Bringing the 1:250,000 Map into the 21st Century

John Dancy
Small Scale Cartography Production Manager
Overview

• What is Ordnance Survey (1 slide!)
• A Short History of the 1:250 000 map
• The Production System as it is/was
• The Production System as it will be
• Anecdotes

• Followed by questions?
Ordnance Survey - Overview

- United Kingdom’s National Mapping Agency
- Founded 1791, we are an Executive Agency within a Government Department
- Annual operating turnover of $235 million
- 1450 staff
- Based in Southampton – Field offices around the country

for more please see me later!
A Short History of the 1:250 000 Map
First Series - 1891

- Only available as black and white
Colour – 1903 and 1926

- Experiments with colour gave interesting results
Current Paper/Raster Edition

- Less garish but somewhat busy
The Production System as it is
1:250k Core Data
1:250k CAA Database
1:500k CAA Database
1:625k CAA Database

Tour Map Data

Admin Boundary Maps
Road Map Series
Data for Readers

ICAO Aeronautical Charts
AIDU Low Flying Charts

Route Map Series
Historical Maps
Admin Boundary Maps

Various other data products

EuroRegional Map
EuroGlobal Map
Also
Old Equipment

Not exactly WYSIWYG

Software Support – finished April 2006

Hardware Support – if we can we will

(but it might not work)
Data for each database is held in up to 55 tiles

And

It is Spaghetti data
The Production System as it will be
ArcGIS 9.2 to the Rescue

Especially:

ArcGIS Interoperability Extension
ArcGIS SDE and
ArcGIS PLTS
Digital Landscape Model

Digital Carto/Data Model
One per product

Representation Layer

Product

Final Data Model (?)
Translation of 1:250k data

• 1. Analyse the existing feature classification.
Translation of 1:250k data

• 1. Analyse existing feature classification

251 relevant feature codes comprising:
- 45 contours
- 86 line codes
- 78 point codes
- 11 polygon codes
- 31 text features
2. Identify the database structure.
2. Identify the database structure

Using the Digest and EuroRegionalMap specifications for
7 themes and 52 feature classes

Establish themes and feature classes required.
Allocate lines, points and polygons to feature classes.

3. Translate existing data into these feature classes.
2. Identify the database structure

Using the Digest and EuroRegionalMap specifications for 7 themes and 52 feature classes

Establish themes and feature classes required.
Allocate lines, points and polygons to feature classes.

3. Translate existing data into these feature classes.
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Lines transfer as lines or polygons

Polygons transfer as lines or polygons
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e.g. *Road centre lines can go round in a loop*

Polygons transfer as lines or polygons

e.g. *Polygons might not be closed, and there are 55 tile edges to break*
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Polygons transfer as lines or polygons
  e.g. *Polygons might not be closed, and there are 55 tile edges to break*

The Interoperability Extension makes it easier
4. Merge detail across tile edges.

One contour, 962,000 metres long, had a 14 metre gap at the end.

The Interoperability Extension makes it easier
4. Create a style sheet.
Layering Questions

• What features in a layer?
• Give each layer a meaningful name
• What order do they appear?
• How do we keep them to the minimum?
Interaction of lines and symbols

Road Junctions
Overs and Unders
Symbol Holdout
Roundabouts
And many more!!
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27th ESRI User Conference 20th June 2007
Interaction of lines and symbols

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And many more!!
Everything OK – apart from no text
1:250 000 text

- No graphic text obtained from feature attribution
- 80,293 individual text objects
- Text boxes in which the text sits
- Varies from single letters, numbers and punctuation to multiple words
  - with v9.1 of the Interoperability Extension
- Transfer Scale of 1:1
- All text positions translated as bottom centre
Interop Extension v9.2

- Confirmed by developers that translation is far better than v9.1
- Did not arrive until March 2007, too late for this paper
- Suspect it will not cure all our problems

- But translation must be better.
What Next?

- Translate all seven databases to ArcGIS
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- Result is a single source, single update, and consistency between products.
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• Translate all seven databases to ArcGIS

• Identify common features and migrate to single source of supply from core DLM

• Result is a single source, single update, and consistency between products.

• Improve attribution, especially feature naming, so that text positioning becomes more automatic.
What Next?

- Set up multi-user environment using Arc SDE
- Replace existing sheet styling processes and pre print processes using PLTS
- Identify new product possibilities.
Problems ?
Servicing existing data customers
Servicing existing data customers

How do you get data from ArcGIS to NTF ??
Servicing existing data customers

How do you get data from ArcGIS to NTF ??

If you know please see me afterwards !
Anecdotes
Improving Quality
Source data as backdrop

1:250k built up areas
In pink
Railways were shown running through the stations, contrary to specification

Old

Now
• All 102 Aqueducts had been shown as passing under the road or railway
Questions?