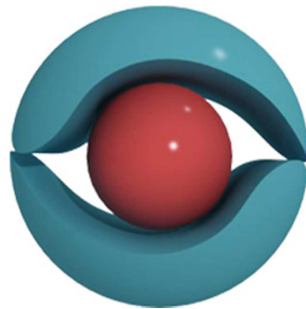


# AR-media™ Plugin v2.2

for Nemetschek Scia Engineer

## QUICK START GUIDE

(November, 2011)



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## 1. Introduction

This guide offers the quickest way to install and begin using the AR-media™ “Augmented Reality” Plugin for Nemetschek Scia Engineer (ARplugin) to create compelling Augmented Reality scenes. Although this guide assumes users have a basic knowledge of Nemetschek Scia Engineer, ARplugin can be used easily also by those who don’t have much experience with it. However, it is recommended that users consult other reference and tutorial resources eventually available. Please, feel free to move along the topic of interest without reading everything in this Guide.

## 2. Installing the ARplugin

The installation of the ARplugin can be done during the installation of Nemetschek Scia Engineer (please refer to the related documentation for this option) or at a later time by downloading the latest standard distribution of ARplugin. This package is recommended for new ARplugin users and includes an installer that guides you through the installation process. This standard distribution comes as an executable .exe file, which automatically determines the correct system settings for ARplugin. To download and install the ARplugin please follow the steps described hereunder:

1. Login into your user account here (you have to register if you do not have an account yet):  
[http://www.inglobetechnologies.com/sciaengineer\\_login.php](http://www.inglobetechnologies.com/sciaengineer_login.php)

2. Once logged in, download the full version of the software

**Note:** If more than one version is available, you can only download the software version that you have a license available for.

3. Once the download has completed, start the ARplugin installation by double-clicking on the installer file: ARPluginSetupPRO.exe (for the Professional Edition). This will launch the installer. Simply follow the steps to complete the installation process.

**Note:** You must have administrator privileges to install and configure the software

## 3. Activating your License

To activate your license, you need an internet connection available and also need to use the License Manager that comes with software. The procedure will take few seconds. Please follow the steps described hereunder to avoid activation problems:

1. Make sure to have an Internet connection active
2. Locate the “**ARplugin License Manager**” in the “ARplugin 2.2 (PRO) Scia Engineer” folder inside the Programs Menu

3. Launch the “**ARplugin License Manager**”. Once launched, a graphical interface will be prompted asking to generate a **Request ID** that you will need to use online to generate the **License ID** that you need to activate the software.

**Note:** Please, keep the “ARplugin License Manager” open during the whole activation process

4. Generate a **Request ID** and keep memory of it
5. Login into your user account here:  
  
[http://www.inglobetechnologies.com/sciaengineer\\_login.php](http://www.inglobetechnologies.com/sciaengineer_login.php)
6. Once logged in, locate and click the reference product slide bar
7. Locate the “Activation” button and click it;
8. Paste the **Request ID** that you have kept memory of earlier in the **Request ID** slot
9. Click “Continue” button. Once clicked the button, a new page with the “**License ID**” will be prompted
10. Copy the generated “License ID” and paste it in the License ID slot of your local License Manager

**Note:** Please, follow carefully the software instructions while activating the software

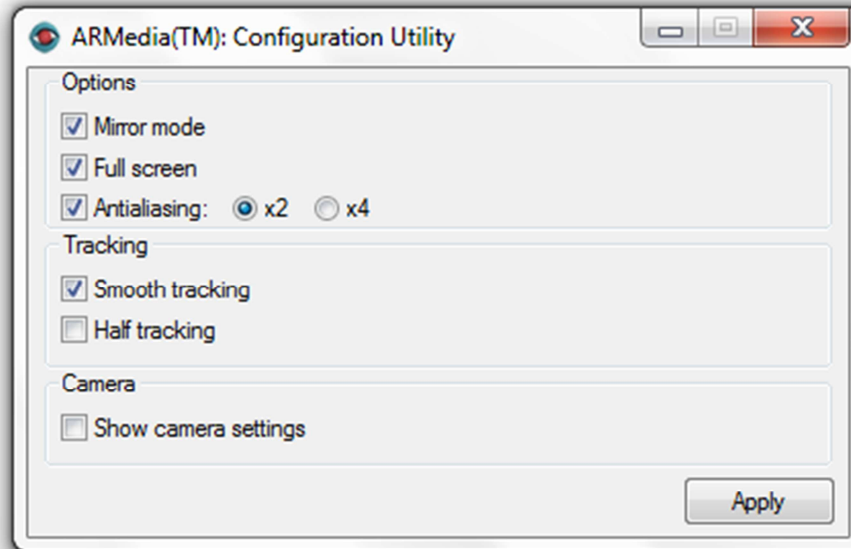
## 4. Getting Started

To create compelling Augmented Reality scenes using ARplugin for Nemetschek Scia Engineer, you can rely on a set of powerful features that you will learn to use easily. With the ARplugin you can quickly create augmented reality scenes out of your Scia Engineer 3D models in few steps. What does the ARplugin allow? The ARplugin allows to:

- Set-up some Global Preferences within the design and visualization sessions
- Create single marker scenes (by associating a single model to a single marker)
- Export for the AR-media™ Player
- Optimize tracking to the real lighting conditions

## 5. General Settings

By launching the **ARmedia Configuration Utility** in the ARmedia 2.2 folder in the Programs Menu, you can choose to set up some **global parameters** of your working environment that will affect your design session.



Enable the **“Mirror mode”** to flip the video stream horizontally (like in front of a mirror). This mode is suitable for cameras mounted in a fixed position and facing the user (like inbuilt cameras for example). If disabled the video stream will be not flipped. This other mode is suitable for head mounted displays as well as in those scenarios where the user can move the camera around.

Enable **“Full screen”** to run Augmented Reality in full screen rather than windowed mode.

Enable **“Antialiasing”** to smooth edges of your 3D models in the augmented reality views. The higher the multiplier the better your 3D models will appear but at the expense of frame rates. Video quality is not affected by this parameter.

Enable **“Smooth tracking”** to configure the tracker for using either a smooth or precise technique; if smooth tracking is enabled then objects will follow the marker in a soft manner and with a little delay, if smooth tracking is disabled then objects will be glued to the marker.

Enable **“Half tracking”** to configure the tracker for tracking a video with half the resolution of the video from the camera. This mode is useful especially when tracking high resolution images to improve the frame rate (but at the expense of a lower tracking quality).

Enable **“Show camera settings”** to adjust camera’s parameters before starting the Augmented Reality experience.

## 6. Creating your first Augmented Reality Scene

Creating an Augmented Reality scene with Scia Engineer has never been so simple. Please, follow the following steps to create your first augmented reality visualization:

1. Create or load any 3D model in Scia Engineer
2. Clean up the scene by deleting or hiding elements that you don’t want to visualize

**Note:** By default, the ARplugin will associate the 3D model in the work space to the standard ARmedia marker. You need to print the marker in order to visualize the AR scene. To print the marker

- open the “Markers” directory inside the “ARmedia 2.2 (PRO) Scia Engineer” folder in the Programs Menu
- open and print the file “Marker .pdf”

3. Click the “(Scia Engineer's main menu)->(Plugins)->ARMedia->View in AR” menu item to launch an Augmented Reality view of the model

**Note:** You need to plug-in your webcam in order to view the Augmented Reality scene.

## 7. Interacting with your AR Scene

During the viewer execution, you can switch between different management modalities using the function keys: each one permits you to adjust different parameters and interact with the AR scene in real-time. You can bring up an on-screen help which contains all the supported commands for the current active mode by hitting the ‘h’ key at any time.

The following sections will offer a brief description of how to perform some of the available operations.

### Flipping the Video Frame

This is especially useful when you want to adjust to different camera and monitor configurations like in-built webcams and projectors (which are sometimes set up to flip the image output vertically).

1. Press the **F1** key to enter the *Visualization Management Mode*
2. Use the arrow keys to flip the video horizontally or vertically

### Toggling between full screen and windowed frame

1. Press the **F1** key to enter the *Visualization Management Mode*
2. Press the **F** key to enter windowed or full screen mode.
3. Press the **F** key again to go back to the previous mode.

### Visualizing wireframes

1. Press the **F1** key to enter the *Visualization Management Mode*
2. Press the **W** key to show your 3D models in wireframe.
3. Press the **W** key again to restore the default visualization of your models.

### Scaling the 3D model

You can emphasize the details of 3D objects or adjusting the overall size of the model by scaling it up or down.

1. Press the **F2** key to enter the *Objects/Scene Interactions Mode*
2. Use the **s/S** keys to respectively scale the model down and up.
1. Press the **SHIFT+U** key to show all layers again

### Sectioning 3D objects

1. Press the **F6** key to enter the *Clipping Management Mode*
2. Press the **Return/Enter** key to enable *Clipping mode*
3. Select one of the clipping plane by pressing the **CTRL+(1..6)** keys
4. Use the **down** and **up** keys to move the selected clipping plane respectively away and towards the marker
5. Use the **left** and **right** keys to rotate the selected clipping plane respectively clockwise and counter-clockwise with respect to the marker's center.
6. Press the **Return/Enter** key again to disable *Clipping mode*

### Increase tracking performances

Two parameter must be taken into account when improving tracking performances: objects' stickiness and jittering: the higher the first factor is, the more all the objects will strictly follow the markers' movements (even the ones that are due to the camera adjustments to the lighting conditions). This may result in 3D objects which appear unstable, thus causing a jittering effect.

ARPlugin permits you to adjust what is called the *Smoothing effect*: the higher this value is, the more the jittering will be reduced (3D objects will tend to remain to their position despite marker movements).

1. Press the **F7** key to enter the *Tracking Management Mode*
2. Use the up/down arrow keys to respectively increase objects' stickiness to the marker and reduce objects' jittering

## 8. Adapting to Environmental Lighting conditions (Lighting Debug Mode)

It may happen that default parameter settings are not suitable to real environmental lighting conditions thus impeding the correct visualization of the Augmented Reality scene. The **Lighting Debug Mode** allows you to adjust tracking responsivity as a function of real lighting conditions by modifying a **lighting threshold parameter**. Modifying the lighting threshold will allow you to recognize the marker even in bad lighting conditions (too dark or too lit environments) and it is useful if used in combination with the lighting debug mode. To adjust the lighting threshold use the "+" and "-" keys:

- Key "**d**" to toggle to Lighting Debug Mode
- Key "**+**" to increase the lighting threshold
- Key "**-**" to decrease the lighting threshold

## 9. Exporting your AR Scene

With ARplugin 2.2 Professional you can also create independent augmented reality files in the format `.armedia` that can be viewed independently with the free AR-media™ Player 2.2 on any computer without Arplugin and Scia Engineer installed. To export an augmented reality scene you just need to:

1. Create or load any 3D model in Scia Engineer

2. Clean up the scene by deleting or hiding elements that you don't want to visualize
3. Click the “(Scia Engineer's main menu)->(Plugins)->ARMedia->Export for AR” menu item to export the model

## 10. Viewing your AR Scene

ARplugin 2.2 provides users with different visualization options.

The first visualization option is accessible from the “**View in AR**” menu item. This action allows you to view all visible objects in Augmented Reality with just one click. Your camera will start and you will be able to view all the 3D objects in your scene on the printed “AR-media” marker (i.e. the default marker). To view your scene:

1. Click on the “**View in AR**” item in the “**ARMedia**” menu

The second visualization option is given by the possibility to open a previously generated/exported .armedia files with the ARplayer. To open an .armedia file:

1. If you don't have already installed it, first download and install the latest version of the AR-media™ Player from the website here:  
[http://www.inglobetechnologies.com/armedia\\_player.php](http://www.inglobetechnologies.com/armedia_player.php)
2. Double click on the .armedia file you want to visualize
3. Once clicked, the ARplayer will automatically open the file and the Augmented Reality experience will start.

## 11. Moving the License to another computer

You can move your license from a computer to another one whenever you like. You can do it by following few steps:

1. Be sure to have the full version of the ARplugin installed on every computer where you want to run it
2. Launch the **ARplugin License Manager** of the active ARplugin. You can locate it in the ARplugin 2.2 Folder in the Programs Menu
3. Once launched, the ARplugin License Manager interface will pop up.
4. Click the “**Release**” button to generate the **Release ID**. Copy the **Release ID** and keep memory of it.
4. Login into your user account here:  
[http://www.inglobetechnologies.com/sciaengineer\\_login.php](http://www.inglobetechnologies.com/sciaengineer_login.php)
5. Click on the product you want to move the license for

6. Click on the “**Release**” button. A new page will be prompted asking you to paste the **Release ID** generated in local using the ARplugin License Manager
7. Paste the **Release ID** generate using the License Manager in local in the **Release ID** slot and click “**Continue**”. This will make your license available again for a new activation
8. Repeat the activation procedure described in Section 3 of this Guide to activate the license on the new computer