# Table of contents

## Chapter 1 Introduction

1. Introduction ........................................................................................................................................ 5  
   1.1 Who is this guide for? .................................................................................................................. 5  
   1.2 What is MIST-GIS? ..................................................................................................................... 5  

2. Introduction to some Windows controls ............................................................................................. 6  

3. Starting MIST-GIS ................................................................................................................................ 10  

4. Viewing ground patrols ..................................................................................................................... 12  

5. Navigating ground patrols ................................................................................................................. 14  

## Chapter 2 Data Entry

1. Data entry modules in MIST .............................................................................................................. 16  
   1.1 Observation (geo-referenced data) modules ............................................................................... 16  
   1.2 Non-geo-referenced data modules .............................................................................................. 18  

2. Steps for entering data into MIST-GIS from ranger patrols ................................................................ 19  

3. Preparing waypoints from ranger patrols ......................................................................................... 20  
   3.1 Download waypoints into a waypoint manipulation program .................................................. 20  
   3.2 Removing waypoints from other days ....................................................................................... 20  
   3.3 Checking the waypoints are in chronological order .................................................................. 20  
   3.4 Upload modified waypoints back to the GPS ............................................................................ 20  

4. Preparing waypoints using MapSource ............................................................................................ 21  
   4.1 Starting MapSource .................................................................................................................... 21  
   4.2 Downloading waypoints from a GPS receiver .......................................................................... 21  
   4.3 Saving waypoints to a file .......................................................................................................... 22  
   4.4 Checking the waypoints are in chronological order ................................................................. 23  
   4.5 Uploading waypoints to the GPS receiver .................................................................................. 24  

5. Preparing waypoints using GPS Utility ............................................................................................ 26  
   5.1 Starting GPS Utility ..................................................................................................................... 26  
   5.2 Downloading waypoints from a GPS receiver .......................................................................... 26  
   5.3 Saving waypoints to a file .......................................................................................................... 27  
   5.4 Checking the waypoints are in chronological order ................................................................. 28  
   5.5 Uploading waypoints to the GPS receiver .................................................................................. 30  

6. Downloading waypoints into MIST .................................................................................................. 31  

7. Checking waypoints in MIST against the data sheet ........................................................................ 34  

8. Entering observations and observation remarks ................................................................................ 35  

9. Changing observations in MIST ....................................................................................................... 36  

10. Entering observation remarks in MIST .......................................................................................... 38  

11. Adding members to a patrol ............................................................................................................ 42  
   11.1 List of all rangers ....................................................................................................................... 43  
   11.2 To add a ranger to the patrol .................................................................................................... 44  
   11.3 To remove a ranger from the patrol ......................................................................................... 44
### Chapter 3: Producing Information

1. **Introduction**

2. **Types of reports and map queries**
   - 2.1 Summary reports
   - 2.2 Patrol summary
   - 2.3 Individual ranger report
   - 2.4 Map queries

3. **Starting the Query Wizard**

4. **Using the Query Wizard**
   - 4.1 Page 1 - Information Type
   - 4.2 Page 2 - Management Sectors
   - 4.3 Page 3 - Time Period
   - 4.4 Page 4 - Species/Items
   - 4.5 Page 5 - Output Specification
   - 4.6 Advanced - displaying information for a specific patrol
   - 4.7 The Patrolled Areas Query

5. **Working with the map**
   - 5.1 The legend
   - 5.2 The map

6. **Using the Report Builders**

### Chapter 4: Database Backup & Restore

1. **Database Concepts - Database Users**
   - 1.1 What is a user?
   - 1.2 DATAENTRY User
   - 1.3 SYSDBA User

2. **Database Concepts - Backup & Restore**
   - 2.1 What does the word Backup mean?
   - 2.2 Why do we Backup?
   - 2.3 Restoring the database

3. **Backing up and restoring the MIST database using IBConsole**
   - 3.1 Starting IBConsole to backup or restore
   - 3.2 Backup the database
   - 3.3 Restore the database
Chapter 1

Introduction
1 Introduction

1.1 Who is this guide for

This guide is designed for users of the MIST-GIS software programme in national parks in Cambodia, with little prior computer experience. It provides simple explanations of the different parts of MIST-GIS and shows what buttons to click and steps to follow to perform tasks using MIST-GIS.

1.2 What is MIST-GIS?

MIST-GIS is a Windows based computer programme for storing and processing geo-referenced data. Geo-referenced data is data that is referenced to a geographical location.
2 Introduction to some Windows controls

2.0.1 Checkbox example

This is an example of an ‘unchecked’ checkbox:

☐ Key Observations Only

Click inside the box:

☑ Key Observations Only

and it will become ‘checked’:

☐ Key Observations Only

Click again inside the box and it will become ‘unchecked’.

2.0.2 Drop down box example

This is an example of a drop down box:

January

Click on :

January

And the box will expand (‘drop down’) to reveal a list of items:

January February March April May June July August September October November December
You can then select an item in the list by clicking, eg:

or by typing the first letters of the item’s name, eg: J then U

And the drop down box will contract, changing to display your selection:

**Drop down box with a scroll bar**

A drop down box may have a **scroll bar**, which looks like this:

A scroll bar indicates that there are more items than currently displayed. By operating the scroll bar you can reveal the other items.

To use a scrollbar:

- Click here to move up in the list
- Drag here to move up or down in the list
- Click here to move down in the list

or

Use the following keys on the keyboard to move around in the list:

UP, DOWN, PG UP, PG DN

2.0.3 **Radio button group example**

This is an example of a **radio button group**:
Only one item in a radio button group can be selected at a time.

Select that item by clicking its name or the circle next to it, eg: click on From/To:

Will change the selection from Monthly to From/To:

2.0.4 Tree example

This is an example of a tree:

- expanded
  - Vietnamese
  - Lac
  - residents
  - village
  - minorities
  - military police
  - military
  - police
  - action
  - weapons/items confiscated
  - animals confiscated
  - warning letter issued to
    - cautioned
  - weapons/items seen

Items with a ▼ next to the name can be expanded by clicking on the ▼, eg:

will expand weapons/items confiscated to show:
<table>
<thead>
<tr>
<th>weapons/items confiscated</th>
</tr>
</thead>
<tbody>
<tr>
<td>wildlife carry bags</td>
</tr>
<tr>
<td>knife</td>
</tr>
<tr>
<td>poison</td>
</tr>
<tr>
<td>axe</td>
</tr>
<tr>
<td>wire tiger snare</td>
</tr>
<tr>
<td>wire snare</td>
</tr>
<tr>
<td>hand grenade</td>
</tr>
<tr>
<td>mine</td>
</tr>
<tr>
<td>home-made gun</td>
</tr>
<tr>
<td>automatic weapon</td>
</tr>
</tbody>
</table>

Parts of the tree can be collapsed back again by clicking on ⋯
3 Starting MIST-GIS

1. Double-click (or highlight and press Enter) this icon on the desktop:

2. Click on the Start icon or wait 5 seconds.

3. Click on the globe to start MIST-GIS

4. Here type dataentry
   Here type Data
   Then click OK
Welcome to MIST-GIS!
4 Viewing ground patrols

1. Click on Functions

2. Under Data Entry, click Ground patrols

3. (Optional) If the Select a Region window appears:
   a) Click on Virachey National Park
   b) Click on Continue
Viewing ground patrols

4.
5 Navigating ground patrols

1. **Patrol ID:** Each ground patrol has a unique number to identify it, eg: 24

2. **Locate:** Click on Locate and the following window appears:

   ![Locate Window](image)

   **Enter the patrol id of the ground patrol to view here, eg: 24 then click OK**

3. **Navigation controls:**
   - Go to the first ground patrol
   - Go to the previous ground patrol
   - Go to the next ground patrol
   - Go to the last ground patrol

4. **Days:** Click to change the patrol day
1 Data entry modules in MIST

MIST has different modules for entering data. For observations (geo-referenced data) they are:

- Ground Patrols
- Air Patrols
- Research Observations
- Occasional Observations

MIST also has modules for storing the following non-geo-referenced data, ie: data without location information:

- Daily Visitors
- Resource Use

In addition MIST has special data modules for

- SRF - Systematic Reconnaissance Flights
- Gorilla data

1.1 Observation (geo-referenced data) modules

An observation is a single piece of geo-referenced data and always consists of the following standard observation data set:

- Waypoint - an auto-incremented number assigned successively to each observation
- Locations (Eastings/Northings) - a location (eg: UTM co-ordinates)
- Time - a time and date
- Observation and Observation code - an observation name and observation code name taken from the observation domain. The observation domain is the same for all observation data modules.
- Total - a total number for the observation
- Adult (male/female) - the number of male and female adult animals
- Young - the number of young animals

1.1.1 Ground Patrols Module

The ground patrol observation module is for storing data collected by rangers on multi-day patrols in the park according to Ranger Based Data Collection procedures. If data is collected by rangers outside the park, or not as part of a patrol then it is instead recorded in the Occasional or Research Observation module.

Characteristics of the Ground Patrol Data

The ground patrol data consists of 0 or more patrols. Each ground patrol consists of 1 or more days. Each day consists of 1 or more observations.

Each observation consists of the standard observation data set above and:

- Direction - the compass direction of the observation from the ranger
- Distance - the distance from the observation to the ranger
1.1.2 Air Patrols Module

The air patrols module is for storing data collected from an air patrol.

**Characteristics of Air patrol data**

Air patrol data consists of 0 or more air patrols. 
Each air patrol consists of 1 or more observations. 
Each observation consists of the standard observation data set above.

1.1.3 Research Observation Module

The research observation module is for storing data grouped by researcher. In fact a researcher 
can be any arbitrary group. It could be an actual researcher, or data collected on a particular 
visit to the park, or data collected by staff other than rangers, or data received from an external 
source etc.

**Characteristics of Research data**

Research data consist of 0 or more researchers. 
Each researcher may have 0 or more data sets. 
Each data set consists of 1 or more observations. 
Each observation consists of the standard observation data set above.

1.1.4 Occasional Observation Module

The occasional observation module is a single table for storing any data. It should be used for 
storing data that is not associated with any researcher (or research group) or any ranger patrol 
in the park, or data that is not verified on the ground by park staff.

- Rangers may speak with villagers who tell them about illegal activities. If the illegal 
  activity cannot be observed as part of the patrol, it can be entered as an occasional 
  observation
- Illegal activities may be reported to HQ, their location checked on a map, and a 
  mission sent out to investigate. Mission data can be entered into MIST as an 
  occasional observation

**Characteristics of Occasional Observation Data**

Occasional observations consists of 0 or more observations

Each observation consists of the standard observation data set above and:
- Observer - the name of the person/mission who made the observation
- Source - the source of the location information, either a GPS (observation location 
  taken from a GPS unit), or a Map (observation location taken from a verbal or written 
  description and located on the map)
- Quality - This is subjective, but should follow these guidelines:
Good: A picture of the observation or a first hand account of the observation by a villager/tourist backed up by additional evidence such as a second validation by a ranger. A first hand account of an observation by MoE staff, or experienced staff of other government organisations or NGOs receives a Good rating.

Fair: A first hand account of the observation by a villager/tourist of unknown qualification but with little or no other supporting evidence.

Poor: A second hand or unverifiable observation. Any observation that does not have a known Observer (i.e. a value of "Unknown" in the Observer field) should get a Poor rank.

1.2 **Non-geo-referenced data modules**

1.2.1 **Daily Visitors**

For storing information about groups of visitors to the PA.

1.2.2 **Resource Use**

For storing information about resources used in the PA. Although resource use data is non-geo-referenced (i.e: specific co-ordinates are not supplied) resource use data can associated with specific areas of the park as setup by the Administrator.
2 Steps for entering data into MIST-GIS from ranger patrols

1. Download waypoints into MapSource/GPS Utility and save to disk (Task 1/2)
2. Prepare waypoints in MapSource/GPS Utility (Task 1/2)
3. Download waypoints into MIST (Task 3)
4. Check waypoints in MIST against the data sheet, and correct any mistakes (Task 4)
5. Add observation and observation remarks to the data sheet (Task 5)
6. Check observation and remarks have been entered correctly.
3 Preparing waypoints from ranger patrols

Before downloading waypoints from ranger patrols into MIST, the waypoints must be prepared.

1.1 Download waypoints into a waypoint manipulation program

The first step is to use a program like MapSource or GPS utility, and download all the waypoints from the GPS.

3.2 Removing waypoints from other days

Once the waypoints are in MapSource/GPS Utility, take the ground patrol data sheet and note the patrol start and end date.

Remove any waypoints in MapSource/GPS Utility that are outside the patrol start and end date.

3.3 Checking the waypoints are in chronological order

VERY IMPORTANT: The waypoints must be labeled in chronological order, eg: 001, 002, 003 ..... 010, 011......100, 101..etc.

Rangers are responsible for making sure the waypoints are correctly labeled in chronological order. If you receive a GPS with waypoints not correctly labeled, please show the rangers and ask them to label waypoints correctly next time. It is not difficult to do this, you only need to accept the number that the GPS automatically gives a waypoint, in other words:

| Rangers must not change the waypoint name on the GPS. |

You should use MapSource/GPS Utility to make sure waypoints are in chronological order. You can sort alphabetically in MapSource/GPS Utility by clicking on the field header. Note: if a field contains a date value, it will be sorted alphabetically, NOT chronologically or numerically,

eg: 16-FEB-04 appears before 16-JAN-04, and
    04-SEP-04 10:00:00 appears before 04-SEP-04 8:31:43

You need to make sure that when the waypoint name is sorted alphabetically, the waypoints are in chronological order. If they are not, you need to rename the waypoints so that they will appear in chronological order when you sort by name alphabetically.

3.4 Upload modified waypoints back to the GPS

If you have made any changes, you will need to delete the original waypoints from the GPS and then upload the new ones.
4 Preparing waypoints using MapSource

4.1 Starting MapSource

1. Start MapSource by clicking on the desktop icon

or from the Start Menu: Programs -> MapSource -> MapSource

You will see:

4.2 Downloading waypoints from a GPS receiver

1. Connect the GPS to the computer and turn the GPS on.

2. Click File
3. Click **Open From Device**

4. Click **Open**

5. After download you will see the list of waypoints from the GPS on the left hand side:

![Waypoints List](image)

### 4.3 Saving waypoints to a file

After downloading waypoints, save them to disk.
1. Click Save

2. Save in:

   D:\My Documents\Patrol GPS Downloads\2004
   D:\My Documents\Patrol GPS Downloads\2005
   D:\My Documents\Patrol GPS Downloads\2006 .... etc.

The file must be named according to this format:

   TV 2004-03 GPS 108 Group 3
   SP 2004-01 GPS 116 Group 5
   VS 2004-02 GPS 001 Group 2

ie: Station Year-Month GPS Number Group Number.mps

4.4 Checking the waypoints are in chronological order

VERY IMPORTANT: The waypoints must be labeled numerically, eg: 001, 002, 003 ..... 010, 011......100,101..etc. and in chronological order.

Rangers are responsible for making sure the waypoints are correctly labeled in chronological order. If you receive a GPS with waypoints not correctly labeled, please show the rangers and ask them to label waypoints correctly next time. It is not difficult to do this, you only need to accept the number that the GPS automatically gives a waypoint, in other words:

Rangers must not change the waypoint name on the GPS.

If rangers change the waypoint name then waypoints will no longer be in chronological order. You must then change the waypoint names back.

4.4.1 How to check waypoints are in chronological order

1. Click the Description field header:

   The waypoints will now be sorted by Description in alphabetical order.

2. Examine the Name field.

   Are the waypoints names in alphabetical order? eg: 001, 002, 003, 004, 005, 006, ......etc?

   If not, you must change the name of waypoints so that the names are in alphabetical order.

4.4.2 Before changing waypoint names save the file with a new name

1) Save the file with a new name

   a) Click File
b) Click **Save as**

![Image of Save As dialog box]

Save the new file to the same location as the original but with *Edit* appended to the name, eg:

- TV 2004-03 GPS 108 Group 3 Edit
- SP 2004-01 GPS 116 Group 5 Edit
- VS 2004-02 GPS 001 Group 2 Edit

4.4.3 Changing the name of a waypoint

a) Double click on the waypoint name, eg: 010CAMP

The *Waypoint properties* window will appear:

![Waypoint properties window]

b) Type the new name of the waypoint eg: 011a

c) Click **OK**

When renaming waypoints use 001a, 002a, 003a, etc. to avoid getting the error "The waypoint name is in use by another waypoint. Please enter a different name."

4.4.4 Upload the modified waypoints to the GPS

1. Delete all waypoints from the GPS. (See GPS instruction manual)

2. Upload the waypoints to the GPS (See next section)

4.5 **Uploading waypoints to the GPS receiver**
1. Connect the GPS to the computer and turn the GPS on.

2. Click **File**

3. Click **Save to device**

4. Click **Save**
5 Preparing waypoints using GPS Utility

5.1 Starting GPS Utility

1. Start GPS Utility by clicking on the desktop icon or from the Start Menu: Programs -> GPS Utility -> GPS Utility

You will see:

![GPS Utility Interface]

5.2 Downloading waypoints from a GPS receiver

1. Connect the GPS to the computer and turn the GPS on.

2. Press CTRL-D or

   a) Click GPS,

   then

   b) Download All

You will see:
3. Click **OK**

4. After download you will see the list of waypoints from the GPS:

![Waypoint list](image)

**5.3 Saving waypoints to a file**

After downloading waypoints, save them to disk.

1. Click **Save** or press **CTRL-S**

2. Save in:

   D:\My Documents\Patrol GPS Downloads\2004
   D:\My Documents\Patrol GPS Downloads\2005
   D:\My Documents\Patrol GPS Downloads\2006 .... etc.

The file must be named according to this format:

   TV 2004-03 GPS 108 Group 3
   SP 2004-01 GPS 116 Group 5
   VS 2004-02 GPS 001 Group 2

ie: Station Year-Month GPS Number Group Number
5.4 **Checking the waypoints are in chronological order**

**VERY IMPORTANT:** The waypoints must be labeled numerically, eg: 001, 002, 003 ..... 010, 011......100,101..etc. and in chronological order.

Rangers are responsible for making sure the waypoints are correctly labeled in chronological order. If you receive a GPS with waypoints not correctly labeled, please show the rangers and ask them to label waypoints correctly next time. It is not difficult to do this, you only need to accept the number that the GPS automatically gives a waypoint, in other words:

**Rangers must not change the waypoint name on the GPS.**

If rangers change the waypoint name then waypoints will no longer be in chronological order. You must then change the waypoint names back.

5.4.1 **How to check waypoints are in chronological order**

1. Click the **Comment** field header:

   ![Comment Field](image)

   The waypoints will now be sorted by Comment in alphabetical order.

2. Examine the **ID** field.

   Are the waypoints names in alphabetical order? eg: 001, 002, 003, 004, 005, 006, ......etc?

   If not, you must change the name of waypoints so that the **IDs** are in alphabetical order.

5.4.2 **Before changing waypoint IDs save the file with a new name**

1) Save the file with a new name

Press F12

or

a) Click **File**

![File Button](image)

b) Click **Save as**
5.4.3 Changing the ID of a waypoint

a) Double click on the waypoint ID, eg: 010CAMP

The Data Dialogue window will appear:

b) Type the new name of the waypoint eg: 011a

c) Click OK

When renaming waypoints use 001a, 002a, 003a, etc. to avoid getting the error "Waypoint ID already exists"

5.4.4 Upload the modified waypoints to the GPS
1. Delete all waypoints from the GPS. (See GPS instruction manual)

2. Upload the waypoints to the GPS (See next section)

5.5 **Uploading waypoints to the GPS receiver**

1. Connect the GPS to the computer and turn the GPS on.

2. Press CTRL-U

or

a) Click GPS

then

b) Click Upload All

The **GPS Transfer** window will appear:

3. Click OK
6 Downloading waypoints into MIST

1. In the **Ground Patrol** window click **Waypoints**

2. The **Download GPS Waypoints Wizard** will appear:

3. Connect the GPS receiver to the computer and click **Download Waypoints**.

The window will fill up with waypoints from the GPS, like this:
NB: Waypoints must be in chronological order.

4. Go to the start of the waypoint list and select the waypoints from the first day of the patrol:

Select waypoints by using shift + click here, or by dragging from anywhere in the table

NB: Do not download any waypoint with the name GARMIN.

NB: If any waypoint has a strange DateTime value, click the value and change it so it is correct.

5. Click Export
The Select Patrol Start Day window will appear. It should have the correct date selected already, if not click on the correct date.

6. Click OK

7. The following window will appear:

Selecting Yes will add the waypoints to the last patrol, eg: patrol 67.

Selecting No will create a new patrol and add the waypoints to that, eg: a new patrol 68. Select No when importing the first day of a new patrol.

8. The following window will appear:

Select Yes to confirm that you want to add the waypoints.

9. The following window will appear:

Select Yes to remove the selected waypoints from the Download GPS waypoints wizard window.

10. Repeat steps 4-9 for each day of the patrol.
7 Checking waypoints in MIST against the data sheet

After downloading waypoints into MIST you must compare the ground patrol in MIST with the data sheet.

1. Check that the ground patrol in MIST has the same number of days as the data sheet.

2. For each day on the data sheet:
   - check that the date of the day in MIST is the same as the date on the data sheet
   - check that the number of waypoints in MIST and on the data sheet are the same
   - check that the first waypoint co-ordinates and time are correct
   - check that the first waypoint co-ordinates and time are correct

Note:
- the Easting co-ordinate may be 1-3m out compared to the data sheet, this is OK
- the Northing co-ordinate may be 15-17m out compared to the data sheet, this is OK
- the time may be 7 hours before the time on the GPS, this is OK. (On the Garmin 12CX when a waypoint is saved, UTC time is used, which is 7 hours before Cambodian time).

If the Easting or Northing are greater than 1-3m/15-17m then the waypoint is wrong

3. If a waypoint is in the GPS & MIST but not on the data sheet, leave it in MIST, and add the waypoint to the data sheet using a red pen.

4. If a waypoint is on the datasheet but not on the GPS or in MIST, add it to MIST

5. If there are no co-ordinates for an observation on the data sheet (Wildlife or Illegal activity but not Position) and the waypoint is not in MIST, then this waypoint must be manually entered using the co-ordinates of the previous or following waypoint.

6. Run the report "GP days with zero distance". If a day in MIST has only one waypoint then the distance travelled for that day will be 0 km. To offset this, take the first waypoint from the next day (if there is a next day) and add it to the patrol day with only one day.

7. Run the Patrolled Areas Query. Do you see any lines on the map that look too long? If so, then the co-ordinates of one of the waypoints is probably wrong.
8 Entering observations and observation remarks

If there is no observation or observation remark in MIST matching what is written on the data sheet, in general, ignore it. If however you think it is important, check with Park Management if they want to record it. If they do, contact the Database Administrator who can add the observation or remark to the database.

If there is no observation for a particular species, check first if there is a general classification. eg: if on the data sheet the ranger recorded Fish Cat, but there is no Fish Cat
9 Changing observations in MIST

1. Click on next to the observation and the list of all observations appears:

   To select an observation:
   
a) Use the scrollbar:

   ![Click here to move up in the list](image)
   ![Drag here to move up or down in the list](image)
   ![Click here to move down in the list](image)

   or

   b) Use the following keys on the keyboard to move around in the list:
   
   UP, DOWN, PG UP, PG DN

   or

   c) Type the first few letters of the observation, eg: for Poaching Hunting type ```POA```
2. To save the change:

a) Click 

or

b) Select a different observation

To cancel the change click }
10 Entering observation remarks in MIST

1. Observations highlighted in blue have observation remarks.

The observations that can have remarks in VNP are:

- Poaching
- Poaching sign
- Plant harvesting
- Plant harvesting sign

(please see the illegal activities flowchart)

2. To edit the remarks, first select the observation:

then click:
Entering observation remarks

The following window will appear for a **Poaching Hunting** observation in VNP:

3. Items with a ± next to the name can be expanded by clicking on the ±, eg:

```
   weapons/items confiscated
   animals confiscated
```

will expand **weapons/items confiscated** to show:

```
  weapons/items confiscated
  wildlife carry bags
  knife
  poison
  axe
  wire tiger snare
  wire snare
  hand grenade
  mine
  home-made gun
  automatic weapon
```
You can expand every event at once by clicking:

![Expand All]

4. To event a value for an observation remark, **Double click** in the column **observation**:

<table>
<thead>
<tr>
<th>Event</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>weapons/items confiscated</td>
<td></td>
</tr>
<tr>
<td>wildlife carry bags</td>
<td></td>
</tr>
<tr>
<td>knife</td>
<td></td>
</tr>
</tbody>
</table>

A text entry box will appear, and the cursor will change, like this:

<table>
<thead>
<tr>
<th>Event</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>weapons/items confiscated</td>
<td></td>
</tr>
<tr>
<td>wildlife carry bags</td>
<td></td>
</tr>
<tr>
<td>knife</td>
<td></td>
</tr>
</tbody>
</table>

You can now enter a numeric value, eg:

<table>
<thead>
<tr>
<th>Event</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>weapons/items confiscated</td>
<td></td>
</tr>
<tr>
<td>wildlife carry bags</td>
<td>2</td>
</tr>
<tr>
<td>knife</td>
<td></td>
</tr>
</tbody>
</table>

Here's an example of a completed set of remarks:

<table>
<thead>
<tr>
<th>Event</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>weapons/items confiscated</td>
<td></td>
</tr>
<tr>
<td>wildlife carry bags</td>
<td>2</td>
</tr>
<tr>
<td>knife</td>
<td></td>
</tr>
<tr>
<td>poison</td>
<td></td>
</tr>
<tr>
<td>axe</td>
<td></td>
</tr>
<tr>
<td>wire tiger snare</td>
<td></td>
</tr>
<tr>
<td>wire snare</td>
<td></td>
</tr>
<tr>
<td>hand grenade</td>
<td></td>
</tr>
<tr>
<td>mine</td>
<td></td>
</tr>
<tr>
<td>home-made gun</td>
<td></td>
</tr>
<tr>
<td>automatic weapon</td>
<td>1</td>
</tr>
<tr>
<td>wildlife carry bags</td>
<td></td>
</tr>
<tr>
<td>serial number</td>
<td>145632</td>
</tr>
<tr>
<td>animals confiscated</td>
<td></td>
</tr>
<tr>
<td>Civet sp</td>
<td>1</td>
</tr>
<tr>
<td>dead</td>
<td></td>
</tr>
</tbody>
</table>
5. When you have finished entering remarks, to save click **Finished**: 
11 Adding members to a patrol

Click 🧑‍✍️ Add Members

OR

if the patrol already has members click 🧑‍✍️ Patrol Members
Adding members to a patrol

The following window will appear:

![Patrol Members Window](image)

11.1 List of all rangers

You can change the order of rangers in the List of all rangers.

If you want to sort by employee ID click on Employee ID.

<table>
<thead>
<tr>
<th>Employee ID</th>
<th>Family Name</th>
<th>First Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Key</td>
<td>Sokha</td>
</tr>
<tr>
<td>10</td>
<td>Phron</td>
<td>Sophal</td>
</tr>
<tr>
<td>11</td>
<td>Main</td>
<td>Luyssong</td>
</tr>
</tbody>
</table>

If you want to sort by family name click on Family Name.

<table>
<thead>
<tr>
<th>Employee ID</th>
<th>Family Name</th>
<th>First Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>Bun</td>
<td>Cheab</td>
</tr>
<tr>
<td>33</td>
<td>Bun</td>
<td>Dany</td>
</tr>
<tr>
<td>29</td>
<td>Bun</td>
<td>Lumnvann</td>
</tr>
<tr>
<td>14</td>
<td>Chab</td>
<td>Sourn</td>
</tr>
<tr>
<td>36</td>
<td>Chan</td>
<td>Rang</td>
</tr>
<tr>
<td>13</td>
<td>Chen</td>
<td>Sophat</td>
</tr>
<tr>
<td>2</td>
<td>Chea</td>
<td>Kim</td>
</tr>
<tr>
<td>55</td>
<td>Chhoen</td>
<td>Sonbatt</td>
</tr>
<tr>
<td>45</td>
<td>Chhoen</td>
<td>Kosbal</td>
</tr>
<tr>
<td>18</td>
<td>Choet</td>
<td>Thorn</td>
</tr>
</tbody>
</table>

If you want to sort by first name click on First Name.

<table>
<thead>
<tr>
<th>Employee ID</th>
<th>Family Name</th>
<th>First Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Sier</td>
<td>Bokhem</td>
</tr>
<tr>
<td>4</td>
<td>Top</td>
<td>Boin</td>
</tr>
<tr>
<td>8</td>
<td>Wat</td>
<td>Buniceu</td>
</tr>
</tbody>
</table>

To locate a ranger by family name, click on then:
11.2 To add a ranger to the patrol

1. Select the ranger in the **List of all rangers**, eg:

<table>
<thead>
<tr>
<th>Employee ID</th>
<th>Family Name</th>
<th>First Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>Bun</td>
<td>Cheab</td>
</tr>
<tr>
<td>33</td>
<td>Bun</td>
<td>Dany</td>
</tr>
<tr>
<td>29</td>
<td>Bun</td>
<td>Lunvann</td>
</tr>
<tr>
<td>14</td>
<td>Cheab</td>
<td>Soun</td>
</tr>
<tr>
<td>38</td>
<td>Chan</td>
<td>Rang</td>
</tr>
<tr>
<td><strong>13</strong></td>
<td>Chan</td>
<td>Sophat</td>
</tr>
<tr>
<td>2</td>
<td>Chea</td>
<td>Kim</td>
</tr>
<tr>
<td>55</td>
<td>Chhoen</td>
<td>Sombatt</td>
</tr>
<tr>
<td>45</td>
<td>Chhouen</td>
<td>Kosal</td>
</tr>
<tr>
<td>18</td>
<td>Choeut</td>
<td>Thorn</td>
</tr>
</tbody>
</table>

2. Click

1. enter ranger’s family name here

2. Click OK

11.3 To remove a ranger from the patrol

1. Select the ranger in the **Selected Rangers List**, eg:

<table>
<thead>
<tr>
<th>Employee Name</th>
<th>Employee ID</th>
<th>GPS</th>
<th>Head of Patrol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bun, Cheab</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pouy, Yanhong</td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chea, Kim</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chan, Rang</td>
<td>36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Click

[Delete Ranger]
**11.4 To add rangers from a previous patrol**

If you want to see which rangers were on a previous patrol, and then add those rangers to the current patrol:

1. Click on the checkbox next to **Use Ground Patrol**

2. Change the ground patrol ID to the previous patrol

3. The rangers from the previous patrol will appear in the **List of all rangers**. You can then individually add a member, or add all rangers from the previous patrol by clicking on:

![](Copy All Rangers)

**11.5 To specify the GPS user**

1. In the **Selected Rangers List**, click on the checkbox under GPS to specify the ranger who used the GPS on patrol. You can specify more than one ranger.

<table>
<thead>
<tr>
<th>Employee Name</th>
<th>Employee ID</th>
<th>GPS</th>
<th>Head of Patrol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bun. Cheab</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fouv. Vanthong</td>
<td>48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chea. Kim</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chan. Rang</td>
<td>36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**11.6 To specify the Head of Patrol**

1. In the **Selected Rangers List**, click on the checkbox under Head of Patrol to specify the ranger in charge of the patrol. You can specify more than one ranger.

<table>
<thead>
<tr>
<th>Employee Name</th>
<th>Employee ID</th>
<th>GPS</th>
<th>Head of Patrol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bun. Cheab</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fouv. Vanthong</td>
<td>48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chea. Kim</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Chan. Rang</td>
<td>36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12 Updating management sectors

12.1 When to update management sectors

If you have added a new patrol, or made changes to an existing patrol, when you close the Ground Patrol Data Entry window you will see the following:

Updating management sectors assigns each waypoint to a management sector (eg: Veun Sai, Taveng East, Taveng West, Siem Pang).

You need to update management sectors when you have added new waypoints (eg: manually or from a GPS download), or have changed the co-ordinates of any existing waypoints.

12.2 How to update management sectors

1. Click Yes

You will see:

2. Check All records. All waypoints will be re-checked and assigned (or updated) to a management sector. This may take a while.
Updating management sectors

OR

Click **Since**, and select a date. Only waypoints from this day onward will be checked and assigned (or updated) to a management sector.

3. Click **Apply**

4. Click **OK**
Chapter 3 Producing information
1 Introduction

MIST can produce information as

- a report - a report is a table of data that can be printed, saved, or exported
- a map query - information that can be displayed on the map of the PA and then further manipulated (zoomed in/out, moved around, and further information obtained about data on the map)
- a bar chart

The tools for producing information are

- Report builders - provide quick access to reports with a limited set of options
- Query wizard - provides access to reports with a complete set of options, and map queries that do not have associated reports (eg: the Patrolled Areas map query)
- Visual SQL query builder - an advanced tool for producing information from any database table
- Browse Tables - an advanced tool for producing information from any database table
2 Types of reports and map queries

2.1 Summary reports

Summary reports which show the totals for a period (month, quarter, year etc.) can be produced for
- Birds
- Mammals
- Reptiles
- Waypoints (all records) - includes position waypoints. Used for checking data entry has been correct.
- Visitors

2.2 Patrol summary

A report showing for each patrol in the period:
- the duration (number of days) of the patrol
- start and end date
- distance (km) covered by the patrol
- average distance (km) covered per day

2.3 Individual ranger report

A report showing for each ranger during the period:
- how many days were spent on patrol
- what distance was covered by the ranger

2.4 Map queries

Maps which show the location for a period can be produced for
- Birds
- Mammals
- Reptiles
- Waypoints (all records) - includes position waypoints
- Patrolled Areas - those parts of the park which have been covered by patrols
3 Starting the Query Wizard

1. Click on **Functions**

2. Click on **Query Generators**.

3. Click on **Query Wizard**.
4 Using the Query Wizard

When using the Query Wizard follow the hand
and
and finally

4.1 Page 1 - Information Type

1. Click on a information type, eg: Mammals
2. Click on the “check box” next to **Ground Patrols**

3. Click **Next**

### 4.2 Page 2 – Management Sectors

1. Choose which part of the park you want information for by clicking on that part, eg:
You can select more than one area.

or

Select all information by clicking on

Apply Query To Entire Protected Area

2. Click Next

4.3 Page 3 – Time Period

[Image of the YNP interface showing the selection of a time period]
1. Choose whether you want data for:

- a specific time period specified from one date to another
  eg: 17/02/03 -> 23/05/03

- a specific month
  eg: October 2003

- a specific quarter
  eg: July – September 2003

- a specific year or years
  eg: 2003, 2002-2004

2. Select the time period eg: October 2003

- go to the previous month (September)
- change the month
- change the year
- go to the next month (November)

3. Click the arrow under Add time

select an individual date, eg: 31 October
(has no effect if a monthly time period was chosen in step 1)
4. Repeat steps 1-3 to add any more time periods.

5. Click Next

4.4 Page 4 – Species/Items

Here you can select which particular observations (species/items) you want. NB: Page 4 does not appear for some query types, eg: Patrolled Areas

1. You can select individual observation by clicking on the Check box, eg:
Using the Query Wizard

*or*

Click **Check All** to select all observations.

2. Click **Next**

**4.5 Page 5 – Output Specification**

* Details of what was selected in previous steps appear here

1. Click here to display results on the map. After click **Close** to see the results

2. Click here to display results as a chart

3. Click here to include the map currently on the screen in the report
4. Click here to display results in a table (report)

4.6 Advanced – displaying information for a specific patrol

If you want to produce information for a specific patrol, for example patrol 24:

1. On Page 3 – Time Period, select a time period that includes the patrol, eg: if the patrol if from 17/8/03 to 24/8/03 select August 2003 as the time period

2. When you get to Page 5 – Output Specification, select Ground Patrols in the Source box:
   ![Source: Ground Patrols](image)
   Click here

3. Click Edit SQL
   ![SQL Query Editor](image)
   The SQL Query Editor will appear:
   
   ```sql
   (OBSERVATION='Bear sp.' AND OBSERVATION_CODE='Scratch') OR
   (OBSERVATION='Brush-tailed Porcupine' AND
   OBSERVATION_CODE='Sighting') OR (OBSERVATION='Elephant' AND
   OBSERVATION_CODE='Trail') OR (OBSERVATION='Gaur' AND
   OBSERVATION_CODE='Footprint') OR (OBSERVATION='Hog Badger' AND
   OBSERVATION_CODE='Footprint') OR (OBSERVATION='Macaque sp.'
   AND OBSERVATION_CODE='Sighting') OR (OBSERVATION='Muntjac
   sp.' AND OBSERVATION_CODE='Footprint') OR (OBSERVATION='Figu-
   tailed Macaque ' AND OBSERVATION_CODE='Sighting') OR
   (OBSERVATION='Sambar' AND OBSERVATION_CODE='Footprint') OR
   (OBSERVATION='Stump-tailed Macaque' AND
   OBSERVATION_CODE='Sighting') OR (OBSERVATION='Wild Pig' AND
   OBSERVATION_CODE='Footprint') OR (OBSERVATION='Yellow-cheeked
   Gibbon' AND OBSERVATION_CODE='Sighting')
   ```
5. Click in the text box at the very bottom and type **AND PATROL_ID = 24**: 

6. Click **Accept** and continue as usual

**REMEMBER:** On Page 3 you must select a time period that includes the date of the patrol

### 4.7 The Patrolled Areas Query

NB: This report shows data for any patrol days inside the period, even if the patrol begins or ends outside the period. Any days of a patrol outside the period are not included.

To produce the Patrolled Areas Query follow the steps for the pages above. However Page 4 (Species/Items) will not appear.

When you get to Page 5:
2. Select **Patrolled Areas**

3. Click **Run Mapping Query**

4. 7.1 Producing a patrolled areas query for a specific patrol:

   eg: Producing a patrolled areas query for patrol 24

   Before Step 3 do the following:

   2a. Select **Ground Patrols** in the **Source** box:

      ![Source: Ground Patrols](image)

      Click here

      Then select **Ground Patrols**

   2b. Click **Edit SQL**

      ![Source: Ground Patrols](image)

   2c. At the end of the text type **WHERE PATROL_ID = 24:**

   ![Source: Ground Patrols](image)
2d. Click **Accept**, then return to Step 3.

**REMEMBER:** On Page 3 you must select a time period that includes the date of the patrol.
5 Working with the map

5.1 The legend

Everything on the map has a corresponding entry in the Legend.

5.1.1 To temporarily remove items from the map

1. Click on the item’s corresponding legend entry checkbox.

Eg: to remove the Civet sp. Footprint observation locations from the map click here:

Civet sp. Footprint observations will no longer be displayed on the map.

To display the Civet sp. Footprint observations again, click the unchecked checkbox.

5.2 The map
Working with the map

You can use the following tools on the map:

5.2.1 Default pointer
This tool is the default tool when starting MIST-GIS. It does not do anything to the map.

5.2.2 Shape information
This tool can be used to get information about something on the map.

1. Click the shape information tool

2. Select the item of interest from the legend by clicking on the item’s name.
   eg: Click Bear sp. Scratch

3. Select the item of interest on the map, eg:
or

drag a box around an area that contains the item of interest:

Information about that item will then appear, eg:
5.2.3 Pan
This tool can be used to move the map around.

1. Click the pan tool

2. Click and drag on the map to move it around.

5.2.4 Zoom in
This tool can be used to enlarge the map

1. Click the zoom in tool

2. Click on the map to zoom in

or

Click and drag a box around an area of the map

5.2.5 Zoom out
This tool can be used to shrink the map
1. Click the zoom out tool

2. Click on the map to zoom out

**5.2.6 Full extent**

This tool can be used to return the map to its original (full-extent) size.

1. Click the full extent tool

**5.2.7 To reset the map to its original layers**

To restore the map to its original layers, ie: how it looks when you first start MIST, do the following:

1. On the main menu, click Files:

   ![Menu Options]

2. Then click Edit Projects:

   ![Edit Projects Option]

   The Edit Map Layers window will appear.
3. Click Close.

The following confirmation window will appear:

4. Click Yes.
6 Using the Report Builders

1. Click on Functions

2. Click on Report Builders.
Using the Report Builders

You will see the following:

3. Click on one of the report builders, eg: Mammals
4. (Optional) If the **Select a Region** window appears:

   a) Click on **Virachey National Park**

   b) Click on **Continue**

5. The following will appear:

   ![Specify Period of Report window](image)

6. Select the length of time you want the report for, eg: Month
Using the Report Builders

7. Select the date, e.g. June 2003

8. *(Optional)* If you want to display only observations designated as ‘key observations’, check the **Key observations only** checkbox.

9. *(Optional)* If you want to include a map in the report output, check ‘Include map in report’

10. To display the observations on the map, click:

11. To produce a report, click:
Chapter 4 Database Backup & Restore
1 Database Concepts - Database Users

1.1 What is a user?
- a person who uses the database
- different users have different abilities
- when you change users, the data stays the same, but what you can do (abilities) is different

1.2 DATAENTRY User
- General purpose user for day to day tasks
- Most of the time, you will use this user
- Can enter data
- Can make reports
- Cannot delete data
- Password is “Data”

1.3 SYSDBA User
- The most powerful user
- Can do anything to the database
- Can do everything DATAMAN can do
- But can also backup, restore, delete
- Use only for administration, not day to day tasks
- Whenever using SYSDBA, be very careful
- Password is “Bpamp”
2 Database Concepts - Backup & Restore

2.1 What does the word Backup mean?

2.1.1 Backup – verb/process
- a process whereby the data in the database is copied to a different location.

Before

After backup (verb/process)

- The different location will usually be one or more files and can be stored anywhere - tape, CD, hard-drive, etc.

2.1.2 Backup – noun/object
- a copy of the data
- Each backup (noun) is from a certain date. The date is the date the backup (verb) was performed.

Data (same/copy) = backup (noun)

Backup has a date, eg: August 2003

2.2 Why do we Backup?

Something bad could happen to the data in the database, for example:
- We accidentally delete the data
- The computer corrupts the data

Thus we have lost the data.

But if we have a backup (noun) of the data, we can use this. Taking the data from the backup (noun) and putting it back in the database is called restoring the database.

2.3 Restoring the database
2.3.1 Restore (verb/process)

Before restore

Step 1 – the database is emptied

Step 2 – the backup is restored

Each backup (noun) is from a certain date, so any data put in the database after the backup (noun) was made will be gone. In the above example, any data entered in September 2003 has been lost.
3  Backing up and restoring the MIST database using IBConsole

3.1  Starting IBConsole to backup or restore

1. Close MIST before backing up the database.
2. Start IBConsole by clicking on the desktop icon or from the Start Menu: Programs -> Interbase -> IBConsole

You will see:

3. Double click Local Server

4. Here type Bpamp

5. Click Login
6. Click + to expand **Backup**

7. Click **VNP**

### 3.2 Backup the database

8. Double-click **Backup**

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup</td>
<td>Back up an InterBase database</td>
</tr>
<tr>
<td>Restore</td>
<td>Restore an InterBase database</td>
</tr>
<tr>
<td>Modify Backup Alias</td>
<td>Modify an existing backup alias</td>
</tr>
<tr>
<td>Delete Alias</td>
<td>Delete the current backup alias</td>
</tr>
</tbody>
</table>

9. Click on the backup filename
10. Click here and type to change the filename.

The date on the filename must be the current date and follow this format:

\texttt{vnp\_YY-MM-DD.gbk}

Where:
- \textit{YY} = the last two digits of the year, eg: 04,05,06,07,08 etc.
- \textit{MM} = a two digit number representing the month, eg: 01,02,03,04.. etc.
- \textit{DD} = a two digit number representing the day, eg: 08,09,10,11 etc.

eg: \texttt{vnp\_04-05-10} is a backup done on the 5\textsuperscript{th} of October 2004.

11. Click on \textbf{To Screen}

12. Change \textbf{To Screen} to \textbf{None}

13. Click \textbf{OK}

When the backup successfully completes you will see:

14. Click \textbf{OK}.

\textbf{3.3 Restore the database}

8. Double-click \textbf{Restore}
9. Click VNP

10. Click File…

11. Select the file you want to restore from in the window that appears.

12. Click False (next to Overwrite).

13. Click True

14. Click OK

When the restore successfully completes you will see:

15. Click OK