

Configuration

TNTserver is a geodata server designed to provide Internet or intranet access to the contents of any TNTAtlas by any remote client compliant with the operations defined in the Open Geospatial Consortium's (OGC) specifications for a Web Map Service (WMS). Using these ISO 19128 standard WMS operations, TNTserver renders composite views of these massive collections of raster, vector, CAD, TIN, and relational database materials as JPEG, JP2, PNG, or SVG views. A WMS capable client can request an image from TNTserver generated in any of the thousands of standard Coordinate Reference Systems (CRS, ISO 19111:2004) supported by the TNT products. TNTserver's support of Web Coordinate Transformation Service (WCTS) allows a WCTS capable client to translate features (points, lines, polygons, and so on) from one CRS to another. For example, this feature can be used to enhance a WMS client by converting a measurement line from decimal degrees to a projected CRS so that calculating the distance along the line is far more accurate. If the WMS layer is in a projected CRS, a call to a WCTS can convert the WMS layer extents into Lat/Lon extents for ease of use with other reference images.

The TNTserver Manager is a graphic interface that lets the system administrator modify configuration settings necessary for TNTserver operation after TNTserver is installed. Additional features, such as automatic work directory cleanup and the list of layouts to cache automatically are also set here. These settings are presented on nine tabbed panels in the TNTserver Manager window.

TNTmap is a sample client implemented in HTML and compliant with Open Geospatial Consortium (OGC) specifications and sites. It does not require the installation of Tomcat as part of a TNTserver installation. It uses a small program called TNTgateway (tntgateway.cgi) for this purpose. The CGI source code for TNTgateway is provided by MicroImages so you can modify it to add additional functionality, such as load balancing between TNTservers.

TNTserver also supports several earlier client services and open, modifiable clients supplied by MicroImages. TNTbrowser and the Java-based TNTclient require only TNTserver on a machine with an open 4750 port. The HTML-based TNTclient requires the additional installation of Tomcat to act as a gateway.

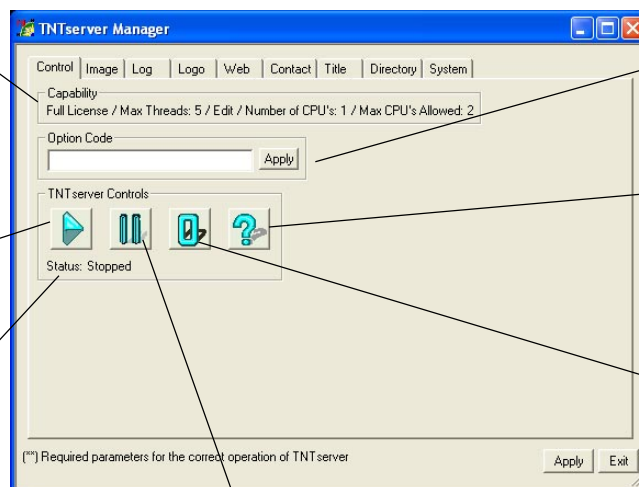
Managing General Controls

The Control panel reports your TNTserver license options, provides a means to upgrade your license options by entering an option enable code, and lets you start, stop and pause TNTserver.

Lists your license level (full or demo with expiration date for latter), maximum number of compute threads, if editing of editable vector layers is authorized, number of CPUs detected on your machine and the maximum number of CPUs allowed with your license.

Start button starts TNTserver again after it is paused or stopped.

The TNTserver status is determined when TNTAtlas Manager is launched and is updated with the Status button.



Lets you enter option enable codes for additional capability that you get when you purchase TNTserver upgrades from MicroImages.

Status button updates the status shown below to the current status.

Stop button stops TNTserver, which means there is no access to the atlases served by TNTserver. If stopping/restarting TNTserver is necessary for your configuration updates, you will be notified when you click Apply.

Pause button lets you pre-load additional atlases into the system and is the state your TNTserver will assume if the key is removed.

Managing Image Properties

The Image tabbed panel lets you set a variety of image properties, such as which image types can be sent in response to client requests, quality/compression values for JPEG and JP2 files, and maximum image dimensions. You also can select a layout list for layouts to be cached when TNTserver is started, which is required for a Web Map Service, and indicate the maximum number of layouts to be cached.

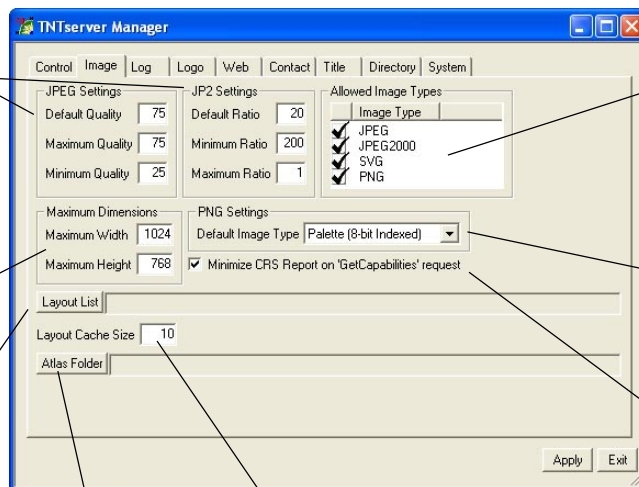
Atlas layouts that are not on the layout list are cached the first time they are viewed. For complex layouts that may have hundreds of large layers, this may take minutes and the user of the TNTclient waiting for a response may give up before the initial request is fulfilled. This initial caching delay may not be noticed for smaller layouts. When the number of layouts cached exceeds the Layout Cache Size, the layout with the longest idle time is removed from the cache unless the layout has the *Keep layout in TNTserver cache* option set. This option is set from Layout/Options in TNTmips and should be used only for large, complex atlases. Layouts with this option set must also be on the Layout List to be cached before they are viewed the first time after TNTserver starts/restarts.

JPEG quality is expressed as a percentage of original quality, such that 80 means 80% of the original image information is retained. JP2 quality is expressed as a compression ratio (20 means lossy 20:1 compression while 1 means lossless compression). Note that the highest quality images sent will use the maximum quality (JPEG) or minimum ratio (JP2) value set, which means you can purposefully degrade the quality of the imagery supplied by TNTserver when sent in response to a client request if desired. Web Map Service requests only use the default image quality value.

These fields set the image quality sent in response to a client request. The default value is used for Web Map Server client requests. HTML clients can request a specific image quality but the request will only be sent in the minimum to maximum quality range specified.

Maximum image dimensions that will be sent by TNTserver.

The Layout List specifies which layouts are cached when TNTserver is started (initially or after having been stopped). Clicking on the Layout List button lets you select either a single TNTAtlas file (*.atl) or a text file that contains a list of TNTAtlas files. These files can be listed individually or by directory name, which will include all TNTAtlas files in the named directory in the list. A Layout List is required by Web Map Service specifications but not for other uses of TNTserver.



These check boxes set the image types TNTserver can send in response to a client request. The client can choose from among these image types for the format received.

Set the type of PNG to send in response to a client request: Palette (8-bit Indexed) or True Color (32-bit RGBAlpha).

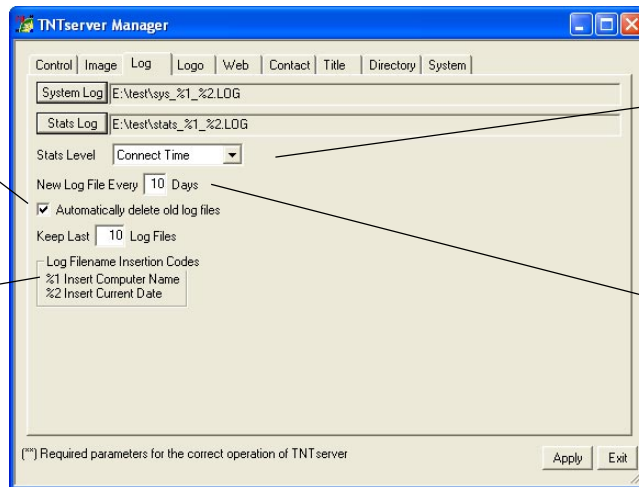
Maximum number of layouts that will be cached before the least recently used layout not designated as a layout to keep is removed from the cache.

The atlas folder contains the *.atl files for the atlases available from TNTserver. These files may contain instructions that restrict the information about the contents of the layout named in the .atl file. In the absence of such instructions, the name of layout, all of its groups, and all of their layers are listed for selection when accessed by a client.

TNTserver supports thousands of Coordinate Reference Systems (CRS). The complete list approximately triples the size of the XML file created in response to a client's GetCapabilities request (for example, 35 KB to 103 KB). Turning on this option reduces the number of CRSs listed to a handful, which include Latitude/Longitude (WGS84/ Geographic) and those defined by the Web Map Service. If groups in the layout use other CRSs, those CRSs can also be used for retrieval of images.

Managing Logging

The Log tabbed panel lets you indicate where you want your server system and statistics logs to be saved, which statistics you want logged, and how to maintain these files. The system log reports the time that atlases are opened and closed and any errors generated during atlas operation. The statistics log can contain three types of information: connect time, thread time, and request type. If you select Connect Time, the time for TNTserver to complete each task is recorded in the designated file as comma separated values. If you choose Thread Time, the time for each thread category (receive, compute, and send) is included also. Choosing Request Type adds the type of request to the thread time information. Log files can grow rapidly if you receive many requests. The Thread Time option produces a file four times the size of the Connect Time option while Request Type adds another 12 percent.



If you turn on this option, you can enter the number of log files you want to keep.

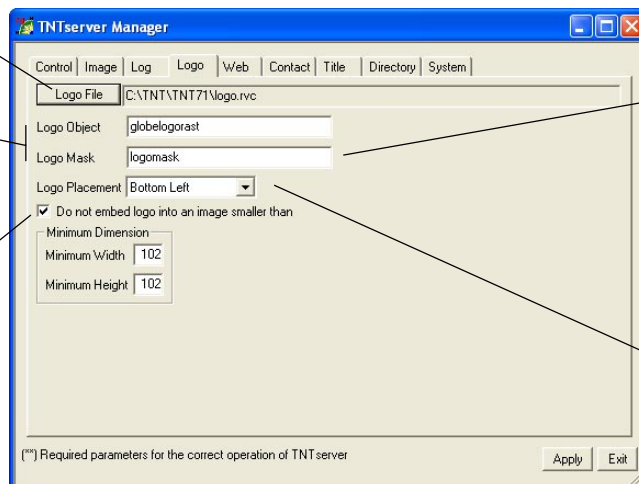
Include these in your system and statistics logs file names to insert the machine name and date in the name of the log file. The date is inserted in the format set for the computer running TNTserver. For example, if you enter `sys_%1_%2` when naming your file, your system log will be named `sys_tntservermachine_23_6_2005.log`.

The statistics level is presented in a least to most hierarchy with the least (Connect Time) as the default. Other options are Thread Time and Request Type (see above).

Set to determine how many days' information is kept in an individual log file. After that number of days, a new log file is created. If you choose to have log files automatically deleted using the defaults of keeping 10 log files and creating a new log file every 10 days, you will have log information going back 100 days before the first log file is deleted.

Managing Site Logo

The Logo tabbed panel lets you specify information for the logo that is placed in the image returned by TNTserver. Logos must be RGB raster objects in Project File, PNG, or JPEG format. You should consider making your logo partially transparent, which is done with an 8-bit mask for logos in Project File format or using the alpha channel with PNG files, so it blends with the geospatial data beneath. You also want transparency for non-logo areas of the logo raster if your logo is not rectangular. JPEG does not support transparency.



This button lets you navigate to and select the file that contains the logo and its mask.

You enter the name of the logo and mask in these fields.

Turning on this toggle lets you set the minimum dimensions of an image for logo insertion. This prevents the majority of a small image from being covered by your logo.

The logo mask is to provide transparency for logos in Project File format. It is an 8-bit mask with 0 being fully transparent and 255 fully opaque. The logo mask used by TNTserver at MicroImages' web site uses 108 to provide partial transparency for the logo itself and 0 for the rest of the rectangle.

Choose from top left, center left, bottom left, center right, bottom center, bottom right, top right, top center, and center of the view for logo placement or choose no image so the logo does not display.

Managing Web Access

The Web panel specifies where to find the work directory from your server and from the Internet, where the Common Gateway Interface (CGI) program (tntgateway.cgi) that provides the interface between TNTserver and its web requests/responses resides, cleanup parameters for the work directory, and where the print template used by the HTML version of TNTclient is located. The work directory is where the files generated by TNTserver in response to client requests go, which can be on a different computer than TNTserver. These include the images/SVG layers generated in response to client requests and the HTML layouts generated for printing from the HTML version of TNTclient.

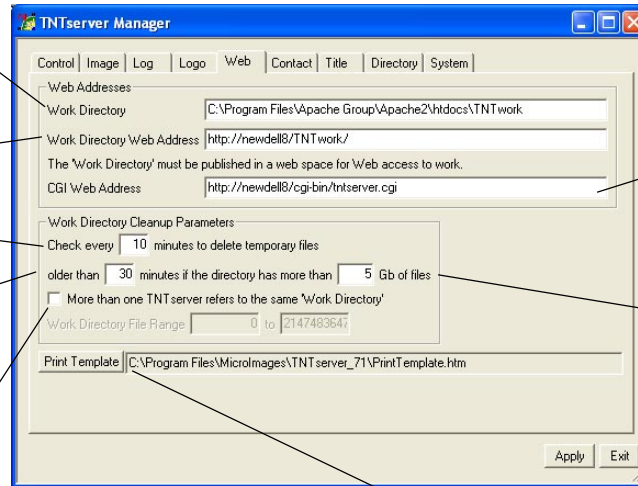
Enter the path to the work directory for the computer where TNTserver will place its files.

Enter the web address for the same directory referenced above.

Set how often to check for files to be deleted.

Set how old files need to be before they become a candidate for automatic deletion.

If other TNTservers use the same work directory, turn on this toggle and specify the file range for this TNTserver, which should be different than that for other TNTservers using the same work directory. This prevents one TNTserver from cleaning up files generated by another TNTserver.



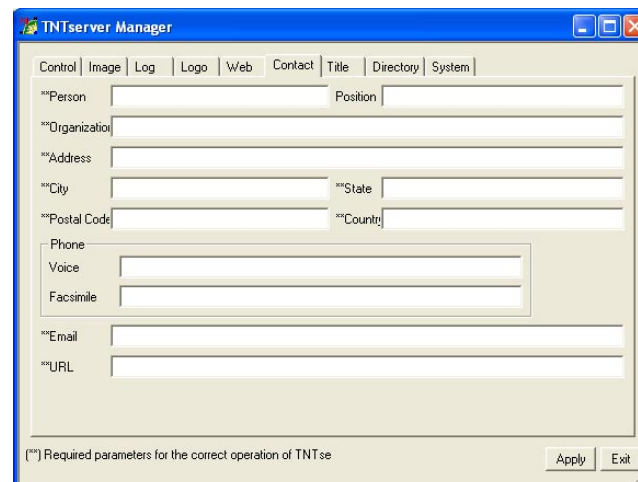
Enter the web address for the tntgateway.cgi program. This address should end with the default entry provided.

Files are not checked for deletion until the contents of the work directory exceed this value.

Browse to and select your HTML layout print template for use by the HTML version of TNTclient if you have moved it from its installed location, which is filled in by default.

Managing Administrator Contact

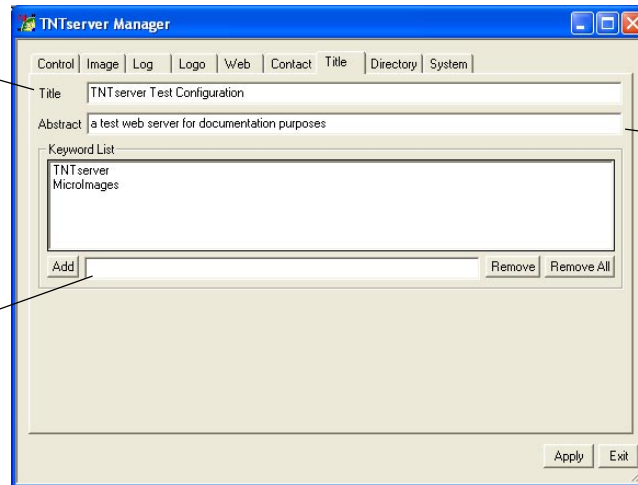
The information on the Contact tabbed panel identifies the system administrator and is required by OGC for the Web Map Service GetCapabilities operation. Required fields are marked with **. This information is added, along with the title, abstract, and keywords, to the capabilities of the OGC web service according to the ISO 19115 specification. The only fields not required are the position of the contact person and phone contact information.



Managing ID Titling

The information on the Title tabbed panel is added, along with the contact information, to the capabilities of the OGC web service according to the ISO 19115 specification.

The title is the name you use to apply to all atlases available through TNTserver at your site.



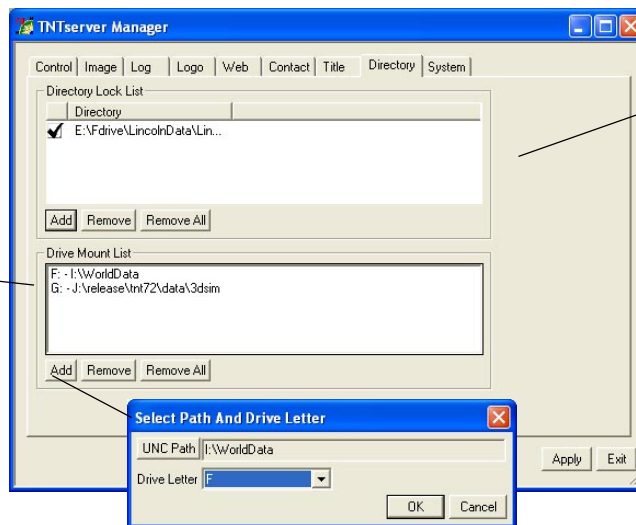
The abstract is your description of your TNTserver site.

You type each desired keyword into this field, then click on Add. TNTserver installs with MicroImages and TNTserver already added as keywords.

Managing Directories

The Directory tabbed panel lets you select directories to be locked from TNTserver access and specify your drive mount letters for atlases on remote resources.

The drive mount list tells TNTserver how to find files referenced on remote resources in an atlas. Clicking on Add opens a window for you to specify the UNC (Universal Naming Convention) path and designate the corresponding drive letter.



Place directories in this list to prevent access to them by TNTserver so that you can update files without pausing or stopping TNTserver. TNTserver can then still access atlases in other directories. Remember to remove directories from this list after update so they can be used by TNTserver again.

Managing System Parameters

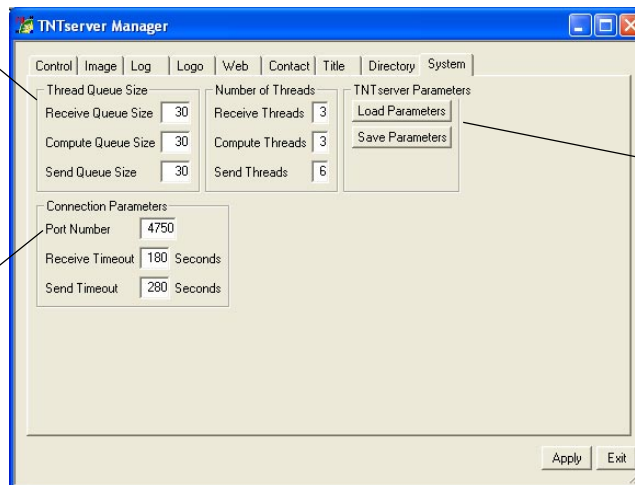
You specify queue sizes, thread distribution, and connection parameters on the System tabbed panel. You can also save the parameters you have specified in the TNTserver Manager or load the parameters saved by another TNTserver. The port number specified for communication with TNTserver must be open and not filtered by a firewall or router. The number of compute threads is the number of threads that can be processed, or computed, at the same time. It is recommended that this number be no more than one greater than the number of processors in each TNTserver workstation, which is reported on the Control tabbed panel.

Some operations skip the compute thread. These operations include the request that gets the atlas list, GetCapabilities for any OGC service, and the IsTransformable and DescribeCRS operations of the WCTS. These operations are metadata gathering operations, which must be carried out even if all compute threads are busy.

Requests wait in the receive queue if there are no open receive threads at the time the request is received. The Receive Timeout sets the length of time a receive thread will wait to receive a complete request. At that point, the connection is broken and the thread moves on to the next request in the queue. The send thread receives data from the send queue and sends it back to the client that requested it. If the time spent on the send thread is longer than the timeout set, the connection is broken and TNTserver looks for the next item in the send queue to send. You may want to set the Send Timeout to be longer than the Receive Timeout because TNTserver typically sends more data than it receives.

The number of simultaneous network connections you can have may be limited by your operating system. If your network connections are limited, the sum of the number of receive threads and the receive queue size should not be greater than your network connection limit.

Leave this port number at this system default unless you have a conflict with some other use of this port in your internal system. Changing this port number also requires using an editor to make the same port number change in the tntgateway.ini file for use with TNTmap and to provide access to TNTserver by some other WMS compliant client.



Save and Load are very important functions once you have your TNTserver configured. New installations of TNTserver or updates to your existing server can then be configured by loading a saved parameters file. It is recommended that this file not be in your TNTserver directory in case it is deleted before updating.

This port is used by

- a Java client (for example, the Java-based TNTclient)
- an HTML client via Tomcat (for example, the HTML-based TNTclient), and
- an HTML client via the tntgateway.cgi program (for example, TNTmap)

to talk to (which means, connect to) TNTserver. This is not the port used by TNTserver to communicate with the Internet.