AutoCAD Customisation

Configuration

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Introduction

This document provides information about the configuration of the Transport and Main Roads (TMR) AutoCAD customisation. Although every attempt has been made to allow this document to apply to any version of AutoCAD, there will be some version specific notes. These will be highlighted as they appear. Where this document refers to 'AutoCAD', please substitute AutoCAD, AutoCAD Map 3D or AutoCAD Civil 3D, as appropriate to your environment.

Network Drives

Although CADD Systems understands many of the benefits of a customisation sourced from a network drive including:

1. Common template file with pre-defined page setups;
2. Common PC3 files for plotting;
3. Easy updating of content.

We also recognise some of the pitfalls. These include:

1. Speed.
    a. Network locations tend to be slower to access than the local drive. This is likely to affect AutoCAD performance when using customisation options.
2. Shared folders.
    a. There are a couple of folders in the customisation that will become common access points for all users of a network based customisation and could cause trouble. These are:
        i. Automatic Save File Location;
        ii. Log File Location;
        iii. Plot and Publish Log File Location;
        iv. Temporary Drawing File Location;
        v. Temporary External Reference File Location;
    b. Files of the same name going into these locations from different sources could be a source for confusion and frustration.
3. Running the .NET plugins does not work for 2011 and earlier, and requires an AutoCAD configuration change for 2012 and later.
    a. The modification is fairly innocuous and only affects AutoCAD, but the implications may not be acceptable within IT policy.

Regarding the first issue, this is really up to your tolerance levels, and AutoCAD usage.

The second can be addressed by redefining the paths to local folders, or individual folders on network drives.

The third issue is more problematic. Please review Appendix A and determine whether the solution is acceptable.

Extraction

Transport and Main Roads have traditionally placed the AutoCAD customisation into 'C:\Apps\MR_CUST\ACAD' with a version specific folder below this. With this release, there are customisations that cover a range of AutoCAD versions as determined from the major version number employed by Autodesk.
For example:

- AutoCAD major version 18, covers AutoCAD 2010, 2011 and 2012
- Major version 19 covers AutoCAD 2013 and 2014,

- Major Version 20 applies to 2015.

  Major versions have historically changed every three AutoCAD releases.

The configuration tool (see below), enables the customisation to be extracted to any location and the required profile configured for that location.

Configuration

The customisation is configured through the "**TMR_Configure_ACAD.exe**" file in the root of the folder the customisation has been extracted to (e.g. C:\Apps\MR_CUST\ACAD\2010-2012\TMR_Configure_ACAD.exe).

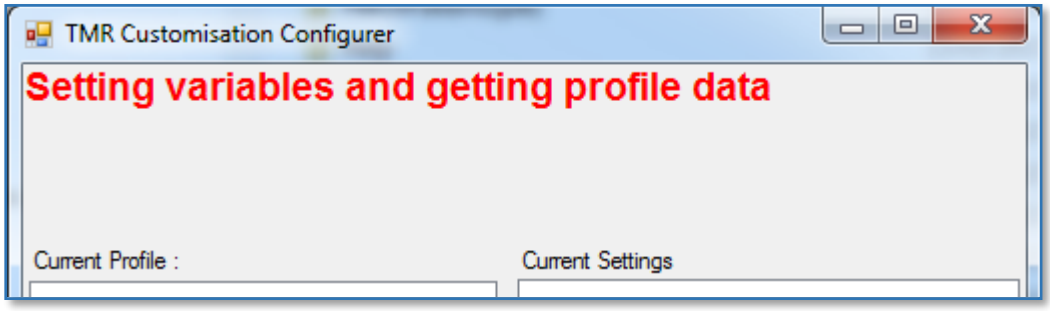
NOTE: If you are running TMR_Configure_ACAD.exe from a network server, you will receive an 'Open File – Security Warning' message. You will need to click Run.

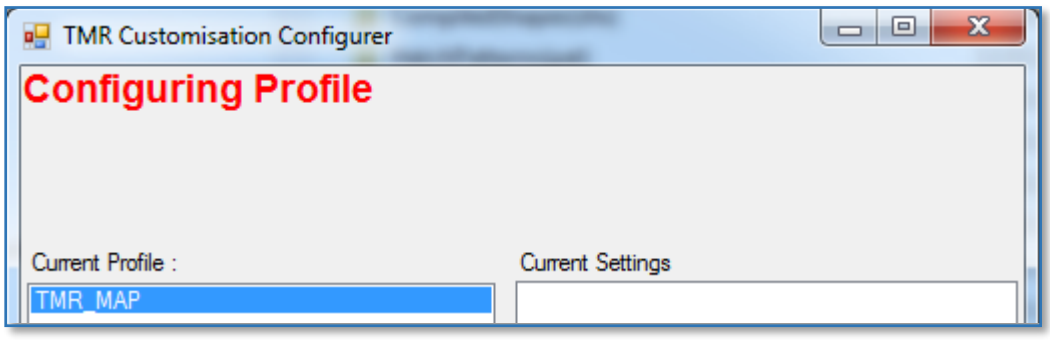
This executable can be run at any time to configure a new installation of AutoCAD, or to reset the profiles it creates. The 'TMR_ACAD' and 'TMR_MAP' profiles it creates are removed with each run.

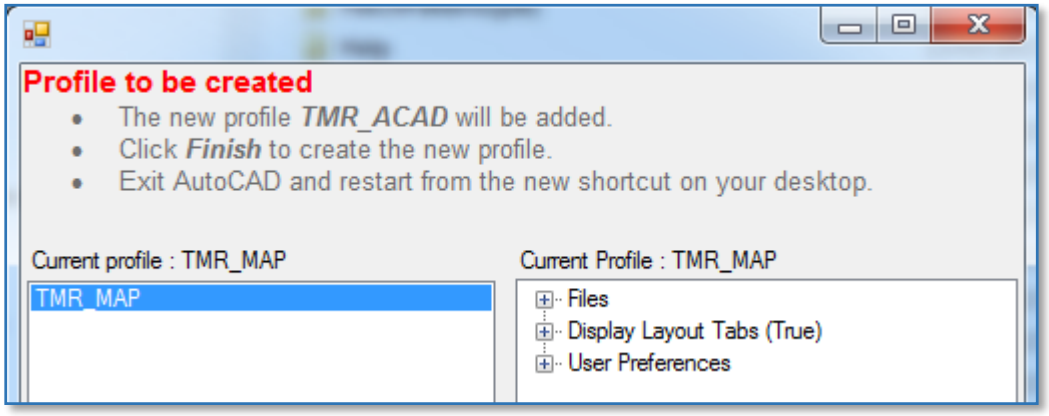
Create the TMR Profile

Please follow these steps:

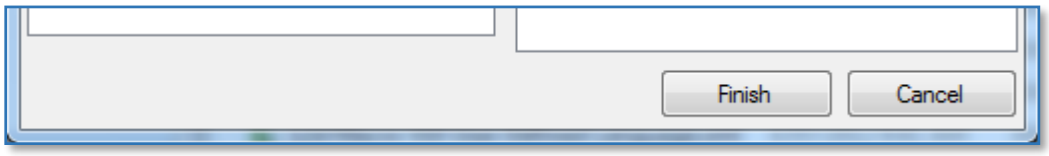
1. Start your version of AutoCAD (i.e. AutoCAD, Map 3D).
2. Once AutoCAD is fully loaded
   a. Make sure you have an open drawing.
   b. Run **TMR_Configure_ACAD.exe**;
   c. The 'Finish' button will be disabled and a series of messages will appear:



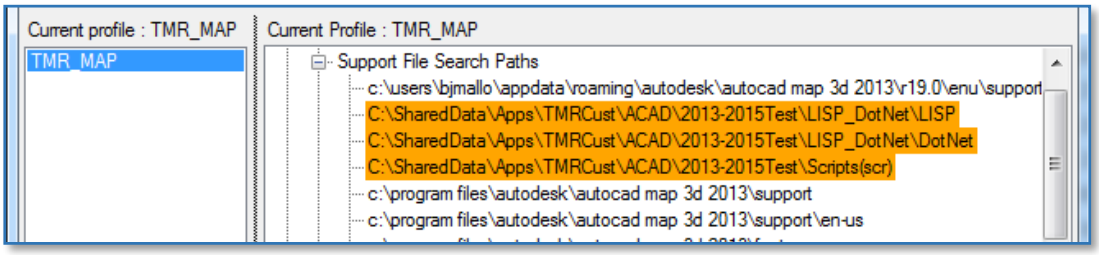




d. When ready, the 'Finish' button will be enabled again.

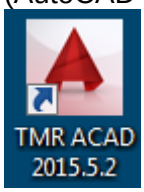


i. You can investigate the paths/settings that will be set by expanding the headings in the right hand box. New paths/settings will be highlighted in orange.



e. Click Finish to complete the configuration.
   i. You will notice the appearance of AutoCAD changes again as the profile is created and applied.
   ii. If you are configuring for a network location, you will receive a warning message about the '**TempDwgLocation**' folder. It will remain your choice to respond Yes or No. If you respond No, the original location should be retained.

3. You should now find a new shortcut on your desktop for the AutoCAD version you configured. (AutoCAD 2015 used as an example):



NOTE : AutoCAD 2014 and 2015 have added an entry to the Files tab in Options for **Trusted Paths**. CADD Systems has chosen to not put entries in this location and allow users to add them for themselves. We believe that this is more up-front and transparent.

The files that will trigger a message in AutoCAD 2014 are in the following table:

Path	File
LISP_DotNet\LISP	acaddoc.lsp
	TMRLISP.lsp
	System.lsp
	LoaddotNet.lsp
LISP_DotNet\DotNet\MRApps_General_Tools	MRApps.dll
LISP_DotNet\DotNet\BlockTree	BlockPalette.dll
LISP_DotNet\DotNet\PavementMarkingOverrules	Overrule_Examples.dll
LISP_DotNet\DotNet\CheckLayerStandards	ACADCheckStandardLayers.dll
LISP_DotNet\DotNet\CentroidCalc	TMR_Centroid.dll

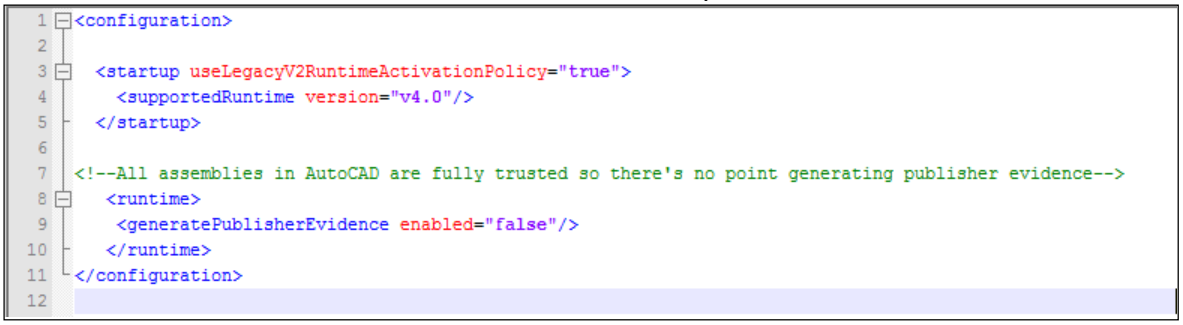
Appendix A – Network Configuration

By default, AutoCAD is configured to **NOT** load .NET assemblies hosted on 'remote' locations such as web servers and network drives.

This means that a number of customisation components will not load if the customisation is extracted to a file server, thereby causing many options to not work.

For versions of AutoCAD using .NET 4 (2012 or later) this can be overcome by modifying the **acad.exe.config** file found in the installation folder of your AutoCAD version (e.g. C:\Program Files\Autodesk\AutoCAD 2013; C:\Program Files\Autodesk\AutoCAD Map 3D 2013).

The standard file content varies between versions. An example for AutoCAD 2013 is below:

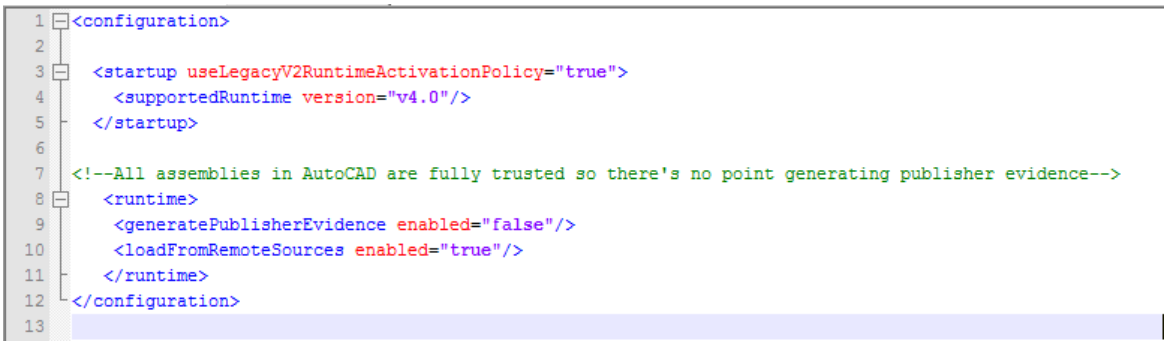


```
<configuration>

  <startup useLegacyV2RuntimeActivationPolicy="true">
    <supportedRuntime version="v4.0"/>
  </startup>

<!--All assemblies in AutoCAD are fully trusted so there's no point generating publisher evidence-->
   <runtime>
    <generatePublisherEvidence enabled="false"/>
   </runtime>
</configuration>
```

To allow .NET assemblys to be loaded into AutoCAD from 'remote' locations, you need to add the highlighted line to the **<runtime>** section of the file as shown below:

```
<runtime>
<generatePublisherEvidence enabled="false"/>
<loadFromRemoteSources enabled="true"/>
</runtime>
```

The file above now looks like this:



```
<configuration>

  <startup useLegacyV2RuntimeActivationPolicy="true">
    <supportedRuntime version="v4.0"/>
  </startup>

<!--All assemblies in AutoCAD are fully trusted so there's no point generating publisher evidence-->
   <runtime>
    <generatePublisherEvidence enabled="false"/>
    <loadFromRemoteSources enabled="true"/>
   </runtime>
</configuration>
```

Appendix B - Configuration Errors

Configuration errors may occur when attempting to create the ‘acaddoc.lsp’ and LoaddotNet.lsp files in the **LISP_dotNet\LISP** folder of the customisation.

As indicated by the messages you will receive, this is mostly because you haven’t been granted permission to create the files. If you can create other files in this folder, it is most likely that your virus scanner is configured to block the creation of an acaddoc.lsp file.

This situation is usually caused by an organisation being affected by malicious versions of either an ‘acad.lsp’ or ‘acaddoc.lsp’ file.

CADD Systems uses the acaddoc.lsp and system.lsp files because they are automatically loaded by AuotCAD whenever a drawing is opened or created and don’t normally require any user interaction to get them to work.

For system administrators concerned about exposure to malicious content, an explanation of the files and there content is below.

LISP Files

The configuration tool will look for an existing **acad**<*version*>**doc.lsp** file (e.g. acad2010doc.lsp) in the users Support folder (e.g. C:\Users\<username>\AppData\Roaming\Autodesk\AutoCAD Map 3D 2010\R18.0\enu\Support).

If the file exists, the contents are gathered and the following three lines are added and saved to an ‘acaddoc.lsp’ file in the LISP folder.

Otherwise only these three lines will appear in the file:

```
(load "TMRLISP.lsp")
(load "LoaddotNet.lsp")
(command "bp")
```

The TMRLISP.lsp file is a text file and can be investigated for malicious content if desired. CADD Systems certify that the file we supply only contains code relevant to customisation functions.

An additional dependency file is the ‘system.lsp’ file supplied in the LISP folder.

The ‘LoaddotNet.lsp’ is built by the configuration tool. This is to ensure that the file paths are correct. An example of the content is below:

```
;; Main customisation tools.  Could do with some separation.  Will happen over time.
;; Commands include 'ET' (Enter Text), 'MLA' (Merge Layers), 'RAPL' (Read MX APL File), 'GTN'
(Geotechnical Notes),
;; 'CLS' (Layer Compliance Checker), 'SAS' (Select A Sign)
(command "netload" "C:\\Apps\\MR_CUST\\ACAD\\2013-
2014\\LISP_DotNet\\DotNet\\MRApps_General_Tools\\MRApps.dll")

;; Block Palette.  Currently launched using 'BP' command.
```

(command "netload" "C:\\Apps\\MR_CUST\\ACAD\\2013-2014\\LISP_DotNet\\DotNet\\BlockTree\\BlockPalette.dll")

;; Pavement marking overrules that enable pavement marking line types to draw correctly despite zoom level.
;; Commands are : 'ORON' (OverRules ON) and 'OROF' (OverRules OFf)
(command "netload" "C:\\Apps\\MR_CUST\\ACAD\\2013-2014\\LISP_DotNet\\DotNet\\PavementMarkingOverrules\\Overrule_Examples.dll")

;; Check that standard layers have the settings they're supposed to.
(command "netload" "C:\\Apps\\MR_CUST\\ACAD\\2013-2014\\LISP_DotNet\\DotNet\\CheckLayerStandards\\ACADCheckStandardLayers.dll")

The comments describe the functionality provided by the plugins that are loaded by this LISP file. These are .NET plugins. Again, CADD Systems certify that, as supplied, these plugins only support customisation functionality.

To resolve this issue, you have a few options:

1. Temporarily disable your virus scanner if you are able to. This should allow the creation of the files in the LISP folder.
2. Get a relaxation on the acaddoc.lsp and LoaddotNet.lsp files in the LISP folder.
3. Add a file to the ‘Startup Suite’ via APPLOAD:
    a. Create a file of any name with a .lsp extension (e.g. safe_acaddoc.lsp) in the LISP folder, enter the three lines of code and add it to the ‘Startup Suite’ via the APPLOAD command.
    b. If you also have to create the LoaddotNet.lsp, copy the content from the previous page. You do not need to add this file to the Startup Suite.

The main aim is to get all the TMR functions loaded so that they can be used.

The note on Page 5 regarding 2014 and Trusted Paths still holds true.