Map composition (G17)

INTREPID's powerful Map Composition and Map Print¹ tools enable you to produce a variety of maps ranging from maps of a publishable standard to quick printouts for internal use. This guided tour will conduct you through a simple map composition and printing operation.



An example of simple map output item composed on the screen and ready to print.

Overview



The Map Composition tool enables you to create map representing INTREPID datasets.

- You can create map compositions using any INTREPID dataset (line, point, polygon, raster, and polygon)
- You can add powerful geolocated enhancements that include:
 - Contouring (including Z colour)
 - Image (raster) enhancements (sun angle, drapes, equalisation, etc)
- The tool supports a complete range of annotation including:
 - Text
 - North arrows, Title blocks, Scale bars, Legends
 - Drawing
- Map Composition provides a complete range of paper management options including
 - Dividing the map into sheets,
 - Fixed size/variable scale or fixed scale/variable size options.

 $^{1.^7}$ Map Print is available for the *Windows* version only. Under *UNIX* you print to a file, then send the file to your printer.

Parallel interactive tool and programming language

Map Composition has two elements that can work in parallel:

- An interactive Map Composition tool,
- A block-structured map language called *MAPCOMP*.

The interactive tool is powerful interactive 'what you see is what you get' composition tool. You can print your compositions directly from the interactive tool, or automatically save their specifications in *MAPCOMP* language.

The *MAPCOMP* language forms the basis for an extremely powerful batch system with complete facilities for detailed, professional quality maps. You can create or edit *MAPCOMP* files using any text editor. You can print directly from a *MAPCOMP* file.

Printer output

Under UNIX, Map Composition can create output for PostScript, HP-GL and HP-GL/2 printers as well as TIFF and Windows output formats.

Under Windows Print Map supports any appropriate printer for which there is a *Windows* driver. You can also print to file in any of the *UNIX* output formats.

Context of this guided tour

In the context of your data processing cycle, this tour represents the production of an illustration of a dataset for use in an internal report or at a meeting.

Location of sample data for Guided Tours

We provide two complete sets of sample datasets, one in INTREPID format and one in *Geosoft* format. INTREPID works equally well with both formats. When you want to open a dataset, navigate to the directory containing the required data format.

Where *install_path* is the path of your INTREPID installation, the project directories for the *Guided Tours* sample data are

install_path\sample_data\guided_tours\intrepid_datasets and install_path\sample_data\guided_tours\geosoft_datasets.

For example, if INTREPID is installed in C:\Program Files\Intrepid\Intrepid4.5.nnn, then you can find the INTREPID format sample data at C:\Program Files\Intrepid\Intrepid4.5.nnn\sample_data\ guided_tours\intrepid_datasets

This is the default location for the sample data. If you have installed INTREPID normally, the data resides there. If you have installed INTREPID elsewhere, the exercises will work just as well. Just use the appropriate pathnames.

For more information about installing the sample data, see "Sample datasets installing, locating, naming" in INTREPID Guided Tours Introduction (G01)

For a more detailed description of INTREPID datasets, see Introduction to the INTREPID database (G20). For even more detail, see INTREPID database, file and data structures (R05).

Should you complete this guided tour?



This guided tour is intended for introductory level users. It contains full detailed instructions. You may omit the tour if you are not interested in the INTREPID Map Composition tool.

What you will do

Flowchart Summary



Positioning objects in a composition

On several occasions during this tour you will need to position new objects in the **Map Composition** window. You may also need to move objects in the window. The procedure differs slightly between the versions and we describe it here. Whenever you need to position a new object, use this procedure.

Positioning new objects

After specifying a new object to be included:

1 *If you are using the Windows version*, hold down the left mouse button. (Do not do this if you are using the *UNIX* version– INTREPID will automatically attach the frame.)

INTREPID will attach a rectangular frame to the mouse pointer.

- 2 Position the frame where you require the object.
- **3** If you are using the Windows version, release the left mouse button. If you are using the UNIX version, click the left mouse button.
- **4** INTREPID displays the object in the frame where you have positioned it.

Moving existing objects

You can easily move an existing object in your map:

- 1 Select (click) the object. INTREPID displays the name of the selected object at the bottom of the window. (If there are two objects occupying the position you clicked, INTREPID displays a pop-up box showing their names. Choose the object you require from the pop-up box.)
- 2 If you are using the UNIX version: Drag the object to the new position using the right mouse button, then release the button.

If you are using the Windows version: Hold down CTRL and drag the object to the new position using the left mouse button, release the mouse button then release CTRL.

Steps to follow

1

Creating a composition

Launch the Map Composition tool



Start the Project Manager. Navigate to the directory install_path\sample_data\guided_tours\intrepid_datasets. Start the Map Composition tool.

See Locating datasets, viewing, statistics, launching tools (G02) for instructions about navigating to different directories.

🖌 Pro	ject Mana	iger											- 🗆 ×
File	Dataset	Editors	Level	Grid	Display	Print	Filtering	Radiometrics	Gravity	Interpretation	Utility	Betas	
	DRIVERS ibmtools icons Intrepid 	ithm es J Jook	*		nomD_gr nomL_gri h06_1.job h07_1.job h09_1.job h09_2.job h10_1.job h10_1.job	File id.PD.e	e name Irs Irs			File ty Intrepid gr Intrepid jo Intrepid jo Intrepid jo Intrepid jo Intrepid jo Intrepid jo	pe id file ib file ib file ib file ib file ib file		
H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-H-	ddf exam filters font gdad help	ples s			h11_2.job h13_1.job h13_2.job					Intrepid jo Intrepid jo Intrepid jo	ib file ib file ib file		_
	- intag kerne - int - int kynxd: - intanu - intanu - intag	es Il ata Jals		:	Type Bize _ast Modif _ocation	fied [
	iemp itemp tutoria Program	Files	*										

Choose Compose Hardcopy from the Printing menu.

🗾 Pr	oject Man	ager							
File	Dataset	Editors	Level	Grid	Display	Print	Filtering	Radiom	etrics
÷	DRIVER	:8				Co	mpose Ha	rdcopy	
E	ibmtools	з		📑 a	nomD_gri	Pri	nt Hardcop	ру	μ-

INTREPID displays the Map Composition tool window.

1	ntrep	id Map Com	position v3.	7 (rele	ase) cut 179		
File	Edit	Geographic	Annotation	View	Help	-	
							Zoom In
							Zoom Out
Intre	pid M	apcomposi	tion Tool				



You can specify the whole composition in this guided tour using the map specification file mlevel_grid.map. If you want to use it, load it into the Map Composition tool using Load Map from the File menu then go to Step 13. Note that map specification files have a different format from task specification (job) file short cuts. They replace and extend the function of job files in the Map Composition and Map Print tools.

Set the page size **2** Set the page size to A4 portrait and the viewing scale to 4:1.

From the File menu choose Page Size. INTREPID displays the Page Size dialog box. Choose Size. INTREPID displays the Standard Page Sizes dialog box. Select (click) A4 then choose Accept in the Standard Page Sizes dialog box.

Turn on (tick) the **Border** setting. This will draw a visible border around your map.

Click OK to close the **Page Size** dialog box.

🌌 Intrepid Map Composition v3.7 (release)	Intrepid Map Composition v3.7 (
File Edit Geographic Annotation View Help Load Map New Map Insert Map SaveAs Map Page Size Print Quit	Portrait Width 210.0 (mm) Height 297.0 (mm) Size ○ Portrait ○ Landscape ☑ Margin Edit □ Border Edit	Page Sizes
	OK Cancel	Customise

3

From the scale cascade in the **View** menu choose **Scale 2:1** (zoom level) INTREPID clearly displays the outline of your A4 page in the **Map Composition** window.

Intrepid Map Composition +3.7 (release) co	ıt 179	Eile Edit Geographic	l MapCompositio	n Tool V3.1d 🔹 🔺
File Edit Geographic Annotation View Help			Annotation 1	
Grid-> I	•			
Scale->	16:1			
	8:1			
	2:1			
	✓ 1:1			7
	1:2			
	1:4			
		Intrepid Mapcomposition Too	4	ZoomOut: 4

Create a pseudocolouvr map object **3** Specify a pseudocolour image as the dataset for the composition.

From the **Geographic** menu choose **New PseudocolourImage.** INTREPID displays the **Pseudocolour** dialog box.

_		Intrepid MapComposition T	o
File	Edit	Geographic Annotation View	
		New Data Box	PseudoColour
		New Metre Ticks	Image :
		New Lat/Long Ticks	Legend :
		New PointPlot	Applu Cancel
		New PathPlot	Tippiy Calibor
		New PolygonPlot	
		New StackProfile	
		New GreyScaleImage	
		New PseudoColourImage	
		New SunAngleImage	
		New ThreeGunMi×Image	
		New FixedColourImage	
		New Drapelmage	
		New TernaryDrapeImage	
		New Contour	
		New ColourContour	

Specify a grid dataset **4** Specify **mlevel_grid** as the grid dataset (image) for the composition.

Choose **Image** from the **Pseudocolour** dialog box. INTREPID displays the **Load Image** dialog box.

	Image	
File <u>Name:</u> meyel_grid.GRID match_grid.GRIDs match_grid.GRIDs match_grid.GRIDs meyel_grid.GRIDs meyel_grid.3.GRID meyel_grid.3.PD.ers pass_grid.GRID	Directories: d'untrepid/tutorials/data C dt: MITREPID tutorials data ebagoola_B ebagoola_rad	OK Cancel
List Files of <u>Type</u> : Data (*GRID;*.ers) 👲	Dri <u>v</u> es:	Net <u>w</u> ork

Select the **mlevel_grid** grid dataset and choose **OK**.

INTREPID displays the path to the grid dataset in the **Pseudocolour** dialog box.

Create a legend 5 Create a colour legend for the composition and save it with the name mlevel grid.leg.

Choose Legend from the Pseudocolour dialog box. INTREPID displays the Legend Editor window.

Intrepid MapComposition Tool V3.2b	
File ZField	J.
ZField : D:/intrepid/tutorials/data/mlevel_gri Legend : untitled2	d
Levels : 256	
Style : MinMax High Clin	
1994.24	
1990.80	
1987.24	
1983.80	
1980.24	
1976.67	
1973.24	
1969.67	
1966.24	
1962.67	
1959.10	
Low Clip OK	

From the **ZField** menu choose **Histogram Enhancement**. INTREPID displays the **Stretch Type** dialog box. Select **PLHEQ**.

File ZField	Intrepid MapComposition Stretch Type
ZField Specify ZField /el_	C None
Levels Histogram Enhancement	C Linear Clip
MinMax	PLHEQ
	Stretch Parameters BinWidth: .3
	ОК

The PLHEQ (Piecewise Linear Histogram Equalisation) enhancement assigns data ranges for the lookup table such that each colour or shade in the lookup table will have a similar distribution of area on a map.

Choose **OK**. INTREPID recomputes the data ranges for the lookup table, and redisplays the legend with the new ranges.

From the **File** menu choose **Save As**. INTREPID displays the **Save Legend** dialog box. Ensure that the current directory is

install_path\sample_data\guided_tours\intrepid_datasets. Type
mlevel_grid1 in the File Name text box. You don't need to type the .leg
notation. INTREPID will insert it automatically.

		Cours Lange d
		Save Legenu
File ZField New AE Load SaveAs str	File <u>Name:</u> [mlevel_grid1] [mlevel_grid.leg untitled.leg *	Directories: d'Aintrepid'Iutorials\data d'A in INTREPID butorials data e bagoola_A e bagoola_B bebagoola_rad
	List Files of <u>Type:</u> Data (*.leg)	Drives:

Choose **OK** in the **Save Legend** dialog box. INTREPID displays your specifications at the top of the **Legend Editor** window.

Intrepid MapComposition Tool V3.2beta9 File ZField ZField ZField : D:/intrepid/tutorials/data/mlevel_grid Legend : D:/intrepid/tutorials/data/mlevel_grid1 Levels : 236 Style : PLHEQ stretch

Choose **OK** in the **Legend Editor** window. INTREPID will close the Legend Editor and display the path to the legend file in the **Pseudocolour** dialog box.



Place the pseudo-colour map object on the page 6 Place the dataset into the composition in an appropriate position.

Choose **Apply** in the **Pseudocolour** dialog box.

Place the grid within the A4 page frame as shown in the following illustration. Note that you need to position the object in the window using the mouse before INTREPID displays it. See Positioning objects in a composition for full instructions about placing new objects in a composition.



🛾 🛛 Back 🛛 🕨

Specify the scale

7 Change the scale of the dataset to 1:100000, automatically adjusting the size of the box that contains it.

Select (click) the image display in the **Map Composition** window. The message 'Selected Object: Data' will appear in the lower left corner of the window. From the Edit menu choose Edit Object

INTREPID displays the **Select Object to Edit** dialog box.

File	Edit Geographic Annotatio	n Select Object To Ed
	Undo	Data 🖈
	Cut	PseudoColour
	Step Forward Step Back Bring To Front Send To Back	
	Create Group Dissolve Group Reorder Create Aligning Group-> →	-
	VSpace HSpace	4
	Open Group Close Group	Ok Cancel
	Edit Detail	
	Edit Object	

3

Select (click) Data then choose OK.

(Alternatively you can double click the grid display to select it and display the **Select Object to Edit** dialog box).

INTREPID displays the **Data Extents** dialog box.

Origin & Extents are in O Lat/Long	n units of : Map Projection	
Origin	Extent	
740001.150000	11970.000000	
8408029.770000	11970.000000	
Calculate from Data		
Projection	: TMAMG54	
Datum	: AGD66	
Layo	ut	
UK	Cancel	

Choose Layout.

INTREPID displays the **Customise Data Box Layout** dialog box. In this exercise you will specify a scale and INTREPID will automatically adjust the size of the image on the screen to fit the scale. Select the **Fixed Scale (Single Sheet)** option button.

Customise Data Box Layout				
Fixed Size (Single Sheet)				
Fixed Scale (Single Sheet)				
C Use Map Series				
Customise				
Size (mm) 100.0 x 100.0 MapScale 1:119200				
OK Cancel				

Map composition (G17) 11

| | Back | 🕨

Choose **Customise**. INTREPID displays the **Set Scale** dialog box. Change the map scale value to 100000.

Data Box Map Scale 1: 100000				
OK Cancel				

Choose **OK** in the **Set Scale**, **Customise Data Box Layout** and finally **Data Extents** dialog boxes.

INTREPID displays the grid at its new size.



Move the data object (image) slightly to centre it if necessary (See Positioning objects in a composition for full instructions about moving objects).

Place tick marks on the map object 8

Specify and apply latitude and longitude tick marks and edge labels. Specify tick marks on the image every 2 minutes and labels outside the data object (grid display) at the left and bottom.

From the **Geographic** menu choose **New Lat/Long Ticks**. INTREPID displays the **Ticks** dialog box. Enter 0:2:0 (0°2'0") in both the **LongInterval** and **LatInterval** text boxes. Turn on the **LabelAtBottom** and **LabelAtLeft** check boxes. Select **Tick** from the **Tick/Grid/Border** option buttons.

_			
	Intrepid MapComposition	Too	Intrepid MapCompositio
File Edit	Geographic Annotation Vie	w	
	New Data Box		Ticks
	New Metre Ticks		LongInterval : 0:2:0
	New Lat/Long Ticks		
	New PointPlot		Latinterval : 0:2:0
	New PathPlot		
	New PolygonPlot		LabelAtiop
	New StackProfile		LabelAtBottom
	New GrevScaleImage	h	
	New PseudoColourImage		LabelAtLett
	New SunAngleImage		LabelAtRight
	New ThreeGunMixImage		6 Tick C Grid C Bordon
	New FixedColourImage		o nek o dilu o boluer
	New Drapelmage		Internal
	New TernaryDrapeImage		
	New Contour		TextSize : 3
	New ColourContour		2
			TickSize : 3
			Apply Cancel

Choose **Apply** in the **Ticks** dialog box.

INTREPID displays the tick marks and labels on your grid.



9 Place a North arrow with projection information in the composition.

Place a North arrow

From the Annotations menu choose New NorthArrow. INTREPID displays the North Arrow dialog box. Turn on the ShowProjection check box. Choose Apply.



Place the North arrow in the lower left part of the A4 page frame as shown in the following illustration. (See Positioning objects in a composition for full instructions about placing new objects in a composition.)



Place a scale bar

Library | Help | Top

10 *Place a scale bar in the composition.*

From the **Annotations** menu choose **New ScaleBar**. INTREPID displays the **Scale Bar** dialog box. Accept the default settings and choose **Apply**.



Place the scale bar in the lower right part of the A4 page frame as shown in the following illustration. (See Positioning objects in a composition for full instructions about placing new objects in a composition.)



- Place a legend
- **11** *Place the pseudocolour legend* **mlevel_grid.leg** *in the composition showing values with no decimal places.*

(mlevel_grid.leg is a solution file we have provided which is identical to the mlevel_grid1.leg you created earlier.)

From the **Annotations** menu choose **New Legend**. INTREPID displays the **Legend** dialog box.

🗢 Intrepi	l MapComposition Tool	I V3.1
File Edit Geographic	Annotation View	
	Marker	Legend
	Line	Name :
	Polygon	Height 100
	Text	
	Rectangle	
	Arrow	ShowHighClip
	lmage-> ▶	ShowLowClip
	DGN	ShowOutOfBange
	Set Defaults	Apply Cancel
	SnapToGrid	
	New GreyBar	1
	New Border	
	New Margin	
	New ScaleBar	
34'36'80'3 🕂 🕂	New NorthArrow	
	New SheetIndex	
	New Legend	
16.20,002, + + 5	† 1	

| Back | 🕨

Choose Name. INTREPID displays the Load Legend dialog box. Select the file mlevel_grid.leg. Choose OK.

INTREPID displays the path of the legend file in the **Name** text box of the **Legend** dialog box.

Enter 0 in the **Decimals** text box.

	Legend		
File Mame: mlevel_grid.leg mlevel_grid.leg untitled.leg #	Directories: d:\interpid\tutorials\data d\ tutorials\data tutorials d dt ebagoola_R ebagoola_rad *	OK Cancel	Legend Name : D://NTREPID/tutori Height : 100 Decimals : 0 ShowHighClip : ShowUutOffange
List Files of <u>Type:</u> Data (*.leg) <u>±</u>	Dri <u>v</u> es:	Net <u>w</u> ork	Apply Cancel

Choose Apply.

Place the legend in the A4 page frame at the right of the grid as shown in the following illustration. (See Positioning objects in a composition for full instructions about placing new objects in a composition.)

14'JBW0'3	
a 6 fail hiors	
16'22'M#'3	
14	ถ′เ4′88°C มริวไปไข้ไข้ มริวไปสำคัญชาC มริวไ2ม่%83°C
	<u>t + 108038</u>
	ki - 2833 Si malakilan Kifalan

Create a title

12 Give the composition a title 'Ebagoola Magnetics' using font 5, size 8.From the Annotations menu choose Text.



Click a position suitable for the start of a map title above the top left corner of the image. Type the title Ebagoola Magnetics and press ENTER. The title will appear in the map window in small letters (you may not be able to read it at this stage).

Select (click) the title you have just typed. The message '**Selected Object: Text**' will appear in the lower left corner of the window.

▲ | Back | ▶

From the **Edit** menu choose **Edit Object**. Select **Text** object and click OK. INTREPID displays the **Text** dialog box showing the text you have typed. (Alternatively you can double click the title to select it and open the **Text** dialog box).

Enter **Size** 8 and **Font** 5 in the corresponding text boxes.

Intrepid MapComposition To				
Text				
String : Ebagoola Magnetics				
Colou	Colour : Black			
Size	:	3		
Font	Font : 5			
Thickness : 0				
Angle : 0				
A	Apply Cancel			

Choose **Apply**.

INTREPID displays the title with its new size and typeface in the **Map Composition** Window.

Ebagoola Magnetics				
117/8107 + + + + = = = = = = = = = = = = = = =				
24 (24)10 ⁻⁵ + + + + + + + + + + + + + + + + + + +				
14/22/04/3 + + + + + + III				
เปราใน414812 ปราวันชาตรี ปราวันสาชสาว ปราวันสาชสาว				
t ≈ 108080				
and States				

At this point you may want to adjust the position of objects on the map to optimise its appearance before printing it out. (See Positioning objects in a composition for full instructions about moving objects in a composition.)

Save a map specificat-ion file **13** Save the map specifications as **mlevel_grid1.map**.

Choose **SaveAs Map** from the **File** menu. INTREPID displays the **SaveAs** dialog box. Ensure that the current directory is *install_path*sample_data \guided_tours\intrepid_datasets. Type mlevel_grid1 in the file Name text box. (You do not need to type the .map extension—INTREPID will add it automatically.)



16

Choose **OK**. INTREPID will save the map specification file.

Tip: The .map file is a text file containing specifications for producing the map. You can examine it using any text editor, such as Windows NotePad or vi under UNIX.

Printing your composition

Print preview the composition

14 Print preview the composition (Windows version only).

If you are using the UNIX version of INTREPID, go to the next step.

In the Windows version, the separate Map Print tool performs all previewing and printing.

From the File menu choose Print. INTREPID will launch the Map Print tool with the current map loaded (shown as an icon with a temporary name).

🗖 Intrepio		ManPrint - mlevel_orid1.man	-
File Edit Geographic	<u>F</u> ile ⊻iew <u>W</u> indow	Help	
Load Map	C AR 1		
New Map			
Insert Map			
SaveAs Map			
Page Size			
Print			
Quit			
	DOC1		
	mlevel_grid1.map		
		-	
	II For Help, press F1		NUM

| | Back | 🕨

From the **File** menu choose **Print Preview**. INTREPID displays a print preview of the map.





15 *Print the composition.*

Windows version

Choose the **Print** button in the **Print Preview** window or **Print** from the **File** menu in the **Map Print** window. INTREPID displays the **Print** dialog box. Select the required printer and adjust its properties if necessary. Choose **OK**. INTREPID will print the map as specified, displaying the printing in progress message box while the task is in progress.

Printor	Print	? MapPrint
<u>N</u> ame: Status: Type: Where: Comment:	Kyocera FS-850 Properties Ready Kyocera FS-850 / FS-850A (3.x) LPT1: Kyocera FS-850 laser printer Print to file	Printing mlevel_grid1.map on.the Kyocera FS-850 on LPT1: Page 1
Print range <u>A</u> II Pages <u>S</u> electi	from: 1 to:	
<u>H</u> elp	OK Cancel	1

UNIX version

If you are using the *UNIX* version, you must first print the dataset to a file in the printer's graphic language (e.g., HP-GL/2 or *PostScript*). You can then send the file to the printer.

| Back | 🕨

Choose the output format you require (depending on your printer) from the **Print** cascade in the Map Composition tool **File** menu.



INTREPID displays a **Save As** dialog box. Select a directory for the output file. (You can just use *install_path*\sample_data\guided_tours \intrepid datasets if you prefer.) Enter the name of the graphics language

output file you require (e.g., mlevel.prn). Choose OK.

INTREPID will create the graphics language file for the printer.

To print the file you have produced, use the command appropriate to your system, for example

lp -dHP850C /usr/intrepid/tutorials/mlevel.prn

Where the **-d** switch specifies the type of printer and the parameter specifies the graphics language output file you are printing.

To exit

To exit from the Map Print preview, choose Close.

To exit from the Map Print tool, choose Exit from the File menu.

To exit from the Map Composition tool, choose Quit from the File menu.

Tip: Printing with the UNIX version: You can output INTREPID maps to files in the following formats: PostScript, HP-GL, HP-GL/2, TIFF, Microsoft bitmaps and metafiles (.bmp and .wmf), MicroStation DGN file, ARC/INFO generate format

Tip: Printing with the Windows version: You can print your map compositions the same way as you would print any other graphic data on the same computer. INTREPID sends its printing to the Windows print management system. As with other data on your Windows computer, you can print directly to the printer or to a print file. You can print INTREPID maps to any printer supported by Windows (within the graphics capabilities of the printer, of course).

Tip: You can also output map compositions to files with any of the formats listed in 'Printing with the UNIX version' above.

Key points for this guided tour

In this guided tour you have used the INTREPID Map Composition tool to

- Interactively create a 'what you see is what you get' composition,
- Print the composition.

Map Composition supports

- An extensive range of image enhancements
- Powerful contouring and vector output.

A powerful batch system and comprehensive map composition language (*MAPCOMP*):

- Underpins the tool and
- Enables production of commercial quality maps.

Frequently Asked Questions



Q: Can I have more than one map area in the output?

A : Yes. The Map Composition tool supports multiple data areas. Each of these can contain multiple geolocated datasets (e.g., a set of colour contours overlaid on a sunangle display).

Q: Does INTREPID Map Composition support tiling large-scale output down to a smaller printer?

A : Yes. The tool supports automatic tiling onto printers.