

***TekENUM***

**Installation & Configuration Guide**  
**Version 1.4**

## Document Revision 1.8

<https://www.kaplansoft.com/>

TekENUM is built by Yasin KAPLAN

**Read “Readme.txt” for last minute changes and updates which can be found under application directory.**

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## Introduction

TekENUM is an ENUM Server (Based on RFC 3761) runs under Windows (XP/Vista/7/8/10, 2003-2016 Server).

TekENUM can act as a DNS Proxy for undefined ENUM endpoints as well as unsupported DNS query types.

## System Requirements

1. A Windows system with at least 1024 MB of RAM.
2. Microsoft.NET Framework v2.0.50727 (Min.)
3. 2 MB of disk space for installation.
4. Administrative privileges.

## Installation

Unzip “TekENUM.zip” and click “Setup.exe” comes with the distribution. Follow the instruction of setup wizard. Setup will install TekENUM Manager and TekENUM Service, add a shortcut for TekENUM Manager to desktop and the start menu.

## Configuration

Run TekENUM Manager from Start Menu / Program Files / TekENUM. TekENUM automatically configures itself at first run.

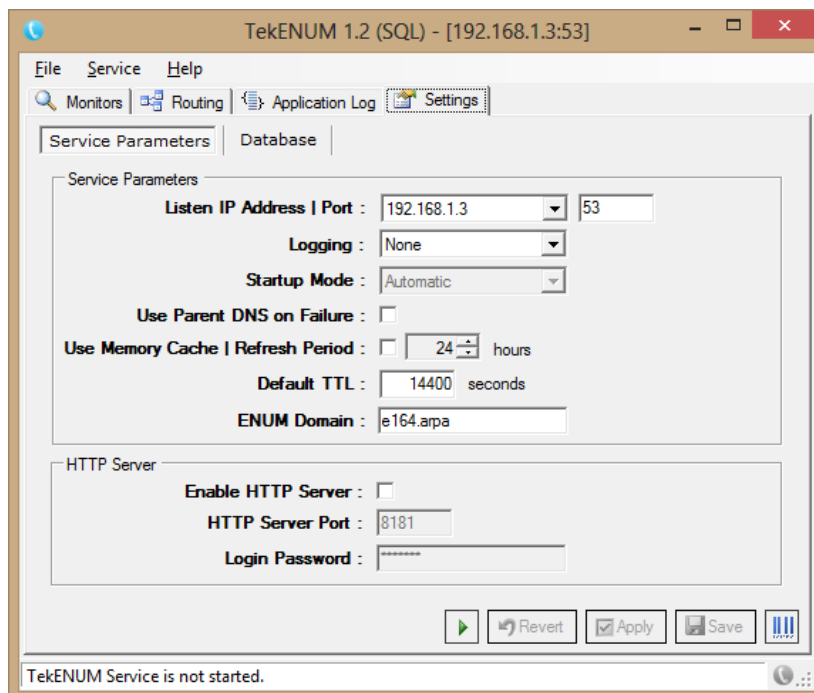


Figure - 1. TekENUM Settings tab

## Settings Tab

Click Settings Tab to start configuration. Settings tab has four sub sections. Enter following information:

- **Listen IP Address | Port:** You can select a detected IPv4 address configured on your system. When you change IP configuration of your system, the IP address list will automatically be updated. You can define a port number to be listened (*Default 5060*).
- **Logging:** Select logging level of TekENUM. Select “None” if you do not want logging, select “Errors” to log errors and select “Sessions” to log session information and errors. Log files are located under <Application Directory>\Logs directory.
- **Startup Mode:** Set TekENUM service startup mode, Manual or Automatic. You can also disable service startup.
- **ENUM Domain:** Set default ENUM domain to be received in ENUM queries. Default is e164.arpa.
- **Use Parent DNS on Failure:** TekENUM can act as a DNS Proxy for undefined ENUM endpoints as well as unsupported DNS query types. Check if you wish to enable this feature. When this option is enabled TekENUM will forward DNS requests for the undefined endpoints and unsupported DNS queries to DNS servers defined in local machines network configuration.
- **Use Memory Cache:** This feature is available in commercial edition. You can keep query result in memory to provide faster responses to subsequent queries.
- **Memory Cache Refresh Period:** TekENUM will clear memory cache in periods specified in this parameter.

## Routing

You can define resource records or routes for a particular E.164 number or a prefix in “Routing” tab. Enter a phone number prefix to bottom leftmost textbox and click “Add Route” button.

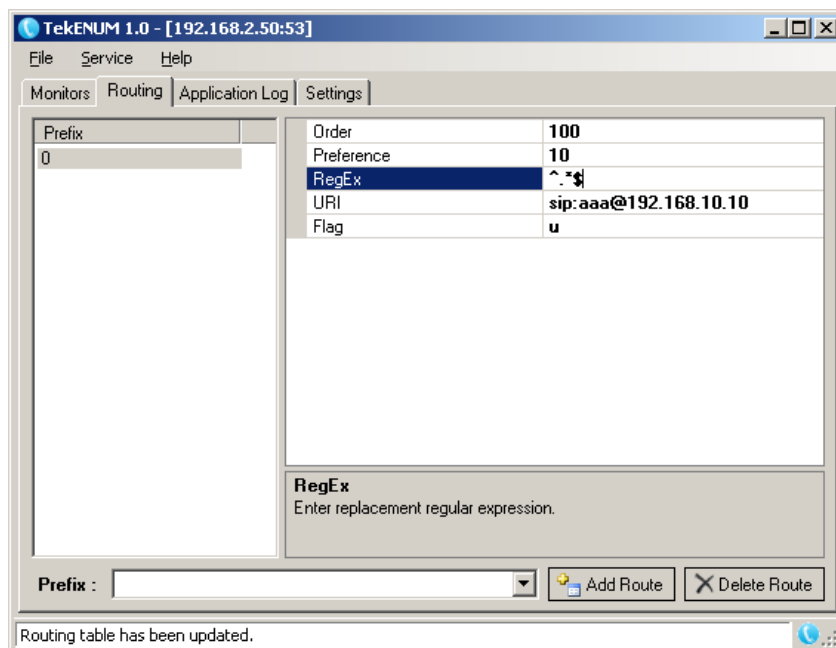


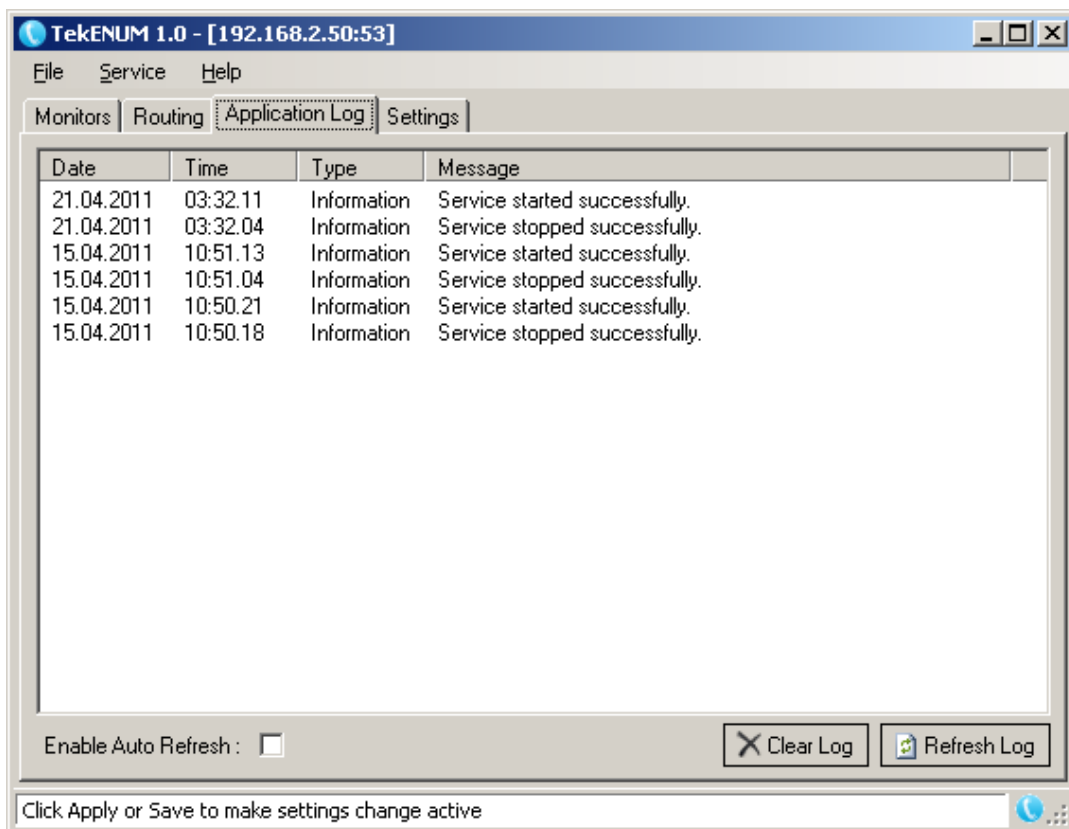
Figure - 2. Routing Tab

You can have also a default route entry. TekENUM chooses longest match prefix route. If any match cannot be found default route is chosen if exists. You can have just one resource record per prefix or per E.164 entry.

Enter a prefix and click “Add Route” button to add a new routing entry. You must edit at least URI entry to commit changes.

## Application Log

You can monitor system events in Application Log tab. You can manually refresh log entries and clear log entries. Click Enable Auto Refresh option to refresh log list every second.



**Figure - 3.** Application Log Tab

## Starting TekENUM

Click “Service” menu and select “Start” to run TekENUM after making necessary configuration and saving configuration. If service starts successfully you will see “TekENUM Service is started” message at bottom left message section of TekENUM Manager. Optionally you can start/stop TekENUM using the button on Settings tab. When you make any change(s) in configuration, TekENUM will ask you if you wish to restart TekENUM to make settings changes active if TekENUM service is running.

If TekENUM service cannot start please examine Application Log tab as well as TekENUM log file under <Application Directory>\Logs if you were enabled logging in Settings tab.

## SQL Mode

TekENUM uses built-in Microsoft Access database by default. If you plan to use a Microsoft SQL Server database, create database and “Routes” table using TekENUM.sql and Routes.sql scripts respectively. These scripts can be found TekENUM application directory. You need to add following section and parameters for SQL mode operation to TekENUM.ini which can be found under TekENUM application directory;

```
[Database]
SQL_Server=<IP Address of the SQL Server>
Catalog=TekENUM
Table=<Table which holds routing entries>
UserName=<Database username, sa e.g.>
Password=<Database user password>
Timeout=30
```

You can optionally add `SelectClause` parameter to define an alternative SQL query under `[Database]` section of TekENUM.ini. For example;

```
SelectClause=EXECUTE getroute 'N%prefix%'
```

TekENUM will replace `%prefix%` variable with queried E.164 address. TekENUM invokes stored procedure `getroute` in this sample. If you use a view or a stored procedure, returned record structure must be in following format;

```
CREATE TABLE [dbo].[Routes](
    [Prefix] [nvarchar](255) NOT NULL,
    [Order] [int] NULL CONSTRAINT [DF_Routes_Order] DEFAULT ((100)),
    [Preference] [int] NULL CONSTRAINT [DF_Routes_Preference] DEFAULT ((10)),
    [RegEx] [nvarchar](255) NULL CONSTRAINT [DF_Routes_RegEx] DEFAULT ('^.*$'),
    [URI] [nvarchar](255) NULL,
    [Flag] [char](1) NULL,
    [TXT] [nvarchar](255) NULL
) ON [PRIMARY]
```

Default select clause is;

```
SELECT TOP 1 * FROM [Routes] (NOLOCK) WHERE [Prefix]='%prefix%' order by
[Prefix] asc
```

You must have SQL Management Studio installed to execute SQL statements above.

Re-start TekENUM service after adding these parameters.

You can also use TekSIP Route Server GUI for SQL connection settings;

## Troubleshooting

TekENUM provides many messages when problems occur. You can see error messages on TekENUM Status bar or in the log file of TekENUM service. You can enable logging in Settings Tab. There are three levels of logging; None, Errors, Sessions. If you select Errors TekENUM logs just error messages. If you select Sessions both Session and Error messages will be logged. You have to save or apply settings changes if you change logging level setting. Log files are located under `<Application Directory>\Logs` directory.

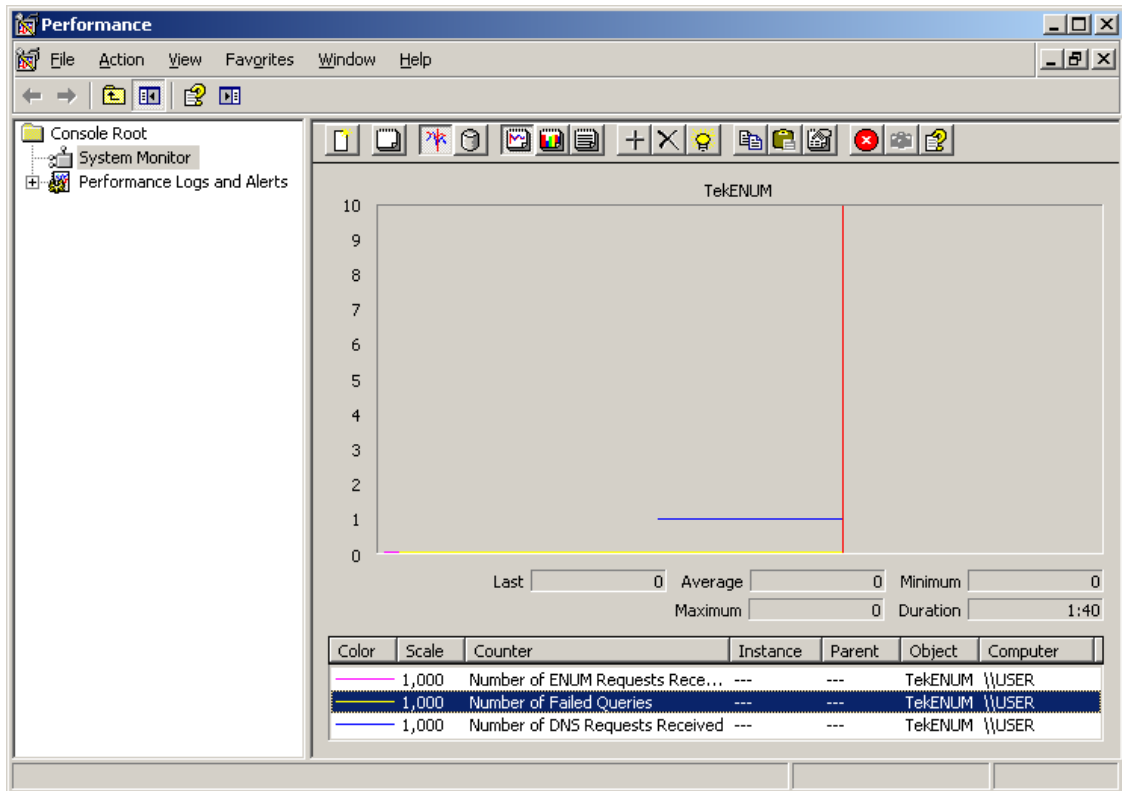


Figure - 4. TekENUM counters on Windows Performance Monitor

TekENUM also utilizes Windows Performance Monitor providing numerous counters;

- Used Memory
- Number of Items in Memory Cache
- Number of DNS Requests Received
- Number of ENUM Requests Received
- DNS Requests Receive Rate
- ENUM Requests Receive Rate
- Number of DNS Requests Forwarded
- Number of ENUM Requests Forwarded
- Number of Successful Queries
- Number of Replies from Memory Cache
- Number of Failed Queries

You can add and monitor them using Windows Performance Monitor (*Perfmon.exe*). You can also monitor these counters through TekENUM Manager and web monitoring interface.

You can use ENUM Resolver utility which can be downloaded from <http://www.kaplansoft.com/enumresolver> to test your ENUM Server installation.



## TekENUM Messages

**TekENUM started. Listening on x.x.x.x.**

This message notifies that TekENUM service is started.

**Listened IP Address is being changed from x.x.x.x to y.y.y.y.**

TekENUM has detected a change in system's IP configuration and automatically changed listened IP address. You might change or remove the IP address configured for listening.

**Settings could not be loaded. Initializing with default values.  
TekENUM Service is being started with default values on : x.x.x.x**

You get this message at first run of TekENUM. If TekENUM can not find or read TekENUM.ini initialize itself with default settings.

**Unable to initialize UDP/TCP thread [x.x.x.x:5060]**

If another application is configured to use same UDP port (53) with TekENUM, TekENUM can not initialize respective thread. Please also check if a DNS server is running on the same machine.

**Default route points to this host**

You can not specify listened IP address as default route.

**Can not apply changes; enter minimum configuration**

There is missing configuration data.