



Ekran System High Availability Deployment Guide

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About

Welcome to Ekran System!

Ekran System is an application that allows you to record the activity of the target computers with installed Clients and to view the screen captures from these computers in the form of video.

This guide will help you in deploying Ekran System components and configuring them so that they function properly in a High Availability mode.

System Requirements

Ekran System claims different system requirements for each of its components. Make sure your hardware and software meet the following system requirements to avoid possible component malfunctions.

NOTE: We recommend using Ekran System with Windows NLB. We cannot guarantee the High Availability Ekran System to function with other load balancers correctly.

Ekran System Server requirements:

- 2 GHz or higher CPU
- 1024 MB or more RAM
- Enterprise-level Ethernet card
- Minimum 1 Gbit/s network adapter
- Windows Server 2016, Windows Server 2012, and Windows Server 2008 R2 (x64 platform)
- .Net Framework 4.5.2
- Message Queueing enabled
- Network Load Balancer installed, NLB cluster created and configured
- Full edition of MS SQL Server 2008R2 SP1 or higher. Standard license or higher is required.

Ekran System License Server requirements:

- 2 GHz or higher CPU
- 1024 MB or more RAM
- Enterprise-level Ethernet card
- Minimum 1 Gbit/s network adapter
- Windows 10, Windows 8.1, Windows 8, Windows 7 (any edition except Home); Windows Server 2016, Windows Server 2012, Windows Server 2008 R2 (starting from SP1 version)
- .Net Framework 4.5.2
- Message Queueing enabled

Program Structure

Ekran System is an application specially designed to monitor user activity remotely.

Ekran System includes the following components:

- **Ekran System Server** (further referred to as **Server**)
- **Ekran System License Server** (further referred to as **License Server**)
- **Ekran System Management Tool** (further referred to as **Management Tool**), which acts a single access point for the administrators.
- **Ekran System Clients** (further referred to as **Clients**)
- **Ekran System Tray Notifications application** (further referred to as **Tray Notifications application**)

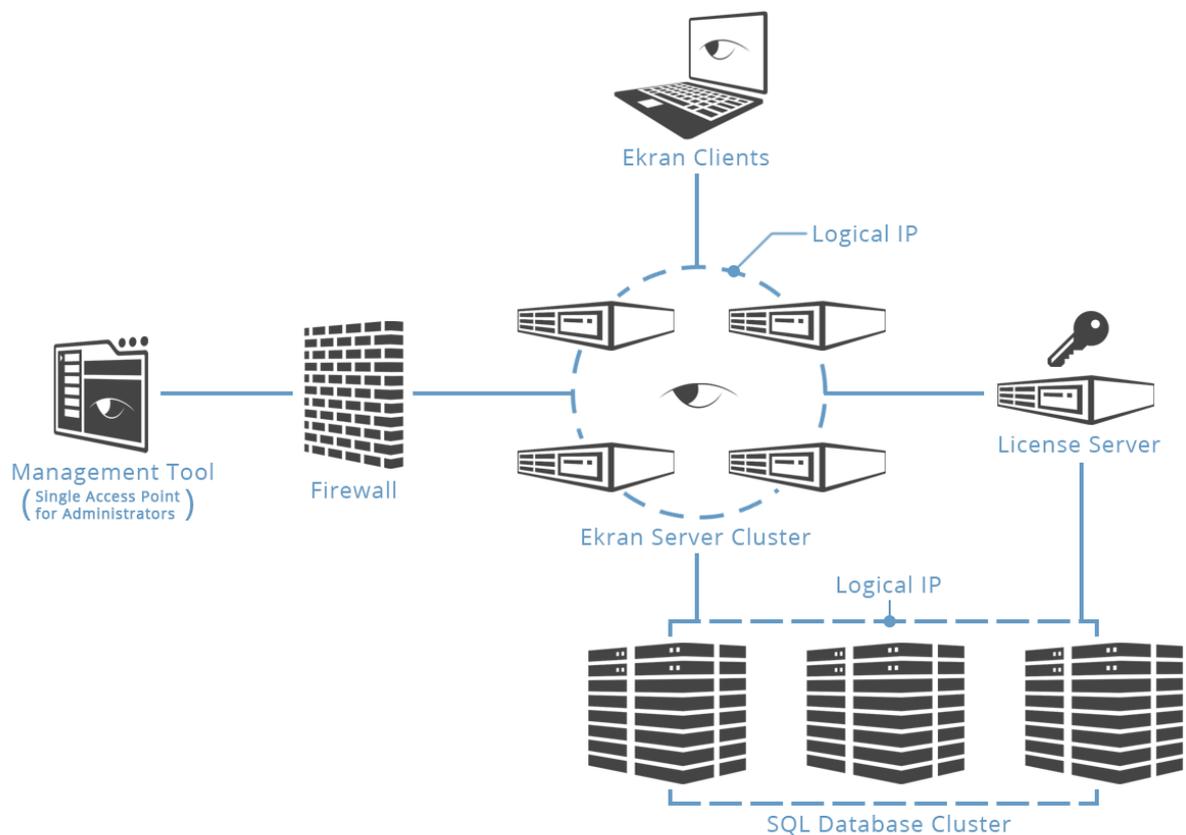


Fig.1. General deployment scheme

The High Availability mode allows you to configure and deploy Ekran System in such a way that you can work with multiple Server instances in the Network Load Balancer cluster. This would allow balancing the load of data sent to the servers by Ekran Clients and ensure data integrity in case any of the instances goes offline for any number of reasons. Additionally, there is a special License Server managing Client licenses in the whole system.

The High Availability mode is available only in the Enterprise edition of Ekran System.

Deployment Process

About

The deployment of a High Availability Ekran System consists of several steps:

- Step 1. [Install Ekran Server on your NLB hosts and connect to the existing SQL server.](#)
- Step 2. [Install Ekran License Server.](#)
- Step 3. [Configure License Server.](#)
- Step 4. [Activate Enterprise serial key.](#)
- Step 5. [Configure all Ekran Server instances.](#)
- Step 6. [Complete prerequisites and install Management Tool, Clients, and Tray Notification Application.](#)

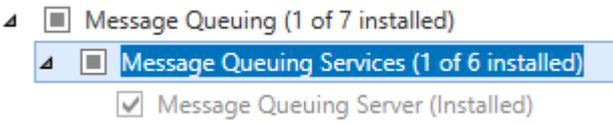
After installing all the system components, High Availability Ekran System is considered deployed and all its features become available.

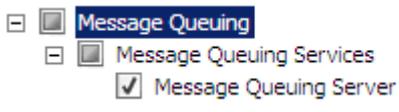
Prerequisites

General Prerequisites

For successful deployment of a high-availability version of Ekran System, some Server and License Server installation prerequisites have to be met:

1. Make sure .NET Framework 4.5.2 or higher is installed and enabled on the machine the License Server is installed on and on the NLB hosts you plan to use.
2. If necessary, configure Layer 3 switches to interoperate with your NLB cluster in the set cluster operation mode.
3. Make sure the Microsoft Query is enabled on all the machines:

Windows Server 2012	<ol style="list-style-type: none"> 1. Open the Add Roles and Features wizard. 2. On the Features page, make sure to select the Message Queuing Server check box. It must have an Installed state: <div style="margin-left: 20px;">  </div> 3. Click Install. 4. After the end of installation, click Close.
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<p>Windows Server 2008</p>	<ol style="list-style-type: none"> 1. Open the Add Features wizard. 2. Make sure to select the Message Queuing Server check box: <div style="margin-left: 20px;">  </div> 3. Click Install. 4. After the end of installation, click Close.
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4. For F5 Balancers, in F5 Management Console, do the following:
 - a. Create Nodes for each Ekran Server.
 - b. Create a Pool for HTTPS and add all the Ekran Servers to it.
 - c. Select desired Load Balancing Method for the Servers in an HTTPS Pool.
 - d. Create Virtual Server and assign an IP (will be used as IP for access to Ekran System resources)
 - e. Assign an HTTPS pool for the Virtual Server.

Geographically Dispersed Deployment

You can deploy different components of Ekran System throughout different locations, in order to secure the data and scale the traffic distribution within your large, geographically dispersed infrastructure.

In order to do this, you need to combine the nodes in all locations into an NLB cluster, configure it properly, and set up the port rules and the filtering mode for handling traffic to best suit your system.

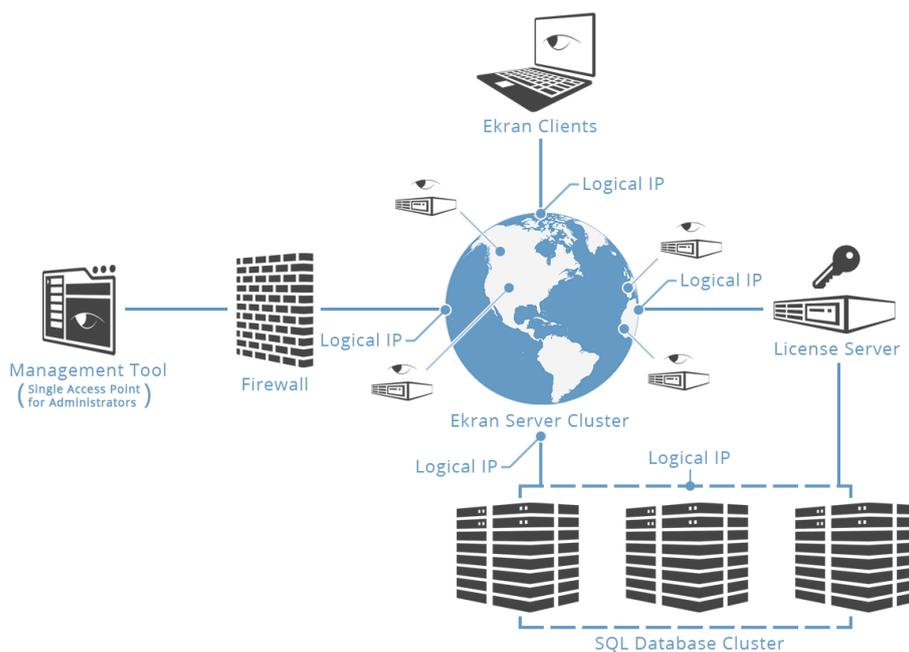


Fig.2. Geographically dispersed deployment scheme

Step 1. Servers Installation

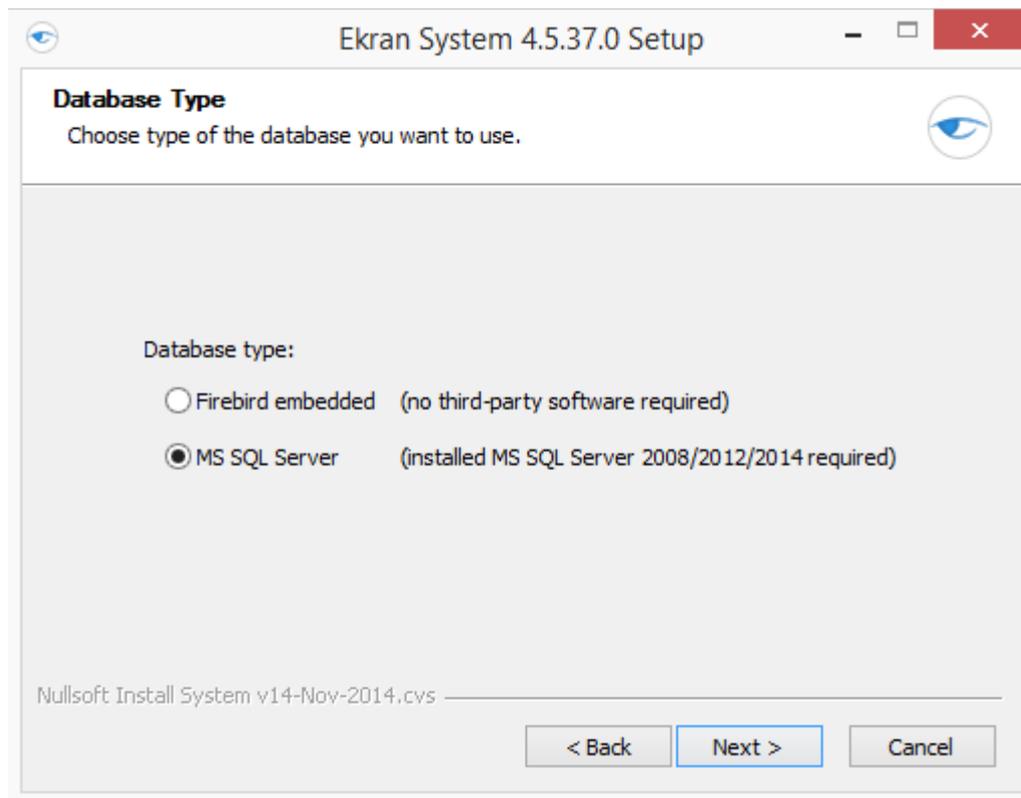
There are two stages of Servers installation:

Stage 1. The first Server instance is installed. During installation, you can select an existing database or create a new one.

Stage 2. Subsequent Server instances are installed on NLB nodes. During installation, you have to select the same database the first Server instance connects to.

To install the Server, do the following:

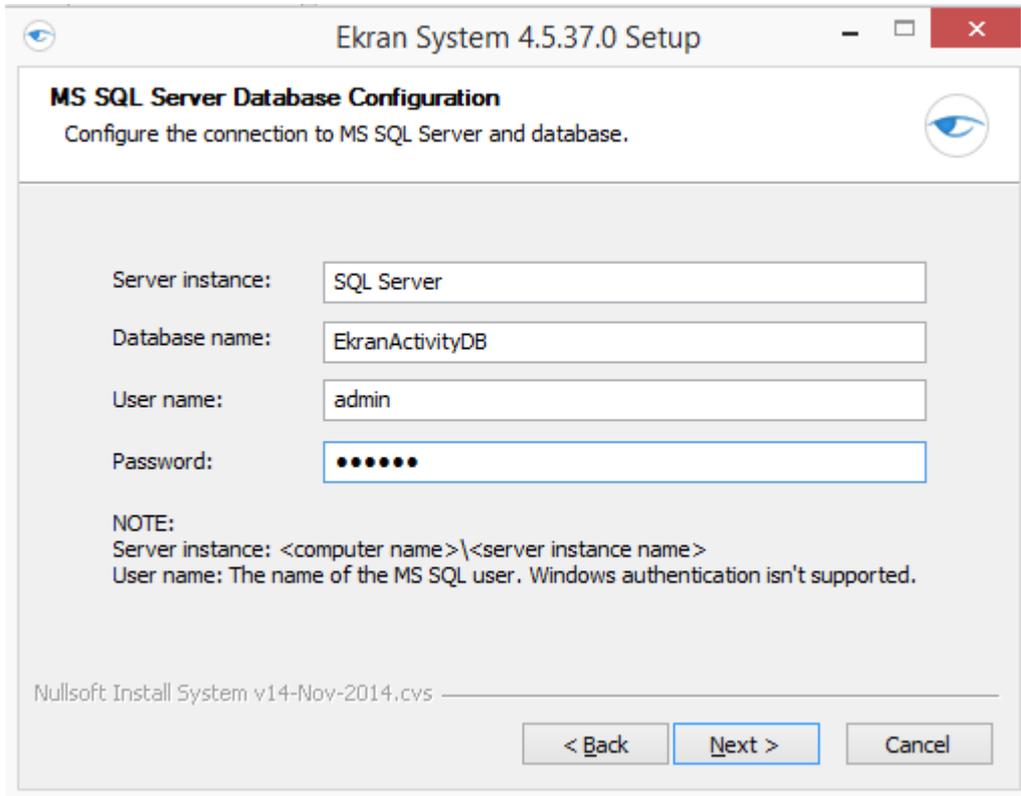
1. Run the **EkranSystem_Components.exe** installation file.
2. Click **Next** on the **Welcome page**.
3. Carefully read the terms of the End-User License Agreement and click **I Agree**.
4. On the **Choose Components** page, click **Next**.
5. On the **Choose Install Location** page, enter the installation path or click **Browse** to navigate to the Server installation folder. Click **Next**.
6. On the **Database Type** page, select the **MS SQL Server** option. Click **Next**.



7. On the **MS SQL Server Database Configuration** page, define the connection parameters and then click **Next**.
 - Define the MS SQL **Server instance** name, which is the instance name assigned to the TCP/IP port.
 - Define the **Database name** for the database.

- Define the **User name** and **Password** of a user account via which the connection to the Server will be established.

When you are installing subsequent Server instances, make sure the database configuration is identical.



The screenshot shows the 'MS SQL Server Database Configuration' window of the Ekran System 4.5.37.0 Setup wizard. The window title is 'Ekran System 4.5.37.0 Setup'. The main heading is 'MS SQL Server Database Configuration' with the instruction 'Configure the connection to MS SQL Server and database.' Below this, there are four input fields: 'Server instance:' with 'SQL Server', 'Database name:' with 'EkranActivityDB', 'User name:' with 'admin', and 'Password:' with a masked password of six dots. A 'NOTE:' section provides instructions: 'Server instance: <computer name>\<server instance name>' and 'User name: The name of the MS SQL user. Windows authentication isn't supported.' At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The footer text reads 'Nullsoft Install System v14-Nov-2014.cvs'.

7. If you already have a database created during the usage of previous versions of the program, click **Yes** in the confirmation message to re-use it.
8. When you are installing subsequent Server instances, make sure to click **Yes** in the confirmation message when you are offered to use an existing MS SQL database. It is necessary for all components of the system to refer to a single database.
9. On the **Administrator password** page, define the password for the administrator (the default user of Ekran System with login **admin** and full permissions). Click **Next**.
10. On the **Ekran System Client Uninstallation Key** page, enter the key that will be used during the Client local uninstallation and click **Next**. By default, the Uninstallation key is **allowed**. You will be able to change this key via the Management Tool any time later.
11. Click **Install**.
12. The process of installation starts. Its progress is displayed on the **Installing** page.
13. After the end of the installation process, click **Finish** to exit the wizard
14. After installing the first Server instance, navigate to the Server installation folder and copy the contents of the **Certificates** folder. The copied certificates are required for [configuration of other Server](#) instances.
15. In Windows Firewall, you must allow the Server executable to accept TCP connections via ports 9447 (for the connection between the Server and the Clients), 22713 (for the connection between the Server and the Management Tool). These rules will be added

to Windows Firewall automatically if Windows Firewall is enabled during the Server installation.

Step 2. License Server Installation

Ekran License Server is an entity managing the licenses for Clients sending monitored data to Server instances deployed in your NLB cluster.

To install License Server, do the following:

1. Run the **EkranSystem_LicenseServerSetup.msi** installation file.
2. Click **Next** on the **Welcome** page.
3. Carefully read the terms of the End-User License Agreement and accept the terms.
4. On the **MS SQL Server Database Configuration** page, define the connection parameters for the existing MS SQL Management Database which all Servers connect to and click **Next**.
 - Define the MS SQL **Server instance** name, which is the instance name assigned to the TCP/IP port.
 - Make sure the Database name is **EKRANManagementDatabase**. It is a part of an older Ekran database being re-used or is created during the installation of the first Server instance.
 - Define the **User name** and **Password** of a user account via which the connection to the database will be established.
5. Enter the installation path or click **Browse** to navigate to the License Server installation folder and click **Next**.
6. Click **Install**.
7. The process of installation starts. Its progress is displayed on the **Installing** page.
8. After the end of the installation process, click **Finish** to exit the wizard.

Step 3. License Server Configuration

After you install the License Server, you need to configure it to communicate correctly with the Server cluster.

To configure the Ekran License Server, do the following:

1. Make sure the License Server service is stopped on the machine.
2. Open Registry Editor.
3. Select the following key:
HKEY_LOCAL_MACHINE\SOFTWARE\EkranSystem
4. In the **Registry Editor** window, click **Edit>New>String value** and add a new value:
 1. Value type: String
 2. Value name: ClusterId
 3. Value data: <unique_NLBcluster_id>

NOTE: Use a custom string as the ID of your cluster. For example, *ESCluster1*. Please note, the Cluster ID must be the same for the License Server machine and the cluster hosts with Server instances installed.

5. Navigate to the License Server installation folder.
6. Run the **LicenseServer.exe** file as administrator.
7. In Windows Firewall, allow the License Server executable to accept TCP connections via ports 22715 and 22716 for connection to the Ekran System licensing server.

Step 4. Enterprise Key Activation

If you have not yet activated it, to activate the enterprise key, do the following:

1. Run the **EkranSystem_LicenseServer.exe** file as administrator.
2. In the opened console window, enter the following command:
activate <your_enterprise_key>
3. Your enterprise key is activated.

NOTE: For successful activation and overall functioning of a high-availability system, make sure that the License Server always has the connection to the Internet and established connection to Servers.

Step 5. Server Configuration

After you install the Server on all NLB nodes and install the License Server, you need to configure all Server instances to function as a cluster.

On each NLB node with the Server installed, do the following:

1. Stop EkranServer service on the machine.
2. Replace the contents of the **Certificates** folder in the Server installation folder with the certificates copied from the NLB node with the first installed Server instance. This will ensure Management Tool log integrity and validation of the Forensic Export results.
3. Open Registry Editor.
4. Select the following key
HKEY_LOCAL_MACHINE\SOFTWARE\EkranSystem
5. Create the following String values:
 - **LicenseServer**, with the Value Data of **<licenseserver_machine_name>**
 - **ClusterId**, with the Value Data of **<unique_NLBcluster_id>**

The **ClusterId** value must be the same for all Server instances and License Server.

6. To be able to sign monitoring data with a certificate, import the same self-signed or purchased certificate to the Windows Certificate store on each NLB node.
7. Start the EkranServer service.

Step 6. Installing Other Components

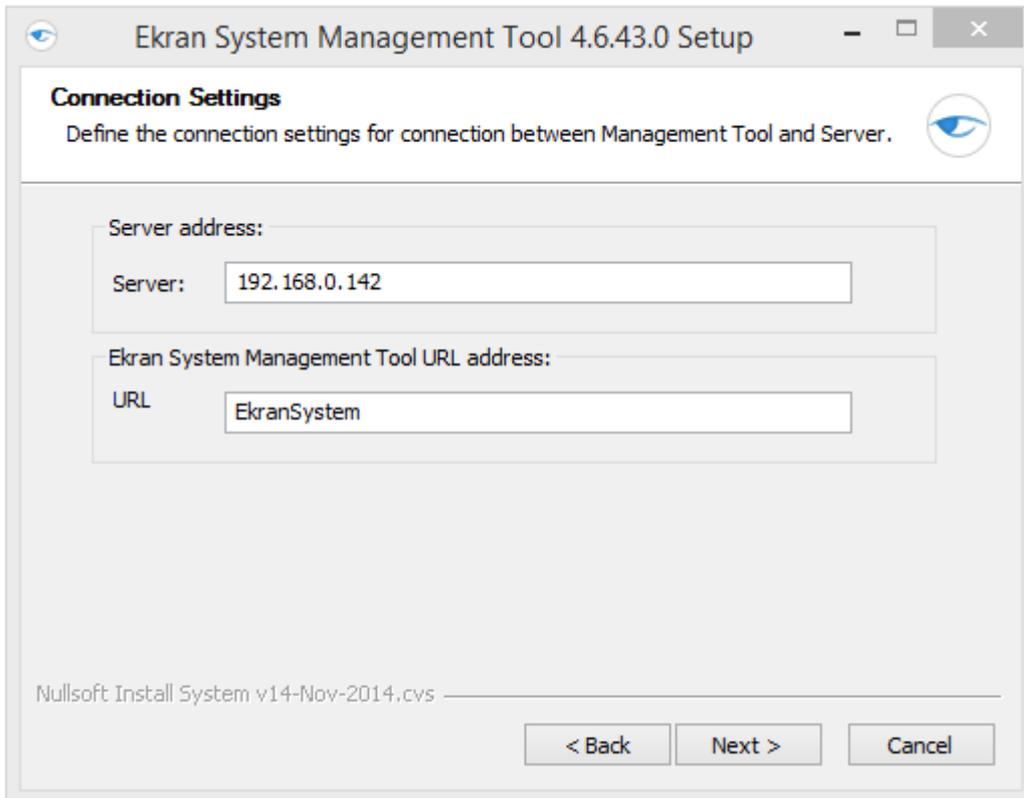
For detailed information on completing installation prerequisites and installing the Management Tool, Clients, and Tray Notification Application, please refer to the User Manual or the Deployment Guide.

The **logical IP address** referred to in this chapter is the **Cluster IP address** defined during cluster creation. To check it:

- for Microsoft Network Load Balancer, see **NLB Properties -> Cluster Parameters tab -> Cluster IP Configuration -> IP address**;
- for F5 Balancers, see **Virtual Servers -> Your Virtual Server -> Destination IP**.

Management Tool

When installing the Management Tool, enter the **logical IP address of the NLB cluster** in the **Server** field.



Ekran System Management Tool 4.6.43.0 Setup

Connection Settings
Define the connection settings for connection between Management Tool and Server.

Server address:
Server: 192.168.0.142

Ekran System Management Tool URL address:
URL: EkranSystem

Nullsoft Install System v14-Nov-2014.cvs

< Back Next > Cancel

Windows Clients

There are several types of Windows Clients installation:

- During remote installation via the Management Tool, enter the **logical IP address of the NLB cluster** in the **Server name/IP field** on the **Client configuration** page.

Client configuration

Define the configuration with which Clients will be installed.

Server name/IP

Server name/IP

- During generation of the installation package for local installation, enter the **logical IP address of the NLB cluster** in the **Server name/IP** field on the **Generate Installation Package** page.

Generate Installation Package

Define the configuration with which Clients will be installed.

Server name/IP

Server name/IP

- During local installation without the .ini file, enter the **logical IP address of the NLB cluster** in the **Ekran System Local Client Installation** window.

Ekran System Ekran System Local Client Installation

The Client installation configuration file (C:\Users\Downloads\EkranSystemClient.ini) is absent or not valid.
The Client will be installed with default settings.

Name/IP of the computer on which server is installed:

macOS Clients

During the Client installation, run the macOS Client installation script specifying the **logical IP address of the NLB cluster** as **Server IP address**:

`./install.sh <NLB_cluster_IP> <Agent_port>`

Linux Clients

During the Client installation, run the Linux Client installation script specifying the **logical IP address of the NLB cluster** as **Server IP address**:

`$ sudo ./install.sh <NLB_cluster_IP> <Agent_port>`

Tray Notifications Application

The Ekran System Tray Notifications is a component of the Ekran System application that allows you to receive notifications on alert events on Clients. The application is completely independent and can be used for receiving alert notifications on any computer.

After it is installed, start the Tray Notifications application and specify the **logical IP address of the NLB cluster** as **Server IP address** in the **Login** window.

Reconfiguring Existing System

If you already have a deployed Ekran System using the MS SQL database deployed in a standard mode, you can reconfigure it into a high availability one.

1. If you have Clients installed, you can uninstall them to later reinstall after Ekran System is re-configured in the High Availability mode.
2. Stop Ekran Server service on the NLB host.

If the Server PC is not a part of NLB cluster, do the following:

- a) Install Network Load Balancer.
- b) Create and configure NLB cluster.
- c) If you have Clients installed, set the cluster IP address to the **Server IP address** the Clients are connected to. Alternatively, if the **Server name** is used for connection instead of the IP address, reconfigure the DNS server so that it resolves that name as the cluster IP address defined.

3. [Install Ekran License Server](#).

If you have activated the Enterprise serial key or any other keys prior to that, do one of the following:

- Deactivate your serial keys to later activate the new ones on the machine with the License Server installed.
- Make sure to install License Server on the same machine you have activated serial keys from.
- Contact the support team at support@ekransystem.com to change the HWID associated with them to a new one.

4. [Configure License Server](#).

5. If you have not yet activated the Enterprise serial key, [activate it](#). Activate all other serial keys in a usual way.

6. [Configure the Server instance](#).

7. Install and configure all additional Server instances on other NLB hosts so that they use the same database as the first one.

8. Reinstall your Management Tool and make sure to set the **logical IP address of the NLB cluster** as the **Server address**.

9. Install the Clients. If you have Clients installed, reinstall them via Management Tool and enable protected mode if necessary.

10. In the **Login** window of the Tray Notifications application, specify the **logical IP address of the NLB cluster** as **Server IP address**.

Troubleshooting

Restoring Ekran Server on the NLB Node

If you need to restore the Ekran Server on the NLB node, do the following:

Step 1. Make sure that the NLB node has the [required software installed and properly configured](#).

Step 2. [Install Ekran Server on the NLB node](#) and connect to the existing SQL server.

Step 3. [Configure the installed Ekran Server](#) and be sure to do the following:

1. Replace the files in the **Certificates** sub-folder in the Server installation folder with the ones from any other NLB node with the Server installed.
2. Import the certificate used for signing monitoring data from any other NLB node to the Windows Certificate store.

Restoring Ekran License Server

If you need to restore the Ekran License Server, do the following:

Step 1. Make sure that the host has the [required software installed and properly configured](#).

Step 2. [Install Ekran License Server](#).

Step 3. [Configure the installed License Server](#).