

## i2 Software licensing

All installations of i2 Analyst's Notebook 10, whether acquired separately or as part of Analysis Studio or Analysis Hub, require a valid software license. i2 licensing uses [Thales' Sentinel EMS and RMS](#) solutions for license management.

Analyst's Notebook 10 can use a valid license from any of the following locations:

- On the same workstation, through a standalone license key or file.
- On a local network, where a License Manager provides licenses from a pool on demand.
- On the internet, through a connection to a license server.

For users, software licensing means providing their installation of Analyst's Notebook with a valid license by [supplying a license key or file](#), or by directing the application to a [network License Manager](#) or an [internet license server](#).

For administrators, software licensing means managing the *entitlement* for Analyst's Notebook 10 licenses that comes with a purchase of the software. Administrators control how the entitlement is divided into licenses of different types, and are responsible for [deploying the License Manager software](#).

Sometimes, especially in smaller organizations, the software licensing administrator might also be one of the users. This documentation describes the tasks that both roles involve.

**Note:** The i2 software licensing documentation is also available in [PDF format](#) for offline use.

## Licensing for users

i2 Analyst's Notebook 10 requires a valid software license. Until you provide your installation with a license, the application displays a prominent **Activation required** banner at all times.

There are several different ways to provide the application with a license. Which ones you can use will depend on whether you purchased the software for yourself or it was supplied to you; and on any licensing policies or infrastructure that your organization might already have in place.

In general, however, the following options are available:

- If your workstation is connected to the internet, and you're not using Remote Desktop Services, then the simplest way to get a license for Analyst's Notebook is to [use the entitlement identifier \(EID\)](#) that came with your purchase as a license key.

**Important:** A license generated by using the EID in this way is locked permanently to the workstation in question. i2 recommends considering the other options before you choose this one.

- If your workstation [doesn't have an internet connection](#), or you want to take advantage of [network](#) or [internet](#) licensing, you need talk to an administrator or take on that role for yourself.

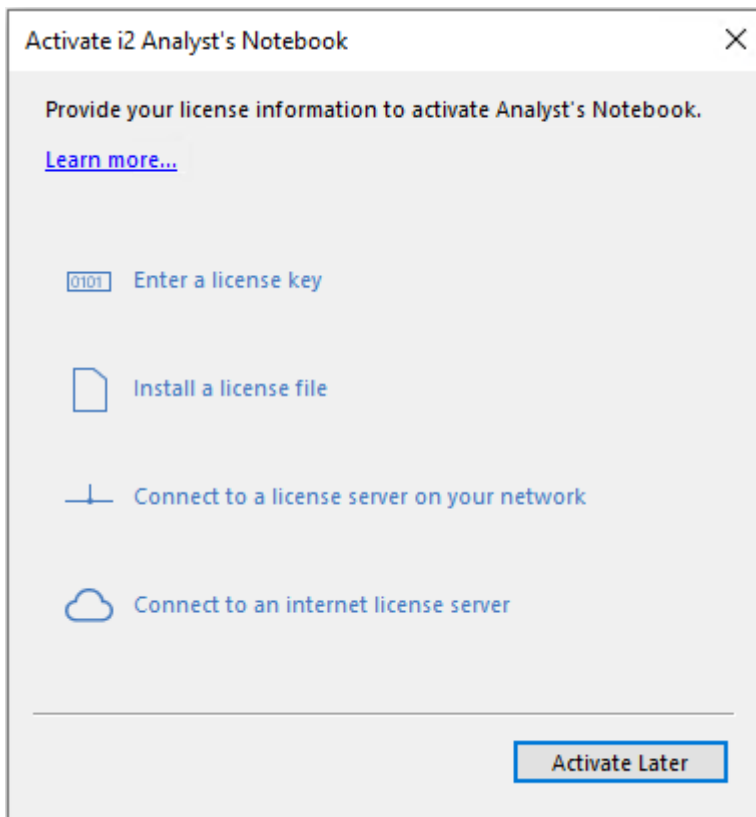
This part of the documentation describes how to *use* licenses of the different types. For information about creating and managing them, see [Licensing for administrators](#).

## Using a standalone license

By providing i2 Analyst's Notebook 10 with a license key or a license file, you activate the installation with a *standalone license*. The license is valid for one user of the host workstation at a time.

**Important:** A standalone license can't be shared by or transferred to another workstation. It is locked to the workstation for which it was created. Furthermore, standalone licenses are not compatible with Remote Desktop Services. In that scenario, you must use a [network license](#) or an [internet license](#) instead.

When you start Analyst's Notebook 10 for the first time, or if it doesn't find a valid license where it expected to find one, you'll see the Activate i2 Analyst's Notebook dialog:



If the dialog doesn't appear, you can open it by clicking **Activate** in the **Activation required** banner.

To activate Analyst's Notebook with a standalone license on a workstation with an internet connection, select **Enter a license key**. To do the same without an internet connection, select **Install a license file**.

**Note:** If you're not ready to provide license information, you can click **Activate Later** to use Analyst's Notebook temporarily without a license. The **Activation required** banner remains visible in the application window, and the dialog reappears next time you start Analyst's Notebook 10.

### Activation with a license key

All purchases of Analyst's Notebook come with an *entitlement identifier* (EID) that you can use as a standalone license key:

- After clicking **Enter a license key**, copy and paste the EID that you received from i2 into the **EID** field, and then click **Activate Now**.

**Note:** In some environments, access to the internet is controlled on a per-application basis. If you see an error even though your workstation is connected, contact your system administrator.

Every EID can be used to create a certain number of licenses. Provided that the EID you entered has not already been used to its limit, Analyst's Notebook receives a standalone license from an internet server and the **Activation required** banner disappears.

### Activation with a license file

Standalone licenses are created using information about the workstation they're to be used on. If your workstation doesn't have an internet connection, you must provide that information to another that does:

1. After clicking **Install a license file**, follow the instructions in the dialog to supply the locking code for your workstation to an administrator. You can use the copy button to guarantee capturing the whole code.

The administrator must now follow the procedure to [create a standalone license](#). You can continue to use Analyst's Notebook until they respond.

2. When the administrator responds with a license file, reopen the Activate i2 Analyst's Notebook dialog and select the same option.
3. Click **Browse to License File**, navigate to the license file, and click **Open**.
4. Click **Activate Now** to apply the license to your installation of Analyst's Notebook 10.

Provided that the license file you received is valid, the **Activation required** banner disappears when the dialog closes.

## Using a network license

By configuring Analyst's Notebook 10 with information about a license server, you can activate the software with a *network license*. These licenses are managed by the server as a pool, for simultaneous use by as many users as there are licenses. An installation of the software that isn't in use doesn't consume a license.

After you connect an installation of Analyst's Notebook to a license server, it reconnects automatically on future occasions. If you need to use Analyst's Notebook while you are away from the network, you can borrow a license from the pool and return it when you no longer require it.

### Activation through a network license server

To use a network license, your workstation needs a network connection (but not an internet connection) to a [license server](#) that your administrator has configured. Then, to activate Analyst's Notebook 10:

1. Open the application. If it doesn't find a valid license, the application displays the Activate i2 Analyst's Notebook dialog.

**Note:** If the dialog does not appear, you can open it by clicking **Activate** in the **Activation required** banner.

2. Click **Connect to a license server on your network**. The contents of the dialog change to reflect your choice:

Activate i2 Analyst's Notebook

Provide your license information to activate Analyst's Notebook.

[Learn more...](#)

Connect to a license server on your network

Your system administrator might have set up a license server to provide access to floating licenses.

License server address:

Auto Discover

Back    Activate Now

In most circumstances, you can click **Auto Discover** to find the license server. If that doesn't work, you can type its address into the **License server address** field.

**Important:** If the specified license server does not exist, or it has no licenses available when you first try to connect, Analyst's Notebook will not find it.

3. Click **Activate Now**.

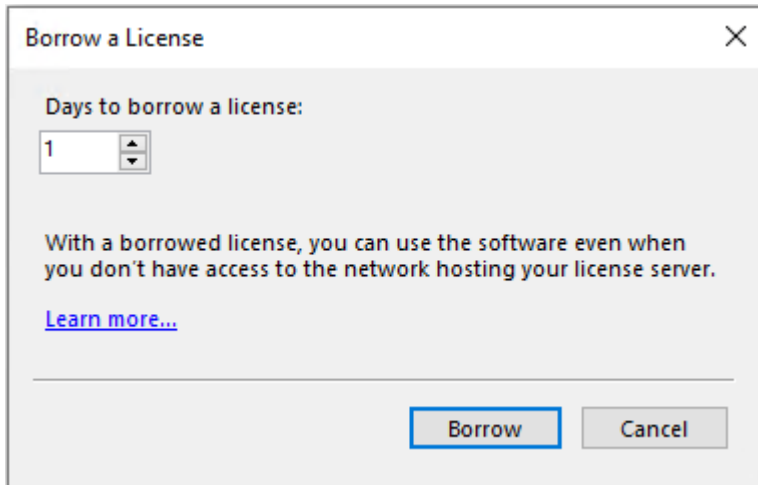
The license server allocates one of the licenses in its pool to your installation of Analyst's Notebook, which receives information about it. As it does so, the **Activation required** banner disappears.

### Borrowing a network license

If you use Analyst's Notebook with a network license, but there are times when you don't have access to the license server, you can *borrow* a license from the server for a set period. The license you borrow temporarily reduces the pool of available network licenses.

To borrow a network license for Analyst's Notebook:

1. In an installation of Analyst's Notebook that's using a network license, select **File > License Management** to display the License Management dialog.
2. Click **Borrow License**. The application lets you choose how long to borrow a license for, up to a configurable limit.



3. Set the borrowing period and click **Borrow**. The License Management dialog changes to show the remaining time on the lease, and to provide the option of returning the license early.

After you borrow the license, you can disconnect from the network without affecting the application's licensed status.

### Returning a borrowed license

When the borrowing period expires, the license returns to the server's pool. If Analyst's Notebook has access to the network at that time, it returns to using a network license. If it can't, the **Activation required** banner returns in the application.

If you reconnect to the network earlier than you expected to, you can return your borrowed license to the pool before it expires. To do so:

1. In Analyst's Notebook, select **File > License Management** to display the License Management dialog.
2. Click **Return Borrowed License**, and then **Return License**.

The license returns to the server, which immediately reallocates it to your installation as an ordinary network license. If you then close the application, the license is released for others to use and borrow.

## Using an internet license

If your administrator provides you with a registration token, you can activate Analyst's Notebook 10 with an *internet license*. Like [network licenses](#), internet licenses are managed as a pool. They don't require a local server, but they do require a permanent internet connection.

After an Analyst's Notebook installation has obtained a license from an internet license server, it stays in contact with it and reconnects automatically on future occasions. If the server has no licenses available when you start Analyst's Notebook, you must choose an alternative activation method.

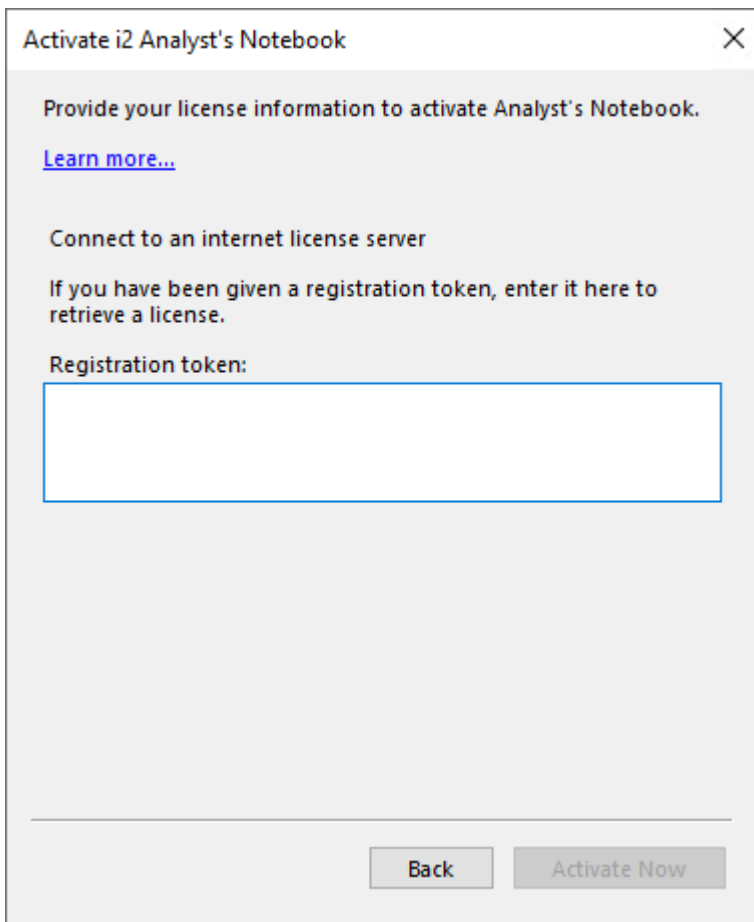
### Activation through an internet license server

To use an internet license, your workstation needs a connection to the internet, and you need a registration token. Then, to activate Analyst's Notebook 10:

1. Open the application. If it doesn't find a valid license, the application displays the Activate i2 Analyst's Notebook dialog.

**Note:** If the dialog does not appear, you can open it by clicking **Activate** in the **Activation required** banner.

2. Click **Connect to an internet license server**. The contents of the dialog change to reflect your choice:



Activate i2 Analyst's Notebook

Provide your license information to activate Analyst's Notebook.

[Learn more...](#)

Connect to an internet license server

If you have been given a registration token, enter it here to retrieve a license.

Registration token:

3. Paste the [registration token](#) that your administrator provided into the **Registration token** field.
4. Click **Activate Now**.

The application connects to the internet license server. Provided that there are licenses available in its pool, the server allocates one to Analyst's Notebook. The application must retain a connection to the internet server for as long as it's in use.

## Licensing for administrators

When you purchase i2 software that includes Analyst's Notebook 10, you receive an *entitlement* for a number of licenses. When you *activate* that entitlement, you specify what kind of licenses you want them to be. You can activate portions of your entitlement at any time, creating licenses of any type, until your entitlement is used up.

**Note:** Activating your entitlement to *create* licenses is distinct from what users do when they "activate" Analyst's Notebook by providing it with a license.

To activate an Analyst's Notebook entitlement, and to manage the licenses that you create, you use the [i2 Entitlement Management System \(EMS\) portal](#). If your organization will use network licenses, you'll also need to install Thales' License Manager software on your network.

## Standalone licenses

The simplest i2 software license is a file that's stored on the same workstation as the Analyst's Notebook installation. These *standalone licenses* are locked to a particular workstation through a hardware identifier that's added to the license at creation.

A user configures Analyst's Notebook with a standalone license by [supplying it with a license key or a license file](#) that you give them. After they do so, the workstation doesn't require a network or an internet connection for Analyst's Notebook to remain correctly licensed.

Every time a standalone license is created, it counts as a single activation of your total entitlement. There are two ways to create a standalone license, depending on whether the target workstation has an internet connection.

**Important:** Standalone licenses are not compatible with workstations running Remote Desktop Services. You must configure [network](#) or [internet](#) licensing for Analyst's Notebook users on any such workstations.

### Automatic creation

To create a standalone license for an installation of Analyst's Notebook 10 on a workstation that has an internet connection, you just have to give the identifier for your entitlement to its user.

When the user supplies the EID to Analyst's Notebook as a license key, the software automatically sends the entitlement and hardware identifiers to the Sentinel EMS server. The server then uses the information to activate a part of your entitlement, and sends a license file back to Analyst's Notebook.

**Note:** *Analyst's Notebook* must have access to the Sentinel EMS server. If your organization controls internet connections on a per-application basis, you need to allow it to reach <https://i2group.prod.sentinelcloud.com>.

### Manual creation

When Analyst's Notebook is installed on a workstation that doesn't have an internet connection, its user will copy the necessary hardware identifier (the *locking code*) and send it to you. You can then use the locking code and the EID to create the license on their behalf.

## Creating a standalone license

To create a standalone license for an installation of Analyst's Notebook 10 on a workstation that isn't connected to the internet, use the i2 Entitlement Management System (EMS) portal. You must provide the portal with a locking code from the unconnected workstation.

**Note:** An Analyst's Notebook user can retrieve the necessary locking code by following the instructions for [activation with a license file](#).

1. On a workstation that has an internet connection, navigate to the [i2 EMS portal](#). You'll see a login page that's similar to this one:

The screenshot shows the i2 Entitlement Management System login interface. At the top left is the i2 logo, followed by the text 'Entitlement Management System'. Below this is a navigation bar with two tabs: 'EID' and 'Email'. The 'Email' tab is currently selected. Underneath the navigation bar are two input fields: 'Email Address' and 'Password'. Below the password field is a link that says 'Forgot Password?'. At the bottom of the form is a large blue button labeled 'Log In'.

Copyright © 2009-2023 THALES. All rights reserved.

2. Log in using the email address that's associated with your purchase of i2 software.

**Note:** If you haven't logged in before, you won't have a password. Click the **Forgot Password?** link and follow the steps to get a new, temporary one.

When you log in successfully, the portal displays information about your entitlement, including the products that it covers and the number of times you can activate each product.

3. Click the **Activate** button that corresponds to Analyst's Notebook 10.

The portal prompts you for the variant (that is, the type of license) that you want to activate, and the number of activations you want to do.

4. Select the **Standalone** variant. The number of activations is automatically set to one, and the portal now prompts for the locking code that Analyst's Notebook displayed, like this:



Specify Locking Criteria

Client 1 Criteria: **Disk ID**

\* Client 1 Value:

5. Paste the locking code into the empty field and click **Complete Activation**.

The portal displays the license file that you just generated, together with options to send it by email or save it to local storage.

6. Provide the the license file to the user who supplied the locking code so that they can activate their software.

If you ever need to revoke or otherwise modify an activation that you performed through this procedure, contact i2 for assistance.

## Network licenses

If your i2 Analyst's Notebook users have workstations that are usually connected to a network, you can configure a computer on that network to manage licenses and provide them to users dynamically. Network licenses offer more flexibility than standalone licenses.

For example, if you activate your entitlement to create ten network licenses, then each installation of Analyst's Notebook that's configured to use a network license consumes one while it's running, but releases it when it's not. You'll see a problem only if more than ten users try to use a network license at the same time.

If a user knows that they'll need to use Analyst's Notebook when they're not connected to the network, they can [borrow a license](#) for a fixed period, and return it when they reconnect. A borrowed license reduces the allowed number of concurrent network users for the period of the lease.

### License Manager

The computer that manages network licenses runs [Sentinel RMS License Manager](#). There are versions of this software for the Windows and Linux operating systems.

The computer must also be on the same network as the workstations that run Analyst's Notebook. However, the software does not require dedicated server hardware, and you can run it on one of the Analyst's Notebook workstations if you want to.

The topics in this part of the documentation describe how to install the License Manager software, and then how to create and manage network licenses for your users.

## Installing License Manager

For your Analyst's Notebook 10 users to benefit from network licensing, you must install Thales' Sentinel RMS License Manager software on a computer on the network they share. Users can then configure Analyst's Notebook to use network licenses instead of standalone or internet licenses.

i2 provides License Manager as part of the download package that also contains Analyst's Notebook.

**Note:** These instructions describe the simple installation and configuration of the software. For more information, see the [Sentinel RMS License Manager](#) documentation.

The License Manager software is available in platform-specific subdirectories of the Entitlement Management\Server directory. To install it and prepare it for use:

- **On Windows**, run setup.exe for the License Manager. Accept all the default options, including any advice to modify the system firewall settings.

The install configures the software as a Windows service and starts it. You can decide [whether the service starts automatically](#) in future.

- **On Linux**, you can place the License Manager executable (lserver) at any desired location. For more information, see Thales' [License Manager installation](#) documentation.

License Manager must be able to receive incoming UDP connections from Analyst's Notebook workstations on port 5093. On Windows, the installer can open that port in the firewall automatically. On Linux, you might need to open it yourself.

Regardless of whether License Manager itself is running on Windows or Linux, the easiest way to interact with it is through a Windows application:

1. On a Windows workstation (which can be the same computer where you installed License Manager), run the supplied WlmAdmin.exe utility from the Entitlement Management\Utils\Windows directory

The computer that's running License Manager appears in the list of **Subnet Servers**, but its list of "features" (that is, licenses) is empty:



**Note:** The WlmAdmin utility provides a range of functions for administering License Manager deployments. For complete information, see the documentation on the [Thales website](#).

At this point, you can see that License Manager is operating correctly. Next, you need to [create the network licenses for it to manage](#).

## Activating an entitlement for network licenses

The role of the License Manager software is to manage network licenses that you create by activating some or all of your Analyst's Notebook entitlement. To get those licenses to License Manager, you download them in a file from the i2 EMS portal.

In the same way that a [standalone license](#) is locked to an Analyst's Notebook workstation, network licenses are locked to the computer that runs License Manager. Therefore, before you can create network licenses, you must retrieve the hardware identifier of the host computer.

If License Manager is running on an Analyst's Notebook workstation, you can [use Analyst's Notebook to discover the hardware identifier](#). If not, you can use a utility named echoid.

1. Locate [the echoid \(or echoid64\) utility](#) and its accompanying echoid.dat file in the Entitlement Management\Utils\

**Important:** echoid can be configured to display the hardware identifier in a number of different ways. The supplied echoid.dat file contains settings to produce the locking code that you need.

2. Copy the two files to the computer that's running License Manager. Then, on that computer, open a command prompt and navigate to the directory that contains the copied files.
3. Run echoid from the command line. The utility displays the locking code:

```
Sentinel RMS Development Kit 10.1.0.31 Host Locking Code Information
Utility
Copyright (C) 2023 THALES
All Rights Reserved.
```

```
Locking Code 1      : 4-*16X 66QD 9UPR VGJX
```

**Important:** If the displayed locking code does not have a 4- prefix, verify that you ran echoid from inside the directory that contains it, and that the echoid.dat file is alongside it.

When you use the locking code in the i2 EMS portal, you drop the 4- prefix and remove the spaces. In this example, the code to use would be \*16X66QD9UPRVGJX.

Next, to activate an entitlement for network licenses, you log on to the i2 EMS portal and use the locking code from your License Manager to generate a license file.

1. The first part of the procedure is the same as the one for [generating a standalone license file](#). Follow those instructions as far as clicking **Activate** in the portal.
2. To specify that some of your entitlement should take the form of network licenses, choose the **Network** license variant and set the quantity to activate.

The portal now prompts for the locking code that you discovered with the echoid tool, like this:

▼ Specify Locking Criteria

Primary 1 Criteria: **Disk ID**

\* Primary 1 Value:

3. Paste the locking code into the empty field and click **Complete Activation**.

The portal displays the file containing network licenses that you just generated, together with options to send it by email or save it to local storage.

Now, you have the network licenses for License Manager to manage. The final step is to install the licenses on License Manager and invite your users to connect to it.

1. Open WlmAdmin.exe, select the computer that's running the License Manager from the **Subnet Servers** list, and click **Add Feature**:

×

Add Feature to

License String:  Add

Or

License File: Choose from File

2. Click **Choose from File**, and locate the file that you downloaded from the i2 EMS portal.

When you choose the file, a feature - that is, your licenses - is added to the License Manager. You'll see information similar to the following example:

**Feature:** i2.ANB 10.0.0

[Remove Feature](#)

Feature Information		Detailed Information													
Feature Name	i2.ANB	License Version	0x10000000												
Feature Version	10.0.0	VM Detection	Yes												
License Type	Normal	Enforce Clock Tampered	No												
Start Date	License has no start date.	Enforce License Exclusive	Exclusive license												
<table border="1"> <thead> <tr> <th>Statistics</th> <th>In Use</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Users</td> <td>0</td> <td>1</td> </tr> <tr> <td>Reserved</td> <td>0</td> <td>0</td> </tr> <tr> <td>Commuter</td> <td>0</td> <td>1</td> </tr> </tbody> </table>		Statistics	In Use	Total	Total Users	0	1	Reserved	0	0	Commuter	0	1	Allow License Commuting	Yes
Statistics	In Use	Total													
Total Users	0	1													
Reserved	0	0													
Commuter	0	1													
		Maximum Checkout Days (Commuter)	30												
		Grace Period	No												
		Collect Cloud Usage	No												
		Lease Deployment Mode	On-premise Served												
		Locking Type	Server-locked												
		Key Lifetime (Seconds)	300												
		License Holding Criteria	None												
		Sharing Criteria	No sharing												
		Soft User Limit	Unlimited												
		Standalone License	No												

After you add the feature, the **Statistics** panel provides information about the number of network licenses in the pool, as well as how they're being used. For more information, see [Managing network licenses](#).

### Using a network license in i2 Analyst's Notebook

At this stage, License Manager is ready to provide licenses to Analyst's Notebook users. They can start Analyst's Notebook 10 from workstations on the same network as License Manager, and then follow the instructions for [using a network license](#).

If you have administrative control over a workstation, you can configure Analyst's Notebook to connect to License Manager and retrieve a license automatically, without user intervention. Doing so means [Installing Analyst's Notebook from the command line](#).

In this case, you need to use the I2LIC\_SERVERS option when you run the msiexec command to install Analyst's Notebook, like this:

```
msiexec /i "i2 Analyst's Notebook 10.msi" I2LIC_SERVERS=<IP Address>
```

Here, <IP Address> is the address on the local network of the computer that's running License Manager.

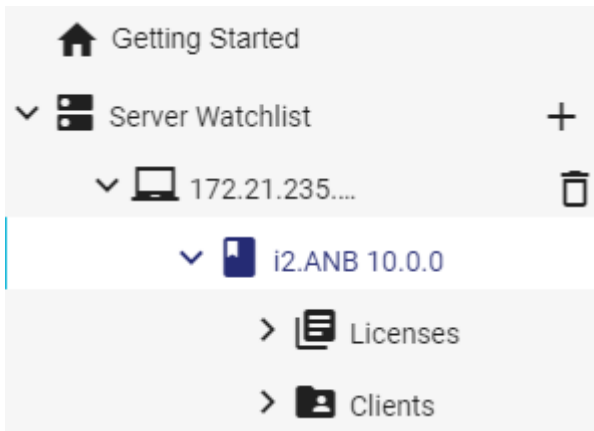
With this setting in place, and provided that License Manager has licenses available, Analyst's Notebook users don't need to configure licensing for themselves. However, they can still take advantage of [borrowed licenses](#) if they want to.

## Managing network licenses

As well as providing the means to [install a license file on the License Manager](#), the WlmAdmin tool enables you to see all your network licenses in one place, and to monitor their use. You can also use it to remove network licenses if you need to.

**Note:** For a complete description of WlmAdmin and its abilities, see the [Thales website](#). This documentation provides an overview of its main functions.

License Manager keeps track of the licenses in all the files you've installed, including how many there are in total, how many are in use, and who they're in use by. In WlmAdmin, that information is split across the server view on the left of the window, and the Statistics panel that appears on the right.



Each *feature* in the server view (**i2.ANB 10.0.0** in the example above) represents a group of licenses that the server is managing. Each file that you install adds features to the view, or licenses to any features that already exist. The view also shows which clients (if any) are consuming those licenses.

Statistics	In Use	Total
Total Users	0	1
Reserved	0	0
Commuter	0	1

In the Statistics panel, the **Total Users** and **Commuter** rows explain *how* licenses are being consumed:

- In the **Total Users** row, the **Total** column contains the number of network licenses being managed. The **In Use** column contains the number that are in use through live connections *or* through being borrowed.

If "In Use" equals "Total", then the server has no licenses to provide to new clients until an existing client releases one.

- In the **Commuter** row, the number in the **In Use** column counts the licenses that are being borrowed. The number in the **Total** column is the sum of the **In Use** value and the difference between the values in the **Total Users** row.

In other words, this **Total** is the number of network licenses that are either being borrowed or not in use at all.

When a user consumes a license by opening an installation of Analyst's Notebook that uses network licensing, **Total Users | In Use** increases, while **Commuter | Total** decreases. If they borrow that license, the **Total Users** row is unchanged, but both values in the **Commuter** row increase.

Returning a borrowed license and releasing a consumed license (by closing Analyst's Notebook) have the opposite effects.

## Internet licenses

For Analyst's Notebook workstations with a permanent internet connection, internet licenses offer some of the benefits of network licenses without requiring a local License Manager. Users can activate their software using a simple registration token, but consume licenses only when they're actually using the application.

Like network licenses, internet licenses are managed as a pool by a server - specifically, [RMS Cloud License Manager](#). To add licenses to the pool, you use the i2 EMS portal to activate them from your entitlement.

**Important:** Unlike network licenses, users cannot borrow internet licenses for offline use. Installations of Analyst's Notebook on workstations with intermittent internet connections should use one of the other license types.

## Activating an entitlement for internet licenses

Activating an entitlement so that Analyst's Notebook users can use licenses from an internet license server has two parts. You must set part of your entitlement to be used for this purpose, and then generate and distribute *registration tokens* to your users.

Both parts of the process use the i2 Entitlement Management System (EMS) portal. First, enable your entitlement to be used for internet licenses:

1. Navigate to the [i2 EMS portal](#) and log in using the email address that's associated with your purchase of i2 software.

**Note:** If you haven't logged in before, you won't have a password. Click the **Forgot Password?** link and follow the steps to get a new, temporary one.

In the portal, the **Entitlements** page contains information about your purchases, including what proportion of your entitlement you've activated so far and how much is still available for activation.

2. To specify that some of your entitlement should take the form of internet licenses, click **Activate**. Choose the **Internet** license variant, set the quantity to activate (that is, the number of licenses to add to the pool), and click **Complete Activation**.

Then, generate the registration tokens that users need for internet licensing:

1. In the i2 EMS portal, select **Access Management > Registration Tokens**, and then click **Add Registration Token**.

## Add Registration Token

▼ Define Attributes

\* Expiration Date:

Identifier:

\* Count:

The **Expiration Date** puts a limit on when users can use this registration token in Analyst's Notebook. The generated internet license then remains valid after the token expires.

The **Count** controls how many times this token can be used to create licenses for separate installations of Analyst's Notebook. You can give the same registration token to multiple users, subject to this limit.

**Important:** The settings on this page *do not* affect the entitlement that you activated. The activated quantity continues to govern how many simultaneous users of Analyst's Notebook with internet licenses there can be.

2. Provide Count and Expiration Date settings for the new token, and then click **Save**. The i2 EMS portal updates its list of registration tokens with the one that you just created.

**Note:** The expiration date that you set can be no more than 30 days in the future, but you can return to the token and extend the limit before it expires.

3. Provide the token to your Analyst's Notebook users, who can use it to acquire a license for their software through the [Connect to an internet license server](#) option.

When users begin to consume internet licenses, you can see information about them on the i2 EMS portal's **Sessions** page. If you need to, you can create more registration tokens - or change the terms of existing ones - back on the **Registration Tokens** page.