered in the information panel. By adding another node you complete one line, and the position of the second node and the distance between the two nodes are given.

If you are interested in the length of a line with multiple stops (more nodes), simply keep adding nodes. The measure distance tool gives you not only the map coordinates and the distance between stops, but also the entire distance or length of your line.

If you make a mistake and wish to erase the points, click the *Clear Points* button found in the information panel.

In this example you can see that three stops were added. Once you have drawn the route, you can even print the map.

The **Measure Area** tool lets you calculate the area inside a polygon.

By selecting the Measure Area button you are able to define the vertices (corners) of a polygon by clicking on the map. The Measure Area tool requires that you specify a minimum of three vertices before the area can be calculated. The Measure Area tool allows you produce an accurate estimation of any polygon's area, as you are able to add as many vertices as you deem necessary to represent the area to be calculated. The calculated area is returned in the Information Panel with a record of the all the vertices' coordinates.

Area	1,160.7 hectares
Point 1:	123°23' W 48°23' N
Point 2:	123°19' W 48°24' N
Point 3:	123°20' W 48°25' N
Point 4:	123°23' W 48°25' N

Clear Points

To clear the points use the *Clear Points* button in the Information Panel.

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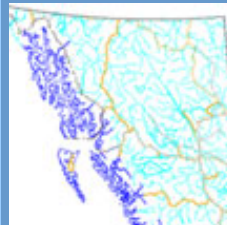Government of British Columbia

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Specific Functions #5: Markup Tools

The *Markup tools* are tools that allow you to add your own information to maps. You can add points, lines, rectangles, polygons, labels, latitude and longitude coordinates, and custom text to your maps for printing. To clear selective markup graphics use the Clear Markup tool, to clear all markup graphics use the Clear selection tool.

The **Point Markup** tool allows you to draw points on the map. To add a point, make the Add Point to Map tool active, click on the desired map location and a point will be added. Use the tool to add multiple points to your map viewer.

The **Line Markup** tool allows users to draw lines on the map. Make the Add Line to Map tool active and click on the map to mark a starting point for your line. Click a second point on the map to draw the line. Add as many segments to the line as you desire and when you are satisfied with your map click OK to add the line to the map. Click the Clear button at anytime to erase your line.

The **Rectangle Markup** tool allows you to draw a semi-transparent rectangle on the map. After making the Add Rectangle to Map tool active, click and hold the mouse button down, dragging a box to the desired size of your rectangle, release the mouse button to add the graphic to your view.

The **Polygon Markup** tool allows users more flexibility than the rectangle markup tool. Please note that a polygon has to have at least 3 points. Users can draw polygons on the map by clicking once on the map to mark a start/end point for the polygon. Next add at least 2 more points by clicking on the map in the desired location. Once you have finished adding points to your polygon, click the OK button to add it to the map. Click the Clear button at anytime to erase your polygon.

The **Text Markup** tool allows users to add text directly to the map. Make the Add Text to Map tool active, and click on your desired location on the map. Type in the text as you want it to appear on the map in the text box, and then click OK to add it to the map.

Lake

The **Label Markup** tool allows you to automatically label features on the map. Select the Add Label to Map tool and click on a feature that you want to label. A new window will appear in the Information Panel. Select the layer that you want to label and the field in which the text will be drawn from, then click OK. Also note that you have the option of selecting the font colour and size for your label.

The **Grid Markup** tool places a grid on the map. Select the tool, and the Information Panel prompts you to specify the number of horizontal and vertical grid cells (up to 10). The grid covers the area of the present map extent, even as you zoom, pan or otherwise navigate around the map.

The **XY Location** tool places a longitude and latitude coordinate on the map. Multiple locations can be added to your map view, and each location is marked with a star.

123°23' W, 48°24' N

The **Erase Markup** tool allows you to delete selective markup that you have made on the map. Select the tool and click once on any added text or graphic to erase the selected markup. Click, holding down the mouse, and drag a box around added text or graphics to erase multiple graphics at one time. To erase all of the text and graphics in a map view choose the Clear Selection Tool.

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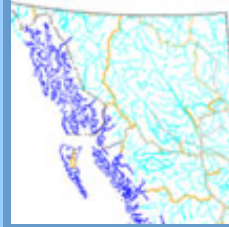
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Specific Functions #7: Upload Shapefile and Extract to Excel

Use the **Upload Shapefile** function to add a shapefile (layer) from your computer to the map. In order to successfully add a layer, you must have a shapefile (*.shp) and database file (*.dbf). You can upload a layer to the map as long as it is under 1 MB.

Click the upload shapefile tool found in the analytical toolset. From the menu in the information panel, use the Browse button to locate the database file on your computer. Next, locate the shapefile on your computer. Make sure you have selected the proper file extension for each box - attribute file as *.dbf and spatial file as *.shp.

Enter a descriptive title for your layer. This title will be displayed in the layer list and legend so make sure it makes sense and does not repeat an existing layer name already on the map. Choose a symbol colour from the pull-down menu. Finally, choose the layer position from the bottom pull-down menu. The layer position will reflect how your new shapefile will be drawn on the map in conjunction with the other layers. Click OK to start the upload.

Shapefile Attribute File (**dbf**):
[   ] [Browse...]

Shapefile Spatial File (**shp**):
[   ] [Browse...]

Use the **Extract to Excel** function to output a listing of layer information into an Excel file.

Layer name
[Provincial Boundary (6M)   ▼]

Within visible extent only?
[Yes ▼]

Selected features only?
[No ▼]

Clicking the Extract to Excel tool will allow you to select the layer from which you would like to download, the extent of the data and whether you are only interested in downloading selected features. Once you have specified the Extract Layer parameters, click OK. You are able to download the extracted information as a zip file, or open the Excel file directly by clicking on the appropriate hyperlinks found in the Information Panel.

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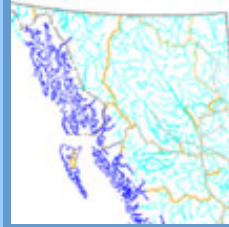Government of British Columbia

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## Specific Functions #8: Spatial Overlay Engine Tools

The **Spatial Overlay Engine** tools allow you to specify a location on the map—a point, a line, or a polygon—and search through dozens of layers of mapping data for information about features that coincide spatially with that location. Optionally, you can specify an adjacency buffer distance that widens the search around your location by the buffer distance. It may be helpful to think of a cookie cutter, cutting through the layers of data. Specifying a larger adjacency buffer is like using a larger cookie cutter.

Query point recorded.
Adjacency buffer:
0.0
Report options:
Show shape on map ▾
Submit Query

🖱 To use the **Spatial Overlay Engine Point** tool, click a location on the map and enter an Adjacency Buffer distance. In the Report Options, select either *Show shape on map* to see the point you specified and the buffer distance, or choose not to show the shape on the map, leaving it blank.

Adjacency Buffer

Polygonal Shape
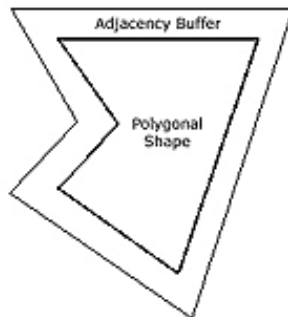
Click on the *Submit Query* button to begin your search. Within a short period of time, iMAPBC will display a Spatial Overlay Engine report in a new browser window. Scroll through the report, and you will find all kinds of valuable information about that location you clicked. Instead of sifting through dozens of thematic paper maps for this information, you have generated all of this information in iMAPBC with a few simple steps.

🖱 🖱 The **Spatial Overlay Engine line** and **polygon** tools work in exactly the same way as the Point tool, but they allow you to specify different shapes for your search location. The line tool allows you to search along a linear feature such as a road or a river. The polygon tool allows you to specify a larger area, such as a lot or an administrative area. You may draw lines and polygons on the map in the same way as you drew these shapes with the Markup Tools.

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GIS Concept #1: Features Have Attributes

Imagine a tree. How would you keep track of and communicate information about this tree to other people who need to know all about it? You might use a database to keep track of what species it is, how old it is, how tall it is, how healthy it is, and any other attributes that are important. This tree is one record in a database. We call each category (i.e. tree height) a field.
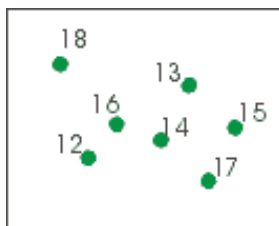
ID	12
Type	Cedar
Age	110
Height	67

ID	Type	Age	Height
12	Cedar	110	67
13	Pine	135	80
14	Cedar	120	72
15	Cedar	120	70
16	Spruce	80	65
17	Spruce	75	60
18	Pine	125	73

Now imagine a grove of trees that you need to keep track of attributes for. Because we are now dealing with more than one tree, it becomes relevant where each tree is so we know what information relates to which tree.

We map the location of each tree and identify which attributes belong to which tree. This is the foundation of GIS. A GIS tells us where something is and what it is. Computers are synonymous with GIS, and using a computer we can have hundreds of fields (different attributes) for millions of records (trees).

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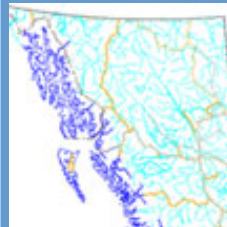
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Scale

When you zoom in, the scale of the map increases (it gets larger). A large-scale map covers a smaller land area than a small-scale map. A map that is zoomed in to a small town is large scale, while a map of Canada is small scale.

This is rather counterintuitive. In fact, it confuses many people.

Explanation: Scale is a ratio. 1:10 means that every unit on the map represents ten units in the real world. Or in this case the map is one-tenth the size of the real world. Because its a ratio it doesn't matter if the units are centimeters, miles… anything. If you have a 1: 100 000 map, the map is 1/100 000 the size of the actual place. 1/100 000 is a much smaller fraction, a.k.a. ratio, a.k.a. scale than 1:10.

Just remember this…

Larger scale equals greater detail. That's all you really need to know.

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404 The page cannot be found

The Ministry of Sustainable Resource Management websites are undergoing changes. To better organize the content of our websites and to restructure the information presented, many pages have either been moved or removed altogether.

Please view the Site Map below to find the information you require, or use the search facility available at the top of the main Ministry page. You may also Contact us for a direct inquiry.

Thank you.

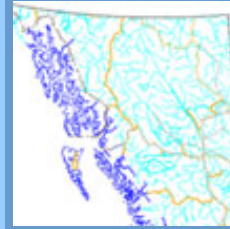|	
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Crown Land and Resource Registries	River Forecast Centre
Mapping and Geomatics	Working Forest
Corporate Land and Resource Governance	Integrated Land and Resource Registry Project
Land Title Office	Land and Resource Data
Conservation Data Centre	Wildeyes Poster

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GIS Concept #2: Information Is Separated Into Layers

We can also have other layers of information in our GIS. Our information on trees would constitute one layer of information. We could also have a layer with rivers and a layer with soil types. Any information can be represented as a layer.

A map represents the landscape in an artificial way. Vector layers represent features in one of several ways:

Points: A point is good for representing information in which it is necessary to show where a feature is, but its physical shape is not important (i.e. trees in the old growth tree layer).

Lines: A line is suitable to represent many real world features (i.e. the rivers in the river layer).

Polygons: Don't be intimidated by the name. It is really just a solid multi-sided shape. When you see a polygon, remember that everything inside the boundary has the attributes associated with the record. (i.e. soil types in the soils layer)

You might hear people talk about coverage's, themes, or shapefiles. All these terms are other names for layers of information.

With individual layers we can conduct analysis between layers and only display layers of interest.

As you work with the Ministry Applications you will be able to turn different layers on and off as you desire.

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### General Map Instructions #1: Become Familiar With The Map Window

When you open the Ministry Application through your Internet Explorer browser, you will see a new window that looks similar to the example you see here.

Roll your cursor over the interface >>

The main window is the **Map Window**. This is where the map is displayed. Beside it is the **Information Panel**, which displays information about the map and lets you work with map layers. Specifically, the Information Panel displays the legend, visible and active layers, and provides information about the map.

At the top of the viewer you can see the **Function Bar** and the **Toolbar**. You will use the Function bar and the Toolbar to navigate around the map, ask questions of it, and otherwise interact with the information. Scale, active layer, and active tool information are all found below the map window.

If you are feeling lost already… don't worry. Everything will be described in depth in the coming pages.
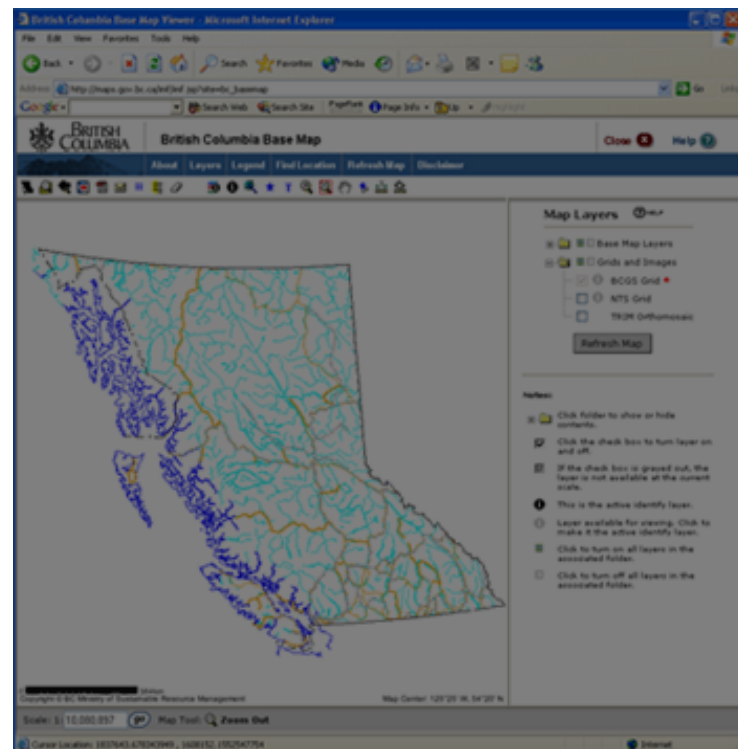
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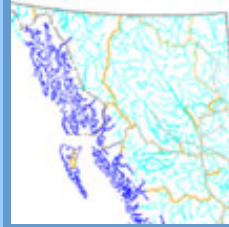
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General Map Instructions #2: Navigating Around Maps

With the Ministry Applications you can look at a specific area of interest. You can move around the map using the pan tool. The **Pan** tool lets you slide around to different parts of the map.

Suppose you want to go north (up the map). Take the Pan tool and grab (press and hold down the mouse button) onto the map pulling it down. Whatever part of the map you grab with the little hand will end up where you let go of the mouse button. Just like in real life. This works for moving any direction on the map.

The **Zoom** tools are unique to digital maps. They are very much like using an actual magnifying glass, as the icons imply.

The magnifying glass with the little plus sign lets you **Zoom In**, while the one with the little minus sign lets you **Zoom Out**. There are a couple of ways to use these tools.

First, click on one of them to select it, then go somewhere on the map and press the left mouse button. If it is the *Zoom In* tool the map zooms in. The center of the new map is wherever on the map you clicked the mouse button. The *Zoom Out* tool zooms out the same way.

Second, you can zoom in more precisely by pressing the mouse button somewhere on the map, holding it down, and dragging a box. When you let go of the mouse button the new map extent will be the area defined by the box. When zooming out, the area defined by the box becomes the new map extent.

Click here for a relevant, but not essential, discussion on scale.

One possible method of zooming uses the scale displayed below the map window. Enter your desired map scale, press Go and the map automatically zooms to that scale.

1: [100,000] [Go]

Please note that the scale that appears on this viewer is for map navigation only, and is not necessarily accurate. Without information about the size of your monitor or display device, it is impossible for us to accurately provide a ratio scale.

Error is most pronounced if you are operating a large monitor (or a projection device) running at a very low resolution, or if you are running a small monitor at a very high resolution. A 17" monitor running at a resolution of 800x600 or 1024x768 is much better represented by the denoted ratio scale.

Some maps have limits on the scales at which you can view the data. As well, some layers and/or map labels may only appear at certain scales. We could go into it, but we'll spare you. For example, you listen to a stereo within a certain range. At a certain volume you can't hear the music any clearer if you make it louder, and at a certain quietness you can't hear it at all, no matter how much lower you turn the volume knob.

There are a few other functions that make navigating around maps easier.

The first is the **Previous Extent** tool. It is available either as a button or as a selection from the function menu. It jumps back to the previous map extent.

Another operation from the function menu is **Zoom to Full Extent**. It zooms you out to the maximum extent of the map.

Zoom to Active Layer Extent zooms to the maximum extent of the active layer and is found in the map function drop-down menu.

Next, you will find out how to make a layer active.

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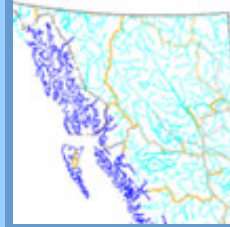
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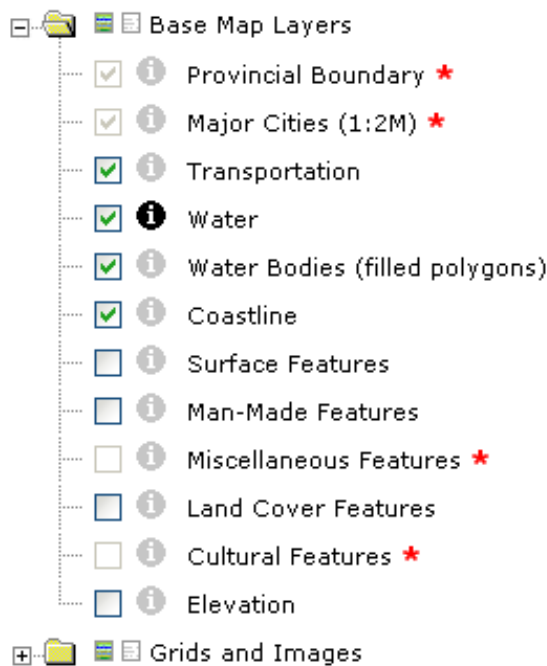Ministry of Sustainable Resource Management

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General Map Instructions #3: Turning Layers On And Off, Make Layers Active

Hopefully you've had a chance to take a look at the introduction to GIS Concepts section where we discussed layers.

Because there are often many layers available for a map, map layers are organized into related folders. When you initially open the map, some folders may be open and some may be closed. Likewise, some layers may be turned on while others may be turned off by default.

To open a closed folder, click on it. A list of all layers contained within the folder will be shown. Similarly, you can click on an open folder to close it. Notice that opening and closing folders doesn't turn layers on or off; it simply helps you stay organized. Next to the folder icon you will see a small colored rectangle and a small grey and white rectangle. To display all available layers in a folder, click the small colored rectangle. Clicking on the grey and white rectangle turns off all layers in the folder. It doesn't matter if a folder is open or closed when you do this.

You can turn an individual layer on or off by clicking on the adjacent checkbox and then clicking on the **Refresh Map** button. A layer is 'on' (displayed on the map) when there is a check in its checkbox. Some layers are only available at certain scales. Layers that are unavailable at a given scale are shown with a red asterisk next to the layer name. Clicking the red asterisk next to the name of an unavailable layer zooms you to the closest scale at which the layer is available.

A layer is made 'Active' by clicking on the icon adjacent to a layer name. A dark blue icon denotes the active layer, and its name is displayed in the area below the map window. You can only have one active layer.

What the heck does this mean? It means that the spotlight is on this layer. In other words, this is our way of telling the computer that this is the layer in which we are interested. How is this relevant, you

ask?

Wow, you ask a lot of questions. Read on.

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