CONCEPTS

- Internet
- W W W
- Internet GIS Vs. Web-based GIS
- Distributed GIS
- Forms of Internet Mapping

Internet

- is any network composed of multiple, geographically dispersed networks connected through communication devices and a common set of communication protocols

Internet affecting GIS is 3 major area:

1. GIS data access
2. Spatial information dissemination
3. GIS modeling / processing

World Wide Web (www)

- is a networking application supporting a HyperText Transfer Protocol (HTTP) that runs on the top of the Internet. It is a means of accessing information over the internet. Web is the major important part of the Internet.

Internet GIS Vs. Web-based GIS

Internet GIS

- refers to the use of the internet as a means to exchange data, perform GIS analysis, and present results.

- May not use the Web as a sole client; it can use other clients.

Web-based GIS

- refers to the use of the WWW as a primary means

- Uses the Web as a client

Both use the client / sever computing model.

Distributed GIS

- What is distributed GIS?
- Development path of distributed GIS
- Why do we need this?
- Categories of Distributed GIS
- Basic components
  - components of Internet GIS
  - components of Mobile GIS

What is distributed GIS?

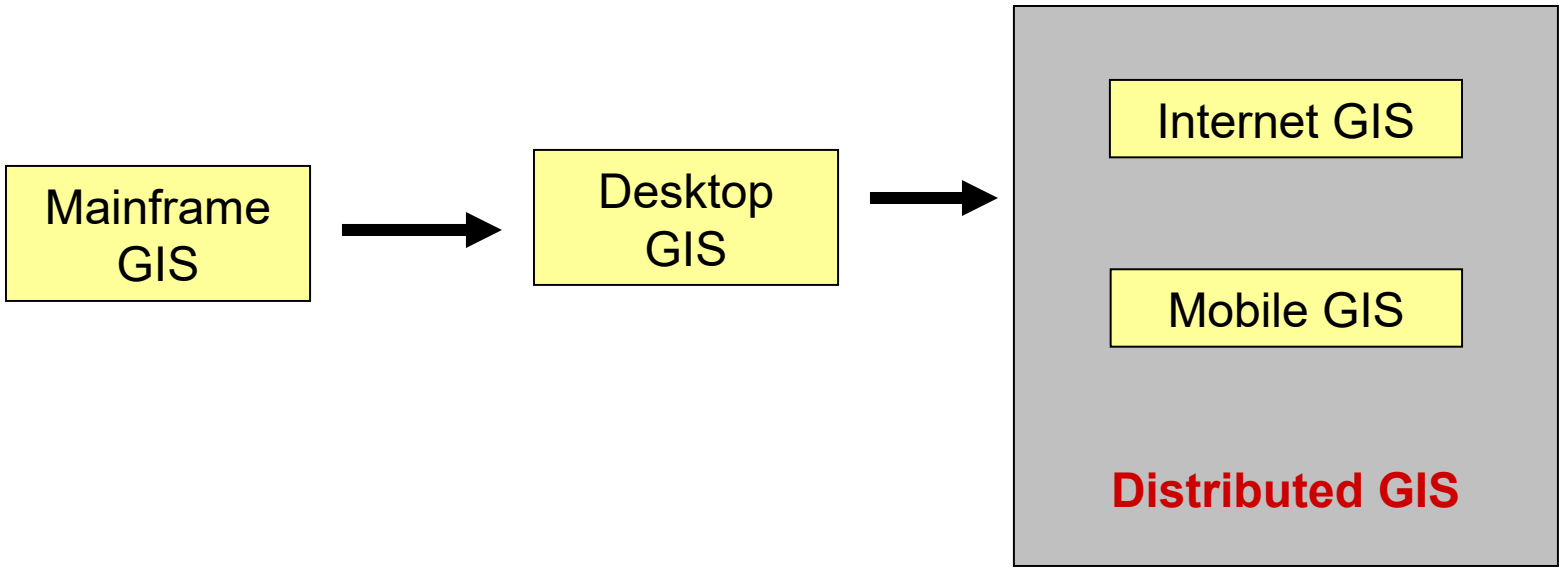
Distributed GIS refers to a Distributed platform of accessing and processing geospatial data using distributed GIService components on the internet

- Does not require the user to install GIS programs on the user's desktop.

- User can access the GIS analysis tools and data from anywhere with internet access or wireless data service coverage.

- The client could be a desktop computer, a laptop computer or a mobile phone.

A Development path of distributed GIS



Why do we need this?

- Management perspective
  - globalization of geographic information access and distribution.
  - decentralization of geographic information mgmt. & update
- User perspective
  - to cope with increasing size and variety of geospatial data sets.
  - need for customizable GIS modules for software package specialization.
  - demand for location-based information from the general public
- Implementation perspective
  - lack of a high-level architecture that can support logical construction methods.

Categories of Distributed GIS

- Internet GIS

  - is a research and application area that utilizes the internet and other internetworking systems (including wireless communications and intranets) to facilitate the access, processing and dissemination of geographic information and spatial analysis knowledge.

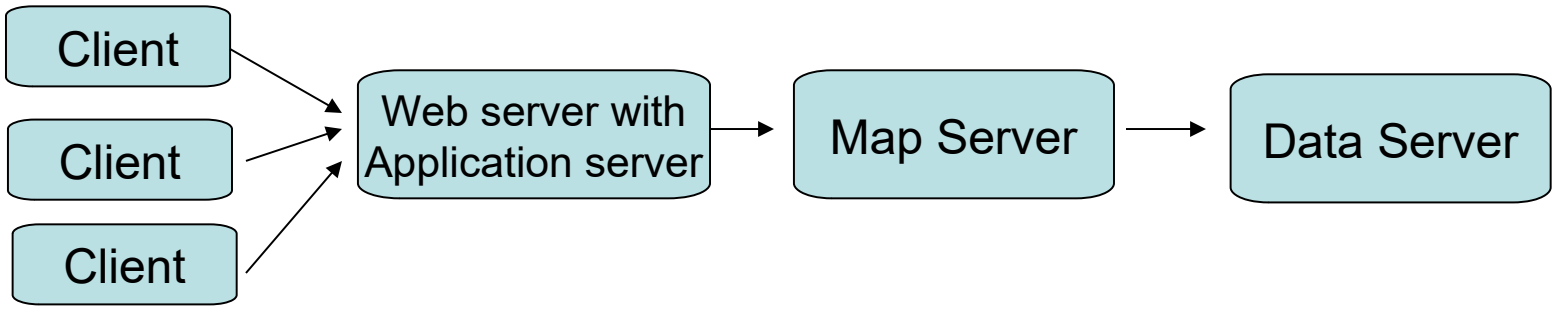
- Mobile GIS

  - refers to the access and use of GIS data and functions through mobile and wireless devices such as mobile laptop computers, PDAs such as Palm Pilots and pocket PC devices and web accessible smart phones.

  - the major users are the field workers and consumers of location-based services

Basic components

- **Basic components of Internet GIS**



- **Basic components of Mobile GIS**

- mobile device clients
- wireless communication networks
- gateway services
- internet GIS servers

Forms of Internet mapping

- Graphic snapshots (maps)
- Spatial database catalogs & libraries
- Map generators
- Real time Map browsers
- Real time Map & Images

Graphic snapshot (map)

- A graphic snapshot of pre – generated map is the easiest way to put a map image on the web.

Procedure:

- Generate map with a GIS software package
- Create image file
- Write html tags and put the image file in the web document

Eg:

GIF image, GEOTIFF for arcinfo 7.1 & ArcView x, AutoCAD images.

Spatial database

This has got four components

1. Metadata (information about the spatial data)
2. Index map (showing location of other maps)
3. Graphic preview (such as GIF images)
4. Spatial data in a digital format

- Users can download these files and cannot browse directly in their web server

- Spatial data contain Arc/Info export format, ArcView shape files, AutoCAD DWF files and SDTS (spatial data transfer standard) etc.

Generating map

- Uses a web-based browser form
- User enters specifications such as location, thematic layer & symbols on the form
- Web server→ GIS server→ create graphic file → to client-viewed using native browser capabilities

Advantage:

- Creating custom maps on the demand of users

Disadvantages

- Lack of access to raw spatial data
- Slow speed
- Limited predefined user choices and involved setup

Real time Map Browser

- Provides access to very large spatial data bases
- Allow user to browse, display, query, retrieve and update maps on-line

So,

- It requires a powerful spatial data server and clients
- Systems used for implementing interactive maps include

⇨ESRI Spatial Database Engine (SDE)

⇨ESRI map objects / ArcObjects

⇨'Autodesks' Map Guide Technology for interactive authoring publishing, serving and browsing of map information

Real time Maps & Images

- Instead of real – time browsing of a static map, a real time map is generated from online sensor data
- Lag of a few minutes but show current status
- Real – time images by video cameras (web cam) includes terrestrial cameras as well as satellite based imaging.

Tamil Nadu Maps Online - Windows Internet Explorer

http://tnmaps.tn.nic.in/

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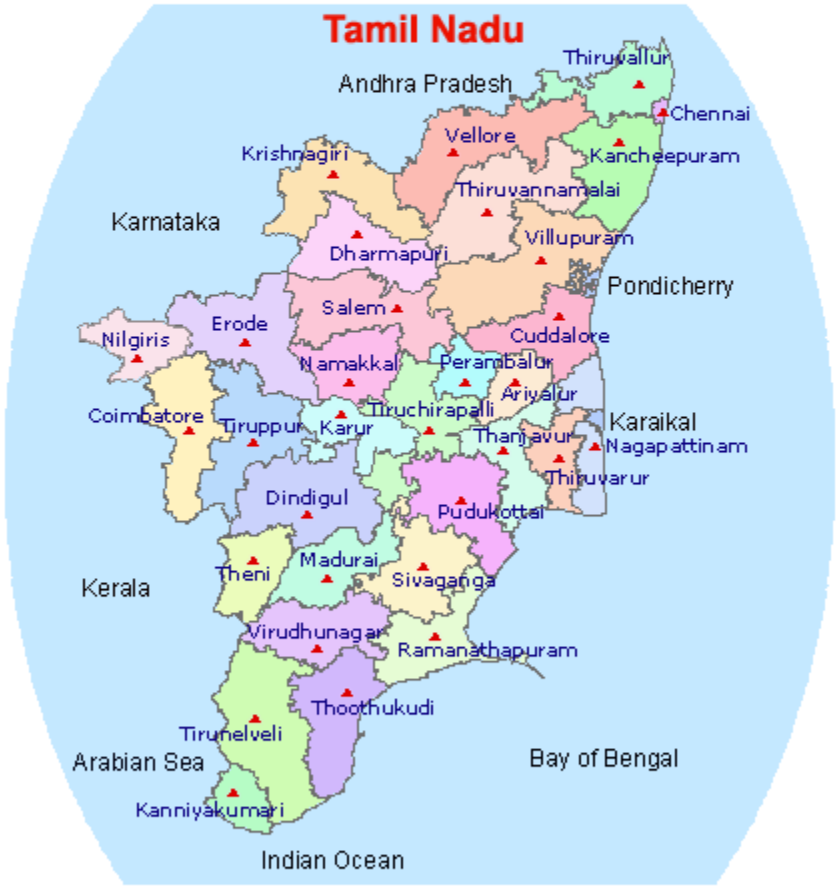
Government of Tamil Nadu

GIS for Tamil Nadu



Select district (Click on map)

Select District

தமிழ் வரைபடங்கள்

Tamil Maps

[At a Glance](#)

State Level Administrative Maps:

- [Districts](#)
- [Taluks](#)
- [Blocks](#)
- [Revenue Divisions](#)

Districts

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GIS DIVISION - National Informatics Centre-Tamil Nadu State Centre, E-2A, Rajaji Bhavan, Besant Nagar, Chennai-90
Email : tngis@tn.nic.in

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தமிழ்நாடு அரசு

Government of Tamil Nadu

GIS for Tamil Nadu

strict At a Glance
strict Admn. Units:
District
Revenue Divisions
Taluks
Blocks
Municipalities
Town Panchayats
strict Collector
earch
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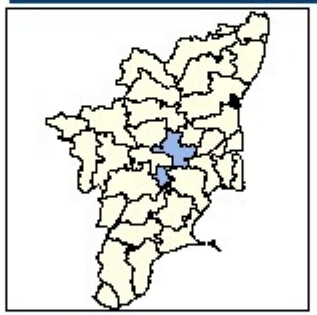
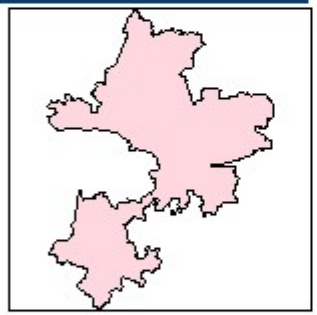
Select District: wel
Tiruchirappalli

தமிழ் வரைபடங்கள்
Tamil Maps

Tiruchirappalli District



Revenue Divisions	3
Taluks	8
Blocks	14
Corporation & Municipalities	4
Town Panchayats	17
Revenue Villages	507
Panchayat Villages	408



District Web Site

IS DIVISION - National Informatics Centre-Tamil Nadu State Centre, E-2A, Rajaji Bhavan, Besant Nagar, Chennai-90
Email : tngis@tn.nic.in

Internet 100%

http://tnmaps.tn.nic.in/district.php?dcode=15

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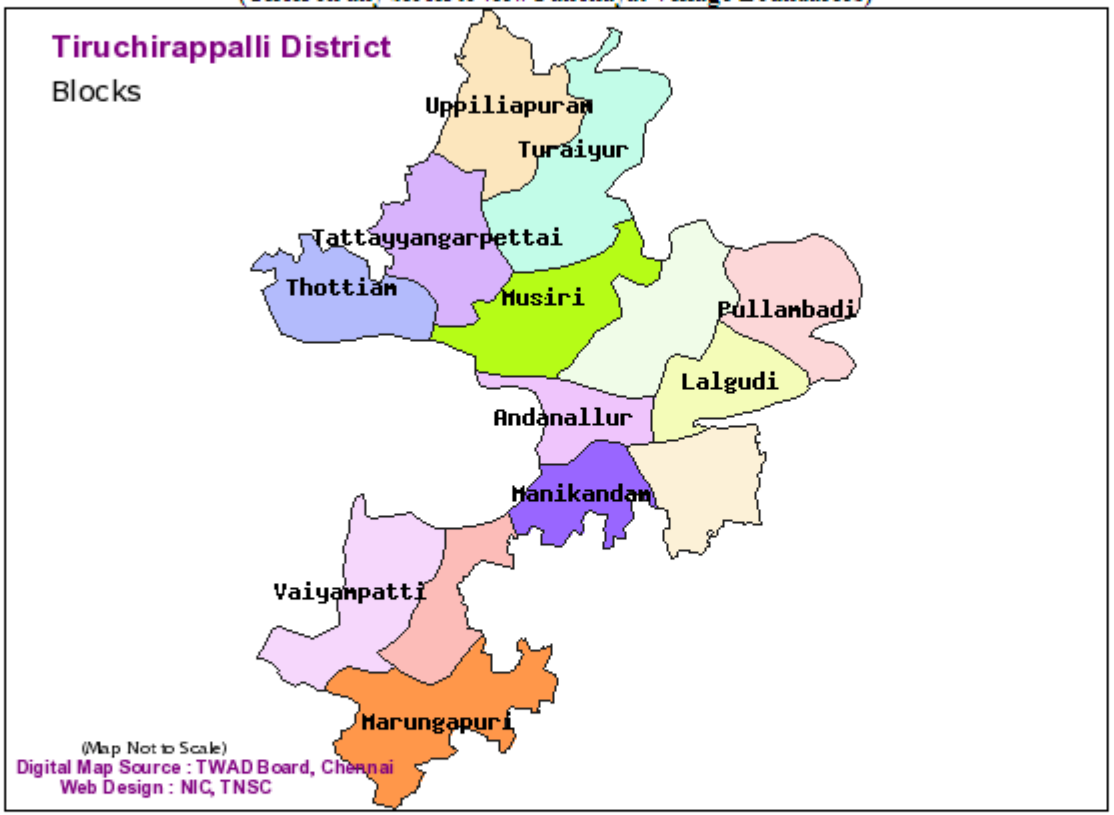
Favorites District Maps Online

Page Safety Tools

(Click on any block to view Panchayat Village Boundaries)



Number of Blocks		14	
Number of Panchayat Villages		408	
(Select any Block)			
Block	Panchayat Villages	Block	Panchayat Villages
Andanallur	25	Lalgudi	45

Internet